LEAGUE OF NATIONS

ORGANISATION FOR COMMUNICATIONS AND TRANSIT

NATIONAL PUBLIC WORKS

ADDENDUM

GENEVA, 1935

Publications of the Communications and Transit Section

PUBLIC WORKS

Just out

ENQUIRY ON NATIONAL PUBLIC WORKS (Ser. L.o.N.P.1934.VIII.8) . . . 12/- $3.00

In September 1933 the Council of the League of Nations came to the conclusion that a continuous international study of general questions relating to public works, including big programmes of work financed out of national resources, would be of great value as it would permit a comparison of the experience acquired in the different countries in regard to the effects of the execution of public works on the resumption of economic activity and on unemployment. The Council was therefore of opinion that the collection of the necessary preparatory information should be at once proceeded with.

The report adopted by the Assembly in 1933 expressed similar views. It suggested that such information would be particularly useful in order to enable Governments to judge of the possibility and desirability of pursuing, in present circumstances, a policy of carrying out programmes of public works on parallel lines. In the period of distress through which the world is now passing, this question cannot fail to be of particular interest to both public opinion and Governments in most countries.

In compliance with the wishes of the Council and Assembly, the Secretary-General has asked the Governments to send him the information required.

With the exception of some minor details, these replies are reproduced in full. It is hoped that the particulars supplied will enable Governments to decide whether it will be possible for them to co-ordinate the policies which they are severally pursuing in this matter.

Published previously

CIRCULAR CONCERNING PROGRAMMES OF IMPORTANT PUBLIC WORKS (Ser. L.o.N. P.1931.VIII.16). 4 pp. 6*d*. $0.15

COMMITTEE OF ENQUIRY ON QUESTIONS RELATING TO PUBLIC WORKS AND NATIONAL TECHNICAL EQUIPMENT. Report on the First Two Sessions of the Committee (Ser. L.o.N. P. 1932.VIII.2). 5 pp. 6*d*. $0.15

— —. Report on the Third Session of the Committee (C.646.M.323.1932. VIII). (Ser. L.o.N. P. 1932.VIII.5). 5 pp. 6*d*. $0.15

This report, which is supplementary to that on the first and second sessions of the Committee, embodies the results arrived at by the Committee at its third session, when it examined the schemes of public works on which it had been unable to reach a decision at its second session, and those submitted to it since then.

This report, like the previous report, has been submitted to the Council of the League of Nations.

— —. Report on the Fourth Session of the Committee (Ser. L.o.N. P. 1933. VIII.1). 3 pp. 6*d*. $0.15

INTERNATIONAL QUESTIONS RELATING TO PUBLIC WORKS. REPORT submitted to the Monetary and Economic Conference by the League of Nations Committee of Enquiry on Questions relating to Public Works and National Technical Equipment of the Organisation for Communications and Transit (Ser. L.o.N. P. 1933.II.Spec.3). 8 pp. 6*d*. $0.15

NATIONAL PUBLIC WORKS (Ser. L.o.N. P. 1934.VIII.7). 8 pp. 6*d*. $0.15

[Communicated to the Council and the Members of the League.]

Official No. : **C.482.M.209.**1934.VIII.
Addendum.

Geneva, April 30th, 1935.

LEAGUE OF NATIONS

ORGANISATION FOR COMMUNICATIONS AND TRANSIT

ENQUIRY

ON

NATIONAL PUBLIC WORKS

ADDENDUM

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CONTENTS.

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INTRODUCTION.

It was stated in the Introduction to the volume entitled " National Public Works " (document C.482.M.209.1934.VIII) that the replies from Governments to the Circular Letter of March 7th, 1934, concerning national public works, which reached the Secretariat after the publication of that volume, would appear in an addendum. The present volume contains these replies, which have been received from the Governments of the Union of South Africa, Australia, Chile, China, Denmark, Egypt, Ethiopia, France, Hungary, India, Irish Free State, Poland, the United States of America, Sweden.

Of the replies given in this second series, those from the Union of South Africa, Australia, Denmark, France and the United States of America contain information additional to that already supplied and published in the first volume.

As in the first volume, the replies from the Governments mentioned are, in general, reproduced in full; but certain details or particulars of a purely local character have been omitted where the reply was too long to permit of its publication *in toto*. The printed documents which accompanied some of the replies have, in general, not been reproduced; but extracts have been made from them where the subject, matter appeared to come more specifically within the scope of the enquiry.

An index precedes the replies from the Governments; it enumerates, under the heading of each category of work mentioned in the annex to the Circular Letter, the countries whose replies deal directly with the work falling into these categories. The index includes only the documentation reproduced in the present volume. A list of the documents annexed to the replies which have not been published or of which only extracts have been reproduced will be found at the end of this volume. These documents are kept in the archives of the Secretariat and their contents can be supplied to Governments upon request.

* * *

For the convenience of the reader, the Circular Letter of March 7th, 1934, in which the Secretary-General of the League of Nations asked the Governments for information concerning national public works in their countries is reproduced below.

I. A brief description of the main public works :

(a) Undertaken since the beginning of the year 1929 and now completed;

(b) Now in course of execution;

(c) The execution of which is at present in contemplation or schemes for which are in preparation.

The term " public works " is intended to include the various categories of work mentioned in the list annexed to the present circular, and the public works described should, as far as possible, be classified according to the categories shown in that list.

II. The principal administrative methods followed or contemplated for the execution of the work referred to in I, and any legal provisions relating to such work.

(Has the work in question been carried out, or is it being, or to be, carried out on behalf of or by the order of a central, regional or local or other authority, or on behalf of a company holding a concession from public services, or on behalf of private persons receiving a grant from the public authorities? Is such work being carried out directly by the authorities, or by contract, etc.?)

III. The principal methods employed for financing such work.

(Is the expenditure on the work charged to the ordinary or the extraordinary budget of the State, the budget of regional or local administrations, the budgets of public bodies, etc., or is it financed by an internal or external loan? Security of such loans; plans of repayment, etc.)

IV. An estimate, as far as is possible, of the allocation of expenditure on the execution of the public works referred to in I, as between materials and equipment provided by national or foreign industries, on the one hand, and labour—that is to say, wages and miscellaneous social expenditure—on the other.

V. The Government's opinion with regard to the effects obtained or expected from the execution of the public works referred to in I on the resumption of economic and industrial activities and on unemployment.

Governments are requested to forward their replies, and any documentation annexed thereto, in triplicate.

CLASSIFICATION OF PUBLIC WORKS BY CATEGORIES.

(a) Roads and bridges.

(b) Railway lines, including tramways, metropolitan railways, etc. (If possible, mention the more important construction works separately.)

(c) Complete agricultural land reclamation (drainage, irrigation, construction of dwelling-houses and various new buildings, or establishment of entire new settlements, country roads and other works connected with land settlement).

(d) Canals and other inland waterways (including improvement work on rivers, defensive work against floods, etc.). (Work not already included under *(c)*.)

(e) Land improvement work, bringing of new land under cultivation, re-afforestation, etc. (Work not already included under *(c)*.)

(f) Provision of drinking-water supplies and sewage disposal. (Work not already included under *(c)*.)

(g) Work carried out in sea and river ports, including mechanical equipment of such ports.

(h) Work for the establishment of air ports.

(i) Building and construction work forming part of a general plan and carried out (or to be carried out) with the participation or approval of public authorities, classified according to category (administrative buildings, dwelling-houses, etc.). (Work not already included under *(c)*.)

(j) Electric installations, hydro-electric and heating power centres, motive-power transmission.

(k) Gasworks and long-distance gas supply.

(l) Telegraph and telephone installations, wireless broadcasting stations.

(m) Other work.

INDEX.

AUSTRALIA[1]

DEPARTMENT OF THE INTERIOR

Commonwealth Public Works Section.

I.

The activities of the Public Works and Services Section of the Department of the Interior cover the construction of buildings and engineering works and the repair and maintenance of buildings and engineering works required in connection with Commonwealth Services in the various States and at the Federal capital, comprising :

Postmaster-General's Department.

Construction of post offices, telephone exchanges, broadcasting stations, installation of mail-handling plant in G.P.O. buildings (Melbourne and Sydney), air-conditioning plant in automatic telephone exchanges, but not including telephone equipment, workshop and store buildings, etc.

Defence Department.

Drill halls, barracks, mobilisation stores, explosives stores, aerodromes, hangars, stores, workshop buildings, barracks and residences for Royal Australian Air Force establishments, night-lighting equipment on civil aviation air routes and terminals in capital cities; factories for manufacture and testing of munitions; fuel-oil storage depots for the Royal Australian Navy; also barrack buildings, etc., for training and victualling depots, including wharf and harbour works as required.

Associated with the foregoing are the incidental engineering works such as water supply, sewerage, electric supply, roads, drainage, etc.

Health Department.

Quarantine stations, buildings for serum laboratories, institutes of tropical medicine, health laboratories, etc.

Commerce Department.

Quarters and buildings, including wharves and store buildings, for the lighthouse service, but not including the construction of lighthouses or installation of equipment.

Repatriation Department.

Construction of hospitals, etc., installation of heating, hot water and certain medical equipment, etc.

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[1] Information additional to the reply previously sent by this Government and published in the first volume.

Department of Interior.

Commonwealth office buildings as required in various States.

Federal Capital Territory.

Construction of buildings required in connection with the establishment and the development of the Federal capital, including parliamentary buildings, offices, police station, court-house, hospital, hotels, Australian Institute of Anatomy, Australian war memorial, laboratories for plant industry and entomological divisions of the Council for Scientific and Industrial Research, schools, swimming-baths, housing schemes, workshops, brickworks, etc., water supply, sewerage and drainage schemes, electric supply, roads, bridges and other civic facilities.

Northern Territory.

Construction of administrative buildings, police stations, hospitals, houses, etc.; improvements to stock routes and roads throughout the territory; maintenance and development of water supplies on stock routes, comprising boring, well-sinking and equipping with windmills or engines, and storage.

* * *

The works carried out in the States by this Department (Works and Services Section) cannot be readily classified into the categories named; for instance, most of the establishments erected comprise categories such as :

(a) Roads and bridges;
(b) Drinking-water supplies and sewage disposal;
(c) Electric installations, etc.

But the schemes are purely local and confined to Commonwealth establishments. Roads would be mostly in the nature of access and internal roads. Water, sewerage and electric supply services are usually connected with larger schemes financed by State Governments or municipalities, and it is only in a few cases where such schemes are not available that special supply schemes are installed for Commonwealth purposes, and in any event these are of a minor character as compared with the class of work covered by the enquiry.

The following categories cover the important phases of this Department's work, and the expenditure over the past six financial years on the new works, additions and alterations, not including repair and maintenance services, was :

POSTMASTER-GENERAL'S DEPARTMENT.

(a) *Works carried out.*

Year	£	Nature of work
1928-29 ...	215,486	Approximately 50 new post offices and telephone exchanges;
1929-30 ...	251,418	Approximately 10 new post offices and exchanges and additions of a major character;
1930-31 ...	34,805	Approximately 7 new post offices and exchanges (including 3 broadcasting stations);
1931-32 ...	10,017	Approximately 9 new post offices and exchanges (including 2 broadcasting stations);
1932-33 ...	6,495	Approximately 12 new post offices and exchanges (including 1 broadcasting station);
1933-34 ...	14,287	
Total...	£532,508	

(b) *Works in Hand and to be undertaken during* 1934-35 (£182,000).

The outstanding work completed during the period (but previously undertaken) was the remodelling of the Sydney General Post Office and the installation of mail-handling plant, which cost over £500,000.

Several automatic telephone exchanges were also completed and 6 regional broadcasting stations.

The programme of works now in hand comprises some 18 post office and telephone exchanges (including an £80,000 building in Melbourne), 6 further regional broadcasting stations and a cable station for Tasmanian service.

DEFENCE DEPARTMENT.

Military Works.

Year	£
1928-29	33,013
1929-30	20,204
1930-31	730
1931-32	534
1932-33	4,040
1933-34	11,788
Total...	£70,309

This expenditure covers the completion of explosives stores, various drill halls, new buildings and additions in the capital cities, sea-walls to safeguard forts at Nepean and Port Phillip Heads, etc.

The programme for 1934-35 now being placed in hand covers an estimated expenditure of £165,000, and includes new artillery engineers' and transport depots and some 20 new drill halls, etc., or major additions thereto; also coast defence works.

Royal Australian Air Force Works.

Royal Australian Air Force works have been carried out at the various Royal Australian Air Force stations. These comprise hangars, workshops, School of Aeronautics, seaplane slipways, accommodation for personnel, electric supply, water supply and sewerage, roads and paths, drainage, taxiways, runways and general aerodrome levelling, surfacing, etc.

Year	£
1928-29	39,551
1929-30	32,734
1930-31	8,765
1931-32	2,645
1932-33	5,198
1933-34	10,987

The sum of £126,065 has been appropriated for expenditure during 1934-35 on further hangars, aircraft buildings, quarters, etc., at the establishments above mentioned.

Civil Aviation.

The work under this section covers the preparation of terminal aerodromes at the capital cities. The bulk of the expenditure has been in the direction of underground drainage, levelling and surfacing and construction of runways to make all-weather landing-grounds. In the case of Perth (Maylands Aerodrome), a levee bank has had to be built

to protect the aerodrome against floods, and at Mascot (New South Wales) an extensive underground drainage system had to be put in. Hangars and administrative buildings have also been erected.

Landing-grounds have been established at intervals on air routes encircling the continent, comprising over 8,000 miles, and, where required for night landing, lighting has been installed. Expenditure as under :

Year	£
1928-29	30,806
1929-30	28,524
1930-31	18,353
1931-32	13,079
1932-33	28,498
1933-34	12,934
Total...	£132,194

For 1934-35, £55,000 is provided. Incidental to the extension of the overseas air mail service, the Darwin aerodrome is being developed, and the grounds on the route thence through Queensland are being improved and night lighting provided at Darwin and other places on the route.

Naval.

The principal works carried out are the erection of oil-fuel storage tanks and additions to naval establishments. At the present time, additional tanks are being erected and a further naval oil storage depot is projected. The expenditure figures are :

Year	£	
1928-29	36,907	
1929-30	25,730	
1930-31	6,228	
1931-32	25,620	
1932-33	768	
1933-34	21,555	
Total...	£116,808	
1934-35	£48,460	(provided in estimates).

Munitions Supply.

Additions have been made to the factories for the manufacture of shells, explosives, guns, etc., to the extent of :

Year	£
1928-29	30,360
1929-30	25,628
1930-31	642
1931-32	1,438
1932-33	2,252
1933-34	11,720
Total...	£72,040

In 1934-35, £55,000 is provided for further additions to be undertaken at these establishments.

Health Department.

The Commonwealth Health Department's works cover quarantine stations, health laboratories in the tropics, mining areas and certain industrial areas, a School of Health at the Sydney University (£36,500) and serum laboratories.

Works under these headings have been carried out to the extent of :

Year	£	
1928-29	20,961	
1929-30	28,127	
1930-31	6,981	
1931-32	150	
1932-33	1,260	
1933-34	2,174	
1934-35	17,300	(projected).

Commonwealth Offices, Brisbane.

A new office building—£90,000—is now under construction.

Unemployment Relief Works.

Apart from the expenditure on new works, etc., listed above, the Public Works Section expended the following amounts from Appropriations for Unemployment Relief Works :

Year	£
1930-31	26,471
1931-32	236,425
1932-33	97,922
1933-34	159,357
Total...	£520,175

As far as this Section is concerned, the money was devoted to works such as repair and maintenance of Commonwealth buildings, earthworks, roads, paths, drainage, and improvements to various Commonwealth establishments, etc., and the erection of certain buildings at the Flinders Naval Depot and the serum institutes.

The figures do not include other and more comprehensive schemes which were undertaken jointly by the Commonwealth and State Governments.

Federal Capital Territory.

The works undertaken during the period comprised :

The completion of the Australian Institute of Anatomy and of the plant industry building at the C.S.I.R. establishment at Black Mountain; the erection of some 50 cottages; construction of swimming-pool (£12,000); new service reservoir and pipe line thereto (£40,000); extension of pumping plant (£10,000); roads—bituminous surfacing of existing roads; low-level bridge (£3,000); stormwater drains; extension of sewage treatment

works and water and sewerage reticulation. These works involved the following expenditure :

Year	£
1928-29	343,380
1929-30	315,245
1930-31	113,077
1931-32	71,164
1932-33	91,641
1933-34	184,898

In the current year, new works are being carried out to the extent of £297,091. This includes the first section of the Australian war memorial (£85,500); the National Library (£13,000); a scheme of cottage construction (£122,373), under which 54 houses are in course of construction and a further 60 will be built during the year; £41,212 for roads and bridges, mainly for bituminous treatment of existing roads; £32,292 for extensions to the water-supply and sewerage schemes; and £9,469 for electrical reticulation extensions.

Northern Territory.

Developmental works have been carried out in the Northern Territory, comprising the sinking of bores and wells on the principal stock routes, and equipping same; the construction of roads and tracks, cattle dips; administrative buildings and a half-caste institute at Alice Springs; a quarantine station at Darwin and a hospital at Katherine (now in hand).

The following amounts have been spent on works :

Year	£
1928-29	57,494
1929-30	35,326
1930-31	27,021
1931-32	10,607
1932-33	6,660
1933-34	13,020

The estimates for 1934-35 provide for an expenditure of £50,000, which includes the completion of the Katherine Hospital, Judge's residence at Darwin; £12,000 for bores and wells and equipment; £15,000 for dredging Darwin Harbour. There is also an amount of £5,000 for the development of the gold-mining field at Tennant's Creek, Central Australia.

Federal Aid Roads.

Under the Federal Aid Roads Act of 1926, £2,000,000 per annum for five years was appropriated from Customs revenue on motor chassis, etc., and petrol, for distribution amongst the States for expenditure on roads; under the Federal Aid Roads Act No. 22 of 1931, an amended arrangement was made by which revenue from Customs duties on petrol amounting to $2\frac{1}{2}d.$ per gallon and excise duty amounting to $1\frac{1}{2}d.$ per gallon are paid to the States for the construction, maintenance, etc., of roads. The road works undertaken from Federal Aid Roads Funds are selected and carried out by the State road authorities on their own responsibility.

The following payments have been made under the foregoing Acts :

Year	£
1928-29	2,026,082
1929-30	3,092,613
1930-31	2,121,421
1931-32	2,017,114
1932-33	1,894,648
1933-34	2,304,122

Commonwealth Bank.

Under an arrangement with the Commonwealth Bank authorities, the Department of the Interior designs and supervises the construction of bank buildings. The principal works carried out in the period mentioned are :

	£
Perth Commonwealth Bank	250,000
Sydney : Extensions to head office	500,000
Commonwealth note printing building, Melbourne	150,000

In addition, some 50 new banks in various metropolitan suburbs and country towns have been erected.

The total expenditure on bank works amounted to :

Year	£
1928-29	99,429
1929-30	185,018
1930-31	304,360
1931-32	399,215
1932-33	253,724
1933-34	93,040

At the present time, the Department has in prospect approximately £100,000 worth of bank works, the principal of which are :

	£
Adelaide : New bank premises	50,000
Hobart : New bank premises	20,000

Australian Broadcasting Commission.

It is possible that studios will be erected for the Commission in the principal capital cities to the extent of £150,000.

II.

The work is carried out by the Department of the Interior, which is administered from the Federal capital. There is a branch in each State responsible for execution.

The policy of the present Government is execution by contract.

The Department carries out work in the States of the Commonwealth, the Federal Capital Territory and Northern Territory on behalf of Commonwealth Departments, the Commonwealth Bank and the Australian Broadcasting Commission.

III. Methods of Finance.

Commonwealth works generally are financed from parliamentary appropriations from revenue or from Commonwealth loan funds.

The Commonwealth Bank and the Australian Broadcasting Commission finance works undertaken on their behalf.

Federal Aid Roads are financed from Customs and excise revenue on petrol, etc.

IV.

By reason of the wide diversity in character of the works undertaken, and of their distribution between country and metropolitan areas throughout the Commonwealth, and owing to the fact that they have been carried out mainly by contract, it is not possible to estimate the allocation of expenditure between labour, wages and miscellaneous social expenditure. It might be stated, however, that practically the whole of the expenditure on material benefits local industry.

V.

It is difficult to gauge the effect of the Public Works programme on the resumption of economic activities. The works, being mainly for postal, defence and bank purposes, are of economic value only as providing a certain amount of employment in their construction. The postal and bank works provide public facilities and, as such, are of economic importance, and the sharp upward swing in the postal building programme would certainly be indicative of the resumption of economic and industrial activities.

As to the effect on unemployment, the works programme is too widely distributed, and, moreover, mostly carried out by contract, to enable a close study of the position to be made. The nature of the work is such that the skilled tradesmen receive most benefit as against the masses of the unskilled unemployed.

Commonwealth Railways.

The large railway works completed since 1929 are as follows :

1. Construction of the railway from Oodnadatta to Alice Springs, 293 miles; opened for traffic on August 2nd, 1929. This railway was built by contract. The completed cost (including additions and betterments since the line was opened) to June 30th, 1934, is £1,715,963 (loan £1,714,544; revenue £1,419). See Oodnadatta to Alice Springs Railway Act, 1926.

2. Construction of the railway from Emungalan (Katherine River) to Birdum, 117 miles; opened for traffic on September 4th, 1929. This railway was built under the day-labour system. The completed cost (including additions and betterments since the line was opened) to June 30th, 1934, is £1,146,170 (all loan). See Northern Territory Railway Extension Act, 1923.

3. Construction of the railway from Kyogle to South Brisbane, and rebuilding and strengthening the railway from Grafton to Kyogle; distance: new construction, 95 miles; rebuilding and strengthening, 84 miles. Opened for traffic on September 27th, 1930. Portion built under contract and portion under day-labour system. Completed cost, £4,362,074 (all loan). See Grafton to Kyogle and South Brisbane Railway Act, 1924, also 1926, 1929, 1930.

The railways Nos. 1 and 2 were constructed for the purpose of developing Australia's inland territory. Work No. 3 was undertaken as a portion of the scheme to afford Australia a uniform railway-gauge system.

The moneys for each of the three railways were provided by the Commonwealth Treasury, but in respect of No. 3 provision was made for certain financial adjustments with the States, in accordance with the provisions of the agreement contained in the Grafton to South Brisbane Railway Act, 1924.

As most of the work involved in railways Nos. 1 and 3 was carried out by contract, our records would not enable us to subdivide the expenditure under the headings of " Wages " and " Miscellaneous Social Expenditure and Other ".

Postmaster-General's Department.

In Australia, postal, telegraph and telephone services are completely under the control of the Federal Government, and such services are administered and operated by the Commonwealth Postmaster-General's Department.

The " new works " undertaken by the Department during the years 1929 to 1934 were mainly for the normal expansion of telephone and other engineering plant, and were not in the nature of national or unemployment relief works.

The Department's activities are governed very largely by the requirements of the public for services, so much so that during the depression period the number of discontinued telephone services exceeded the number of applications for new services. This resulted in throwing spare much of the departmental plant, and, as conditions have improved gradually since 1932, a considerable part of this spare plant has been reabsorbed for the new services. The effect has been that the work has been performed principally by the permanent staff, and the necessity for the employment of temporary skilled or unskilled labour to any great extent has not arisen since the end of the 1929-30 financial year.

Apart from the normal extensions of telephone services, there has been much activity in regard to other classes of new work, such as the provision of new broadcasting stations, trunk exchanges, automatic telephone exchanges, telephone and telegraph carrier equipment, etc., but in these cases the bulk of the labour involved was performed by permanent departmental mechanics and represented a comparatively small portion of the total cost of the works.

The following figures, showing the cost of " new works " and the labour portion for each of the years under review, may be of interest :

Financial year ended June 30th	Total cost of " new works "	Cost of labour portion
	£	£
1929	2,783,473	1,447,856
1930	2,547,526	1,298,225
1931	1,249,924	674,876
1932	432,064	138,250
1933	455,617	191,340
1934	851,207	301,327

River Murray Works.

I.

The River Murray Waters Act came into force as from January 31st, 1917, and provided for the construction of 26 weirs and locks on the Murray River, 9 weirs and locks in the Murrumbidgee River, a storage in the Upper Murray (now called the Hume

Reservoir) and the Lake Victoria Storage. One of these works—viz., weir and lock No. 1, at Blanchetown—was under construction by the State of South Australia at the date the River Murray Waters Act came into force, the foundation stone having been laid on June 5th, 1915.

(a) At the beginning of 1929, eight weirs and locks in the Murray River and the Lake Victoria Storage had been completed; the Hume Reservoir and weirs and locks Nos. 4 and 6 were under construction.

Since that date, the construction of weirs and locks Nos. 7 and 8 were undertaken and with Nos. 4 and 6 and the Hume Reservoir (to a capacity of 1,250,000 acre-feet of water) have been completed.

(b) The works at present in course of execution are weir and lock No. 15 and a roadway over the Hume Dam.

(c) A proposal is nearing completion whereby the construction of the remaining 13 weirs and locks in the Murray River and the 9 weirs and locks in the Murrumbidgee River will be abandoned and the following works will be put in hand :

1. A diversion weir in the Murray River, at Yarrawonga, to divert water into New South Wales and Victoria for irrigation, stock and domestic purposes. Estimated cost of work, including land resumptions, £380,000.

2. Two weirs in the Murrumbidgee River to divert water for the flooding once a year of about 200,000 acres in New South Wales to improve the growth of pastures. Estimated cost, £220,000.

3. Barrages in the vicinity of the mouth of the Murray River for the purpose of preventing undue salinity in the lower river through the influx of water from the sea and to assist in keeping the lower river at the height necessary to enable settlers in that area to irrigate their blocks by gravitation through the embankment sluices. Estimated cost, £549,000.

II.

The construction of the River Murray works are provided for in an Agreement between the Governments of the Commonwealth and the States of New South Wales, Victoria and South Australia, which was ratified by Acts passed by the four Parliaments concerned.

The Agreement provided for the creation of a Commission called " The River Murray Commission ", which is charged with the duty of giving effect to the Agreement and the ratifying Acts.

The powers and functions of the River Murray Commission are, briefly :

Approval of designs and estimates furnished by the respective construction authorities;

Supervision of works (the order in point of time of particular works, rate of progress, method and extent of maintenance of works);

Finance : Annual estimates of expenditure; calling up of contributions from the contracting Governments; payments to the three constructing authorities; receipt and distribution of tolls;

Gauging of the Murray River and its tributaries;

Control over diversions in the three States;

Distribution of stored water in accordance with the provisions of the Agreement;

Prescription of tolls (tolls received are to be used towards cost of lock-keeping and the maintenance of navigation works under the Acts).

In accordance with the Agreement, the construction of the works is carried out by the Governments of New South Wales, Victoria and South Australia; the constructing authorities appointed under the various State Acts being :

New South Wales : Minister for Public Works;
Victoria : State Rivers and Water Supply Commission;
South Australia : Commissioner of Public Works.

The works have been carried out direct by the constructing authorities.

Maintenance, operation and control of any work are to be performedby the Government which constructed the work.

III.

The cost of construction of the River Murray works is shared equally by the four contracting Governments. The cost of maintenance, etc., is shared equally by the three State contracting Governments, the Commonwealth being freed from any obligation in this regard.

Expenditure is charged to the ordinary budget of the Government concerned, the amount being provided from revenue or loan funds, according to the decision of the individual Government.

Contributions towards the estimated cost of the works are called up from the contracting Governments periodically, usually monthly, by the River Murray Commission. The Commission makes advances to the constructing authorities and the amount expended by those authorities is reimbursed to them by the Commission.

IV.

An approximate estimate of the allocation of the cost of these works is : material, 50%; labour, 50%.

V.

It is estimated that the proposed works referred to in *I(c)* will provide employment directly and indirectly for a thousand men for approximately five years.

As regards the effect of the works on economic activities, although the discharge of the Murray River last season was some eight million acre-feet (representing not a " low " but a " mean " year), it was only the stored water in Lake Victoria and the Hume Reservoir, together with that retained by the locks and weirs, which saved the whole of the irrigation settlements along the river from practically complete failure, both by providing water at a sufficient level when it was required and by preventing the seepage of salt from the soil. The life of every irrigation settlement on the Murray River in South Australia is dependent on these storages.

The area in New South Wales which can be commanded by gravitation from the Murray River has been estimated at upwards of five million acres, and the bulk of this area can be served by a canal offtaking above the proposed Yarrawonga weir. To command the balance, a second diversion weir will be required upstream of Yarrawonga. The water available will be sufficient to supply only a small portion of the area which can be commanded, and the principle which is being followed is to allocate to landholders sufficient water to permit of the irrigation of a portion of their holdings from, say, 1 acre in 6 to 1 acre in 25, dependent upon the size of the holding. Works are at present in progress by the State authorities to develop over a million acres of this area, the object being the growth of fodders under irrigation for the feeding of stock and not for any extension of fruit-growing until the marketing position is more assured.

Similarly, in Victoria, the area to be served by the Yarrawonga weir is approximately 400,000 acres, of which about 90,000 acres will be actually irrigated; to be used mostly for lucern and sown pastures to permit of an extension of lamb-raising and dairying.

The flooding of the land once a year which will result from the construction of the two weirs in the Murrumbidgee River will stimulate the growth of herbage, etc., and enhance the carrying capacity of upwards of 200,000 acres in the vicinity of the weirs.

On the lower river, between Mannum and Wellington, there is an area of 15,500 acres under intense culture by irrigation, principally for dairy-farming, market gardening and sheep-fattening, the value of the products from which has been stated to be £200,000 per annum. On several occasions, the settlers on these areas have been involved in a loss of production, estimated at from 25 to 50%, due to the fact that they have not been able to utilise the river water, owing either to its being too saline or too low to gravitate through the sluices in the levees which protect their blocks from flood. Other interests concerned in the maintenance of a supply of fresh water in the lower river are the railways, the towns of Mannum and Murray Bridge, and the farming country supplied from the Murray Bridge water system. Also the riparian landholders around Lakes Alexandrina and Albert represent that, owing to the influx of salt water, the reeds, which formerly had a high food value for stock on the lake frontages, had been destroyed, and that the water was useless for stock purposes. The purpose of the barrages in the vicinity of the Murray mouth is to overcome the disabilities suffered by the foregoing settlers and landholders.

New South Wales

WATER CONSERVATION AND IRRIGATION COMMISSION.

The details in regard to the information sought are set out in schedule form (reproduced below), such schedule comprising works as follows:

(a) Undertaken since July 1st, 1928, and now completed;
(b) Now in course of execution;
(c) The execution of which is at present in contemplation or schemes for which are in preparation.

Furthermore, the letters in the first column of the schedule are intended to indicate the classification as corresponding to the same lettering in the schedule attached to the Circular Letter of March 7th, 1934.

In regard to the principal administrative methods attaching to these works, the following information is supplied:

1. National Works.

These are constructed by the Commission on behalf of the Government, funds being provided from loan and revenue votes and/or unemployment relief funds. Generally, these works are designed and constructed for the improvement of rivers and for conservation of water or its better distribution. After completion, they are administered and maintained by the Commission.

2. *(a)* Water Trusts.

(b) Artesian Bore Trusts.

These works are carried out by the Commission, generally for the more beneficial use and more equitable distribution of water to holdings embraced within the prescribed limits of a district constituted under the provisions of the Water Act, 1912-1930.

Generally, the works are undertaken as a result of a petition from the interested landholders who will receive benefits by the construction of the works. The funds for the construction of these works are provided from loan vote or unemployment relief fund. The capital cost of works is repayable, with interest, over a defined period. Upon completion of the works, the same are handed over to the trustees, who are responsible for the administration of same and for the levying of rates for the production of revenue from year to year to cover the following items :

(a) Instalments for repayment of capital cost, with interest, over a defined period;

(b) Repairs and maintenance of works;

(c) Water distribution;

(d) Sundry incidental charges.

3. Shallow Bores.

Where required by a landholder, the Commission arranges for the sinking of a shallow bore on individual holdings and the cost of such work is repaid by the landholder in instalments distributed over a period of years.

4. Construction Works on the Murrumbidgee Irrigation Areas.

New works or additional works are carried out by the Commission under the provisions of the Irrigation Act, 1912-1931. Funds are provided from loan vote for capital cost of works, and the interest on such cost is repayable from the revenue received in the administration of the Murrumbidgee irrigation areas.

From time to time, substantial works may be carried out in regard to the renewal, maintenance or repairs of existing works. Such works are carried out by the Commission from funds provided under the Industrial Undertakings Act.

5. Wyangala Dam.

Wyangala Dam and incidental works are being constructed by the Commission as the headworks for the Lachlan River Water Conservation Scheme. The necessary funds are being provided by the British Government, under the Migration Agreement. This work, on completion, will be a national work.

6. Domestic and Stock and/or Irrigation Districts.

These works are constructed to ensure a regular supply of water for domestic and stock purposes and/or irrigation of a portion of existing holdings within districts constituted under the provisions of the Water Act. The necessary funds are provided by the Government from loan vote. Upon completion, the works are administered by the Commission, and charges are levied on each landholder within the district commensurate with the benefit received, so that the total revenue shall be sufficient to meet the cost of supply of water under the following headings :

Interest on capital cost of works;
Maintenance and repairs;
Water distribution;
Administration.

Generally speaking, the whole of the works constructed by the Commission are in connection with the conservation of water resources and the more equitable distribution of the water flowing in rivers and streams within the State.

WATER CONSERVATION AND IR

SCHEDULE OF WORKS { I. *Works* / II. *Works* / III. *Works*

Work				
Classification (1)	Name (2)	Purpose (3)	Area benefited (4)	Nature (5)
				I. *Works undertaken since July*
			Acres	
(C)	Benanee	Domestic and stock water supply	267,500	Pumping station and channels
(f)	Collarenebri	Town water supply	55	Pumping station, reservoir and pipe lines
(C)	Gunbar	Domestic and stock water supply	580,320	Earth channels and incidental structures
(C)	Nimming-Pollen	Domestic and stock water supply	163,420	Earth channels, incid. struct. and regulator
(C)	Little Merran Creek	Domestic and stock water supply	157,440	Earth channels, incid. struct. and regulator
(C)	Torriganny Muggabah and Merrimajeel Creeks	Domestic and stock water supply	170,240	Cuttings and regulator
(C)	Pomona	Irrigation	1,210	Pumping plant and channels
(C)	Bungunyah-Koraleigh	Irrigation	1,785	Pumping plant and channels
(d)	Dubbo Weir	River improvement	—	Concrete weir
(d)	Forbes Weir	River improvement	—	Concrete weir
(C)	Gunuingbar Ck. Bridge	Public traffic over works	—	Timber beam bridge
(C)	Gunningbar Ck. Regulator	Control flow in cutting	—	18′ × 18′ Stoney sluice
(d)	Timber Groyne Warren	River improvement	—	Pile and timber sheathing
(C)	Warren Weir	Diversion of water	—	Pile stone crib weir replaced
(d)	Warren Recreation Weir	River improvement	—	Timber stone fill weir
(C)	Drildool No. 2 (additional works)	Stock water	96,690	Artesian bore
(C)	Boonaldoon	Stock water	67,450	Artesian bore
(C)	Tooloona No. 2 (additional works)	Stock water	82,185	Artesian bore
(C)	Terrigal (distributing works only)	Stock water	13,520	Artesian bore
(C)	Currambah No. 2 (additional works)	Stock water	95,669	Artesian bore
(C)	Milroy	Stock water	44,610	Artesian bore
(C)	Avon Downs	Stock water	42,798	Artesian bore
(C)	Oaks Bore (distributing works only)	Stock water	13,280	Channels and incidental structures
(C)	Shallow Bores	Stock water	—	Shallow bores pumping supplies
	Murrumbidgee Irrigation Areas :			
(C)		Light and power	—	Electrical construction. Power house and reticulation
(C)		Irrigation	—	Canals, regulators and drainage
(C)		Administration	—	Buildings
				Total...
				II. *Works in course of*
(C)	Wyangala Dam	Head storage, Lachlan River Water Conservation Scheme	—	Concrete dam
(C)	Poon Boon	Stock water	32,985	Earth channels, incid. struct. and regulator
(C)	Wakool	Domestic and stock water supply and irrigation	536,724	Diversion weir. Channels and incidental structures
(C)	Benerembah	Domestic and stock water supply and irrigation	121,739	Earth channels and structures
(C)	Tabbita	Domestic and stock water supply and irrigation	6,335	Earth channels and structures
(C)	Florida No. 2	Stock water	53,440	Artesian bore
	Murrumbidgee Irrigation Areas :			
(C)		Supply and drainage channels	—	Earthworks and structures
(C)		Canning factory	—	Cold storage and extension
(C)		Power station	—	Reticulation and transmission
				Total...
				III. *Works in Contemplation or P*
(C)	Berriquin	Domestic and stock water supply and irrigation	606,000	Earth channels and structures
(C)	Mulwala Canal	Domestic and stock water supply and irrigation	—	Earthworks and structures
(C)	Jemalong	Domestic and stock water supply and irrigation	166,554	Earth channels, structures and weir
(C)	Wyldes Plains	Domestic and stock water supply and irrigation	50,439	Earth channels and structures
(d)	Forbes Goolagong Weirs	River improvement	46,540	9 weirs
(d)	Hillston Booligal Weirs	River improvement	161,100	12 weirs
(C)	Ivanhoe (Willandra)	Domestic and stock water supply	2,000,000	Earth channels
(C)	North Murrumbidgee	Domestic and stock water supply and irrigation.	1,000,000	Weir, channels, structures
				Total...

Note.—In the above schedule, the notation in column (1) is in relation to classifications as follows :
(C) Complete agricultural land reclamation (drainage, irrigation, construction of dwelling-houses and various new buildings, or establishment of
(d) Canals and other inland waterways (including improvement work on rivers, defensive work against floods, etc.). (Work not already include
(f) Provision of drinking-water supplies and sewage disposal. (Work not already included under (C).)

RRIGATION COMMISSION.

ndertaken since July 1st, 1928, and now completed;
n course of construction;
n contemplation or preparation.

Cost					
Wages and salaries, other than contract (6)	Plant, materials, equipment and other charges (7)	Contract (8)	Total (9)	Administration (10)	Remarks (11)
uly 1st, 1928, and now completed.					
£ 4,827	£ 40,953	£ 28,026§	£ 73,806*	Water trust	§ Contract mostly wages. * Total cost, £131,719. Portion since July 1st, 1928.
604	1,691	—	2,295	Water trust	
15,566	13,912	22,469§	51,947	Water trust	§ Contract mostly wages.
154	259	1,516§	1,929	Water trust	§ Contract mostly wages.
919	1,003	1,017	2,939	Water trust	Cost only relates to additional works.
5	218	768	991	Water trust	Cost only relates to additional works. Contract approximately 50% wages.
2	—	1,561	1,563	Water trust	
1,725	1,129	830	3,684	Water trust	Cost only relates to additional works.
2,118	3,095	—	5,213	National work	
1,926	2,288	—	4,214	National work	Maintained by local council.
42	16	1,128	1,186	National work	Wages approximately 50 %.
1,504	1,367	—	2,871	National work / National work	Built to replace old regulator destroyed.
2,880	4,388	—	7,268	National work / National work	Maintained by local council.
240	230	202	672	Bore water trust	Depth, 2,211 feet. Flow, 464,396 gallons per diem.
3,218	4,091	878	8,187	Bore water trust	Depth, 3,005 feet. Flow, 729,655 gallons per diem.
2,464	3,428	—	5,892	Bore water trust	Depth, 3,664 feet. Flow, 1,079,776 gallons per diem.
55	414	—	469	Bore water trust	
2,439	2,436	189	5,064	Bore water trust	Depth, 3,025 feet. Flow, 841,772 gallons per diem.
3,489	3,615	787	7,891	Bore water trust	Depth, 3,689 feet. Flow, 667,440 gallons per diem.
2,057	3,022	—	5,079	Bore water trust	Depth, 2,444 feet. Flow, 309,517 gallons per diem.
366	—	216	582	Bore water trust	
124,159	126,671	—	250,830	Private landholders (repayment on terms)	835 bores sunk from July 1928 to June 1934. Total depth, 217,435 feet.
31,137	48,788	—	79,925		
109,948	119,077	—	229,025		
1,344	2,851	—	4,195		
£313,188	£384,942	£59,587	£757,717		
f Construction.					
£ 506,357	£ 662,830	£ —	£ 1,169,187	National work	Total estimated cost, £1,352,000.
68	326	—	394	Water trust	Additional works only.
38,737	81,432	29,112	149,281	Domestic and stock water supply and irrigation district	Contracts mostly wages. Total estimated cost, £420,000.
9,811	12,621	13,881	36,313	Domestic and stock water supply and irrigation district	Contracts mostly wages. Total estimated cost, £54,000.
317	570	1,741	2,628	Domestic and stock water supply and irrigation district	Contracts mostly wages. Total estimated cost, £4,470.
1,017	991	—	2,008		
12,000	18,410	—	30,410		
4,000	5,000	23,000	32,000		
5,000	14,000	—	19,000		
£577,307	£796,180	£67,734	£1,441,221		
Preparation.					
£ 219,000	£ 219,000	£ —	£ 438,000	Domestic and stock water supply and irrigation district	These figures are approximate only, as final estimates are not yet available.
660,000	540,000	—	1,200,000	Domestic and stock water supply and irrigation district	These figures are approximate only, as final estimates are not yet available.
75,000	75,000	—	150,000	Domestic and stock water supply and irrigation district	These figures are approximate only, as final estimates are not yet available.
20,000	10,000	—	30,000	Domestic and stock water supply and irrigation district	In preliminary stage only.
6,500	18,500	—	25,000	Water trust	In preliminary stage only.
9,000	26,000	—	35,000	Water trust	In preliminary stage only.
75,000	75,000	—	150,000	Dom. and stock water sup. dist.	In preliminary stage only.
75,000	75,000	—	150,000	Domestic and stock water supply and irrigation district	In preliminary stage only.
£1,139,500	£1,038,500	—	£2,178,000		

ire new settlements, country roads and other works connected with land settlement).
ider (c).)

National works are generally constructed for the purpose of the better control of the flow of water in natural channels.

The construction of works for trust districts and artesian bore districts tends to a more regular supply of water through the headworks of the district and assures an equitable distribution of the available supplies to the individual holdings within such district.

The construction of shallow bores is generally undertaken in districts where there is otherwise a very limited or negligible supply of water available to the pastoralists and, accordingly, the provision of a bore should afford an assured water supply, with the attendant advantage of security against loss of stock by drought.

Domestic and stock and/or irrigation districts are constituted without interfering with the existing tenure of holdings within such districts. Nevertheless, with an assured water supply for domestic and stock purposes and/or irrigation, there will be a definite tendency towards the voluntary subdivision of large holdings, with corresponding closer settlement within such districts. In this connection, it should be noted that, where water is supplied for irrigation, the amount is limited so as to provide for a relatively small proportion of each holding to be irrigated, and it is provided that the function of such irrigation will be for the cultivation of fodder to the exclusion of rice and, likewise, to the exclusion of orchards on a commercial scale.

It is considered that the practice of irrigation within these districts, with the assured water supply for stock purposes, will stabilise the pastoral industry generally, in so far as the chance of excessive loss will be remote in drought conditions hitherto prevailing; furthermore, as already pointed out, it is expected that closer settlement will be achieved by the voluntary subdivision of large estates and, generally, the practice of irrigation, associated with such closer settlement, will tend to the necessity for a substantial increase in employment in the rural industry.

The construction of the Wyangala Dam, as already indicated, represents the head storage in connection with the general scheme for the Lachlan River development. Apart from fulfilling a national function in the better control of the flow throughout the length of the Lachlan River, the provision of this storage reservoir will make possible the supply of water for domestic and stock and/or irrigation purposes to districts comprising considerable areas which could not hitherto have been supplied with water from the Lachlan Valley.

The works in connection with the Murrumbidgee irrigation areas have been constructed for the intensive development of a very considerable area under horticultural, viticultural, dairying and pastoral industries.

FORESTRY COMMISSION.

1. The Forestry Commission has, with the assistance of unemployed relief funds, undertaken the work of regeneration, freeing, thinning, road construction and repairs, including culverts and bridges, firebreak construction, erection and repair of telephone lines and fire lookouts, erection and repair of buildings (workmen's cottages) and fences, the eradication of insect pests and noxious weeds within State forest areas. The work performed may be regarded generally as of a permanent nature and is being continued.

2. Forestry works of the nature mentioned under 1 were commenced in 1928, but suspended during 1929. From 1930 to the present time, such works have been steadily continued.

3. Funds have been made available by the Unemployed Relief Council and conditions of employment have been determined by the Government through the Department of Labour and Industry.

4. The expenditure since January 1st, 1928, is as follows :

Unemployed relief funds.

1928	1930	1931	1932	1933	1934 1.1.1934-30.VI.1934
£15,000	£19,822	£3,252	£7,782	£25,109	£29,732

It can be safely said that at least 80% of this amount has been expended on labour, the balance, 20%, on materials, the whole of the latter expenditure being confined to materials procurable locally.

5. The works being undertaken on State forests will have the effect of improving and protecting the existing stands of timber, perpetuating supplies, facilitating exploitation, maintaining steady employment for bush workers, and stabilising the sawmilling industry.

MAIN ROADS DEPARTMENT.

I. *Brief Description of Public Works : Roads and Bridges.*

The Department of Main Roads functions under a Main Roads Act passed in 1924, and it is charged with the duty of maintaining and, as far as possible, improving the main-roads system of New South Wales. It will be realised that the work in this connection is continuous, and sections of main road, and bridges, are being improved upon or constructed as the finances available to the Department permit. The object is to bring each road gradually to a state which can be considered as reasonable for the volume and type of traffic using the road and, having reached this standard, to keep the road in that condition. The main roads of the State have been classified under three principal headings, as follows :

(a) *State Highways*. These are the most important roads connecting up with the principal routes in other States or proceeding from the coast to the interior of the State. The Department is wholly responsible for the works carried out on this first class of road;

(b) *Trunk Roads* are roads of secondary traffic importance and form with the State highways, a skeleton highway system throughout the State;

(c) *Main Roads* comprise the remaining roads which are of sufficient importance to warrant assistance by the State but on which the traffic is principally of a local character.

In addition to the main roads, the Act provides for the proclamation of certain roads as developmental roads. These roads are intended primarily to promote or conserve settlement and generally act as feeders to existing main roads or to railways or take the place of railways in providing transport means for the marketing of primary products.

It is considered that an idea of the extent of the work undertaken since 1929 can best be gained from a statement of the expenditure by the Department during the past five years. The following statement therefore sets out the Department's total expenditure dissected under the headings of construction, maintenance, payment of interest, etc.

Year	Construction of main roads	Construction of developmental roads	Maintenance and minor improvements	Interest and loan repayment	Administrative and miscellaneous charges	Total
	£	£	£	£	£	£
1929-30	2,420,672	357,666	1,315,283	324,769	106,993	4,525,383
1930-31	1,371,997	212,723	848,834	325,412	91,172	2,850,138
1931-32	423,438	41,413	857,098	305,548	78,416	1,705,913
1932-33	725,082	58,174	1,169,418	286,648	73,553	2,312,875
1933-34 [1]	925,199	113,979	1,109,123	457,907	67,438	2,673,646

[1] Subject to audit.

II. *The Principal Administrative Methods followed or contemplated for the Execution of the Work referred to in* (I) *and Any Legal Provisions relating to Such Work.*

It should be understood that New South Wales is divided into approximately 320 local government areas styled as " municipalities " or " shires ". Generally speaking, the municipalities include the more populous centres, whilst the shires comprise rural areas. It is the function of these local governing authorities to maintain the roads within their areas and to build new roads as settlement requires. With the advent of the motor-vehicle, however, it became impossible for local authorities to provide sufficient funds to keep in order the roads subjected to heavy fast-moving motor traffic. As a result, the taxation derived from motor-vehicles was devoted to expenditure on main roads, and the Main Roads Act provides that the Department shall assist local councils in the upkeep of these roads. The general financial arrangements relating to the distribution of these funds is set out in reply to the next question.

In the execution of the works on main roads, it is the Department's custom to entrust works to local authorities wherever the authority has a sufficient organisation and is willing to carry out the work. In some cases the local authorities complete the works by their own day-labour organisations, whilst in others tenders are invited and the works performed by contract. Where it is preferable for the Department to carry out work itself, similar arrangements apply, the Department maintaining its own day-labour organisation for the performance of some works and calling tenders in other cases. It is found that the distribution of work between the Department's own organisation, contractors' forces and councils maintains a healthy rivalry and tends to the completion of works in the most economical fashion.

The maintenance of main roads, except in isolated instances, is carried out by day labour either by the Department directly or by councils, because it is generally impossible to specify precisely the work which is to be performed and so call tenders. On this work, however, it is customary to secure supplies of materials, plant and tools and in some cases to have the haulage work performed under contract.

III. *The Principal Methods employed for financing.*

Apart from the funds provided under the Main Roads Act, local authorities are empowered, under a Local Government Act, to levy annual rates on the unimproved capital value of lands within their areas. These rates are used for public works and services, and a substantial portion is devoted to the upkeep and improvement of roads. For the main roads, however, special taxes are imposed on motor-vehicles, according to the net weight of each vehicle, and these, coupled with a portion of the tax levied by the Commonwealth Government on petrol, are used to assist local authorities in both construction and maintenance works.

For administrative purposes, the State is divided into two parts—the County of Cumberland and the country. In the former area, all local authorities are required to pay a levy determined annually to a County of Cumberland Main Roads Fund. This contribution is then amalgamated with the vehicle and petrol taxes, already referred to, and from the proceeds the Department pays the full cost of all works carried out. In the country, however, the Department assists councils according to the class of road on which work is required. Thus, on State highways the Department pays the full cost of all works, whilst on trunk roads two-thirds the cost is paid (except in the case of new bridges, where the full cost is paid), and on main roads the Department pays one-half the cost (except in the case of new bridges, where three-fourths the cost is borne by the Department).

On developmental roads, the Department is responsible only for works of new construction, the councils being required to maintain all roads built in reasonable condition

subsequent to their construction. The funds for developmental road construction are provided by an annual transfer of £135,000 from the vehicle and petrol taxes made available for country roads. Of this sum, approximately £35,000 per annum is required for the payment of interest, exchange and sinking-fund charges on loans spent in the past on construction works, so that there thus remains roughly £100,000 per annum for expenditure on new works.

Immediately following the passage of the Main Roads Act in 1924, it was necessary to borrow substantially, in order that a rapid improvement of the main-roads system could be made. This policy of borrowing continued for about four years, but, as the worst of the roads were placed in order, the amount of loans was reduced until, at present, it is not the practice to spend any loan money on either main or developmental roads. The Department, however, is responsible for the payment of interest and other loan charges on all loan money borrowed in the past. In this way the general budget of the State is relieved of charges for roads and, in effect, the motorist, who benefits most by road maintenance and construction, is required to meet the annual loan charges. It should not be concluded, however, that there are not any road works still requiring to be undertaken which would warrant borrowing; the position is that the funds available to the Department are so encumbered by obligations for maintenance and payment of interest on past loans that it would be imprudent to charge the funds further by increased borrowing. As additional revenues become available, however, it is probable that additional loans will be raised for main and developmental road improvement.

IV. *An Estimate, as far as is possible, of the Allocation of Expenditure on the Execution of the Public Works referred to in I, as between Materials and Equipment provided by National or Foreign Industries, on the One Hand, and Labour—that is to say, Wages and Miscellaneous Social Expenditure—on the Other.*

It is found from experience that approximately 50% of the expenditure on road works is required for the payment of wages of employees engaged on the works. The remaining 50% is expended in the purchase of materials, the haulage of materials, the use of plant, and miscellaneous charges, such as insurance of employees, provision of tools, etc. It is to be noted, however, that practically the whole of the materials, tools, plant, etc., used on roads are produced locally and so, eventually, the money spent on roads is used in payment for local labour, either in the actual maintenance or construction of roads themselves or in the production of materials required therefor. It would not be unsafe to say that 95% of the money paid out by the Department is eventually absorbed in the payment of wages or other charges for local industries.

V. *The Government's Opinion with regard to the Effects obtained or expected from the Execution of the Public Works referred to in I on the Resumption of Economic and Industrial Activities and on Unemployment.*

As mentioned above, approximately 95% of the expenditure on roads is used in the employment of local labour or other items in local industries. The road work is therefore ideal in creating a chain of industry, as each job undertaken on the road involves activity in several other subsidiary industries. Apart from this aspect, however, there is gradually being set up a regular road-making industry with employees specialising in the various types of road work. The Department has found that men unfamiliar with road work have, after several years of experience, become as valuable as skilled tradesmen in other industries. For example, plant operators on road works and men engaged on concrete and other works are required to be as skilful at their work as, say, motor mechanics in another section of the road transport group.

It has been proved that the construction of good roads saves the expenditure of

motorists' money on petrol, tyres and repairs costs. It therefore follows that, if the expenditure on one of the items of cost of motor transport is increased with more than a corresponding saving on other items, the industry in the aggregate must show a net gain. Moreover, the expenditure on road works is wholly internal expenditure, whilst the disbursements on account of fuel and original vehicles are, in the case of this State, almost wholly sent abroad.

As far as the State finances are concerned, the loan expenditure is wholly reproductive, because the revenues are charged with the full cost of interest, exchange and sinking fund.

The general conclusion to be drawn is that road work is very valuable in creating and maintaining industrial activity or, in other words, it is a good means of preventing and/or relieving unemployment. It is apparent, moreover, that it is better for the State to spend money on local labour for roads than on imported essential items of transport services. It pays also to borrow for roads if repayment can be guaranteed from road revenue. This is particularly so where the loan money is raised on the local market.

DEPARTMENT OF AGRICULTURE.

REPORT ON MAIN PUBLIC WORKS.

I. *Brief Description of Works.*

(a) *Undertaken since January 1st, 1929, and completed.*

Construction of, and Additions to, Public Buildings, etc. : Expenditure from Loan Funds.

Location	Nature of work	Cost £	s.	d.
Country railway stations	43 grain elevators and additions	514,421	15	3
Sydney	New office building, Department of Agriculture	150,998	1	11
Richmond	Chemical laboratory, Hawkesbury Agricultural College	15,548	5	1
Country experiment farms	Sundry buildings, additions and improvements	8,432	7	5
Leeton	Establishment of Rice Research Station, sundry buildings and improvements	2,949	2	11
Glenfield	Buildings and additions : Veterinary Research Station.	2,762	17	0
Sydney	Buildings, etc.; insectary; Maiden Memorial Pavilion; glass-house, etc., botanic gardens	2,060	16	4

Expenditure from Unemployment Relief Funds.

Country railway stations	3 grain elevators	30,835	16	0[1]
North Coast	Erection of dips and yards, tick quarantine area	5,000	0	0[2]
Queensland Border	Fencing, tick quarantine area	1,091	4	2[1]
Sydney	New lavatory block, etc., botanic gardens	2,005	0	0[1]
Sydney	Painting and renovations, botanic gardens	1,088	0	0[1]
Sydney	Dressing sheds, Government domain	636	10	6[1]
Country experiment farms	Additions and repairs to buildings, etc.	2,989	1	6[1]
Various	Erection of silos on dairy farms, and additions	200	17	5[1]

Grain Elevators.

On October 4th, 1916, an enabling Act entitled the " Grain Elevator Act, 1916 ", was passed by the New South Wales Parliament. This Act provided for the erection of terminal elevators at the ports of Sydney and Newcastle and not more than 200 grain elevators at country railway stations.

The Minister for Agriculture was vested with powers to carry out the work in accordance with the Public Works Act, 1912.

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[1] State unemployment relief funds.
[2] Commonwealth unemployment relief funds.

From the date of the enactment mentioned to 1929, construction work progressed to a point where a terminal elevator had been completed at Sydney and 93 grain elevators had been erected at country railway stations, providing in all a storage capacity of 22,370,000 bushels.

(a) *Work undertaken and completed since* 1929.

Since 1929, the Department of Agriculture has undertaken and completed the construction of a further 46 grain elevators at country stations, thereby increasing the storage capacity by 3,980,000 bushels and providing a State system for bulk handling of wheat comprising one terminal elevator and 139 elevators at 138 country railway stations, with a total storage capacity of 26,350,000 bushels.

(b) *Work in Course of Execution.*

In addition to the completed works mentioned, a current construction programme provides for 11 additional country grain elevators; extensions to 12 existing country grain elevators; additions to the terminal elevator, Sydney; and the erection of a terminal elevator at the port of Newcastle. These works, with the exception of the terminal elevator at Newcastle, will be completed by January 1935. The terminal at Newcastle will be finished about October or November 1935.

The additions to 12 existing country elevators, the erection of 4 new country elevators, and the foundation for the terminal elevator at Newcastle are being built by the Department of Agriculture, under the day-labour system. The remaining works, including the main structure at Newcastle, are being carried out for the Department under the contract system.

(c) *Work in Contemplation.*

On June 15th, 1934, the New South Wales Government authorised a further programme embracing 25 new country elevators, together with 8 additions to existing country elevators.

When all the works contemplated under *(b)* and *(c)* have been completed, the system for bulk handling of wheat will comprise :

	Storage capacity Bushels
1 terminal elevator at Sydney	7,375,000
1 terminal elevator at Newcastle	850,000
175 country grain elevators at 174 country railway stations	25,370,000
Total...	33,595,000

and the objective of the Government to provide bulk handling facilities for an average State harvest will be within measurable distance of attainment.

II. *Administrative Methods.*

As already indicated, the work has been, and will be, carried out partly by contract and partly by day labour.

The work is supervised by officers of the Department of Agriculture.

Award rates of pay and conditions of employment, as prescribed by Commonwealth and State industrial arbitration courts, govern the various classes of labour employed.

III. *Principal Methods employed for financing the Works.*

With the exception of the sum of £30,835 16*s.*, these works have been financed from loan funds raised by the Commonwealth and appropriated by the State under Acts of Parliament in conformity with the practice of obtaining the sanction of the Legislature for the raising of loan funds for the carrying-out of permanent and reproductive works.

IV. *Allocation of Expenditure.*

It is estimated that the allocation of expenditure on the works referred to in I was :

Material and equipment	70%	99% national 1% foreign
Labour.....	30%	100% national
	100%	

V. *Effects obtained from the Execution of these Public Works on the Resumption of Economic and Industrial Activities, and on Unemployment.*

Certain direct benefits were obtained by the introduction of bulk handling, as briefly summarised hereunder :

(a) The elimination of most of the corn-sacks, with consequent saving to the farmers.

(b) Protection of the grain against damage by pests and weather.

(c) Saving in marine freight.

(d) The establishment of an improved and independent trading basis for farmers, in that negotiable instruments or warrants which have almost acquired the status of currency are issued for wheat delivered to the silos, whilst, at the same time, the equivalent of an insurance cover is provided—the State accepting the responsibility for the wheat while stored in the grain elevators. The effect is to make the farmers more or less independent of intermediate agencies. Warrants may also be used as security for obtaining temporary financial assistance when the market is unfavourable for selling.

(e) Wheat is handled more expeditiously, effecting a saving in time to the farmers, railway system and shipowner.

The saving to the farmer may be as much as 5*d.* per bushel, varying with the price of corn-sacks.

The policy of bulk handling was not influenced by a desire primarily to create employment. Nevertheless, construction of elevators on a large scale has been an important factor in mitigating seasonal unemployment in country districts, and, latterly, unemployment due to the economic depression.

NEW OFFICE BUILDING, DEPARTMENT OF AGRICULTURE, SYDNEY.

II. *Administrative Methods followed.*

This work was originally authorised by the Department of Agriculture Building Act, 1916, which provided for the erection of a new office building with frontages to Loftus, Raphael, and Young Streets, Sydney, at a cost of £121,700.

A commencement was made on the work in 1916, and the sum of £7,000 was expended on the preparation of the site and foundations during the years 1916 and 1917.

Owing to the war and subsequent financial stringency, the matter remained in abeyance until 1929, when the Department of Agriculture Building Act, 1929, was passed. This authorised the completion of the building at an estimated cost of £175,132, which was not to be exceeded by more than 10%. In terms of this Act, a building of eight storeys was constructed by contract, of reinforced concrete, and occupation entered into during 1930.

III. *Methods employed for financing the Work.*

The cost was met from loan funds. In accordance with the arrangements entered into between the Commonwealth and the various States, loan moneys required during 1929 were raised by the Commonwealth and allocated among the Commonwealth and the States in accordance with the approval of the Loan Council, which was representative of all parties to the Financial Agreement entered into and endorsed by the respective Parliaments of the Commonwealth and the States.

These loans are secured on the assets of the Commonwealth and are covered by bonds which were issued to the lenders. The rate of interest at the time was 6%, which was subsequently reduced to 4%, requiring the issue of new bonds in Australian Consolidated Stock, repayable at varying dates from 1938 onwards.

IV. *Allocation of Expenditure.*

A rough estimate of the allocation of this expenditure would be as follows :

Material and equipment	67%	99% national Less than 1% foreign
Labour.....	33%	100% national
	100%	

V. *Effects on Resumption of Economic and Industrial Activities, and on Unemployment.*

The provision of central accommodation for practically the whole of the staff engaged in the metropolitan area has resulted in a considerable saving in administrative expenses, including rent of premises, which were previously leased. Moreover, it has ensured a greater degree of efficiency in the work of the Department, and has obviated considerable inconvenience hitherto experienced by members of the general public desirous of consulting with officers dealing with the different sections of departmental activities.

The construction of this building was directly designed to meet official and public requirements, and only incidentally tended to, in a small measure, relieve unemployment.

CHEMICAL LABORATORY, HAWKESBURY AGRICULTURAL COLLEGE, GLENFIELD VETERINARY RESEARCH STATION, EXPERIMENT FARMS.

RICE RESEARCH STATION, LEETON INSECTARY; MAIDEN MEMORIAL PAVILION; GLASSHOUSES, BOTANIC GARDENS.

II. *Administrative Methods followed.*

These works were mostly let to contractors, but a small number were completed by day labour, under the supervision of the departmental architect.

III. *Methods employed for financing the Works.*

The cost of these works was also financed from loan funds, in a similar manner to the foregoing.

IV. *Allocation of Expenditure.*

The expenditure may be roughly allocated as follows :

Material and equipment	60/70%	98% national Up to 2% foreign
Labour.....	40/30%	100% national

V. *Effects on Resumption of Economic and Industrial Activities, and on Unemployment.*

These works were not designed to relieve unemployment, but were mainly undertaken for departmental purposes, in order to cater more efficiently for the growing needs of those engaged in agricultural pursuits. Improved facilities were provided by the Department for agricultural instruction, research and experimental work by means of these works.

WORKS FOR THE RELIEF OF UNEMPLOYMENT.

II. *Administrative Methods followed.*

These works, so far as those met from State unemployment relief funds are concerned, were almost entirely carried out by day labour, and were subject to the approval of a Council consisting originally of eight members, comprising the Colonial Treasurer, the Minister for Labour and Industry, and the Minister for Local Government, and five members approved by the Governor constituted under the Prevention and Relief of Unemployment Act, 1930. By as ubsequent Act—viz., the Prevention and Relief of Unemployment (Amendment) Act, 1930—this Council was reduced to three members, consisting of the Ministers of State referred to.

III. *Methods employed for financing the Work.*

The works were financed from the State and Commonwealth unemployment relief funds, and moneys derived from the proceeds of unemployment relief taxation. Under the Unemployment Relief (Tax) Act, 1930 (New South Wales), a tax of 3*d.* in the £ on wages, and 7½*d.* in the £ on net assessable income, was imposed from July 1st, 1930, subject to certain exemptions.

Under subsequent State Acts and amendments, the tax was modified as follows :

January 1st, 1931.—1*s.* in the £ on wages.

July 1st, 1931.—1*s.* on net assessable income.

October 1st, 1932.—On wages : under £2 per week : nil; £2 to £2 10*s.* : 1*s.* per week; £2 10*s.* to £3 : 1*s.* 6*d.* per week; £3 to £3 10*s.* : 2*s.* per week; over £3 10*s.* : 1*s.* in the £.

December 1st, 1933.—On wages and net assessable income : £2 to £2 10*s.* : 9*d.* per week; £2 10*s.* 1*d.* to £3 : 1*s.* 3*d.* per week; £3 1*d.* to £3 10*s.* : 1*s.* 9*d.* per week; £3 10*s.* 1*d.* to £3 12*s.* 5*d* : 2*s.* per week; £3 12*s.* 6*d.* to £3 14*s.* 11*d.* : 2*s.* 1*d.* per week; £3 15*s.* to £3 17*s.* 5*d.* : 2*s.* 2*d.* per week; £3 17*s.* 6*d.* to £3 19*s.* 11*d.* : 2*s.* 3*d.* per week; £4 onwards, add 1*d.* per 2*s.* per week, or 10*d.* in the £ per week.

IV. *Allocation of Expenditure.*

The expenditure may be roughly allocated as follows, varying according to the nature of the work :

Materials and equipment	50/70 %	99 % national Less than 1 % foreign
Labour.....	50/30 %	100 % national.

V. *Effects on Resumption of Economic and Industrial Activities, and on Unemployment.*

These works form part of a comprehensive scheme directly designed to relieve unemployment, which has been greatly reduced in consequence. Incidentally, a large part of this expenditure was really of a capital and reproductive nature and, as far as practicable, funds were not provided from this source to meet the cost of ordinary maintenance work, which was considered to form a more appropriate charge on the Consolidated Revenue Fund of the State.

DEPARTMENT OF LABOUR AND INDUSTRY.

Scheyville Agricultural Training Farm.

1. *(a)* Erection of dairy buildings, piggeries, silos and men's quarters.
   (b) (i) Grubbing and clearing lands;
   (ii) Fencing.

2. The works have been or are being carried out under the Emergency Relief Work Scheme, under the general supervision of the manager of the farm.

3. The funds for the carrying-out of these works are provided by the Unemployment Relief Council by way of grant to this Department.

4. *(a)* As to the works mentioned in 1 *(a)* :

	Cost	
	Materials and equipment	Labour
Dairy buildings ..... Piggeries ..... Silos ..... Men's quarters	£781	£564

(b) The works enumerated in 1 *(b)* are at present proceeding, and the below-mentioned figures cover labour costs only as to *(i)*, and also purchase of material as to *(ii)*, to date.

	Cost	
	Materials and equipment	Labour
	£ *s.* *d.*	£ *s.* *d.*
(i) Clearing and grubbing lands	—	256 15 5
(ii) Fencing	234 12 5	41 9 10

THE TREASURY.

The information desired in connection with main public works, in so far as the Sydney Harbour Trust is concerned, is as shown hereunder :

I.

(a) *Dredging.*—An amount of £73,745 was expended from loan funds on dredging since January 1st, 1929, diminishing from £41,000 for the year ended June 30th, 1929, to £5,400 for year ended June 30th, 1934.

Wharfage Scheme, Glebe Island.—This locality has been developed for the storage and export of wheat. During the period under review, two large sheds were erected and equipped with machinery and appliances, a wharf extension was completed and road and railway facilities were provided.

Nos. 24 and 25 *Berths, Pyrmont.*—Two large deep-sea berths with concrete decks were provided.

Nos. 7 and 10 *Berths, Pyrmont.*—Two large deep-sea berths with concrete decks, a singler-decked cargo-shed and rail facilities have been provided.

White Bay Coal Wharf.—This wharf was partly constructed and will be completed at a later date.

Sundry Small Works.—A number of small works were carried out, the chief of which were :

Roofing at No. 28 berth, Darling Harbour.
Shed extension, No. 37, Darling Harbour.
Improvements at Stone Store, Pyrmont.
Goat Island slipway.
Submarine rock removal.
Roadways at Rozelle Bay wharves.

(b) No large works are at present in course of construction.

(c) The following works will be proceeded with as justified by the increasing requirements of shipping :

Glebe Island.—Erection of No. 3 wheat shed.

Bagged Wheat Sheds.—Provision of additional machinery and equipment.

Nos. 24 and 25 *Berths, Pyrmont.*—Completion of wharf; erection of cargo-sheds and construction of roads and approaches.

Nos. 7 and 10 *Berths, Pyrmont.*—Construction of two oversea wharves, three cargo-sheds, mechanical equipment and central roadway.

White Bay Coal Berths.—Construction of a large coal-wharf with rail facilities. After the erection of this wharf, the coal-jetties at Pyrmont will be demolished, the removal of which will enable the construction of berths Nos. 7-10 Pyrmont to proceed.

II.

The work is carried out by the Sydney Harbour Trust Commissioners by the day-labour system on areas vested in them.

III.

Revenue Expenditure on works is provided in a special section, " Sydney Harbour Trust Fund ", in, and forms a part of, the State budget.

Capital Expenditure is financed from loans raised by the Commonwealth Government and apportioned to the State and then allocated by the Treasury to the various Departments. Such allocation forms part of the State Capital Debt.

IV.

The total expenditure was £441,853, allocated as follows :

	£
Labour	230,185
Material and equipment	211,668
Total...	£441,853

Practically the whole of the material and equipment was of local origin. A somewhat similar proportion of labour and material would apply in any contemplated work.

THE TREASURY.

Addendum.

1. *Revenue Expenditure.*

All expenditures met from the Consolidated Revenue Fund, Government Railways Fund, Metropolitan and Newcastle Transport Trust General Funds and the Sydney Harbour Trust Fund are covered by appropriations of Parliament on the estimates as submitted to Parliament annually.

The Main Roads Department has control of its own funds, such funds being made available to the Main Roads Department under statute. Report is made to Parliament annually by the Department.

The revenues of the Hunter District Water Supply and Sewerage Board are paid to the Special Deposits Account at the Treasury for credit of the Board.

The revenue expenditures of the Board are met from the Special Deposits Account. Estimates of the operations of the Board are noted in the budget papers submitted to Parliament annually.

Deficits have been financed by the issue of short-dated Treasury bills.

2. *Loan (Capital) Expenditure.*

All loan expenditure is authorised by Parliament on the loan estimates submitted to Parliament annually.

Under the Financial Agreement between the Commonwealth and the States, loans are raised by the Commonwealth Government to cover the loan requirements. The loan moneys raised are paid into the loan pool (General Loan Account) and all requirements provided for on the loan estimates are met from this pool. All loans since 1929 have been raised internally.

The Metropolitan Water, Sewerage and Drainage Board, the Rural Bank of New South Wales and local governing bodies have borrowing powers quite apart from State loans.

State loans, loans of the Metropolitan Water, Sewerage and Drainage Board and the Rural Bank of New South Wales are guaranteed by the State of New South Wales, the security being the Consolidated Revenue Fund of the State.

Business and industrial undertakings and certain State activities recoup the State for that part of the interest paid by the State on the loan moneys made available to them, which forms part of the Loan Capital Debt of such undertakings or activities.

The Closer Settlement Fund, which is a separate fund, also recoups the State revenue for that portion of the interest attributable to the loan moneys made available for closer settlement purposes.

In the cases of capital works, such as water, sewerage and drainage works, constructed for municipal councils, etc., the capital debt is repayable over various extended periods by instalments covering principal and interest.

DEPARTMENT OF LOCAL GOVERNMENT.

On the votes of this Department, there is a small sum allocated each year for the purpose of making grants to shire and municipal councils to assist in the construction of urgent works, to meet cases of emergency such as floods, bush fires, etc. The amounts distributed, however, are necessarily small, and as such are not worthy of inclusion in the statement asked for.

The Unemployment Relief Council has made available from time to time considerable sums as grants and advances to shire and municipal councils for the construction of public works, but it is understood that particulars in this regard have been furnished by the Unemployment Relief Council, and it is considered unnecessary to duplicate the information from this Department.

The method employed by councils for the purpose of financing major public works is usually the raising of special loans under the Local Government Act, 1919. During recent years, however, on account of the general financial position, the amount of loans raised has gradually diminished, until, at the present time, it is almost negligible. Since 1929, councils have carried out little or no work of the character mentioned in the circular letter, with the exception of the Clarence River County Council, which borrowed sums amounting to £104,000, and the Newcastle City Council, which borrowed £50,000 for extension of electricity undertakings.

* * *

South Australia.

ENGINEERING AND WATER-SUPPLY DEPARTMENT.

Information asked for in the Circular Letter under items I *(a)*, *(b)*, *(c)*, II and III is given in the table below.

I. Brief description of the main public works undertaken since 1929	Actual cost £	II. Principal administrative methods followed or contemplated	III. Methods employed for financing such works
(a) WORKS UNDERTAKEN SINCE THE BEGINNING OF THE YEAR 1929 AND NOW COMPLETED.			
General maintenance work throughout the Department from 1929 to 1932	641,582	Departmentally	Financed from revenue
Construction Work.			
Construction of new roads outside district councils.....	13,635	„	Financed from loan
Construction of locks, etc., River Murray. Contribution from South Australia	395,373[1]		
Construction of various water supplies under Water Conservation Act	8,000	Departmentally	Financed from loan

[1] See footnote at end of table.

I. Brief description of the main public works undertaken since 1929	Actual cost £	II. Principal administrative methods followed or contemplated	III. Methods employed for financing such works
(a) WORKS UNDERTAKEN SINCE THE BEGINNING OF THE YEAR 1929 AND NOW COMPLETED *(contd.)*			
Adelaide Water District :			
Service tank, Wattle Park	27,400	Private contract	Financed from loan
Laying main from Wattle Park tank to trunk main	21,003	Departmentally	,,
Service tank, Darlington	5,926	Private contract	,,
Laying main from Darlington tank to trunk main	19,973	Departmentally	,,
Athelstone : Laying 333 chains of 15″ trunk main	17,624	,,	,,
Laying mains, etc.	219,439	,,	,,
Barossa Water District :			
Laying sundry mains, etc.	8,798	,,	,,
Beetaloo Water District :			
Between Clements Gap and Keilli : Laying 2 miles of 15½″ cast-iron main	11,723	,,	,,
Between Kadina and Wallaroo : Laying 5¼ miles of 8″ main	13,850	,,	,,
Hd. Redhill : Laying 234 chains of 15½″ cast-iron main to replace 17″ steel main	15,656	,,	,,
Laying sundry mains, etc.	32,657	,,	,,
Tod River Water District :			
Construction of service reservoir, Pimbaacla	7,588	Private contract	,,
Hd. Stokes : Construction of 500,000 gallon reinforced concrete tank	3,094	,,	,,
De-aeration plant, tanks, etc.	5,535	,,	,,
Laying sundry mains, etc.	177,730	Departmentally	,,
Warren Water District :			
Hd. Upper Wakefield : Construction of 20,000,000 gallon reservoir	14,788	Private contract and departmentally	,,
Hd. Nuriootpa and Light : Laying 8 miles 50 chains of 6″ main	16,245	Departmentally	,,
Laying sundry mains, etc.	14,278	,,	,,
Country Water District :			
Laying sundry mains, etc.	67,357	,,	,,
Adelaide Sewers :			
Construction of permanent pumping stations	25,342	Private contract and departmentally	,,
Construction of Glenelg treatment works	61,587	,,	,,
Brighton, Seacliff and Kingston Park : Laying main sewer from Somerton Pumping Station	17,330	Departmentally	,,
Laying sewers : Henley Beach to Grange	49,909	,,	,,
Laying sewers : Edwardstown East, etc.	13,967	,,	,,
Laying sewers : Hayhurst Black Forest, etc.	16,154	,,	,,
Laying sewers : Camden Estate	16,972	,,	,,
Laying sewers : Edwardstown	13,882	,,	,,
Laying sewers : Pennington, etc.	11,190	,,	,,
Laying sundry sewers, etc.	303,238	,,	,,

I. Brief description of the main public works untaken since 1929	II. Actual or estimated cost £	II. Principal administrative methods followed or contemplated	III. Methods employed for financing such works
(b) WORKS IN PROGRESS.			
General maintenance work throughout the Department for year ending June 30th, 1933	200,000	Departmentally	Financed from revenue
Construction work.			
Adelaide Water District :			
Construction of Mt. Bold reservoir	378,000	Private contract	Financed from loan
Adelaide Sewers :			
Reticulation sewers : Woodville	80,820	Departmentally	,,
Trunk sewers : Woodville	67,780	,,	,,
Pumping station : Queensbury	7,090	,,	,,
Treatment works : Port Adelaide	108,000	Private contract and departmentally	,,
Semaphore sewer : Reconstruction	8,000	Departmentally	,,
Country Water Districts :			
Yeldulknie : Channel to reservoir	1,100	,,	,,
Yeldulknie : Leakage at reservoir	5,500	,,	,,
Quorn : Enlargement of catchment area, etc.	11,200	Private contract and departmentally	,,
Spring Creek Water District :			
Regrading, etc., mains	2,000	Departmentally	,,
Tod River Water District :			
Laying mains, etc.	60,000	,,	,,
River Murray : Weirs, etc. :			
Construction of locks, etc. : Contribution from South Australia	129,000[1]		
(c) PROPOSED ADDITIONAL WORKS.			
General maintenance work throughout the Department for year ending June 30th, 1935	210,000	Departmentally	Financed from revenue
Adelaide Water District :			
Laying sundry mains, etc.	20,000	,,	Financed from loan
Adelaide sewers :			
Laying sundry sewers, etc.	50,000	,,	,,
Cowandilla division sewer	22,000	,,	,,
Brooklyn Park : Pumping station	4,000	,,	,,
Country Water District :			
Sundry main-laying	15,000	,,	,,
Loxton pumping plant	3,500	,,	,,
Mt. Gambier pumping plant	4,000	,,	,,
Streaky Bay supply	20,000	,,	,,
Beetaloo and Bundaleer Water District :			
Laying mains and services, etc.	54,000	,,	,,

[1] See footnote at end of table.

I. Brief description of the main public works undertaken since 1929	Estimated cost £	II. Principal administrative methods followed or contemplated	III. Methods employed for financing such works
(c) PROPOSED ADDITIONAL WORKS *(contd.)*			
Tod River Water District :			
Laying mains services, etc.	12,000	Departmentally	Financed from loan
Treating portion of trunk main to protect same from corrosion	50,000	,,	,,
Head works, additional catchment areas, reservoirs, etc.	250,000	,,	,,
Warren Water District :			
Laying mains and services, etc.	10,000	,,	,,
Relaying portion of trunk main	10,000	,,	,,
Hansborough pumping plant	20,000	,,	,,
River Murray Weirs, etc. :			
Construction of locks, barrages, etc. : Contribution from South Australia	100,000[1]		

[1] The work of constructing the locks on the River Murray is being carried out by the River Murray Commission, a body established by the consent of the States of New South Wales, Victoria and South Australia, in conjunction with the Commonwealth Government. Each Government contributes one-quarter of the necessary funds for the purpose of financing the works.

IV.

The expenditure upon these works is approximately equally divided between the labour and material. The latter is almost exclusively produced in Australia, the proportion supplied by foreign industry being almost negligible.

V.

The average number of employees during 1933-34 has been 2,042, including 303 salaried officers. Of this number, 1,364, including 73 salaried officers, have been employed upon Loan Account, and 678, including 230 salaried officers, upon Maintenance Account.

The discontinuance of all loan construction work would directly result in approximately 1,364 men being thrown out of employment, and in addition to this would be the effect upon industries supplying the materials for this work.

THE ARCHITECT-IN-CHIEF'S DEPARTMENT.

The expenditure of funds by this Department in construction of public buildings between 1929 and the present date amounts to £644,210 with a further liability of £72,000 to complete the works now under construction, the amounts being financed from loan funds. The works include school buildings, hospital buildings, police stations and court-houses, gaols and prisons, and other Government buildings.

Of the above amounts, it is estimated that 40% was spent on wages on construction, the balance for purchase of building material and equipment.

The policy of the Government is to give preference to Australian and British materials, and it is impossible to estimate the quantity supplied by foreign countries.

The tentative loan estimates for the next financial year show £649,000 as estimated costs of various schemes, including completion of Parliament House, the Centenary Hall at Wayville Showgrounds, new Government office block, Molton Street, women's hospital and operating-theatre blocks at Adelaide Hospital, but whether the Government intend to approve of the programme submitted it is at present impossible to say.

As regards the number of men employed on buildings being erected under this Department, it is estimated that 250 men are engaged on erection of buildings at present, but, until the programme for 1934-35 is approved, it is impossible to estimate the number of men to be employed next financial year.

RAILWAYS DEPARTMENT.

The money expended by the Railways Department on loan work since 1929 is as follows :

Year	£
1929-30	685,340
1930-31	128,522
1931-32	80,612
1932-33	101,207
1933-34	82,953
Total...	£1,078,634

I.

No new railway lines have been built and the whole of the expenditure has been on miscellaneous accommodation works. The only single large item of expenditure during these years was an amount of £432,000 spent in the year 1929-30 on new rolling-stock, consisting chiefly of 250 bogie sheep vans and 2 " Mikado " type locomotives.

II.

The works were carried out by the permanent supervising staff of the railways.

III.

The above expenditure may be said to have been charged to the extraordinary budget of the State, in that it was wholly loan expenditure.

IV.

It is impossible to allocate this expenditure between wages and material, on account of the large number of minor works comprising the total.

The whole of the works above were really required in connection with the ordinary business of the railways.

The above statement is concurred in by the Comptroller.

HARBOURS BOARD DEPARTMENT.

I.

(a) Since 1929, Ocean Steamers' Wharf comprising three berths of 32 feet draft, and No. 1 Quay, comprising two berths of 27 feet draft, have been reconstructed and equipped with new cargo-sheds, rail-tracks, roadways, etc. In addition, the Osborne coal-handling wharf has been reconstructed. The deepening of the Port Adelaide River to a depth of 27 feet and minimum bottom width of 250 feet was completed, and there now remains only a small section to be dredged to give a minimum width of 300 feet.

(b) The reconstruction of Port Adelaide Wharves has been continued. Commercial Wharf is nearing completion, whilst the reconstruction of McLaren Wharf and the south side of the basin now known as " No. 1 Dock " is in hand. In addition, the portion of the old basin between T Head, Dalgety's and Brown's wharf, has been completed, and the reclamation of the old dock east of Fisher Bridge is in hand.

(c) It is expected that the above work will be completed in about two years' time; beyond that, it is difficult to forecast further development.

II.

The works are carried out by the South Australian Harbours Board, a branch of the State Government Service, portions of the work being sublet to contractors.

III.

The work is financed from loan funds.

IV.

The amount of loan money involved is :

Year	£
1929-30	223,600
1930-31	48,872
1931-32	122,776
1932-33	67,440
1933-34	207,500

The division of materials and labour is roughly in the proportion of materials 60%, labour 40%.

WOODS AND FORESTS DEPARTMENT.

I.

Description of work—afforestation. Consists mainly of the establishment of pine plantations :

(a) The establishment of approximately 25,000 acres of pines.

(b) The annual planting programme is approximately 7,000 acres. The current year's planting is now in hand.

II.

The work is carried out under the provisions of the Woods and Forests Act of 1882. This Act is now administered by the Honourable Minister of Afforestation. The work is carried out by the Department and not by contract.

III.

The whole of the work is financed by loan funds.

IV.

The present programme of the Department is the establishment of 50,000 acres of pines. The estimated cost is approximately £250,000. Approximately 75% of this sum will represent wages and miscellaneous social expenditure and 25% material and equipment.

V.

The effect of this work will be to supply a large percentage of the State's timber requirements. A large proportion of the expenditure on afforestation is represented by labour, and the effect on unemployment has been considerable.

HIGHWAYS AND LOCAL GOVERNMENT DEPARTMENT.

I. *Classification of Public Works undertaken.*

(a) The construction, reconstruction and repair of various roads and bridges, including the reconstruction in bituminous penetration macadam of approximately 400 miles of main roads;

(b) Continuation of the above-mentioned work;

(c) Continuation of the above-mentioned work.

II. *Methods under which the Work is carried out.*

A. Departmentally—in which case contracts are let for supply of materials, cartage, etc., and the labour is directly employed by the Department.

B. By a system of grants to local governing authorities, subject to inspection of the work by departmental officers. These local authorities carry out much the greater proportion of the work under a system of petty contracts.

III.

The works are financed from revenue, partly from funds voted by the State Parliament and partly from funds received from the Commonwealth Government in respect of a portion of duties on motor-spirit. No portion of the cost of this work is, under present conditions, charged to any loan account. The total annual expenditure, including interest charges, is about £700,000.

IV.

An approximate division of the expenditure would be :

	Percentage
Materials	26
Labour	52
Interest, etc.	22

V.

The work in question is part of a continuous programme for providing adequate means of transport and communication to meet the needs of the State. The work incidentally provides employment for a considerable number of men. For 1934-35, it is estimated that the average number of men directly employed by the Department will be 430, that an additional 70 will be employed by contractors in supplying metal, etc., and that, in addition, 900 men will be directly and indirectly employed by local governing authorities in carrying out road works from departmental grants allotted.

* * *

Western Australia.

I. *Brief Description of Main Public Works.*

	(a) Works undertaken and completed since 1929	(b) Now in course of execution	(c) Works contemplated
	Construction		*Construction*
Railway lines	Lake Brown-Bullfinch, Kulja-Bonnie Rock, Meekatharra-Wiluna, Lake Grace - Northcliffe.	Regrading, deviation, duplication and ballasting of sections of tracks, water supplies.	Yuna-Dartmoor, southward from Southern Cross. Provision of a central sub-station for tramways.
	Additions and Improvements		*Additions and Improvements*
	Duplication of tracks, deviations, sidings, stockyards, etc., houses for employees, extensions to existing tram lines, etc.		Regrading, deviation, ballasting, etc. Additional rolling-stock, superheating locomotives, fitting vacuum brakes to existing wagons.
Agricultural land reclamation	Irrigation and drainage in south-west portion of State.	As in Column *(a)*.	Continuation of works listed in Column *(a)*.
Drinking-water supplies and sewerage disposal, etc.	Construction of reservoirs for metropolitan water supplies, establishment of pumping stations and reconditioning mains, sewerage installations, Perth, Fremantle, and suburbs. Storm-water drainage, Perth, Fremantle, and suburbs.	Works similar to those listed in Column *(a)*. The principal work now in hand is the Canning Dam, which will take about five years to complete.	Extension of existing water-supply service. Reconditioning of mains, metropolitan area. Extension of sewerage installation and storm - water drains.
Harbours and rivers ..	Victoria Quay (suspended), Geraldton Harbour (suspended), Swan River improvements. Construction of a "Stirling" dredge and 20-ton crane for Fremantle Harbour Works.	*Bunbury Harbour Works :* Extension of mole and construction of groin. *Esperance :* New jetty. *Geraldton :* Breakwater extension, and construction of new shed. *Swan River :* Improvements.	Reconstruction Fremantle fish jetty. Victoria Quay reconstruction.
Building construction.	Erection of schools, administrative buildings, etc.	As in Column *(a)* and extensions to mental hospital and abattoirs.	As in Column *(a)*.
Electric installation ..	Minor extensions to existing power station and extension of service mains.	As in Column *(a)*.	Power-house extensions, and new plant (special loan of £400,000 approved for this purpose).

Works carried out by Local Authorities.

Undertaken and completed since 1929 :

Harvey Road Board : Town water supply, £3,000.
Moora Road Board : Town water supply, £3,000.
Bunbury Road Board : Town water supply, £3,000.

II.

The whole of the works listed in the table on page 45 were, and are, being carried out under the direct authority of the Central Government, and those listed above were carried out under the direction of the local authorities, but subject to the supervision of an engineer made available by the Central Government.

III. *Method employed for financing the Works.*

In regard to the works listed on the preceding page, with the exception of " roads and bridges ", the expenditure is financed from loans raised by the Loan Council. Expenditure on roads and bridges is financed mostly from the proceeds of a special tax on petrol, imposed and collected by the Commonwealth and distributed amongst the States. The balance of the expenditure on this item comes from loans raised by the Loan Council.

In regard to works carried out by local authorities, the finance was provided by a special grant from the Commonwealth Government.

Loan funds made available with the approval of the Loan Council are covered by issues of inscribed stock, and those acquired by local raising are secured by instalment stock issues.

Following are the methods used for raising the necessary funds :

Up to 1929 : Public loans (internal and external).

During 1931-32 : The loan requirements were financed by the Commonwealth Bank on the security of short-term Treasury bills. The amount so advanced is gradually being funded from the proceeds of public loans raised on the open market.

Since November 1932 : Internal public loans (*i.e.*, within Australia).

Repayment of loans : This is provided for by the establishment of a sinking fund which, on the following basis of contributions, will redeem the loans in periods of 58 and 53 years, respectively :

Loans raised prior to June 30th, 1927 : Total contribution 7*s.* 6*d.*%—viz., 5*s.*% by the State, 2*s.* 6*d.*% by the Commonwealth.

Loans raised since July 1st, 1927 : Total contribution 10*s.* %—viz., 5*s.* by the State and 5*s.* by the Commonwealth.

IV. *Allocation of Expenditure.*

The annual expenditure on works since the year 1929-30 has been as follows. The figures include the expenditure for " roads and bridges " provided from the special petrol tax :

Year	£
1929-30	2,343,154
1930-31	1,329,609
1931-32	1,070,860
1932-33	1,933,697
1933-34	2,324,210

Prior to the year 1932-33, no dissection of the expenditure was made, but for the two years 1932-33 and 1933-34, the dissection was as follows :

Expenditure on Unemployment Relief : Dissection for 1932-33 *and* 1933-34.

Period	Average number of men employed	Expenditure			Average costs per man		
		Wages	Material and other	Total	Annual		Per week
					Wages	Over all	Wages
		£	£	£	£	£	£ s. d.
1932–33	8,615	1,247,564	686,133	1,933,697	145	224	2 15 9
1933–34	9,211	1,391,134	933,076	2,324,210	151	252	2 18 1
Average...	8,913	£1,319,349	£809,604	£2,128,953	£148	£238	£2 16 11

The materials were mostly of Western Australian origin, and it was only where it was impossible to secure Western Australian material that products of other States or countries were used. Products not of Western Australian origin would represent only an insignificant proportion of the total expenditure on material.

V. *Effect on Economic and Industrial Activities.*

The expenditure of such a large amount of loan money has naturally necessitated the production of a considerable quantity of material which has resulted in cement works, steel and wooden pipe manufacturers and other producers working at full pressure.

An increased demand has been created for clothing and household articles, and the result generally has been that a substantial number of unemployed have been re-absorbed in private industry.

This is borne out by the following figures :

	Percentage of trade-union members unemployed	Number of unemployed on sustenance	Number on Government relief works	Total on Government assistance
June 30th, 1932.....	30.3	10,276	6,115	16,391
June 30th, 1933.....	26.0	6,063	7,271	13,287
June 30th, 1934.....	18.3	1,225	9,950	11,175

CHILE.

[*Translation from the Spanish.*]

GENERAL DIRECTORATE OF PUBLIC WORKS.

Memorandum on the Effects obtained from the Execution of the Public Works included under I of the Questionnaire; Resumption of Economic and Industrial Activity; Suspension of those Works.

At the beginning of 1929, the construction of certain works forming part of an extraordinary plan was begun and pursued with great activity; this plan authorised the expenditure of 1,575 million, of which 1,028 millions were allocated to the Directorate of Public Works. Further sums were provided for under the Road Law and other special laws.

On account of the Treasury crisis, the works begun were for the most part suspended about the middle of 1931, some being resumed later in order to provide work for the unemployed. The general position of the works at about the middle of 1931 was as follows : works had been completed costing 264.7 million dollars, while, to complete the works in course of execution, a further expenditure of 338.6 millions was required.

In these circumstances, the economic return was sacrificed, but the execution of the works which it was possible to continue was of material assistance in solving the problem of unemployment, and for two and a half years (from the middle of 1931 to the end of 1933) employment was provided for an average of 30,000 men out of a total number of unemployed estimated in September 1931 at some 120,000 men.

During the years 1929 and 1930, the execution of the works naturally had a direct influence on the building and allied industries (building materials, transport, etc.), and an appreciable resumption of activity occurred at that time.

The suspension of the works in the middle of 1931 and the liquidation of a large number of important contracts, added to the problems of unemployment and the absence of any economic return, had a very serious effect on the national Treasury; many undertakings were and still are paralysed, and in the meantime the Government has been obliged to take over the machinery, installations and material which, in the case of works recently begun, represented almost the whole of the capital sunk in them.

At the present time, the General Directorate of Public Works, according to the inventories made, has a sum of approximately 20 million dollars locked up in machinery alone, part of which is not being used, and the upkeep and repayment in respect of which represents a considerable amount each year.

Nevertheless, the flexible organisation of the service has enabled it to cope satisfactorily with the abnormal conditions by which public works have been hampered during the last few years.

MINISTRY OF NATIONAL ECONOMY.

Department of Railways of the General Directorate of Public Works.

Information regarding Railways.

I.

1. *Works carried out in* 1929.

The following railway lines were completed in 1929 :

(a) San Clemente-Mariposas railway—Extension of the railway from Talca to San Clemente : Gauge, 1 metre; length, 15.5 kilometers; cost, 1,860,167.03 dollars; open to traffic.

(b) Branch to the Pampas Pissis and Nebrask of the Iquique-Pintados railway : Gauge, 1 metre; length, 27 kilometers; cost, 1,920,767.48 dollars; completed and open to traffic.

2. *Works begun in* 1929.

Loncoche-Villarrica railway : Length, 42 kilometres; gauge, 1.68 metres; estimated cost, 10,748,000 dollars; completed and opened to traffic in 1934.

Quino-Galvarino railway : Length, 29 kilometres; gauge, 1.68 metres; estimated cost 8,387,000 dollars; nearing completion.

Cocule-Lago Ranco railway : Length, 66.4 kilometres; gauge, 1.68 metres; estimated cost 15,480,000 dollars.

Peleco-Purén railway : Section to be constructed on the Lebu-Los Sauces line; length, 45.6 kilometres; gauge, 1.68 metres; estimated cost 22,800,000 dollars.

" Las Raices " tunnel on the Transandine railway via Lonquimay, on the extension of the Pua-Curacautin branch (gauge, 1.68 metres); length of tunnel, 4,555 metres; estimated cost, 16,400,000 dollars.

3. *Works projected or with Plans completed in* 1929 *and now about to be put in hand.*

Transandine railway via Lonquimay : Gauge, 1.68 metres; length, 75 kilometres. Diversion of the railway line from the Avenue Matucana; gauge, 1.68 metres; length, 4 kilometres (underground).

Los Alamos-Curanilahue railway : Gauge 1.68 metres; length, 26.7 kilometres; estimated cost, 20,028,305 dollars.

Corte Alto-Maullín railway : Gauge, 1.68 metres; length, 109 kilometres; estimated cost, 33,145,070.62 dollars.

4. *Works in course of Execution* (1934).

	Gauge (Metres)	Length (Kilometres)	Estimated cost (Dollars)
Antofagasta-Salta railway	1.00	177.6	70,692,471.50
Doñihue-Coltauco railway	1.68	13.5	1,076,891.87
Hualañé-Licantén railway	1.00	11.2	1,378,164.44
Quino-Galvarino railway	1.68	29.1	8,100,721.00
Peleco-Purén railway	1.68	45.6	22,800,000.00
Cocule-Lago Ranco railway	1.68	66.4	15,188,451.17
Corte Alto-Maullín railway	1.68	109.0	33,145,070.62
" Las Raices " tunnel	1.68	4.5	16,400,000.00

5. *Railways projected or with Plans completed and now about to be built.*

	Gauge (Metres)	Length (Kilometres)
Arica-Zapiga railway	1.68	178
Carahue-Puerto Saavedra railway	1.68	29
Crucero-Puyehue railway	1.68	32
Freire-Toltén railway	1.68	80
Santa Bárbara-Rapa railway	1.68	15
Cunco-Cordillera railway	1.68	25
Salamanca-Cuncumen railway	1.68	40
Cabildo-Putaendo railway	1.00	65
Mariposas-Lircay railway	1.00	17.5
Petorca-Chincolco railway	1.00	9
Curicó-Los Queñes railway	1.00	44
Santiago-Valparaiso via Casablanca railway	1.68	153
Las Cabras-San Antonio railway	1.68	120
Coltauco-Peumo railway	1.68	12
Los Alamos-Curanilahue railway	1.68	23
Galvarino-Boroa railway	1.68	40

II. *Administrative Methods.*

The Directorate of Public Works is responsible for the construction of railways; as soon as they are completed, they are handed over to the State Railways, by which they are operated. Public tenders are invited for their construction and inclusive contracts are placed. In the case of less important works, contracts are placed at prices per unit, and in the case of " Las Raices " tunnel, a " cost-plus " contract was concluded.

III. *Methods of Financing.*

Between 1929 and 1931, the appropriations for these works were embodied in an extraordinary budget, which was financed by means of foreign loans. From 1932 down to the present date, the appropriations have been placed in special annexes, which form part of the general national budget, and are financed out of ordinary resources, their purpose being to combat unemployment.

IV.

A sum of 118,492,000 dollars has been expended on railway construction from 1929 down to the present date. The approximate cost of the material and equipment imported from abroad for the various works is 36,400,000 dollars; a sum of 73,749,000 dollars has been expended on national material and on labour, while the expenditure incurred under social legislation amounts to 8,343,000 dollars.

V.

The majority of the railway lines in Chile have been, and are still being, constructed by the State, through the Railway Department of the Directorate of Public Works, which, in addition to the actual construction, is responsible for preparing the plans and estimates for the work.

As there are prospects of a considerable further development of the country's resources, the railways have not in every case been constructed merely with a view to the immediate commercial return.

The State Railways have taken over the operation of the lines built by the Government, and only during the last few decades have receipts balanced expenditure; but the chief reason for constructing these communications has always been to develop agriculture and the mining industry and to connect distant parts of the country. By reason of its geographical and orographical configuration, Chile has to contend with exceptional difficulties as compared with other countries that have been able to carry out these works at a lower cost and in some cases by utilising routes dating from earlier times.

ROADS DEPARTMENT.

I. *Brief Description of the Main Public Works.*

(a) *Works begun in* 1929 *and now completed.*

The work on roads and bridges begun in 1929 has now been completed. In 1929, the construction of 453 kilometres of permanent roads of reinforced concrete, asphalt and macadam was begun. The following works may be specially mentioned :

Pozo Almonte-Huara road : Asphalt.
Viña del Mar-Concón road : Concrete.
Valparaiso-Casablanca road : Concrete.
Casablanca-Curacaví road : Concrete.
Marruecos-Curacaví road : Concrete.
Santiago-San Bernardo road : Concrete.
Paso Hondo-Peña Blanca road : Asphalt.
San Bernardo-Nos road : Asphalt.
Providencia-Tropezón road : Concrete.
Santiago-Monte road : Concrete.
Melipilla-Sepultura road : Concrete.
Concepción-Talcahuano road : Asphalt.
San Antonio-Cartagena road : Asphalt.

Others also have now been completed.

The year 1929 was marked by an enormous extension of road works. For instance, at the end of 1928, only eight contracts for roads had been placed, whereas at the end of 1929, 22 main roads were under construction at an estimated cost of over 84 million pesos. During 1929, 54,826,109 dollars was expended on road construction.

In the same year, great progress was made in the construction of bridges. With a total length of 1,601 metres, 19 bridges were completed at a cost of 7,677,984 dollars. With a total length of 5,017 metres, 62 bridges were under construction, the cost amounting to 20,641,199 dollars, making a total of 81 bridges under construction during 1929 at a cost of 28,319,184 dollars.

During 1929, the total expenditure on bridges amounted to 9,070,532 dollars.

The cost of the upkeep of roads and bridges during that year amounted to 28,255,202 dollars.

All these 81 bridges have now been completed.

(b) *Works under Construction at the Present Time.*

In the present year (1934), the following roads are under construction :

	Dollars
Melipilla-San Antonio	6,600,000
Melipilla-Ibacache	1,030,000
Valparaiso-Los Andes	10,360,000

	Dollars
Llolleo to the south	1,640,000
Cartagena Station-Playa Chica	260,000
Concepción-Búlnes	14,700,000
Valdivia-La Unión	7,000,000
La Unión-Lago Ranco	1,060,000
Lanco-Panguipulli	2,000,000
Osorno-San Juan de la Costa	1,290,000
Ovalle to the Interior (Variante Recoleta)	160,000
Osorno-Termas de Puyehue	896,483
Longaví-Miraflores	320,946

During the present year (1934), there are 13 bridges under construction, at a cost of 6,073,857 dollars.

(c) *Works the Execution of which is in Contemplation or Schemes for which are in Preparation.*

As regards both roads and bridges, the execution of proposed works now depends on the annual revenue obtained under the Road Law, which varies between 30 and 40 million dollars, and on appropriation in an extraordinary budget amounting to approximately 10 million dollars.

II. *Principal Administrative Methods followed for the Execution of the Works.*

The construction of roads and bridges is carried out by public tender and inclusive contracts.

During the last two years, the system of employing labour by the day has occasionally been adopted with a view to combating unemployment. This system has usually been employed for road repairs.

The Roads Department, which is under the General Directorate of Public Works, attached to the Ministry of National Economy, is responsible for all work on roads and bridges.

III. *Principal Methods employed for financing this Work.*

The work on roads and bridges is financed by the annual revenue obtained under the Road Law (Law No. 4851).

From 1929 to 1931, however, recourse was had to foreign loans to supplement the funds obtained under this law, with a view to the application of an extraordinary scheme of public works. At the present time, the Roads Department's funds consist of the revenue obtained under Law 4851, which, as already stated, varies between 30 and 40 million pesos a year, and the appropriation in the extraordinary budget referred to in No. 1 *(c)*.

IV. *Approximate Estimate of the Allocation of Expenditure on the Works referred to in I, as between Materials and Equipment provided by National or Foreign Industries, Labour and the Expenditure incurred in Application of the Social Laws.*

From 1929 to 1933 inclusive, the following sums were expended on bridges :

	Dollars
1929	9,070,532
1930	8,392,284
1931	6,354,552
1932	2,773,839
1933	1,472,048
Total...	28,063,255

For each year, the percentage represented by materials, labour, etc., has been calculated as follows :

	1929 %	1930 %	1931 %	1932 %	1933 %
Imported materials and equipment	30.4	31.4	24.3	21.4	18.4
National materials and equipment	14.3	14	18.3	21.8	24.6
Labour.....	23	22.1	26.4	25	27.8
Overhead expenses	13.9	14	12.2	12.8	12.1
Social legislation	5.7	5.7	6	6.3	6.5
Contractor's profit.....	12.5	12.8	12.8	12.7	10.6

In establishing these percentages, no account was taken of the depreciation in the value of the currency, which increases the differences.

These differences are chiefly due to changes in the type of foundation used and to the decrease in imports of cement.

From 1929 to 1933 inclusive, the following sums were expended on the construction of roads :

	Dollars
1929.....	54,826,109
1930.....	46,443,260
1931.....	28,630,786
1932.....	18,260,567
1933.....	7,278,051
Total...	155,438,773

The cost of imported materials was 4,522,452 dollars.

The expenditure incurred in application of social legislation may be estimated at 5% of the amount of the contract for road works, and wages at 50% of that amount, in the case of earth roads and roads metalled with gravel or broken stone.

The following sums were expended on the upkeep of roads and bridges from 1929 to 1933 :

	Dollars
1929.....	28,255,202
1930.....	33,300,000
1931.....	24,814,120
1932.....	41,079,310
1933.....	23,012,210
Total...	150,460,842

The following sums were expended on machinery :

	Dollars
1929.....	2,630,850
1930.....	916,770
1931.....	129,000
1932.....	655,394
1933.....	2,988,063
Total...	7,320,077

From 1929 to 1933, the cost of the surveys made by the Roads Department was as follows :

	Dollars
1929	5,117,708
1930	3,574,448
1931	843,429
1932	759,942
1933	888,372
Total...	11,183,899

IRRIGATION DEPARTMENT.

Particulars of Irrigation Works.

I. *Brief Description of the Main Works.*

The following table gives the chief particulars regarding the irrigation works which were begun or were in course of construction during 1929. In the " Observations " column, it is stated whether the work has been completed, whether it is under construction or whether it has been suspended.

This table also shows the works begun since 1929 and schemes for new works.

II. *Principal Administrative Methods followed for the Execution of the Works and Legal Provisions of an Exceptional or Permament Character relating to Those Works.*

The studies for, and the execution of, irrigation works of general interest are carried out by the State, through the General Directorate of Public Works (Irrigation Department), in accordance with Irrigation Law No. 4445.

The above-mentioned law specifies the form in which these works are to be studied and carried out and the method by which the beneficiaries are to refund to the State the sums expended thereon.

Such sums must be paid back in 36½ years at the rate of 5 % interest and 1 % amortisation and in proportion to the area irrigated by each of the parties concerned.

Repayment starts from the fourth year after the work has been put into use.

The works are carried out by contract or by the Administration.

Contracts are placed by means of public tenders, either on inclusive terms or at prices per unit. Previously, in 1929, contracts were based on the " Cost plus Fee " system, but this was subsequently abandoned.

The works executed by the Administration are carried out by staff working directly under the General Directorate of Public Works (Irrigation Department).

III. *Principal Methods employed for financing the Work.*

The State inserts each year in the Budget Law of the Republic the sums required for the execution of the irrigation works carried out in accordance with Law No. 4445 mentioned above.

IV. *Sums expended up to December 31st, 1933, on the Execution of the Works included in the Attached Table.*

Up to December 31st, 1933, 97 million dollars had been expended on the works included in this table.

I. *Works and Schemes carried out or in course of Execution since* 1929.

Works	Province	New area to be irrigated	Area in which irrigation is to be improved	Estimated cost	Observations
(a) *Work begun or in progress in* 1929.		Hectares	Hectares	Dollars	
1. Caritaya dam	Tarapacá	2,000	1,000	5,500,000	Now under construction.
2. Pachica dam	Tarapacá	2,000		20,000,000	Now under construction.
3. Lautaro dam	Atacama		8,000	11,000,000	Now under construction.
4. J. del Carmen dam	Atacama	20,000	8,000	36,000,000	Suspended in 1931.
5. La Laguna dam	Coquimbo		17,500	8,700,000	Now under construction.
6. Recoleta dam	Coquimbo	12,000	4,000	28,000,000	Dam completed; canals now being made.
7. Cogoti dam	Coquimbo	10,000	4,000	35,000,000	Suspended in 1931.
8. Huintil dam	Coquimbo	4,500	—	17,000,000	Suspended in 1931.
9. Choapa canal	Coquimbo	5,000	—	8,000,000	Suspended in 1931.
10. Culimo dam	Coquimbo	1,400	—	3,200,000	Completed.
11. Vilcuya dam	Aconcagua	25,000	65,000	58,000,000	Suspended in 1931.
12. Pitama dam	Aconcagua	350		1,050,000	Completed.
13. Orozco dam	Aconcagua	1,020		1,400,000	Completed.
14. Ovalle dam	Aconcagua	2,000		2,200,000	Completed.
15. Perales de Tapihue dam	Aconcagua	1,775		2,800,000	Completed.
16. Purisima dam	Aconcagua	420		410,000	Completed.
17. Chacabuco dam	Santiago	5,000		14,000,000	Completed.
18. Colina canal	Santiago	—	2,000	1,100,000	Completed.
19. Lolol dam	Colchagua	1,100	—	1,000,000	Now under construction.
20. Bullileo dam	Maule		32,600	14,000,000	Suspended in 1931.
21. Huelehueico dam	Bío-Bío	600		290,000	Completed.
22. Colicheo canal	Concepción	5,000		450,000	Completed.
(b) *Work begun after* 1929.					
1. Cerrillos dam	Santiago	410		400,000	Completed.
2. Cocalan canal	Colchagua	6,000	3,000	6,650,000	Now under construction.
(c) *Works under Consideration or for which Plans exist.*					
1. Irrigation of Azapa	Tarapacá	2,000		12,800,000	Under consideration.
2. Puerto Oscuro dam	Coquimbo	100		250,000	Under consideration.
3. El Membrillo dam	Aconcagua	1,680		1,230,000	Under consideration.
4. Irrigation of Codegua	Colchagua	2,000	1,000	2,000,000	Under consideration.
5. Maitenes dam	Colchagua	1,200		2,500,000	Under consideration.
6. Planchon dam	Talca	—		1,500,000	Under consideration.
7. Curepto lagoon	Talca		1,000	200,000	Under consideration.
8. Laguna del Maule dam	Talca	—	100,000	7,000,000	Scheme examined.
9. Tutuven dam	Maule	1,600		1,500,000	Under consideration.
10. Bío-Bío north canal	Bío-Bío	5,800		2,000,000	Scheme examined.
11. Allipen canal	Cautín	25,000		4,000,000	Under consideration.

HYDRAULICS DEPARTMENT.

Works carried out from 1929 to Date.

Since 1929, the Hydraulics Department has put in hand 7 new drinking-water supply services in various places and has extended 18 existing services.

The total cost of these works amounts to 60,348,597 dollars, distributed as follows :

	Dollars
Imported materials	38,014,200
National materials	9,663,000
Labour	12,068,000
Social legislation	603,397

During this period, the installation of drinking-water supply services begun prior to 1929 was completed. These works include the installation of 5 drinking-water services and the improvement of 13 existing services.

The total cost of these works amounts to 12,802,309 dollars, of which the sum of 5,675,610 dollars has been expended since 1929—*i.e.*, 3,575,630 dollars on imported materials, 1,108,200 dollars on national materials, 1,135,120 dollars on labour and 56,660 dollars on the application of social legislation.

Since 1929, sewage works have been put in hand in 13 towns and the existing services have been extended in 9 other towns.

The total cost of these works amounts to 23,751,170 dollars, of which 16,269,550 dollars was expended on national materials, 356,270 dollars on labour and 7,125,350 dollars on the application of social legislation. The execution of 10 sewage works begun prior to 1929 and the extension of two services in other towns were also completed. The total cost of these works amounts to 14,359,673 dollars, of which 4,583,716 dollars has been expended since 1929. Of this sum, 3,139,846 dollars was expended on national materials, 1,375,110 dollars on labour and 68,760 dollars on the application of social legislation.

As regards river works, such as the canalisation, dredging, rectification and diversion of rivers and estuaries and the protection of towns and villages from the flooding of rivers and estuaries, the sum of 2,454,131 dollars had been expended on the 9 works begun since 1929. Of this sum, 1,227,061 dollars represents the cost of imported materials, 736,230 dollars that of national materials, 466,240 dollars that of labour and 24,600 dollars the amount expended in application of social legislation. The execution of work begun prior to 1929, the total cost of which amounts to 5,528,026 dollars, was also completed, the amount expended in 1929 being 1,614,128 dollars. Of this sum, 1,105,670 dollars was expended on national materials, 484,250 dollars on labour and 24,200 dollars on the application of social legislation.

I.

(a) All the works begun in 1929 have been completed.

(b) At the present time, one drinking-water service is being installed and 7 services are being improved. The total cost of these works amounts to 3,257,000 dollars, of which 1,553,000 dollars has already been spent.

As regards sewage works, 5 services are being installed and 3 are being extended. The total cost of these works amounts to 12,958,000 dollars, of which 9,300,000 dollars has been expended to date.

As regards river works, 7 canalisations and works for the protection of towns and villages are being carried out at a total cost of 1,940,000 dollars, of which 798,000 dollars has been expended to date.

II.

Drinking-water and sewage works and works for the canalisation or rivers and estuaries are carried out by inclusive contracts, for which public tenders are invited. Works for the protection of towns and villages are carried out for the Administration by the engineers of the Department. All works are executed under the direct supervision of the Hydraulics Department of the General Directorate of Public Works.

III.

During 1929, 1930 and 1931, the works carried out were borne on the extraordinary budget, which was financed by foreign loans.

During 1932 and 1933, most of the works were borne on the ordinary budget, funds for the remaining works being furnished in virtue of special laws designed to combat unemployment, the application of which was made possible by means of internal loans.

In 1934, the works will be borne on the ordinary budget of the Republic.

DEPARTMENT OF ARCHITECTURE.

Works carried out from 1929 to Date.

Since 1929, the Department of Architecture has put in hand the construction of a large number of public buildings and the extension or partial reconstruction of others which were occupied and in use.

The total cost of these works amounts to 105,083,737 dollars, distributed as follows :

	Dollars
Materials	42,033,494
Labour	59,897,730
Application of social legislation	3,152,513

A sum of 84,495,234 dollars has been expended on the buildings which have been completed; of this sum, 33,798,093 dollars was expended on materials, 48,162,283 dollars on labour and 2,534,858 dollars on the application of social legislation.

The total cost of repairs to important buildings and new works on premises already in use amounts to 20,588,503 dollars; the amount expended on materials being 8,235,401.9 dollars, on labour 11,735,446 dollars and on the application of social legislation 617,656 dollars.

Particulars of the sums expended on new works, classified according to the nature of the various services, are given below :

	Dollars
Buildings for various public administrative services	37,674,551
Schools and educational establishments	43,808,562
Police barracks	4,791,601
Swimming-pools	5,603,912
Stadia	1,709,249
Courts of Justice and prisons	8,700,799
Fruit depots, packing-house, etc.	970,277
Communal dwelling for workmen	1,824,786

The chief buildings constructed since 1929 are as follows : Premises for a Ministry, consisting of fourteen stories and three basements and covering 19,953.31 square metres;

warehouses for State supplies, consisting of four stories and covering 7,831.25 square metres; a Presidential residence; a mint; courts of justice in the capital; two Government buildings; an Institute of Forensic Medicine; an Institute of Bacteriology; an Advanced School of Engineering and Architecture; a Dental School; a school for the study of pharmacy; four buildings intended for secondary education; four large primary schools in different parts of the country; a training-school for primary teachers; a building to be used by the police for identification purposes; two police barracks; a polytechnic for minors; offices for the administration of the national water-supply and sewage disposal services; a building containing laboratories for the fiscal control services; a stadium and four heated swimming-pools; a fruit depot and packing-house for the export of fruit; and a large number of less important works.

(a) The following works, which were begun in 1929, have been suspended : a Government building; an historical museum; a natural history museum; two large primary schools; a building for the research services, and a stadium.

(b) The following works, which were also begun in 1929, are not yet completed but are in use : a court of justice; two communal dwellings for workmen; a secondary school at Santiago; premises for various public administrative and judicial services in two towns; a stadium.

A request has been made for the insertion next year of a sum of 27 million pesos in the general budget law of the Republic for the construction of the following buildings : two buildings for various public administrative and judicial services in two towns; a building for the General Directorate of Customs of the Republic; another for Posts and Telegraphs; eight prisons; a school of mining and nitre exploitation; two police barracks; a building for the Treasury and Revenue Office; twenty-one primary schools; a technical education wing to be added to the School of Arts and Crafts; an industrial training school; a wine cellar, and a zootechnical station.

The works are carried out for the Administration by private treaty and, at the present time, chiefly by means of contracts for which public tenders are invited, these contracts being placed either on inclusive terms or at prices per unit.

During the period when the economic crisis was at its height in the country, most of the works were carried out by the Administration itself, so as to provide work for the largest possible number of men without having recourse to contractors and avoiding the use of machinery.

During the years 1929-1931 inclusive, the works were borne on the extraordinary budget of the Republic, which was financed by foreign loans.

Since 1932, the works have been borne on the ordinary budget, funds being also provided under special laws designed to give employment to the unemployed on public works. These funds are raised by internal loans and various general contributions or taxes.

CHINA.

[*Translation from the Chinese.*]

1. REPORT OF THE MINISTRY OF COMMUNICATIONS ON WORK CONNECTED WITH TELEGRAPH, TELEPHONE AND WIRELESS BROADCASTING.

I.

(a) *Principal Works of Major Importance completed since* 1929.

1. *Telegraph.*

1. Establishment of 6,508 miles of overhead lines, 488 feet of underground cables and 24,988 feet of submarine cables;

2. Establishment of a Simplex Creed transmitter between Nanking and Shanghai;

3. Establishment of a teleprinter between the Shanghai Bureau and the International Wireless Station;

4. Establishment of 17 Wheatstone transmitters from Nanking to Peiping and elsewhere;

5. Establishment of 6 Wheatstone repeaters in Chin-Kiang and other places;

6. Establishment of Morse duplex (one set) from Hang-Chow to Shao-hing;

7. Establishment of 28 receiving wireless stations and 79 transmitters; electric power : from 2 kilowatts down to 50 watts;

8. Establishment of an international telegraph station with 9 transmitters, the large one with capacity of 20 kilowatts and the small one with capacity of 2 kilowatts. The station can communicate with the United States of America, France, Germany, Japan, the United Kingdom, the Philippines and the Netherlands;

9. Establishment of 2 shore wireless stations;

10. Repair of wires : 27,739 miles;

11. Conversion of Wheatstone duplex between Nanking and Tientsin;

12. Establishment of 4 sounders;

13. Establishment of one 200-volt, 100 ampere-hour storage battery at the Shanghai Bureau.

II. *Telephone.*

1. Telephones in Nanking are being converted from common battery to the automatic system, with a capacity of 5,000 lines;

2. Telephones in Shanghai are being converted from common battery into the automatic system with a capacity of 3,000 lines; and 600 lines of common battery were established;

3. Telephones in Hankow are being replaced by the automatic system on 8,000 lines;

4. Telephones in Tsingtao are being replaced by the automatic system on 4,900 lines;

5. Increase of 500 lines on automatic system at Tientsin;

6. Increase of 700 lines on common battery system at Shou-Chow;

7. Establishment of 190 miles of Tolls telephone lines;

8. Establishment of 2 pairs of Tolls telephone lines between Shanghai and Nanking;

9. Establishment of 1 pair of Tolls telephone lines between Peiping and Pao-tin.

(b) *Works now proceeding.*

I. *Telegraph.*

1. Establishment of 449 miles of land wires between Ching-Liao and Chien-Ning;

2. Establishment of 5 Creed transmitters between Hankow and Nanking and other places;

3. Establishment of teleprinter (5 wires) between the Shanghai Bureau and the General Wireless Station;

4. Increase of 4 250-ampere storage batteries at the Nanking Bureau;

5. Improvement of submarine cable equipments at Shanghai and Chefoo;

6. Establishment of 2 shore wireless stations (500 watts) at Fuchow and Hsia-men;

7. Replacement of 2 shore wireless stations with a capacity of 3,000 watts at Tsingtao and Shanghai;

8. Establishment of a station to determine direction of wind;

9. Establishment of 3 frontier wireless stations in Tung-Sung, Ning-Hsia and Pai-ling-Miao;

10. Experimental establishment of communication with Italy;

11. Repair of 350 miles of land wires.

II. *Telephone.*

1. Increase of 499 miles of Tolls telephone lines between Nanking and Shanghai.

(c) *Work now beginning or projected.*

I. *Telegraph.*

1. Establishment of 482 miles of land wires;
2. Repair of 5,845 miles of land wires;
3. Establishment of 3 wires of Creed transmitter between Nanking and Peiping;
4. Establishment of teleprinter (2 wires) between the Nanking Bureau and the Drum Tower of Nanking;
5. Establishment of Wheatstone duplex (18 wires) between Nanking and Nan-chang;
6. Establishment of Wheatstone transmitter (direct line), 5 wires between Hankow and Kwang-Chow;
7. Establishment of 4 Morse duplex transmitters between Chin-Kiang and Anking;
8. Replacement of 150 sounders;
9. Conversion of the simple wires by telephone instruments—increase to 300 sets in 1934;
10. Establishment of 7 2-kilowatt automatic transmitters at Shanghai and elsewhere;
11. Establishment of 3 wireless stations at Yen-Chang and elsewhere;
12. Establishment of 16 frontier wireless stations in Mongolia, Tibet, Ning-Hsia, Sinking, Shansi, Kansu, Sikang, Sui-Juan and Chahar;
13. Reorganisation of shore wireless stations.

II. *Telephone.*

1. Establishment of telephone lines in the nine provinces. Length : 3,460 miles;
2. Increase of 3,504 miles of Tolls telephone lines in the nine provinces;
3. Establishment of a Tolls telephone system throughout the province of Kiang-Shu. Length : 2,425 miles;
4. Establishment of Tolls telephone lines in Kiang-Si. Length : 2,500 miles;
5. Establishment of Tolls telephone lines in An-Kwei. Length : 800 miles;
6. Establishment of Tolls telephone lines in Fukien. Length : 900 miles;
7. Establishment of Tolls telephone lines between Tientsin and Tsi-Nan. Length : 348 miles;
8. Establishment of 12 municipal telephones at Nan-chang and eleven other places;
9. Extension of the telephone service at Tsingtao and three other places;
10. Establishment of 3 national wireless stations at Shanghai and elsewhere;
11. Establishment of international wireless telephony;
12. Improvement of the telephone installations at Taiyuan and four other places.

III. *Wireless Broadcasting.*

1. Establishment of a 10-kilowatt wireless broadcasting station;
2. Re-equipment of the Peiping wireless station;
3. Establishment of short-wave international wireless broadcasting station.

2. REPORT ON CIVIL ENGINEERING WORKS OF THE MINISTRY OF RAILWAYS.

Railways.

I.

(a) Work on the railways was put in hand in 1929 and has now been completed. The following have been officially opened for traffic :

1. The Shao-Chow - Lok-Chang section (50 miles) of the Yueh-Han Railway.
2. The Lina-Pao - Hwa-Yin section (96 miles) of the Lung-Hai Railway.
3. The Hangchow - Yö-Shan section (345 miles) of the Hang-Kiang Railway.

(b) Railways under construction :

1. The Lok-Chang - Chu-Chow section (about 360 miles) of the Yueh-Han Railway.
2. The Hwa-Yin - Shan section (18 miles) of the Lung-Hai Railway.
3. The Taî-êr-Chung - Chao-Tun section (about 30 miles) of a branch line oft he Lung-Hai Railway.
4. The Yü-Shan - Nan-Chang section (about 300 miles) of the Yü-Ping Railway.

(c) Railways the construction of which is under consideration or for which plans of construction have already been put in hand :

1. The Si-An - Lun-Chow section (660 miles) of the Lung-Hai Railway.
2. The Si-An - Cheng-Tu section (1,000 miles) of Si-Cheng Railway.
3. The section of the King-Yueh Railway between Nanking and the frontiers of Fu-Kian and Kwang-Tung (upwards of 1,200 miles).

II.

The construction and administration of railways may be classified under four heads as follows :

1. National railways controlled by the Central Government;
2. Public railways controlled by the local governments;
3. Private railways controlled by the owners of the capital;
4. Special railways built by mineowners and used for the transport of their products.

III. *Sources of Capital.*

The capital of national and public railways is provided by the Central Government or the local governments from their own resources or by the issue of a loan. The capital of private or special railways is provided by the shareholders or mineowners.

IV. *Estimate of Allocation of Expenses.*

Under the railway accounting regulations, items are shown in the accounts according to their nature, but wages and material are combined under the same head. It is therefore very difficult to estimate wages and material separately.

V. *Effects upon Economic Industry and Unemployment.*

In China, the relations between railways and economic industry are the same as in foreign countries. As regard unemployment, the relation is not so close.

HARBOURS.

Lian-Yuan harbour in Hai-Chow is situated at the eastern terminus of the Lung-Hai railway. The Dutch Banking Syndicate has contracted to build two small temporary wharves and a dyke, and to dredge an area of water for anchorage. These works were begun in the summer of 1934 and will be finished in the spring of 1936.

3. GENERAL DESCRIPTION OF THE WORKS OF FLOOD PREVENTION, RIVER CONSERVANCY AND LAND RECLAMATION OF THE NATIONAL ECONOMIC COUNCIL OF THE REPUBLIC OF CHINA

During the summer of 1931, the Yangtse and other large rivers in the central part of China overflowed simultaneously, and a disastrous flood, almost unprecedented in Chinese history, resulted. This flood, which extended from the sea-coast of North Kiangsu Province through the Grand Canal, the Huai River valley, south of the Yellow River, to the city of Shasi on the Yangtse, covered an area of 181,000 square kilometres. For immediate relief work, 450,000 tons of American wheat was loaned to China. With the sinews of war on flood available, the attack was immediately begun by organising the Flood Relief Commission, which, in addition to emergency relief, agricultural relief and epidemic prevention work, embarked in the task of repairing and rebuilding dykes with a view to their permanent reconstruction by the labour relief corps. In the same winter, seventeen labour relief districts were established and began work. In August 1932, a large portion of the constructional work was completed, and labour relief subsequently came to an end. The unfinished portion was taken over by the National Economic Council, which, besides the works of dyke repairing and river dredging left over by the National Flood Relief Commission, undertook to construct culverts, bridges and sluice-gates at the essential and requisite places. Toward the end of 1933, all the works originally planned were completed at a total expenditure of 23,900,000 dollars. More than 7,800 kilometres of dykes were required along the rivers, the earthworks amounting in volume to 105,000,000 cubic metres. Bank protection works at fifty-four dangerous places and another 6 kilometres of dykes were constructed. In addition, 321 kilometres of waterways were dredged to a suitable depth with an excavation of 13,850,000 cubic metres of earth. There were constructed 125 culverts, 3 bridges and 2 sluice-gates. The dykes thus repaired are all higher than the flood water-level of 1931, and are strong enough to avert the recurrence of flood. These constructional works have been largely instrumental in protecting farms from inundation, providing relief to a million of famine labourers and giving protection to millions of people inhabiting vast stretches of agricultural land against the damages of disastrous flooding.

Recognising the importance of hydraulic engineering works, the National Economic Council has not only taken over the unfinished works left over by the National Flood Relief Commission, but has also given considerable attention in its programme of reconstruction to questions of river conservancy, flood prevention and land reclamation.

The hydraulic engineering works of the National Economic Council for 1934 may be grouped in two categories—namely, works in progress and works in contemplation.

List of the Works of Flood Prevention, River Conservancy and L

(a) *W*

Classification	Rivers	District	Gencral description
Flood preveution (dyke repairing)	Yangtse River	Kiangsu, Anhui, Kiangsi and Hupeh Province	Earth embankment 2,020 kilometres in length and protection at 36 places
	Kan Ho and Poyang Lake	Kiangsi Province	Earth embankment 606 kilometres in length
	Han River	Hupeh Province	Earth embankment 477 kilometres in length and protection at 18 places
	Tungting Lake	Hunan Province	Earth embankment 3,000 kilometres in length
	Pe Fei River	Anhui Province	Earth embankment 1,000 kilometres in length
	Grand Canal	Kiangsu and Shantung Provinces	Earth embankment 340 kilometres in length
	I, Lo, Sha and Yingg Rivers	Honan Province	Earth embankment 370 kilometres in length and protection 6 kilometres in length
River conservancy	Huai River	Anhui Province	River bed dredged for a distance of 26 kilometres
	Lee Hsia Ho District	Kiangsu Province	River bed dredged for a distance of 127 kilometres
	I, Lo, Sha and Ying Rivers	Honan Province	River bed dredged for a distance of 168 kilometres
Land reclamation (culverts and sluice-gates)	Huai River	Anhui Proviuce	Number of culverts constructed : 57
	Ying River	Anhui Province	Number of culverts constructed : 29
	Kuo River	Anhui Province	Number of culverts constructed : 7
	Kuai River	Anhui Province	Number of culverts constructed : 4
	Pe - Fei River	Anhui Province	Number of culverts consrructed : 21
	Lo River	Honan Province	Number of culverts constructed : 7
	Tou-lung-kong	Kiangsu Province	One tidal sluice constructed
	Ho-to-ho	Kiangsu Province	One tidal sluice constructed
Bridges	Ying River	Honan Province	3 bridges repaired

(b) *W*

Flood preventiou (dyke repairs)	Yangtse River	Hupeh Province	Earth embankment 166 kilometres in length and protection at 80 places
	Han River	Hupeh Province	Earth embankment 25 kilometres in length and protection at 41 places
Land reclamation (sluice-gates and irrigation canals)	Kinshui	Hupeh Province	Constructing a closing dam across the river and insta sluice-gates
	Wang-chia-Kang	Kiangsu Province	Construction of one tidal sluice
	Chu-kang	Kiangsu Province	Construction of one tidal sluice
	Lo - Ho	Shensi Province	Construction of the Lo - Go irrigation project
	Ching-ho	Shensi Province	Repair of Wei-pei irrigation works
	Yellow River	Suiyuan Province	Repair of the Saratsi irrigation works
	Yellow River	Kansu Province	Repair and construction of canals
	Yellow River	Ninghsia	Repair of canals
Surveyiug	Yangtse River	Hupeh Province	Aerial survey in Hupeh Province along Yangtse R
	Han River	Hupeh Province	Reconnaissance and hydrometrical survey of Ya and Han Rivers. Hydrometrical survey of rivers
	Tungting Lake	Hunan Province	lakes, with the participation of the Hunan Provi Government and the Ministry of Interior
Research work	Yellow River		Request to Professor Engels, a German hydraulic neering expert, to continue the laboratory experim relating to the works on the Yellow River

(c) *Work*

Land reclamation and flood prevention	Feng-ho	Shansi Province	Construction of reservoirs, dams and roads, repairi dykes, and improving of irrigation works
	Yellow River	Suiyuan Province	Repairs of canals Ho-tou
	Wei Ho	Shensi Proviuce	Irrigation scheme in the valley of the Wei - Ho
Meteorological and hydrometrical surveying		Whole country	Standardisation of surveying methods
Regulation of rivers	Main rivers	Whole country	Radical scheme for regulating the main rivers

LAMATION OF THE NATIONAL ECONOMIC COUNCIL OF THE REPUBLIC OF CHINA.

mplished.

eneficial results after completion	Total expenditure	Sources of expenditure	Remarks
	Dollars		
edykes raised and strengthened sufficiently to prevent inundations on the le of those which occurred in 1931 h a flood area of 181,000 square ometres		A large portion of the expenditure was paid with the wheat from the American loan, while a small portion for the dyke repairing along Yangtse and Han Rivers in Hupeh, since December 1932, was from the Hupeh dyke fund	The works here mentioned were carried out from December 1931 to December 1933. Those which were left incomplete by the National Flood Relief Commission when it ceased to exist in August 1932 were taken over and completed by the National Economic Council
he rivers dredged and widened to ilitate the flood discharge for vigation and irrigation drainage and irrigation of the cultated land are properly controlled			
of the coastal land in North Kiangsu no longer flooded by sea-water and therefore capable of being reclaimed convenient communications	23,900,000		

Progress.

land along Yangtse and Han Rivers Hupeh Province may be protected m flooding	1,200,000	Partly from the American wheat and cotton loan and partly from the Hupeh dyke fund	
t 900,000 mou of land may be laimed	850,000		
coastal districts in North Kiangsu l be protected from flooding by -water	50,000 (Subsidy to Kiangsu Province)		
ble of irrigating 500,000 mou of land	1,500,000		
ble of irrigating 600,000 mou of land	250,000		
ble of irrigating 1,000,000 mou of d	1,000,000		
ble of irrigating 580,000 mou of land	500,000		
ble of irrigating 750,000 mou of land	200,000		
ishing essential data for the planning hydraulic engineering works	200,000		
ishing information as to the regulan of the Yellow River	60,000		

mplation.

e first five years, the annual profit, e to the increase of irrigable land d its value, saving of crops and perties formerly left unprotected, proximates 5,600,000 dollars	13,000,000	Under consideration	Engineers are being sent out to make thorough investigations
ble of irrigating 5,000,000 mou of d	1,330,000		
ishing essential data for hydraulic ineering designing			
ention of flood, reclamation, inland igation and development of waterver for the growth of industry and merce			Various projects, charts and maps have been collected and brought to Europe by Mr. F. J. M. Bourdrez, the National Economic Council's adviser of hydraulic engineering, for consultation with M. Omodeo, a prominent hydraulic engineering expert, as to the feasibility of the projects

Of the works in progress, the following deserve mention :

1. Repairs of main dykes along the Yangtse and the Han Rivers in Hupeh Province with earth embankment 191 kilometres long and bank protection works at 121 places, at an estimated cost of 1,200,000 dollars.

2. Construction of the Kinshui project to protect the Kinshui district from flooding by the Yangtse River; estimated cost, 850,000 dollars. The completion of this project will benefit about 900,000 mou of land for agricultural purposes (each mou is equivalent to 614.4 square metres).

3. Construction of the Lo Ho irrigation project in Shensi Province, at a cost of about 1,500,000 dollars, capable of irrigating 500,000 mou of land.

4. Repairs to the Wei-pei irrigation works in Shensi Province, at a cost of 250,000 dollars, capable of irrigating 600,000 mou of land.

5. Repair of the Saratsi irrigation works in Suiyuan Province, at a cost of 1,000,000 dollars, capable of irrigating 1,000,000 mou of land.

6. Repair and excavation of canals in Kansu Province, at a cost of 500,000 dollars, capable of irrigating 580,000 mou of land.

7. Repairs of the canals in Ninghsia Province, at a cost of 200,000 dollars, capable of irrigating 750,000 mou of land.

8. In order to speed up the completion of the topographical survey along the Yangtse River, an aerial survey is to be made of the country between Shasi and Chopaikow, an area of 2,200 square kilometres. A hydrometrical survey is being conducted along the Yangtse and the Han Rivers. In co-operation with the Ministry of the Interior and the Provincial Governments, a hydrometrical survey is made along the lakes and rivers in Hunan and Hupeh Provinces also. The total expenditure for these surveying works is approximately 200,000 dollars.

9. Subsidy of 50,000 dollars to the Kiangsu Provincial Government for the construction of sluice-gates at Wang-chia-kang and Chu-kang to prevent flooding by sea-water.

10. Request was made to Professor Engels, a German hydraulic engineering expert, to continue his Yellow River experiments—work to begin on July 1st, 1934, with a subsidy of 60,000 dollars from the National Economic Council and with the participation of the National Economic Council's Chinese experts.

Of the works in contemplation, the following may be noted :

1. Flood prevention and irrigation works on the Feng-ho in Shansi Province.
2. The Ho Tao (Yellow River) irrigation project.
3. Regulation and irrigation works on the Wei Ho in Shensi Province.

The above works will be started pending the completion of the survey.

For the permanent regulation of the main rivers in China, various projects, charts and maps have been collected and brought to Europe by Mr. F. J. M. Bourdrez, the National Economic Council's adviser on hydraulic engineering, for consultation with M. Omodeo, an eminent hydraulic engineering expert, as to the feasibility of these projects. Plans have also been formulated to standardise surveying methods, both hydrometrical and meteorological, which are an essential prerequisite to the formulation of any hydraulic engineering project.

In order to explain more clearly the hydraulic engineering works of the National Economic Council, the list on pages 64 and 65 has been prepared.

4. GENERAL DESCRIPTION OF WORKS COMPLETED AND PROPOSED ON THE YELLOW RIVER BY THE YELLOW RIVER COMMISSION.

I. Introduction.

The disastrous flooding of the Yellow River in 1933 caused the most serious distress among the population of Honan, Ho Pei and Shantung Provinces and the inundated area was estimated to be 998 square kilometres in Honan, 2,620 square kilometres in Ho Pei, and 2,741 square kilometres in Shantung. The whole inundated area amounted to 6,359 square kilometres; 500,000 houses were demolished; 3,200,000 refugees were rendered homeless; and 3,000 persons were drowned. The maximum discharge of the Yellow River estimated at Shen Hsien Hydrometric Station, in Honan Province, during the night of August 9th/10th, 1933, was 23,000 cubic metres per second at the gauge height of 298.23 metres above Taku Datum, and the total loss of cattle and property was estimated at 230,000,000 dollars.

II. Closing of Breaks.

Owing to the wear and tear of time, the levees of the three provinces were in a dilapidated condition, and during the flood in 1933 were overflowed and broken at numerous places. The breaks at Wen Hsien, Lan Feng and Kao Cheng, in Honan Province, and at Shiao Peng Chuang and Shih Tou Chuang, in Ho Pei Province, were the most noteworthy. The flood, after breaking through the levee at Shih Tou Chuang, meandered through eight hsiens on its way to find a new watercourse, and finally combined with its old channel at Tao Cheng Pu, in Shantung Province.

After the floods in 1933, the Yellow River Commission was set up in the same year, by order of the National Government, with instructions to prepare all projects for the improvement of the river and its tributaries. Projects for closing all the breaks were proposed by the Commission, executed by the Yellow River Flood Relief Commission and financed by the National Government at a cost of 1,500,000 dollars. About 50,000 refugees were employed on the work, and 200,000 refugees, including the women and children belonging to their families, were saved from starvation.

III. Reconstruction Works.

As soon as all the breaks had been closed, reconstruction works were immediately brought into consideration. The projects proposed by the Yellow River Commission are: (1) the repair of levees, spurs, groynes and fascine works in Honan, Ho Pei and Shantung Provinces; (2) the improvement of the watercourse in the above provinces; (3) the repair of the Taihong Dyke, in Honan Province, and the Golden Dyke, in Ho Pei Province; (4) the prolongation of the levees on both banks of the river from Li Tsin, in Shantung Province, to the estuary; (5) the regulation of the watercourse in the same section by dredging and the construction of groynes and jetties; and (6) the repair of levees and spurs in Shansi and Shensi Provinces.

The estimated cost under items (1), (2) and (3) is 13,000,000 dollars, under items (4) and (5) 8,000,000 dollars and under item (6) 3,000,000 dollars. The total estimate amounts to 24,000,000 dollars, of which about 10,000,000 dollars are allocated for labour on the repair of levees, 8,000,000 dollars for broken stone, 3,000,000 dollars for fascines for the repair of spurs and bank revetments, 2,000,000 dollars for dredgers and 1,000,000 dollars for miscellaneous expenditure. About 1,000,000 people will be employed when all the works are carried into execution.

The expenditure is charged to the extraordinary budget of the National Government, and definite steps as to the methods of raising the money will be taken in the near future.

In order to finish the repair of levees before the coming of the flood this year, the provincial governments of Honan, Ho Pei and Shantung have already raised enough money by internal loan to be able to repair the levees and spurs within each province by reinforcing the width and raising the crown level of levees two metres above the highest flood-level of 1933. The construction work is in the charge of the Yellow River Conservancy Bureau of each province, and all poor farmers living near the levees are employed on a liberal scale. The work commenced in May, and will be finished by the end of July.

IV. Schemes for Tentative Studies and Improvement Works.

The Yellow River, the drainage area of which is 726,000 square kilometres, is an alluvial stream heavily laden with silt, and its channel is gradually and continuously silting up. This continuous process of sedimentation is regarded as one of the most serious causes of trouble. Upon the inauguration of the Yellow River Commission, schemes for tentative studies and improvement works were first worked out, and suitable steps will be taken in due course for their execution. They are briefly enumerated below :

(a) *Topographical and River Bed Survey.*—The topographical features of the Yellow River are variable throughout its whole course. Below Kung Hsien, in Honan Province, where the flood casualties in 1933 were extremely serious, the survey should be a very detailed one; from Kung Hsien to Han Cheng, in Shensi Province, less detailed; from Han Cheng to T'o K'i T'o, in Sui Yuan Province, as the river passes through gorges in the mountain, the survey will require to go into still farther details; from T'o K'i T'o to Shih Tsui Tze, in Ninghsia Province, as the river flows through plains where irrigation and navigation are possible, it should be more detailed; and above Shih Tsui Tze, less detailed again. The topographical features of the upper course and at the estuary are recorded by means of aerial photographic mapping, and the survey of the whole course will be accomplished by five surveying parties in five years. The estimated expenditure amounts to 1,500,000 dollars. The topographical survey works already completed by the Yellow River Commission are as follows :

1. A topographical survey of the Yellow River from Pin Han railway bridge upstream to Meng Tsin Hsien.
2. The survey of levees on both banks from Pin Han railway bridge downstream to Tientsin Pukow railway bridge at Lo Kow, in Shantung Province.
3. A topographical survey near Huang Hwa Tse, in Shantung Province, at the junction of the southern inner and outer dykes.
4. A topographical survey of the Yellow River at Shih Tou Chuang, in Ho Pei Province, where the levee on the north bank of the river was broken during the flood in 1933.
5. A topographical survey of the Yellow River in the vicinity of Lan Feng, in Honan Province.
6. A topographical survey of the Yellow River in the vicinity of Hei Kang Kou, near Kaifeng, in Honan Province.
7. A reconnaissance survey of the Yellow River from Lan Chow, in Kansu Province, upstream.

(b) *Hydrometric Survey.*—The hydrometric survey includes a number of determinations such as velocity of current, quantity of discharge, elevation of water surface, and amount of silt contained in water, besides the meteorological features pertaining to

rainfall, evaporation and direction of wind. Along the Yellow River and its principal tributaries such as the Rivers Huang, Fen, Wei, T'ao, Lo and Tsin, 20 hydrometric stations, 15 gauging stations, 7 weather stations and 283 rainfall stations are to be established. The budget of expenditure is estimated to be 100,000 dollars. The hydrometric and rainfall stations already established by the Yellow River Commission are as follows :

1. Eleven hydrometric stations have been established along the Yellow River, and their sites have been carefully chosen.

2. Two hydrometric stations for the Wei River, one for the Fen River, one for the Lo, and one for the Tsin have been established.

3. One hundred rainfall stations have been established, mostly in co-operation with the provincial authorities. They are scattered over the whole of the drainage area, and the number of stations will be increased progressively.

(c) *Research and Planning*.—The environments and influences to be investigated in connection with the improvement of rivers are so complicated that tentative studies must be undertaken to provide a basis before any final scheme can be drafted. The first hydraulic laboratory of China, incorporated by a combine of eight conservancy organisations, will shortly be established at Tientsin, where model experiments, as well as regulation works, will be tested. Moreover, near Kaifeng and Tsinan, straight reaches of the river will be chosen for experimental works, and another laboratory of model experiments will be established for supplementary study. The estimated cost amounts to 2,000,000 dollars.

(d) *Permanent Improvement Works*.—The projects for permanent improvement works are of eight different kinds :

1. Deepening the lower course of the river by regulation works.

2. Cutting off sharp bends.

3. Flood prevention by the construction of overflow dams and detention reservoirs.

4. Development of water-power.

5. Regulating the lower course of the river for navigation.

6. The control of soil washing by bank revetments and terracing of hilly farms.

7. Reafforestation along the upper course of the river.

8. Regulating the principal tributaries, both for flood prevention and navigation development.

The above projects will be prepared in due course, after the tentative researches to be conducted by means of model experiments and topographical and hydrometric surveys have furnished enough data for the basis of a final scheme. A rough estimate of the cost amounts to 100,000,000 dollars, and after the accomplishment of all the fundamental works, flooding may be prevented, while, with the development of navigation, commerce and industry in the north-western provinces of China are sure to prosper. The Yellow River being one of the largest in China, the National Government pays much attention to it, and will finance all the projects of the Yellow River Commission for its improvement.

5. HUAI RIVER SYSTEM.

Engineering Works to be executed in the First Instance.

HUAI RIVER COMMISSION.

Section I.—Two-Year Construction Programme.

(a) *Works to be carried out in the Two-Year Construction Programme.*

Among our projects for flood control, and for navigation and irrigation in the Huai River system, it has been decided that the following works will be executed in the first instance and without avoidable delay.

Division of works	Estimated cost Dollars	Remarks
1. Construction of Shaopai lock	380,000	Now in progress
2. Construction of Huaiyin lock	400,000	Now in progress
3. Excavation of the main channel of Shaopai and Huai yin locks, and repair of west dyke of the Inner Grand Canal	450,000	Now in progress
4. Repair of Weichi Chai as a sluice	50,000	To be carried out soon
5. Construction of Chiangpa regulator and the main channel	5,250,000	To be carried out soon
6. Dredging of the navigation channel below Liuchai	250,000	To be carried out soon
7. Construction of Yenho lock and the main channel	500,000	To be carried out soon
8. Construction of Liulauchien lock and the main channel, with a spillway at head of the Liutang Ho	650,000	Now in progress
9. Dredging of the middle grand canal below Liulauchien lock	150,000	To be carried out soon
10. Preliminary excavation of the flood channel at Kin Kou	500,000	To be carried out soon
11. Overhead and contingency expenses	420,000	
Total...	9,000,000	

The funds required for the works listed above are provided by the National Government; they will be refunded by the Commission from the profits earned after construction and utilised for other public works.

(b) *Description of Works.*

1. *Shaopai Lock.*—The site of Shaopai lock will be located on the edge of the Shaopai Lake near the west dyke of the Grand Canal and opposite Shaopai Chen. The water-level of the upper pool varies from 7.3 metres to 5.87 metres and the lowest water-level of the lower pool is 0.4 metre. The maximum lift of Shaopai lock is therefore 7.7 metres providing 2.5 metres as freeboard for the high flood-water in the chamber and 2.5 metres for navigation depth. The depth from the bottom to the top of the lock will be 12.7 metres. The clear width and length will be 10 metres and 100 metres respectively, sufficient to accommodate a ship of 900 tons maximum or 10 ships of 40 tons. Both the upper and lower mitre gates will be made of structural steel. The thrust walls will be made of reinforced concrete but the sides of the lock chamber will be made of sloping revetted banks. The chamber bottom will also be paved with ripraps. The estimated cost of the Shaopai lock is about 380,000 dollars.

2. *Huaiyin Lock.*—The Huaiyin lock will be situated near the south end of the channel joining the Grand Canal from Matou, west of Huaiyin, to Yangchuang. The water-level in the upper pool varies from 16 to 11 metres. The variation of the lower

pool of this lock is the same as in the upper pool of the Shaopai lock. The maximum lift of the Huaiyin lock is therefore 9.2 metres. The clear width and length and navigation depth of the Huaiyin lock will be the same as for Shaopai lock, but the freeboard will be 1 metre above high-water level. The depth of the chamber will be 12.7 metres. The other arrangements to be made will be similar to those for the Shaopai lock. The estimated cost of the Huaiyin lock is about 400,000 dollars.

3. *Excavation of Shaopai and Huaiyin Main Channels and Repair of West Dyke of the Inner Grand Canal.*—The length of the main channel of Shaopai lock is 800 metres, and that of Huayin lock is 1,700 metres. The width of the bottom of these main channels, within one kilometre of the lock is 40 metres for the anchorage of ships and outside of this reach it will be 20 metres. In order to maintain the raised pool of the Inner Grand Canal, the openings and culverts in the west dyke should be closed or repaired, while the dyke of low sections will be raised and enlarged to the required size. The estimated costs of the earthwork of the main channels and the repair of the west dyke total about 450,000 dollars.

4. *Repair of Weichi Chai.*—The Weichi Chai is situated south east of Matou Chen. It was one of the sluices formerly built for controlling the Hungtze Lake water entering into the Inner Grand Canal, but has been out of use for several decades. It will now be utilised again as a sluice for regulating admission of navigation and irrigation waters to the Inner Grand Canal. The structure of this sluice was surveyed and examined carefully in the summer of 1932. The old masonry of the abutments and the wing walls are still in good condition and require only minor repairs. Some stop-logs or a lift gate should be added to form a sluice. The estimated cost of repairing Weichi Chai is about 50,000 dollars.

5. *Chiangpa Regulator.*—The regulator will be composed of 86 movable steel gates of " stoney " system, sliding in grooves in concrete piers. The bottom floor will be made of concrete slabs with paved rip rap at both the entrance and exit ends. The clear opening of each sluice section will be 5 metres high and 7 metres wide. The sill of the opening will be placed at an elevation of 8 metres. There will be also a highway bridge crossing the tops of the piers. The estimated cost of one opening of the regulator is 41,840 dollars and the total cost of 86 openings is about 3,600,000 dollars.

The regulator will be situated on the high land of San Ho Tou, near Chiangpa, where the soil is very suitable for foundation works. The sill of the regulator will be placed at an elevation of 8 metres; the earth at the site of the regulator will be excavated to a depth of 7 metres, for the arrangement of foundation works. The bottom of the main channel below the regulator site will be excavated to a depth of 6.5 metres. The estimated cost of the construction works and of the purchase of land for the main channel is about 1,650,000 dollars.

6. *Dredging of the Navigation Channels below Liuchai.*—The minimum depth of water for the first class of shipping—*i.e.*, vessels with the shallowest draught—is 3 metres throughout. The raised water level of the Inner Grand Canal from Shaopai to Huaiyin will give sufficient depth at the start, after the completion of the improvement works. The Taiping Ho will, however, be completely dry when the Yangtse level at Sankiangyin drops below 0.4 metre (Huai River System Datum). Consequently, the navigation channel of the Taiping Ho from Liuchai to the Ancient Canal requires dredging. The estimated quantity of earth to be removed is 350,000 cubic metres of dredging at 0.40 dollar per cubic metre and 650,000 cubic metres of hand excavation at 0.17 dollar per cubic metre. The total cost of earth removal is approximately 250,000 dollars.

7. *Yenho Lock and the Main Channel.*—The salt transported from the Yenho to the Grand Canal must at present be transhipped and carried overland for a distance of 4 kilometres between Hsipa and Huaiyin. It would be highly advantageous to build a lock with a main channel north-west of Yangchung to connect the Yenho and the Grand Canal; this will facilitate the transport of salt considerably. The conditions and design of this lock will be exactly the same as those for the Huaiyin lock. The cost of the Yenho lock is the same as for the Huaiyin lock—viz., 400,000 dollars. The earthworks for the main channel will necessitate the excavation of 412,000 cubic metres at 0.17 dollar per cubic metre and the construction of 200,000 cubic metres of dyke at 0.05 dollar per cubic metre; the total cost of the earthworks is 80,000 dollars. Compensation for land, houses, etc., will require about 20,000 dollars.

8. *Liulauchien Lock and the Spillway.*—It is of vital importance to exclude the excessive quantities of the very silty Shantung water from the canal system. A lock at Liulauchien should be built with a spillway at the head of the Liutang Ho, so that surplus water will be diverted into the Liutang Ho and carried through Kwan Ho to the Yellow Sea. The upper pool of the Liulauchien lock varies from 20.2 to 19 metres and the lower pool varies correspondingly to the upper pool of the Huaiyin lock. Thus the maximum lift of the Liulauchien lock is 9.2 metres. The design will be similar to that for the Huaiyin lock and the cost will also be 400,000 dollars. The earthwork of the main channels of both the lock and the spillway will necessitate the excavation of 200,000 cubic metres at 0.17 dollar per cubic metre; and the construction with borrowed earth of 100,000 cubic metres of dyke at 0.20 dollar per cubic metre. The total cost of the earthwork will be 64,000 dollars, and compensation for land, houses, etc., will require 36,000 dollars.

The spillway will be designed to carry a discharge of 1,000 cubic metres per second, and will be composed of 10 openings with stone gates. The design of the structure has just been started; the cost of the structure is roughly estimated to be 150,000 dollars.

9. *Dredging of the Middle Grand Canal.*—Below Liulauchien lock, the channel-depth for a stretch of about 20 kilometres is not sufficient for navigation during the low-water season. The earthwork is estimated to require 200,000 cubic metres of dredging at 0.40 dollar per cubic metre and 400,000 cubic metres of hand excavation at 0.17 dollar per cubic metre. The total cost is approximately 150,000 dollars.

10. *Preliminary Excavation of the Flood Channel at Kin Kou.*—It is financially difficult at present to construct the proposed main dyke along the flood channel from San Ho to Liuchai. The present scheme is to excavate a deep and narrow channel in the Kin Kou stretch to form a direct short route leading off part of the flood-water—and also to utilise the existing course through the Kaopao Lakes for the rest of the flood-water. Such a newly excavated channel might be widened and deepened gradually by the scouring action of the flood flow. The earthwork of this new channel is estimated to require 2,940,000 cubic metres of hand excavation at 0.17 dollar per cubic metre, and the total cost is about 500,000 dollars.

(c) *Benefits.*

1. *Navigation.*—The Grand Canal in northern Kiangsu is the main navigation route from south to north, but the channel is so shallow at present that, between Chinkiang and Huaiyin, small steamships of one-metre draught, sometimes cannot sail. Above Huaiyin, navigation is absolutely impossible while the east-west waterway between North-Kiangsu and Anhwei is almost broken, and salt is now transported by Lunghia railroad. An old western proverb says " Communication is the mother of civilisation ",

and it may well be that lack of communications is one of the reasons for the backwardness of the Huai River districts. After the completion of the above-mentioned construction works, the main navigation route will be able to run from Sankiangyin, in the north, to the junction of the Lunghai railway; east, to the Kwan Ho and the Yellow Sea; west, to Huaiyuan, in Anhwei; altogether, a navigable distance of about 700 kilometres. The agricultural and mineral products of the Huai River districts and merchandise from Shanghai will certainly throng these waterways. As transport by waterway is much cheaper than by road or railway, this shipping route may be expected to prosper in the near future.

During the latter half of 1931 and throughout 1932 and 1933, observations for navigation statistics were made at Shaopai and Huaiyin, on the Grand Canal, and also at Fushan, on the Huai River. The results are summarised in the table below.

Year	Observing stations	Upstream freight (tons)	Downstream freight (tons)	Total freight (tons)
1931: July to December	Shaopai	171,864	180,276	352,140
	Huaiyin	47,757	80,655	128,412
	Fu Shan	85,563	39,900	125,463
	Total			606,015
1932: January to December	Shaopai	640,527	545,946	1,186,473
	Huaiyin	117,429	214,878	332,307
	Fu Shan	43,299	33,948	77,247
	Total			1,596,027
1933: January to December	Shaopai	532,199	683,183	1,215,382
	Huaiyin	134,637	363,966	498,603
	Fu Shan	24,433	27,358	51,791
	Total			1,765,776

At a rough estimate based on the above table, the annual transport figure will be 360,000,000 ton-kilometres within the first few years. If the tax upon merchandise is 0.003 dollar per ton-kilometre, this will give a total of 1,000,000 dollars per year, lockage and wharfage charges not included.

2. *Irrigation.*—The district of Lishai Ho, east of the Grand Canal, includes a large extent of fertile land and would be a rich agricultural area after the improvement of the Huai River. But as long as the Huai River remains unimproved, inundations and droughts will alternately occur—a permanent handicap to agricultural production. The disasters caused by floods can be easily observed, but those caused by drought are usually ignored. Nevertheless, drought relief is no less important than flood control. The total area east of the Inner Grand Canal and along Tung Yang Canal is estimated to be about 14,000,000 mou. If we assume that one-fifth of the land is irrigated by the Inner Grand Canal and that the loss caused by drought amounts to 3 dollars per mou for one year, the total loss will be 8,000,000 dollars. When the above-mentioned works have been carried out, the Inner Grand Canal could supply, even in time of the most severe drought, enough water to irrigate the whole district of Lishai Ho.

The land east of the Chuang Chang Ho, towards the sea, covers an area of 10,000,000 mou, which might also be reclaimed for cultivation. After the above-mentioned works have been competed, this district's water requirements may be supplied from the Inner Grand Canal, through the Chuang Chang Ho, by the construction of several canals and controlling sluices.

3. *Flood Control.*—At present, the flood-water in the Hungtze Lake cannot escape freely, owing to the barrier represented by the Grass dam built across the San Ho. After the construction of the movable dam at the San Ho, it will be possible to regulate the flood-water so that it can be run off early in the flood season, and the lake will be emptied and fully utilised for storing subsequent flood-water. This will minimise the flood danger to some extent, both in the upper and the lower stretches of the Huai River, even if the outlet main channels have not been improved.

After the completion of the two-year construction programme, it will be possible entirely to exclude from the Grand Canal, below Liulauchien, the flood-water from the Shantung rivers, thus removing one of the great sources of flood damage in the districts situated along the Inner Grand Canal. It will also be possible to divert the Huai River flood-water coming from the Changfu Ho towards the sea by the way of the Salt Canal and the Old Yellow River instead of allowing it to go down into the Inner Grand Canal. This will also decrease the ravages caused by floods in the country east of the Grand Canal, especially between Huaiyin and Kao-Yu.

Section II.—Preliminary Excavation of the flood Channel to the Sea.

The Huai River, lying between the Yellow River to the north and the Yangtse River to the south, rises in Mount Tungpa, in the province of Honan, and flows eastwards to the province of Anhui. Running through Anhui, it receives water from ten big tributaries which drain that province. Reaching the east border of Anhwei, it enters the Hungtze Lake. Formerly, it possessed its own outlet through Kiangsu Province to the Yellow Sea, until some date in the thirteenth century, when the Yellow River burst its banks near Kaifeng, in Honan Province, and usurped the discharge channel of the Huai River, which was consequently forced to accumulate its waters in the lake and to find other means of escape. The Yellow River changed again to a north-easterly course at Kaifeng, in 1825, and later it separated from the Huai River, but the combined channel had been silted up by the sediment of the Yellow River, and the Huai River has been unable to regain its original route to the sea. This channel should be enlarged to aid the escape of Huai River floods. But the enormous quantity of excavation that would be required prohibits the enlargement of the channel throughout its whole extent within a short space of time. A schedule has been prepared with a view to the enlargement of the channel to a width of 35 metres in the bed of the river within the first few years. The further enlargement of the channel will be brought about partly by erosion of the annual floods and partly by subsequent excavation. This preliminary excavation amounts to 67 million cubic metres of earth to be removed by 160,000 labourers within 280 working-days (divided into two years). The work will be started in October this year. The funds required for the work will be supplied by the national and the provincial governments acting in co-operation.

The Chang Fu Ho, an outlet from Hungtze Lake to the new flood channel (described above) was widened and deepened last year by 12,000 labourers removing, in all, 2.2 million cubic metres of earth at an average cost of 0.155 dollar (Mexican) per cubic metre. The funds for the execution of this work were furnished by the National Government.

6. THE PRESENT POSITION (PREPARATORY WORK AND PRELIMINARY SCHEME) IN THE MATTER OF THE GREAT EASTERN HARBOUR.

(Information supplied by the Great Eastern Harbour Development Commission, Ministry of Communications and Ministry of Railways.)

Section I.—Present Position.

Section II.—Preparatory Work and Preliminary Scheme.

Section I.—Present Position.

1. *Necessity for developing the Great Eastern Harbour.*

At present, merchandise is concentrated at Shanghai, although the north entrance to the Yangtse River was silted up and closed to navigation years ago, while the south entrance also is very shallow and narrow and it is impossible for big steamers to enter. In spite of the strenuous efforts and large sums of money expended by the Hwangpoo Conservancy Board every year for the dredging of the south entrance, the position grows steadily worse. It is, therefore, necessary to develop the Great Eastern Harbour to take the place of Shanghai.

2. *Site of the Harbour.*

The harbour lies between Chapu and Kanpu, on the north side of Hangchow Bay. It was an important port and a good harbour in the time of the Sung and Yuan dynasties and afterwards, but was later abandoned for hundreds of years. It is situated about half-way down the coast of Asia and can be reached from all the important ports of the world.

3. *Meteorological and Hydrographical Conditions of the Harbour Approach.*

(a) *Water depth.*—Water depth of harbour approach at lowest water-level is about 20 to 30 feet.

(b) *Tide.*—The direction of tide is generally from south-east to north-west.
The velocity of tidal current is about 4 to 5 knots per hour.
The range of tide is about 20 to 26 feet at spring tide and 16 to 20 feet at neap tide. The tide rises on an average for 5 to 6 hours and falls for 7 hours.

(c) *Wave.*—The direction of wave is mostly north-east or south-east.

Maximum wave height : 2 metres.
Maximum periodical times of wave : $4\frac{1}{2}$ seconds.
Maximum wave length : 30 metres.
Maximum wave velocity : 7 miles per second.
Maximum wave stroke : 5.2 tons/m^2.

(d) *Wind and Fog.*—The direction of the wind in Hangchow Bay is mostly north-east and north-west but often south-east during April to August.

Maximum wind velocity : 17 metres per second = 38 miles per hour.

Maximum wind pressure : 28.9 kg./m² (5.9# /□′).

The typhoon blows a few times every year. Its maximum velocity is about 22 metres/sec. (50 miles/hr.) and maximum pressure about 49 kg./m² (10# /□′). Fog is a very characteristic phenomenon of Hangchow Bay. It occurs mostly in March and November and, on an average, for about 450 hours a year.

(e) *Rainfall and Evaporation.*—The rainfall is on an average 1,000 millimetres a year. Evaporation is about 680 millimetres a year.

(f) *Temperature, Humidity and Atmospheric Pressure.*—Range of temperature : 36.4° C. to —12° C. Range of comparative humidity : 99.5% to 15%. Range of atmospheric pressure : 789 millimetres to 754 millimetres.

4. *Inland Communications with the Harbour.*

(a) *Waterways.*—The waterway from Chapu, through Pinghu, to Kiahsing; the waterway from Pinghu, through Hwangpoo, to Shanghai; the waterway from Haiyen, through Kiahsing, to South Grand Canal; the waterway from Kanpu, through Changan, to South Grand Canal; the waterway from Haiyen to Pinghu; the waterway from Haiyen to Kanpu; the waterway from Haiyen to Hsiashih.

(b) *Roads.*—The road from Minhong to Hangchow passes through Chapu, Haiyen and Kanpu. The road from Chapu to Pinghu and from Pinghu to Kiahsing. The road from Haiyen to Kiashan is in preparation.

(c) *Railway.*—The Shanghai-Hangchow railway passes through Hsiashih, which is about 30 kilometres from Haiyen.

5. *Comparison of the Great Eastern Harbour and Shanghai.*

(a) The water-depth in the Great Eastern Harbour approach at low water-level is generally above 25 feet and, after dredging, steamers of 30-foot draft can easily get in and out at all times. The water depth outside Woo-Sung-Kou, on the contrary, is only 17 feet at neap tide and big steamers have to wait for the tide before they can berth.

(b) The sand content of the Yangtse River is much greater than that of the Chin-Tang-Kiang. The inlet waterway and estuary of Shanghai Port are often silted up and impassable for shipping, while the Great Eastern Harbour, after completion, will be free from danger of deposit.

(c) The estuary of Hangchow Bay has a width of 60 miles, whereas that of the Yangtse is only 35 to 40 miles wide.

(d) Hangchow Bay, from the estuary to Kanpu, is roughly triangular in shape. From Kanpu westward, the river grows narrower and the slope of the river bed greater, so that the effect of the tide is greatly reduced. For the Yangtse, on the other hand, width and slope are, generally speaking, uniform and flat in the lower reaches.

(e) The Great Eastern Harbour is nearer than Shanghai to Europe, America and Japan.

(f) The price of land in this port is far lower than at Shanghai and the ground being open can be easily utilised for the most economical and modern equipment and buildings.

(g) The Yangtse River is a very important line of transport for Shanghai, but the distance from Wuhu to the estuary will be shortened by about 150 kilometres by the proposed canal from Wuhu to Yihsing through Tai Hu, ending at the Great Eastern Harbour. After the completion of the south-east railway system, this harbour will have better communications than Shanghai.

Section II.—Preparatory Work and Preliminary Scheme.

1. *Preparatory Work done from* 1929 *to* 1931.

(a) Triangulation along coast-line, from April 1929 to December 1930.

(b) Levelling along coast-line, from April 1929 to December 1930.

(c) Hydrographical survey of the harbour approach, from August 1929 to December 1931.

(d) Meteorological observation at the harbour approach, from March 1930 to December 1931.

(e) Sounding of the harbour, May to July 1931.

2 *Preparatory Work to be executed over the Period* 1932 *to* 1941.

(a) Surveying, from January 1932 to December 1941.

(b) Investigations, from November 1932 to December 1941.

(c) Designs, from January 1936 to December 1941.

(d) Concluding and compiling the final report, from July to December 1941.

The total preparatory cost is calculated at 1,150,000 Mexican dollars.

3. *Order of executing the Preliminary Scheme.*

It is contemplated that the whole scheme will be carried out over a space of fifteen years. It is divided into two periods.

(a) The first period is about ten years, for executing and completing Section I of the harbour, the Tung-Hsia railway and the Tung-Wu canal.

The total estimate during this period is 20,700,000 Mexican dollars.

(b) The second period is about five years, for completing the Sections II, III, IV and V of the harbour, together with the other constructional work and equipment.

The total estimate during this period is 44,150,000 Mexican dollars.

4. *Summary.*

	Mexican dollars
(a) Expenditure during preparatory period.....	1,150,000
(b) Estimate for the first period of execution	20,700,000
(c) Estimate for the second period of execution.....	44,150,000
Total...	66,000,000

7. REPORT ON PUBLIC WORKS OF THE RECONSTRUCTION COMMISSION OF THE YANGTSE-KIANG COMMUNICATIONS.

Introduction.

The articles included in this pamphlet have been compiled by the Yangtse River Commission. Some projects have been actually carried out with the co-operation of other organisations, but some are still awaiting execution.

This pamphlet includes a brief account of some general schemes concerning the following subjects :

I. The dyke-repairing work after the 1931 flood on the Yangtse.

II. The Kinshui reclamation project.

III. The regulation project between Kiangyin and Langshan on the lower Yangtse.

The Commission would welcome with gratitude any useful suggestions which might be forwarded to them with regard to the above works.

I. *The Dyke-repairing Work after the* 1931 *Flood on the Yangtse.*

1. *Flood Condition.*

(a) *Causes of the Flood.*—In the early months of 1931, abnormal rain fell in the lower Yangtse basin, and in July and early August the heavy precipitation reached its climax. The minimum amount of rainfall has been computed at 850,000 cubic metres per second. At that time, the ground was already saturated. Only a portion of that rainfall found its way to the Yangtse on the day of precipitation; had that not happened, all the great cities along the course of the Yangtse would have been wiped out of existence.

(b) *Discharge of the Yangtse during the* 1931 *Flood.*—The bund of Hankow is fifty feet above normal low-water level, and the discharging capacity of the Yangtse River at that level, at Hankow, is 56,500 cubic metres per second. On August 19th 1931, the high water-level was 53.6 feet, with a capacity of discharge at the rate of 67,000 cubic metres per second, and is the highest on record.

(c) *Seriousness of the Flood.*—According to the statistics collected by the University of Nanking, the following is a rough estimation In the flooded area, of all farm buildings, 45% were destroyed; of all persons, 40% were forced to migrate for the greater part of the winter, either to high land in the vicinity, or to other hsiens; and, on the average, flooded houses were uninhabitable for fifty-one days. The total loss in the affected area was calculated at 2,000 million dollars. By averaging up, the amount of loss to each individual farmer is about 300 dollars. The loss of life was smaller than might have been expected, owing to the fact that the country is intersected in all directions by canals and creeks, and that in every village there are boats and sampans which were available when the population had to escape.

2. *Survey Work.*

(a) *Aerial Survey.*—The flooded areas were mapped by aerial survey executed by engineers of the Military Central Survey Office and of the Yangtse River Commission placed at the service of the National Flood Relief Commission.

The method in this survey was to use as a basis an existing Chinese military map covering the district under consideration. The speed of the aeroplane in miles per hour being known from the compass, the traverse accomplished by the plane could be drawn on the map to the map's scale, beginning at a prominent landmark (city, pagoda, river confluence, etc.) shown on the military map, and continuing towards a second definite landmark. By observing the edge of the flood-waters, the flooded area was mapped with rapidity and with sufficient accuracy. As much as 8,000 square miles was covered in one day; only nine days were spent by the National Flood Relief Commission's surveyors for the survey of the Yangtse River area and that of the Tungting and Poyang

Lakes, a work which, by old methods, would have required several months and much greater expense.

From these surveys, it was calculated at that time that the total flooded area approximated 88,000 square kilometres (34,000 square miles), with an additional 20,000 square kilometres (7,700 square miles) less seriously flooded.

(b) *Dyke Survey.*—By the end of October, the water had receded somewhat, and the plans were made to survey the extent of the damage. As the dykes were scattered over all the provinces concerned, and as time was limited, speed was essential. It was felt that the best procedure would be to co-operate with the different provincial bureaux and river commissions by dividing among them the districts to be surveyed, as below.

(i) Along the Yangtse River, from Chinkiang to Wusueh, the work was entrusted to the Yangtse River Commission. Three parties were sent to accomplish this purpose. From Wusueh to Shasi, on the Yangtse, and along the Han and Kin Rivers, the work was undertaken by the Hupeh Conservancy Bureau.

(ii) On the Siang and Yuan Rivers and around the Tungting Lake, the Hunan Reconstruction Bureau took the charge.

(iii) On the Kan River, in Kiangsi, the work was undertaken by the Kiangsi Conservancy Bureau.

Surveys were made wherever possible, but in certain places where the ground was still under water, and in others which were infested by bandits, surveying was not feasible.

The National Flood Relief Commission's rules and standard were followed by the surveyors, where surveys were made, and they made out cross sections of the damaged dykes. From these, the account of earthwork required for reconstruction or repair was determined. In places, where the surveys were impossible to make, dykes maps prepared by the Provincial Government were used. These were comparatively not so accurate, and the results obtained were less satisfactory.

3. *Schedule of Work.*

It was decided that, with the resources at its command, the Commission could afford to repair or reconstruct only the main dykes on the principal waterways affected by the flood. Dykes on the tributaries must be left in the hands of the local governments, and those privately owned to the owners themselves.

It was further decided, for the same reason, to confine the work to the following schedule :

(a) Repair of dykes on the south side of the Yangtse, from Chinkiang to Ou Chih Kow, and of the dykes on the north side of the river. from Kwa Chow to the Chinkiang dyke in the vicinity of Fu Mao Poo, and also the repair of dykes in lower regions of the Kan River, in Kiangsi;

(b) Repair of the dykes on both sides of the Han River, from Hankow to Chien Kiang;

(c) Repair of the dykes on both sides of the Rivers Siang and Yuan and around the Tungting lake.

4. *General Principles.*

(a) Labour relief work to be confined to earthwork only. The work to consist primarily of the construction of main dykes and the dredging of river beds.

(b) In the construction of dykes, special attention to be given to the regions traversed by important rivers, and especially to those places where dykes have been broken by the flood.

(c) The dykes to be so repaired as either (1) to restore them to their original conditions, or (2) to withstand a flood of the magnitude of 1931.

(d) Old dilapidated dykes and those which interfere with the normal drainage to be repaired, in the first case to an additional height and width, and in the second by elimination of unfavourable alignment, etc.

(e) New dykes may be built in place of old, provided the cost of the new earthwork does not exceed that of repairing the old dyke.

(f) Original channels of the river to be widened or deepened, if necessary, for drainage of flood-water.

5. *General Specification.*

(a) *Dyke Construction.*—The normal height of the dykes, as the result of the survey, was determined 1 metre above the 1931 flood-level, and the top of the dyke varying in width from 3 to 8 metres. As a general rule, the outside (waterside) slope was 1 : 3, the inside slope 1 : 2, with a toe of 1 : 5. These directions determined the cross sections of the dykes. Other details were : Alignment of the dykes should be as straight as possible, and run in the direction of the current; the soil forming the dyke should be coherent and firm; the grass and brushwood at the foot should be cleared; holes should be filled up; to avoid weakening the toe of the dyke, no excavation should be made close to it, and all excavation should be so dug as to avoid formation of continuous ditches; earth should be piled by layers 1 foot deep and each layer should be consolidated to 8 inches by tamping.

(b) *River Channelling.*—The excavation of the river channelling was done from the bank towards the centre of the channel. To deepen the channel of the river, portions of the bed were dammed off and any impounded water pumped out : subsoil water in new channels was treated in the same manner. During excavation, a ditch over 2 feet deep was maintained at the centre of the channel for drainage purposes.

The slope of the bank was 1 : 2 or 1 : 3, depending on the nature of the soil. The earth excavation from the channels was used for building dykes, additional discharge areas for abnormal run-off secured, if necessary, by pushing back the dykes.

6. *District Organisation.*

For purposes of administrative control, the flooded area was divided into eighteen districts.

Each district engineering office had at its head a district engineer, who served concurrently as a general superintendent of the affairs of the division in that district. He had under his orders one or two assistant engineers, two technical assistants and a clerical force of four to six men handling general affairs. The district engineer received orders directly from the chief of the division, or, as the case might be, from the engineer-in-chief, in connection with the engineering and general affairs of the district. He was also empowered to assign special duties to any men in his office, such as labour recruiting, accounting, engineering construction, dealing with documents and correspondence, and the custody of supplies.

The duties of the assistant engineer and the technical assistants were to assist the district engineer in engineering work and its administration. The distribution of the staff and the labourers, the supervision and the direction of the work in the section, the safety of the staff and the labourers, the distribution of grain, cash and tools, and the preparation of reports on the progress of work in the district were some of their main duties.

(a) *Section Organisation.*—Each district was subdivided into eight or ten sections, the number varying according to the magnitude and the nature of the work in the district.

A section engineer, who generally held the rank of assistant engineer, was placed in charge of the section and received orders from the district engineer. He also had a small staff of technical assistants and clerks. In engineering matters, his duties were to make cross-sections of dykes and local surveys, to make field notes and to recommend local changes in the original project, to make estimates of earthwork required, to direct the progress of the work according to the schedule; to control the labourers, to sanction payment for work done, to look after and report on the health and safety of labourers, to co-operate as fully as possible with the landowners and gendarmerie, and to make weekly reports of the progress of the work.

In each section there were officials to look after the recruiting and handling of labourers, another to look after supplies, and one or two who attended to the correspondence of the section and its general affairs.

(b) *Sub-section Organisation.*—Each section was subdivided into ten sub-sections, or " tuans ", with one foreman in charge, and, where circumstances required, an additional man serving as assistant foreman. Each " tuan " had five hundred men working in it, and was divided into twenty gangs, or " pai ", of twenty-five men each. A gang leader was picked from each gang and acted as its representative. He was responsible for the behaviour and work of every man in the gang.

(c) *Enlisting Field Staff.*—The enlistment of the field staff on the scale required by the work was not a simple matter, especially in view of the rapidity with which the districts began to function in succession. The work was partly engineering, partly relief, the one no more important than the other.

(d) *Recruiting Procedure.*—One of the most important and difficult of all offices in the district at the beginning of operations was that of the recruiting officer.

The recruiting officers usually obtained a list of the famine sufferers from public bodies in the various provinces and from relief societies, and used it when going to the villages. The recruited labourers were given a badge number. When twenty-five labourers had been recruited, they were organised into a gang. The most intelligent of the group was made the boss of the gang and given the No. 1 badge. As soon as a full gang was recruited, they were sent to a designated place for work. Families were prevented from following the gang, unless absolutely necessary. The names of the gang bosses were clearly shown in the rolls. All matters of concern to the labourers were explained to them clearly.

The recruiting officers told them that the construction of these dykes was an endeavour on the part of the National Government to obtain permanent security for the people, that their labour would be paid for from relief supplies, that everybody should work hard in support of the good purpose of the Government. When a sufficient number of labourers had thus been recruited in one village, the recruiting officer moved to another village for the same purpose. When the recruited labourers arrived at the sections, the section engineers reorganised them and gave them new gang numbers.

(e) *Methods of paying for Earthwork.*—After the arrival of the refugee labourers on the spot, they were assigned to one borrow pit clearly marked. They began to dig the earth and to pile it on to the dyke. At the end of each week, the technical assistants, together with the foremen, measured these pits in the following way : first, the length and breadth of the pits were measured, which would give the horizontal area; next, the depth at many points was measured (the number of points depending upon the regularity or the irregularity of the bottom of the pit), and the average depth calculated. The two results were multiplied to obtain the volume of the pit, which represented the quantity of earth excavated within the week.

II. *The Kinshui Reclamation Project.*

The Kinshui is a tributary of the Yangtse, entering it on the right bank at Kinkow, a village 30 kilometres above Wuchang, Hupeh. The watershed of the Kinshui embraces an area of 2,500 square kilometres, of which 500 square kilometres are lakes. In the summer-time, the Yangtse rises at Hankow some 50 feet above its winter level, and in doing so compels all of its tributaries in the locality to rise accordingly. In the case of the smaller tributaries like the Kinshui, the Yangtse overcomes their outward flow and backs up into their basins, inundating in the process vast areas of land; in the case of the Kinshui, the area covered between extreme low and extreme high water is approximately a million mou. The object of the Kinshui reclamation project is to prevent this depredation of the river and to save for agricultural purposes as much as possible of this land ordinarily flooded by the back-waters of the Yangtse. The amount of this land that can thus be saved will vary from year to year, depending on such factors as the stage of the Yangtse and the final level of the impounded water in the lakes, which act as great storage basins. In the case of the years of average and minimum rainfall, much land can be protected for agricultural purposes. In the case of years of heavy rainfall like 1889, lands around the lake up to 24 metres elevation would be submerged. There is no feasible alternative but to allow this submergence in such years. However, in the forty-five years between 1880 and 1924, there were twenty-three years when the rainfall was below the average, and in those years the submergence would be relatively small. During some of the years, the rainfall is so small that it is estimated that the evaporation and transpiration losses would approximately equal the run-off from the watershed.

In the year 1928, following surveys made by it, the Yangtse River Commission made the original designs, and the following year issued a report on the Kinshui project in which it was estimated that the land lying between lowest lake level (20 metres elevation) and the then extreme Yangtse high flood-level (20 metres elevation) was about 900,000 mou. Since the subsequent record flood of 1931, the area lying between contours 28 metres and 30 metres should properly be included in the computation of the area protected. The area of this zone, added to the previously known total, greatly increases the latter, and obviously the value of the project is accordingly greatly enhanced. In passing, it should be here remarked that the Kinshui project is not a new experiment. The Yangtse Valley contains many such projects, some as large as the Kinshui and many of great age, showing the indisputable value of this class of work in this section of China.

The first step in the process of reclamation on the Kinshui is obviously to build a dam to prevent Yangtse water from gaining access to the basin. In 1932, the Kinshui farmers, with the help of a subsidy of wheat and flour donated by the National Flood Relief Commission, built such a dam, and it is reported that, on the area thus reclaimed, they raised several million dollars worth of crops. However, the following winter, in order to let the impounded rain-water out into the Yangtse at low water, these farmers excavated a channel in the earth around their recently built dam, and this channel became enlarged, so that the entire river soon flowed in the new course. To obviate the necessity of constructing a dam in the Kinshui every year and then digging a channel around it, the Government proposed to construct a permanent dam, and then, as the second step in its programme, to construct a permanent sluice, through which to discharge the rain-water that had collected in the lakes behind the dam. The rocky hill, Yukwanshan, adjacent to the Kinshui, near Kinkow, is admirably located as a site for a sluice. It was proposed to pierce this hill at the proper level with three tunnels, each approximately $6\frac{1}{2}$ metres wide and 7 metres high, through which to sluice this impounded rain-water. To control the flow in the tunnel, it was further proposed to install, in appropriate vertical shafts, large " Stoney " sluice-gates $6\frac{1}{2}$ metres wide by 7 metres high. Accordingly, tenders were invited for the construction of the dam and the sluice, and a contract was signed with the successful bidder in April 1933.

Despite the late date, it was felt that, in order to benefit the farmers as soon as possible, an attempt should be made to close the Kinshui and to construct the dam immediately. The river was successfully closed on May 22nd, 1933, but after the closure the river broke all precedents for the month of June and rose to a record height for that month. The closing dam, which could easily have resisted more than ordinary conditions, was unable to withstand the great strain put upon it by the rapidly rising water and broke. It was then determined to do nothing further with the dam until the low-water of the following winter. The river was closed again in March 1934 and the dam containing some 200,000 cubic metres of earth completed on July 4th, 1934. This earth dam is 20 metres in height and has a crest elevation sufficient to resist overtopping by the computed maximum probable flood. In passing, it may well be noted that nearly all the earth for this dam was conveyed in baskets of about 20 kilogrammes capacity. A coolie carried from nearby borrow pits two baskets, a basket on each end of a pole across his shoulder. When the neaby borrow pits were exhausted, the earth was transported on boats from more distant borrow pits, about forty baskets of earth constituting a boat-load.

The tunnels at Yukwanshan are progressing. The character of the rock has not been uniformly as good as was anticipated from boring and from the outcrops. Several slides have delayed progress.

It was anticipated from boring and outcrops that the rock at the site of the shafts in which the " Stoney " gates were to be housed was strong, but this rock, on excavation, proved disappointing and had to be timbered. The pressures finally became so severe that the contractor was forced to abandon timbering and caisson construction was reluctantly resorted to. The caissons are 10.6 metres outside diameter and 20.5 metres deep. When in position, they will be pierced at the proper level to connect with the inlet and outlet tunnels. In the centre of each caisson will be installed the " Stoney " sliding sluice-gate. The three " Stoney " sluice-gates, costing some 64,000 dollars (silver) were manufactured by Messrs. Ransomes and Rapier, of London, and are already at hand awaiting installation. Caisson No. 3 is now sunk to within 1.5 metres of final position.

It is anticipated that no further obstacles will be met in the construction work. It is planned to get the system in operation in time to sluice out the impounded rain-water from the basin next winter.

The estimated cost of the dam and sluice is approximately 750,000 dollars. The work is now about 60% completed.

The third step in the project will be a lock to be constructed in the very near future. The Yangtse River Commission has made preliminary designs for such a lock well located in a limestone rock quarry a few hundred metres distant from the sluice. Quotations have already been received from the aforesaid English firm in London for the lock-gates following the Yangtse River Commission's design, with prices for an alternative design, suggested by that firm, of a gate patterned after the lock-gates at Aswan, Egypt.

III. *The Regulation Project between Kiangyin and Langshan, on the Lower Yangtse.*

In order to regulate the navigation channel for the tidal portions of the lower Yangtse, the conditions must be carefully investigated by collecting all the necessary data with reference to the tidal-wave action and the cross-sections of their river beds. The course of the section from Kiangyin to Langshan is very changeable. The waterway of the channels runs, for the most part, in a zigzag and their feeders are irregularly scattered all along their course. The width of the water surface and the cross-sectional area of the river bed differ in the different localities. The difference in ratio is so great that the flow is impeded. This, in turn, has undoubtedly weakened the natural force of erosion of the river beds themselves. There is no regular rule to control the deep-water line. It is often observed that the banks collapse on one side and are built up on the other. If we wish to improve the lower Yangtse, we must start work in the section between

Kiangyin and Langshan. The map prepared from the actual survey seems to show that all the sand bars in the upper portion of Fohkwangshan, left portion of Cooper Bank and right side of Tungchow, should be blown up successively, leaving the main channel to take care of the increased speed of the river's flow. Any narrow part of the river bed should be widened. The scouring of the river bank clearly occurs at the concave side of Nantung and the Cooper Bank. The danger of destruction of the banks is largely due to the violent dashing force of the water passing through the deepest portions with a steep gradient. To let it fill up by its own natural deposits is the only means to remedy this scouring.

The purpose of constructing the submerged dams is to make the deep channel gradually alluvial, leaving the obstructing bars to be washed away so as to concentrate the flow of water in one central channel. Under present circumstances, the primary object is to build four submerged dams along the bank of Nantung and three in the vicinity of the Cooper Bank. The top of the dam is slightly higher than the river bottom, so there will be no obstruction to navigation, even during the low-water period. Whether this construction work will make the deep channel altogether alluvial or not is still doubtful. It might be found necessary to build more dykes, in addition to those already constructed. After the construction work has been completed, a careful watch for the changes in the river bed will be necessary in order to decide where the additional dykes should be built and which dykes already constructed should be increased to the proposed height. If the work is carried out on the lines suggested above, the cost of the bank protection work, especially at low-water level, will be reduced. After the bank protection work and the submerged dams have been completed, the velocity of the river will be decreased, and the danger of erosion also may be lessened. The constant upkeep of the work must not be lost sight of.

The whole of the construction work can be carried out in several stages, and meanwhile the channels will have a chance of adjusting themselves. The estimated total cost of the four submerged dams which it is proposed to build in Tungchow and the three in Cooper Bank is 930,000 dollars. The plan of the second stage consists of the construction of bank protection works in the Langshan section, 4.7 kilometres in length. The total cost is 2,200,000 dollars, and it is expected to be completed within two years. The construction work for the first and second stages could be planned and prepared within three years, at a total cost of 3,130,000 dollars. From then onwards, it will be necessary to continue the look-out for changes in the river bed as the basis for the third stage in construction work.

8. STATISTICS OF THE GENERATION AND DISTRIBUTION OF ELECTRICAL ENERGY IN THE ELECTRIC UTILITY PLANTS OF THE REPUBLIC OF CHINA FOR THE CALENDAR YEAR 1932.[1]

I. *Number of Electric Utilities.*

Total	463
Distribution according to nature of ownership:	
1. Government ownership	17
2. Government and private ownership	2
3. Private ownership	433
4. Foreign ownership [2]	11

[1] These statistics do not include the Three Eastern Provinces and the Province of Jehol now under military occupation of Japan, because of the difficulty of obtaining the operating data. The industrial power-plants are also not included herein.

[2] All foreign owned utilities are situated in the foreign settlements.

Distribution according to size of plant :

1. Class I (10,001 kw. and over)	11
2. Class II (1,001 to 10,000 kw.)	30
3. Class III (101 to 1,000 kw.)	83
4. Class IV (100 kw. and under)	339

II. *Installed Capacity.*

Total ..... 478,705 kw.

Distribution according to nature of ownership :

	Kw.
1. Government ownership	62,063
2. Government and private ownership	3,020
3. Private ownership	171,381
4. Foreign ownership	242,241

Distribution according to size of plant :

1. Class I (10,001 kw. and over)	351,995
2. Class II (1,001 to 10,000 kw.)	93,121
3. Class III (101 to 1,000 kw.)	21,819
4. Class IV (100 kw. and under)	11,810

Distribution according to type of prime mover :

1. Steam engines and steam turbines	424,013
2. Internal combustion engines	52,595
3. Water-wheels	2,097

III. *Energy Output*

(including power purchased by one utility from another).

Total ..... 1,343,072,210 kwh.

Distribution according to type of prime mover :

	Kwh.
1. Steam engines and steam turbines	1,246,083,255
2. Internal combustion engines	93,066,210
3. Water-wheels	3,922,745

IV. *Net Energy Output*

(excluding power purchased by one utility from another).

Total ..... 1,298,410,668 kwh.

V. *Population* 458,117,000

VI. *Population served with Electricity* 26,169,000

DENMARK.[1]

[*Translation from Danish.*]

HYDRAULIC ENGINEERING.

The enclosed table " Summary of Works costing over 50,000 crowns carried out under the direction of the Hydraulic Engineering Department (Vandbygningsvaesenet) and paid for wholly or in part from State funds during the period 1929-1934 " contains such information as it is possible to give in reply to the questions contained in the Circular Letter from the Secretariat of the League of Nations; it should be noted that, as the table itself states, it refers only to works costing 50,000 crowns or more.

With regard to the enquiry in Point V of the Circular Letter from the Secretariat as to the results obtained from the execution of the public works, the Hydraulic Engineering Department can merely state that, as will be seen from the table, more than 8,000,000 crowns have been paid out directly in wages while, in addition, the sum of about 8,000,000 crowns for the purchase of Danish materials and implements includes considerable amounts paid in the form of wages—for instance, for the manufacture of cement, machinery and tools, for the removal of stones, transport, the felling of and other work on trees, etc.

Construction of Harbours on the West Coast of Jutland.

The following replies refer to the five questions contained in the above-mentioned Circular Letter from the League Secretariat :

I. The only works of which mention may be made are the construction of the port of Hanstholm and the enlargement of the port of Hirtshals.

II. The works are carried out directly for account of the State and under its direct initiative.

III. The expenditure for both installations is covered by the annual budget of the State, and the total costs during the financial years 1929-30 to 1933-34 inclusive amounted to 4,299,927 crowns 93 øre.

IV. The expenditure is divided into two almost equal parts between the two groups : " materials, etc." and " wages, etc.".

V. The construction of the port of Hanstholm is intended to facilitate the development of fishing in the North Sea, and this will have the effect of providing fresh possibilities of employment in various ways. The enlargement of the port of Hirtshals aims at creating a basis for communication between Norway and the Continent. The enlargement will presumably involve other public works, in particular for motor-roads, railways, etc.

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[1] Information additional to the reply previously sent by this Government and published in the first volume.

Roads and Bridges.

The following figures and replies refer to the five questions contained in the Circular Letter from the League Secretariat :

I. *Brief Description of the Most Important Roads and Bridges.*

(a) Undertaken after 1928 and now completed :

Road bridge over the Limfjord;
Road bridge over the Guldborgsund;
Various public roads, public secondary roads and streets in provincial towns.

(b) In course of construction :

Railway and road bridge over the Little Belt;
Railway and road bridge over the Storstrøm;
Road bridge over the Roskilde fjord, at Frederikssund;
Railway and road bridge over the Oddesund;
Various national roads, public secondary roads and streets in provincial towns.

(c) Various bridges, national roads, public secondary roads and streets in provincial towns.

II. *The Authorities executing the Works mentioned under I, and the Method of Execution.*

Limfjord bridge : the bridge concession-holders (Municipal Council of Aalborg);
Guldborgsund bridge : Department of Maribo;
Little Belt bridge : State Railways;
Storstrøm bridge : State Railways;
Frederikssund bridge : Department of Frederiksborg;
Oddesund bridge : State Railways;
National roads : the county authorities;
Public secondary roads : rural communes;
Streets in provincial towns : the municipal councils.

All the works have been carried out either by the workers in the employment of the authorities in question or by contractors under tender.

III. *Methods employed for financing the Works.*

The greater part of the expenditure has been covered by the yield of the motor-vehicle tax imposed by law and the remainder by ordinary county, communal and municipal taxation. In the case of major works, the expenditure has been spread over a number of years, and in such cases the various communes have frequenthy raised internal loans in order to enable the work to be carried out more rapidly than would have been possible with the various periodical grants made. The interest is, in such cases, included in the cost of construction.

IV. *Allocation of Expenditure between National and Foreign Industry and Labour.*

It is impossible to give the total amounts without a detailed study, since the works in question, as shown by the present memorandum, were not exclusively carried out by means of State funds.

V. *The Government's Opinion on the Effects of the Public Works on Unemployment.*

In the opinion of the General Inspectorate of Roads, the execution of these works has helped to reduce unemployment among ordinary workers but has had less effect on employment in industry.

The Drainage of the Tønder Marsh.

The extensive marshland situated south of the line Højer-Møgeltønder-Tønder, about one-third of which now belongs to Denmark, is called the Tønder Marsh.

Soon after the reunion of North Schleswig to Denmark in 1920, a " Drainage and Land Improvement Commission of the Department of Tønder " was appointed to study the question of the drainage of the Tønder Marsh, and, on March 29th, 1922, submitted a " Proposal for the organisation of the drainage of the Tønder Marsh and of adjacent areas ".

Regulations for executing the work were contained in Law No. 137 of April 18th, 1925, regarding the drainage of the Tønder Marsh, amended by Law No. 327 of December 23rd, 1925.

Under Section 5 of the Law, a Commission was appointed by the Ministry of Agriculture for regulating all matters connected with the work. *Inter alia*, the Commission was to decide which landowners were to bear a share of the cost and in what proportion, and how communications by waterway and road were to be organised; the Commission was also instructed to fix the amount of compensation to be granted for expropriated areas, damages, inconvenience, etc.

The law also provided that the State would defray the cost of the entire work on condition that the owners of the area concerned refunded one-third of this expenditure. The Minister of Finance was authorised to raise the funds required for the advance by issuing and disposing of internal State bonds at interest not to exceed 5% per annum.

The work was started in the spring of 1926. The main lines of the plan were as follows : the water coming from the higher land to the east was to be collected in a canal starting from the frontier waterway at Vindtved and running north in the direction of Jejsing until it meets the Grønaa; this stream was to be dyked and to carry the water to the Vidaa, below the Tønder water-mill; the Vidaa was to be dyked, diverted for a part of its course in the neighbourhood of the frontier and led between two dykes to the Højer lock, the channel outside the lock being already widened and deepened. The eastern canal was to be so arranged that all areas to the east of it were sufficiently drained. All the areas to the east and north of Tønder which could not be drained sufficiently by the Vidaa were to be drained by a subterranean channel to the low-lying ground of the marsh. At Sejersbaekdal, all the water from the higher land was to be collected in a new canal leading to the Vidaa on the western side of the valley. The whole of the marsh proper—that is to say, the lowlying land situated to the east and north of Tønder, comprising in all 9,000 hectares—was to be subsequently drained by pumping the water up into the dyked Vidaa. The pumping was to be carried out by four electric pumping stations so situated as to facilitate pumping as much as possible. The drainage was to be carried to such a depth that all areas could be drained as and when required. At the same time, provision was made for supplying water in all areas for the purpose of irrigation in time of drought and for watering the grazing cattle. This was to be done either by bringing water from the dyked watercourses or by working the pumps " in reverse ". The marshy area is situated at such a low level as compared with the sea that drainage by pumping is constantly necessary. In order to prevent the water from the watercourses from flooding the fields at high water, all watercourses inside the sea dyke had to be dyked in.

The work was concluded in the autumn of 1932. The area for the drainage of which these measures have been taken consists of about 11,000 hectares. The dykes along the watercourses have a total length of about 80 kilometres and the drainage canals a length of about 260 kilometres. The total cost, including overhead charges and compensation, amounted to 6,200,000 crowns.

Cultivation of Moorland ("Vildmose").

Of the total area of 2,800 hectares, only 600 hectares now remain to be sown. This area is fully prepared for sowing, which it is expected will be completed at the beginning of the summer, when the entire work will have been concluded.

During 1934, a form of cultivation—which provisionally extends to about 400 hectares of the cultivated area—was introduced in connection with farms established by the State, comprising about 40 hectares of land, with grazing for forty to fifty milch cows; this system is based on the leasing of the farms at a rent varying according to economic conditions.

In addition, about 1,500 hectares of the area recently placed under cultivation will be occupied by a centre for breeding cattle free from tuberculosis; the centre will be placed under the direction of the Dairy Federation ("Mejeriernes Faellesorganisation"). The plans are, however, still under consideration.

Summary of Works costing o[ver] under the Direction of the Hydraulic Engineering Department ("Vandbygningsvaesene"

KIND	I. *Works*					II. *Works carried out*		
	Dimensions		Time			By	For	Direct or by tend[er]
	Length	Area	Begun	Com-pleted	Planned			
(a) *Roads and Bridges :*								
Port of Thyboron : Construction of roads and sewers..	—	—	1933	1934	—	The State	—	Direct
Embankment of Alro-Amstrup road	1,050 m.	—	1929	1931	—	Communal Council of Alro	—	Tende[r]
(c) *Cultivation Works :*								
Regulation of the water discharge in the Ringkobing fjord : Drainage lock, chamber lock, moles, etc....	—	—	1929	1933	—	The State	—	Tende[r]
Regulation of the water discharge in the Nissum fjord : Drainage lock, chamber lock, Moles, etc.	—	—	1930	1933	—	The State	—	Tende[r]
(d) *Canals and Inland Waterways :*								
Deepening of the Gudenaa.....	35 km.	—	1934	—	—	The State	—	Direct
(f) *Drinking-water Supply and Sewage Disposal :*								
" Hvide Sands" : Water supply plant	1,400 m.	—	1934	1934	—	The State	—	Direct
Sewers	1,200 m.							
(g) *Harbour Works :*								
Port of Thyboron : Construction of moles.....	700 m.	—	1930	—	—	The State	—	Direct
Construction of piers and wharves	800 m.							
Deepening works	—							
Port of Esbjerg : Extension of slipway	—	1,920 m²	1930	1931	—	The State	—	Tender
Port of Esbjerg : Extension of fishing harbour	—	51,000 m²	1931	1933	—	The State	—	Tender
Extension of quays by	1,100 m.	—						
Port of Esbjerg : Extension of ship-building yard ...	—	11,500 m²	1931	1932	—	The State	—	Tender
Port of Esbjerg : Lengthening of quays in the " Trafikhavn "	320 m.	—	1933	1934	—	The State	—	Tende[r]
Port of Esbjerg : Lengthening of quays in the eastern outer port	155 m.	—	1934	—	—	The State	—	Tende[r]
Port of Esbjerg : Reconstruction of quays in the southern outer port.....	550 m.	—	—	—	Planned	The State	—	—
Stenbjerg : Lengthening of the breakwater	40 m.	—	1930	1931	—	The State	—	Direct
Port of Frederikshavn : Lengthening of quays	400 m.	—	1933	1934	—	The State	—	Tende[r]
Port of Skagen : Lengthening of quay.....	90 m.	—	1933	1934	—	The State	—	Tende[r]
Construction of protective works ..	70 m.							
" Hvide Sands " : Equipment of harbour for small boats	—	2,300 m²	1933	1933	—	The State	—	Tender
Length of quays.....	400 m.	—						
Port of Kragenaes : Repairs to moles and wharf.....	180 m.	—	1929	1929	—	The Port	—	Tender
Deepening works, etc.	140 m.	—						
Mosede : Equipment of harbour.....	—	3,600 m²	1929	1930	—	The Port	—	Tender
Length of quays	150 m.	—						
Taars : Equipment of harbour	—	3,500 m²	1929	1930	—	The Port	—	Tender
Length of quays	110 m.	—						
Asko : Equipment of harbour	—	1,500 m²	1930	1930	—	The Port	—	Tender
Length of quays	90 m.	—						
Port of Odden : Repairs to mole, etc.	145 m.	—	1929	1930	—	The Port	—	Tender
Construction and equipment of quays.	62 m.							
Port of Vestero: Constr. of appliances to prevent silting	100 m.	—	1930	1930	—	The Port	—	Tender
Aalbaek : Construction of harbour.....	—	3,000 m²	1930	1931	—	The Port	—	Tender
Length of quays	100 m.	—						
Port of Espergaerde : Reconstruction of quays.....	100 m.	—	1930	1931	—	The Port	—	Tender
Construction of appliances to prevent silting, etc.	50 m.							
Port of Humlebaek : Repairs to moles.....	230 m.	—	1930	1931	—	The Port	—	Tender
Slipways, deepening works, etc.								
Port of Grenaa : Enlargement of water surface.....	—	82,000 m²	1931	1933	—	The Port	—	Tender
Enlargement of land surface	—	43,000 m²						
Lengthening of mole.....	800 m.	—						
Lengthening of quays.....	600 m.	—						
Port of østerby : Lengthening of mole.....	75 m.	13,500 m²	1934	—	—	The State	Lacso commune	Tender
Lengthening of quays.....	250 m.							
(m) *Other Works :*								
Coast protection at Oksby-Blaavand :								
Length of coast protected	3,000 m.	—	1930	1932	—	The State	—	Tender
Construction of dykes	700 m.							
8 breakwaters with an average length of.	175 m.							
Coast protection at Miersk : Length of coast protected	900 m.	—	1931	1932	—	The State	—	Direct
5 breakwaters, each with a length of...	130 m.							
Coast protection at the southern point of Nordretang :								
One breakwater	—	—	1933	—	—	The State	—	Direct
Coast protection at Trans : Length of coast protected.	1,900 m.	—	1933	—	—	The State	—	Direct
5 breakwaters each with a length of....	140 m.							
Coast protection at Skallingen : Construction of dykes.	3,000 m.	—	1933	—	—	The State	—	Direct
2 breakwaters with an average length of.	600 m.							
Coast protection at Krogdal : Length of coast protected	960 m.	—	1934	—	—	The State	—	Direct
5 breakwaters each with a length of...	120 m.							
Dyke protection works at Lake Flade.....	800 m.	—	1933	—	—	The State	—	Direct
Dyke protection works at Thyboron.....	1,100 m.	—	—	—	Planned	The State	—	—
Deepening of the Marstal-Rudkobing channel.....	7,000 m.	—	1933	1933	—	The State	Marstal	Direct
Reconstruction of sand pump dredge.....	—	—	1933	1934	—	The State	—	Tender
Construction of sand pump dredge.....	—	—	1933	1934	—	The State	—	Tender
Construction of dredge.....	—	—	1934	—	—	The State	—	Tender

...00 CROWNS CARRIED OUT ... PAID FOR WHOLLY OR IN PART FROM STATE FUNDS DURING THE PERIOD 1929 TO 1934.

III. *Expenditure defrayed by*						IV. *Amount of Expenditure and Estimated Distributions*					
		Funds of ports and private persons					Materials		Plant and implements		
...e State	County commune public funds	Amount	Including loans	Interest	Annual amortisation	Total expenditure	Danish	Foreign	Danish	Foreign	Wages
...owns	Crowns	Crowns	Crowns		Crowns	Crowns	Crowns	Crowns	Crowns	Crowns	Crowns
100,000	—	—	—	—	—	100,000	40,000	—	5,000	3,000	52,000
99,000	99,000	—	—	—	—	198,000	20,000	—	20,000	8,000	150,000
,730,000	—	—	—	—	—	4,730,000	1,800,000	600,000	250,000	100,000	1,980,000
518,000	—	259,000	259,000	—	—	777,000	330,000	60,000	40,000	17,000	330,000
350,000	—	—	—	—	—	350,000	15,000	50,000	90,000	25,000	170,000
50,000	—	—	—	—	—	50,000	20,000	6,000	3,000	1,000	20,000
592,000	—	—	—	—	—	1,592,000	500,000	300,000	70,000	42,000	680,000
79,300	—	—	—	—	—	79,300	30,000	10,000	3,300	2,000	34,000
650,000	—	—	—	—	—	1,650,000	350,000	500,000	70,000	50,000	680,000
330,000	—	—	—	—	—	330,000	65,000	100,000	15,000	10,000	140,000
100,000	—	—	—	—	—	1,100,000	470,000	80,000	50,000	30,000	470,000
500,000	—	—	—	—	—	500,000	215,000	40,000	20,000	15,000	210,000
600,000	—	—	—	—	—	600,000	260,000	50,000	30,000	10,000	250,000
57,500	7,500	8,000	—	—	—	73,000	20,000	25,000	4,000	2,000	22,000
535,000	—	—	—	—	—	535,000	240,000	27,000	25,000	15,000	228,000
132,000	—	—	—	—	—	132,000	60,000	7,000	5,000	3,000	57,000
225,000	—	—	—	—	—	225,000	100,000	14,000	10,000	6,000	95,000
15,000	15,000	37,700	10,000 18,000	5% 6%	6% annual payments 1,200	67,700	17,000	17,000	3,000	2,700	28,000
35,000	43,000	27,000	—	—	—	105,000	30,000	25,000	6,000	2,000	42,000
32,800	41,000	9,700	—	—	—	83,500	20,000	22,000	4,000	2,500	35,000
30,000	15,000	17,200	—	—	—	62,200	15,000	16,000	3,200	2,000	2,600
65,000	43,000	22,000	—	—	—	130,000	45,000	20,000	7,000	2,000	56,000
29,600	29,600	—	29,600	—	—	59,200	25,000	2,000	3,500	1,500	27,200
85,000	40,000	45,000	14,500	—	—	170,000	60,000	25,000	8,000	5,000	72,000
35,000	23,300	11,700	—	—	—	70,000	20,000	15,000	3,000	2,000	30,000
37,500	26,300	13,200	—	—	—	77,000	32,000	5,000	5,000	1,000	34,000
			150,000	3¾%	5,000						
00,000	—	716,000	150,000	5%	5,000	1,316,000	458,000	200,000	68,000	30,000	560,000
			300,000	5-4%	10,000						
			100,000	5%	3,333						
02,000	102,000	—	102,000	4½%	6% annual payments Commercial guarantee	204,000	90,000	5,000	10,000	4,000	95,000
50,000	—	—	—	—	—	250,000	110,000	15,000	10,000	8,000	107,000
00,000	—	—	—	—	—	300,000	133,000	7,000	25,000	15,000	120,000
50,000	—	—	—	—	—	150,000	65,000	5,000	15,000	5,000	60,000
00,000	—	—	—	—	—	700,000	310,000	20,000	55,000	35,000	280,000
50,000	—	—	—	—	—	550,000	100,000	150,000	25,000	15,000	260,000
80,000	—	—	—	—	—	380,000	170,000	10,000	30,000	20,000	150,000
00,000	—	—	—	—	—	200,000	85,000	15,000	15,000	5,000	80,000
90,000	—	—	—	—	—	390,000	170,000	30,000	25,000	15,000	150,000
48,500	—	49,500	—	—	—	198,000	8,000	25,000	60,000	15,000	90,000
95,000	—	—	—	—	—	95,000	25,000	17,000	5,000	3,000	45,000
02,000	—	—	—	—	—	102,000	30,000	20,000	6,000	4,000	42,000
00,000	—	—	—	—	—	600,000	150,000	150,000	30,000	20,000	250,000
1780,200	484,700	1,216,000	120,000	—	—	19,280,900	6,703,000	2,685,000	1,132,000	553,700	8,207,200

EGYPT.

[*Translation.*]

The Ministry for Foreign Affairs communicates hereafter the information supplied by the competent Departments of the Royal Government.

With regard to the principal methods employed for financing public undertakings, appropriations are included in the budget of the Department concerned and charged to the revenue of the State. The State does not have an ordinary and an extraordinary budget; there is only one budget covering all forms of expenditure—permanent, unforeseen and extraordinary. With regard to undertakings carried out by local bodies (municipalities, provincial and local councils), water, lighting and sewerage undertakings are financed by State guaranteed loans from the local banks. Loans for water and lighting works are repayable in thirty years, and loans for sewerage works in forty-one years. The necessary funds for other works are charged to the budgets of the bodies concerned.

Railways.

The Egyptian Government devotes particular attention to the railways, with a view to the economic development of the country through improved communications, providing rapid transport from place to place, and linking up the towns. This is proved by the large appropriations made in the budget of the State Railways Department in past years.

The works executed and the expenditure thereon are as follows :

	£E	£E
1. *Works executed during the past five years :*		
(a) Laying of new lines and improvement of existing lines	804,000	
(b) Construction of bridges and subways	370,000	
(c) Improvements to various stations	134,500	
(d) Miscellaneous	220,000	
		1,528,500
2. *Work in course of execution :*		
Improvements to various stations	270,000	
Construction of the Abu Zaabal workshops	200,000	
		470,000
3. *Work begun but suspended :*		
Laying of new lines and improvements to various lines	1,045,000	1,045,000
4. *Works in contemplation :*		
Laying of new lines	1,045,000	
Improvements to various stations	240,000	
		1,285,000
Total...		£E4,328,500

Important Works carried out since 1929 *or started since then and still in Progress.*

A = completed.
B = work in hand.
C = started but suspended.
D = projected only.

Works		Approximate cost £E	Remarks
Dessuk Nile bridge	A	190,000	
Abu Kebir Station remodelling	A	33,500	
Tanta locomotive shed and coal-yard	A	73,000	
Benha-Menuf line	A	180,000	
Mahmoudia combined rail and road bridge	A	50,000	
Zifta-Mit Bera line	A	115,000	
Cairo terminal improvements, extension and reconstruction	C	150,000	Foundation of west wing done but work is suspended till now.
Doubling and regrading of marshalling yard at Gabbari	A	31,000	
Dessuk Station remodelling	A	31,000	
Sharabia subway	A	30,000	
Mansura station remodelling	A	30,000	
Faqus-San el Hagar line (see note)		50,000	36 kilometres, of which 10 kilometres to Samana is open to traffic. Extension deferred.
Tanta-Santa line	A	68,000	
Minia road bridge over railway lines and Ibrahimia canal	A	60,000	
New coal-hoists at Gabbari	A	70,000	
Meh. Roh-Talkha doubling	A	200,000	
Tanta Station remodelling and improvements	B	210,000	
Cairo-Suez line	C	200,000	
Removal of Abu Zaabal workshops	B	200,000	
Widening Luxor-Assuan line	A	210,000	
Seigar subway at Tanta	A	40,000	
Kena-Kift-Qosseir (new line)	C	200,000	
Extension of power-house at Gabbari	A	77,000	
Zagazig station modification	B	60,000	

(c) *Works of which Projects are prepared but not started yet.*

Works		Approximate cost £E	Remarks
Port Fouad-Romani line	D	245,000	Total length is about 43 kilometres. It runs for about 36 kilometres parallel to the coast of the Mediterranean.
Extension of Mariut line from Foka to Mersa Matruh	C	345,000	80 kilometres.
Edfina-Sidi Ghazi line	D	250,000	54 kilometres.
Samana-San el Hagar-Faraskour line	D	350,000	80 kilometres.
Farz-Galiub relief line	D	100,000	20 kilometres.
Sidi Gaber station remodelling	D	50,000	
Doubling of Abu Qir line	D	100,000	
Mallawi station remodelling	A	40,000	
Assiut station remodelling	D	190,000	

Ports and Lighthouses.

The expenditure incurred on ports and lighthouses during the past five years amounted to £E544,873, spread out as follows :

Year	Amount £E
1929	295,013
1930	100,414
1931	62,918
1932	43,280

Among the more important works executed during this period, mention should be made of the improvements to the port of Suez, which cost £E100,172. This sum is included in the above-mentioned figures.

The following works were also executed :

	£E
Construction and equipment of two depots at Pier E in the port of Alexandria	48,699
Construction of quays for berthing pilgrim boats at the port of El Tor	32,841
Construction of a quay 170 metres long in the port of Suez	31,379
Reconstruction of the Abul Kisane lighthouse in the Red Sea	42,448
Enlargement of the Montazah harbour at Alexandria	22,485
Purchase of new lighting equipment for the Red Sea ports	13,038

Roads and Bridges.

1. *Roads.*

The Egyptian Government was obliged to improve the road system in the interests of the economic development of the country. The expenditure incurred in this connection during the past five years amounted to £E232,715, spread out as follows :

Year	Amount £E
1929	113,916
1930	75,085
1931	24,226
1932	8,447
1933	11,041
Total...	£E232,715

Of the more important roads on which these sums were spent, mention may be made of :

	£E
Widening and completion of certain parts of the road from Cairo to Alexandria	102,865
Widening of the road from Cairo to Luxor as far as Assiut	39,195
Improvement of the road from Giza to the Fayum across the desert, and of the road from the Pyramids Road to Zawiet Abu Mesallem	23,062

The length of agricultural and macadamised roads constructed during the past five years was as follows :

Year	Agricultural roads Km.	Macadamised roads Km.	Total Km.
1929	234	22	256
1930	195	51	246
1931	45	10	55
1932	133	4	137
1933	365	—	365

The length of existing roads of these two categories was as follows :

Year	Agricultural roads Km.	Macadamised roads Km.	Total Km.
1929	6,050	331	6,381
1930	6,245	382	6,628
1931	6,291	393	6,684
1932	6,424	397	6,822
1933	6,790	397	7,188

2. *Bridges.*

The expenditure incurred by the Government and municipalities on bridges in the provinces during the past five years amounted to £E779,341, as follows :

	£E
Demolition of the former Kasr El Nil bridge at Cairo and its reconstruction (Khedive Ismail bridge)	318,223
Construction of the Benha bridge over the Nile	199,478
Construction of various bridges	75,042
Municipal bridges	25,439
Miscellaneous bridges and works	161,159
Total...	£E779,341

Civil Aviation.

Although aviation has only recently been introduced into Egypt, the expenditure on new works necessitated by aviation during the past five years amounted to £E103,506, including expenditure on the construction of a wireless station at the Almaza aerodrome, Cairo, and the inspection of the Giza wireless broadcasting station, which amounted to £E3,503.

The amount of £E103,506 was spread out as follows :

Year	Amount £E
1929	46,439
1930	28,196
1931	3,458
1932	7,431
1933	17,982
Total...	£E103,506

PORTS AND LIGHTHOUSES.

STATEMENT SHOWING EXPENDITURE ON NEW WORKS DURING THE YEARS 1929, 1930, 1931, 1932 AND 1933.

Nature of work	1929	1930	1931	1932	1933	Total
	£E	£E	£E	£E	£E	£E
Enlargement of the port of Montazah	9,880	3,518	7,363	1,724	—	22,485
Purchase of new lighting equipment for the Red Sea ports, and construction of a signalling station at Port Tewfik	11,607	432	999	—	—	13,038
Replacing and repairing dredgers, dredging operations, and purchase of equipment	14,041	14,015	8,764	5,672	5,076	47,568
Purchase of a floating fire-engine for the port of Suez	7,475	—	—	—	—	7,475
Extraordinary expenditure on the upkeep of floating and fixed equipment and purchase of floating equipment	21,989	7,245	6,204	2,924	2,400	40,762
Study of harbour schemes	7,165	8,785	—	—	—	15,950
Reconstruction of Abul Kisane lighthouse	23,749	16,424	2,275	—	—	42,448
Construction and renewal of footbridges at Alexandria	213	—	—	—	—	213
Purchase of new implements for, and building repairs to, the workshops	2,553	—	2,252	3,574	4,316	12,695
Paving of the port of Alexandria	1,966	13,681	5,639	—	—	21,286
Construction and equipment of two stores at Pier E	40,981	134	7,461	120	—	48,696
Construction of oil-tanks and of two wharves for nitrates and coal at the port of Alexandria	7,814	—	—	—	—	7,814
New lifeboat for the port of Alexandria	18,196	—	—	—	—	18,196
Completion and strengthening of the foundations of the Rosetta lighthouse jetty	324	7,280	—	1,202	—	8,806
Construction of a quay 170 metres long in the port of Suez	25,350	2,216	1,333	2,480	—	31,379
Enlargement of the port of Suez	100,172	—	—	—	—	100,172
Construction of quays for berthing pilgrim boats at El Tor	12	16,161	14,551	1,917	200	32,841
Construction of dwellings at Matruh, of public conveniences on the timber-wharf at Alexandria, and of a concrete wall for the quarantine station at Suez	1,526	—	—	—	—	1,526
Construction and repair of floating landing-stages at Alexandria and Suez	—	9,445	5,705	3,760	3,388	22,298
Construction of new wharf-protection works	—	967	—	—	—	967
Construction of a landing-stage at Ras el Tin	—	1,111	—	9,549	15,411	26,071
Construction of a quay and dock for sailing-ships at Port Said, and construction of a wall round the Mallaha Customs zone at Alexandria	—	—	372	—	918	1,290
Cost of lighting the port of Alexandria and cost of administration of the workshops and graving dock	—	—	—	1,849	6,799	8,648
Construction of a wall round the Customs zone at Port Tewfik	—	—	—	872	1,554	2,426
Extension of the main cable from the power-station to the oil-reservoir at Suez	—	—	—	—	926	926
Construction of a garage for the mechanical transport service at Alexandria	—	—	—	—	2,250	2,250
Improvement of the road to the store of inflammables at the port of Suez	—	—	—	337	—	337
Total	295,013	100,414	62,918	43,280	43,248	544,873

ROADS AND BRIDGES.

STATEMENT SHOWING EXPENDITURE ON NEW WORKS DURING THE YEARS 1929, 1930, 1931, 1932 AND 1933.

Nature of works	1929	1930	1931	1932	1933	Total
I. *Roads.*	£E	£E	£E	£E	£E	£E
Widening and improvement of the Abukir Road from Montaza Palace to the beginning of Rosetta Road	9,959	—	—	—	—	9,959
Repairing and widening of road No. 26 from Benha to Mit Ghamr	7,167	—	—	—	—	7,167
Joining-up of the new Sandub bridge at Mansura	—	—	2,193	254	—	2,447
Completion of the road-widening operations between Giza and Bedrechein and junction with Sakkara	13,000	8,996	—	—	—	21,996
Improvement of the Pyramids Road from Giza to the Fayum across the desert, and of the road running from the Pyramids Road to Zawiet Abu Mesallem	12,069	10,993	—	—	—	23,062
Construction of the road between Abu Zaabal Station and the Leper Hospital	—	4,962	1,986	—	—	6,948
Completion and widening of certain parts of the road from Cairo to Alexandria	33,020	43,797	18,893	3,339	3,816	102,865
Construction of the road from Port Said to Damietta	—	—	1,143	411	1,701	3,266
Widening of the road from Mit Ghamr to Mansura, Damietta and Ras el Bar	—	—	—	4,443	4,631	9,074
Widening of the road from Cairo to Luxor as far as Assiut	31,965	6,337	—	—	893	39,195
Construction, widening and macadamising of various roads	6,736	—	—	—	—	6,736
Total ...	113,916	75,085	24,226	8,447	11,041	232,715
II. *Bridges.*						
Municipal bridges	1,905	10,831	4,844	3,973	3,886	25,439
Reconstruction of various bridges	27,482	18,256	9,661	9,826	9,817	75,043
Reconstruction of the Kasr el Nil bridge (Khedive Ismail bridge)	457	1,205	95,574	183,127	37,860	318,223
Reconstruction of the Benha bridge over the Nile.	459	777	91,003	99,537	7,702	199,478
Footways on the Edfina bridge	—	—	25,000	3,000	316	28,316
Construction of various bridges	53,428	62,289	9,602	—	7,524	132,843
Total ...	83,731	93,358	235,684	299,463	67,105	779,341

CIVIL AVIATION.

STATEMENT SHOWING EXPENDITURE ON NEW WORKS DURING THE YEARS 1929, 1930, 1931, 1932 AND 1933.

Nature of works	1929	1930	1931	1932	1933	Total
	£E	£E	£E	£E	£E	£E
Cost of land expropriated for the Dekhela aerodrome at Alexandria	24,000	10,000	—	—	—	34,000
Raising of the level of the Dekhela aerodrome by banking up	14,338	10,897	3,458	—	—	28,693
Construction of a wall round the Almaza aerodrome, improvements to the land belonging to the aerodrome, and flood-protection works at the aerodrome	8,101	7,299	—	202	—	15,602
Technical and meteorological equipment and construction of hangars	—	—	—	150	17,982	18,132
Construction of offices at the Almaza aerodrome	—	—	—	2,831	—	2,831
Construction of a wireless station at the Almaza aerodrome and inspection of the Giza station	—	—	—	745	—	745
Lighting equipment round the Almaza aerodrome	—	—	—	3,503	—	3,503
Total	46,493	28,196	3,458	7,431	17,982	103,506

HYDRAULIC WORKS.

[*Translation.*]

I.

(a) *Works undertaken since* 1929 *and already completed.*

(1) *Raising of the Height of the Assuan Reservoir for the Second Time.*—At the beginning of 1929, the Ministry of Public Works began for the second time to raise the height of the Assuan reservoir by 9 metres, in order that about twice as much water might be stored. This work was completed at the end of 1933. The cost was as follows:

	£E
Construction	2,300,000
Ironwork	350,000
	£E2,650,000

The Assuan reservoir is situated at the first cataract of the Nile. It is used by the Ministry of Public Works to store part of the Nile waters when they are high and are in excess of requirements for cultivated land; it subsequently discharges the water thus stored into the Nile to raise the level of the river when the rate of flow is at its lowest.

The reservoir was originally completed in 1902 to hold a thousand million cubic metres of water. Its capacity was first increased to 2,500 million cubic metres. The work was completed in 1912. In 1933, the height of the reservoir was raised for the second time and it was also strengthened, its present capacity being 5,400 million cubic metres.

(2) *Drainage Scheme for the North of the Delta.*—In 1929, the Ministry of Public Works began work on a scheme for reclaiming, by machinery, about 1,000,000 feddans of land in the northern part of the delta, and constructed 18 subsidiary pumping stations

to drain these areas. The stations obtained the necessary power from three main stations. The work was completed in 1933. It took three years, and cost about £E300,000.

The value of this scheme was that it not only reduced the pressure of water on the low-lying land, but contributed towards improving and rendering cultivable about 400,000 feddans of uncultivated land.

(3) *El Ahaywa Tunnel.*—This tunnel was pierced to make a channel for the waters of one of the chief canals of Upper Egypt, which enters the Nile above the Nag'Hamadi barrage. The barrage was completed in 1930, and cost £E2,000,000. The tunnel is 1 kilometre long and 10 metres wide, and was completed in 1932 at a cost of £E200,000.

(b) *Schemes in course of Execution.*

(1) *Jebel Awlia Reservoir.*—The Jebel Awlia reservoir, on the White Nile, 50 kilometres south of Khartoum, is now under construction. The work was begun at the end of 1933, and will probably be completed by the beginning of 1937. The reservoir will supply Egypt, at low water-level, with about 2,000 million cubic metres of water.

The cost of constructing the Jebel Awlia reservoir is estimated at about £E2,100,000.

(2) In addition to constructing the Jebel Awlia reservoir, the Ministry of Public Works is carrying out various irrigation and drainage improvement works on land now under cultivation, and is developing agriculture by improving uncultivated land and turning various low-lying basins in Upper Egypt into perenially irrigated land suitable for cultivation throughout the year.

On this class of work, the Government spends about £E1,250,000 per annum, and will continue to do so for at least fifteen years.

(c) *Works which are about to be carried out or for which Schemes are in Preparation.*

The irrigation and drainage works, planned to cover about twenty years, are as follows :

	Cost of execution £E
1. Strengthening of the Assiut barrage on the Nile. The work will be begun in November 1934	1,100,000
2. Construction of the Mohamed Aly barrages on the two branches of the Nile to the north of Cairo, to replace the old Delta barrages completed in 1861. The construction of the new barrages will be begun in 1935	2,400,000
3. Construction of the Edfina barrage on the western branch of the Nile, near the mouth..	700,000
4. Construction of a new electricity generating-station and subsidiary pumping-stations.....	900,000
5. Irrigation and drainage improvements in the Delta	12,500,000
6. Reclamation of uncultivated land in the Delta	3,200,000
7. Drainage improvements in Middle Egypt.....	2,300,000
8. Conversion of the basins of Upper Egypt to a system of perennial irrigation.....	5,400,000
9. Improvement of shipping in Egypt.....	700,000
Total...	£E 29,200,000 or 30,000,000

II. *Administrative Methods employed in carrying out Public Works.*

The principal administrative method, as regards both works already executed and works in course of preparation, is that they are carried out on behalf of the central authorities of the State. Each undertaking is offered for either local or international tender. The tenders are examined and the work is entrusted to the most competent contractor.

III. *Methods for financing Public Works.*

The expenditure on these works is met from the ordinary State budget. In time of prosperity, extraordinary appropriations are made from the State reserve funds.

IV.

Of the expenditure, 75% is for the purchase of the necessary material and 25% for labour.

V.

The execution of irrigation and drainage schemes has raised the cost of labour, which had fallen considerably. Had these schemes not been carried out, a large number of local industries would have come to a standstill.

TELEGRAPHS AND TELEPHONES.

I.

Trunk cable Cairo-Alexandria.
Cairo Automatic Telephone Exchange.
System of radiotelegraph stations for internal communications and for communication with aircraft.
Direct radiotelephone service from Egypt to England, Germany and France.
Improvements to main trunk telephone service by installation of repeater stations.
Inauguration of a State broadcasting station.
Automatic telephone service for Alexandria and improvements to other exchanges.
Additional broadcasting stations.

II.

All the above works have been carried out by the Government partly directly and partly by adjudication, with the exception of the radiotelephone service, which is worked by a private company under agreement.

III.

The expenditure has been covered by the national budget.

IV.

The total expenditure of those of the above works which have been carried out directly by the Government is approximately £E900,000. This does not include the salaries and wages of permanently employed Government staff.

ETHIOPIA.

I. Description of the Main Works by Categories.

A.—*Main Public Works put in Hand in the Empire of Ethiopia at the Beginning of 1929 and which have now been completed.*

(a) *National Roads.*

1. *The Lekemeti Road.*—By the beginning of 1930, the partial survey of the road had been completed. The final survey and the construction of the road were undertaken simultaneously to avoid the necessity for suspending the work during the season of heavy rains known as the "Kremt".

This road is an extension of the Addis-Ababa - Addis-Alem road.

The carriage-road from Addis-Ababa to Addis-Alem (60 kilometres in length) was built during the reign of the Emperor Menelik II. Very little required to be done in the way of repairs to this portion of the Lekemeti road.

The Addis-Ababa - Addis-Alem road is paved along its whole length.

The Lekemeti road forms a continuation of the Addis-Alem road, running into the Province of Lekemeti. It is a particularly important road, as it is the shortest route between the capital and the western provinces of the Empire; it passes through the provinces of Toké, Galla, Tibé, Cheboka, Sibu and, finally, Lekemeti. These provinces are among the most important in the Empire.

The present road to Lekemeti replaces the old caravan-track which was previously used and which was absolutely impracticable for all wheeled traffic.

The construction of the Lekemeti road, which does not follow precisely the same route as the caravan track, presented very great difficulties; in many places, the road hugs the mountain-side, and it was therefore necessary to lay gutter-stones as a protection against the heavy rains which occur during the wet season.

During the surveying operations, scientific researches were carried out in the various regions through which the road passes, with the object of ascertaining whether these provinces were suitable for the establishment of cotton, coffee, etc., plantations.

Technical conditions of construction :

(1) Gradient : not more than 6%;
(2) Curves : Not less than 25 metres;
(3) Total length of the road : 390 kilometres;
(4) Width of the road : 8 metres;
(5) Width of the roadway : 4 metres.

2. *The Jima Road.*—The construction of the Jima road was put in hand at the beginning of 1931, under the direction of the engineers of the Ministry of Public Works. Two different surveys were made, and it was decided to adopt the second route proposed, as this passed through several fertile regions.

The road follows the general direction Addis-Ababa - Gambella, *via* Jima, Giré.

Technical conditions of construction :

(1) Gradient : not more than 6%;
(2) Curves : not less than 25 metres;
(3) Total length of road : 300 kilometres;
(4) Total width of road : 8 metres.

Serious obstacles were encountered at various places—for instance, in the descent to and ascent from the Gibié (Omo) valley.

The most difficult problem was to protect the road from the "Kremt" waters, which rush down the mountains in such torrents as to make it impossible for the heads of the drain-pipes to carry them off so as to keep the roadway sufficiently dry. It was therefore necessary to make larger gutters.

All the engineering works on the road, in particular, the culverts and small bridges, are of stone.

The large bridges are of reinforced concrete; the Awache bridge is made entirely of iron.

Digging operations were carried out with the help of three road-machines.

As the surface of the road is particularly hard, vehicles can travel over it, weather permitting, with perfect safety and at a high speed.

For the convenience of travellers, a halting-place, with a hotel provided with all the necessary equipment, has been constructed at Wellisso (115 kilometres from Addis-Ababa).

Lastly, telephonic communications are ensured all along the road by the services of the Ministry of Posts, Telegraphs and Telephones.

3. *The Dessie Road.*—Surveys for the Dessie road were made during 1932, and digging operations were begun in the following year. After passing through the "High Plateau of Choa" country, the road reaches the town of Debre-Marcos at a distance of 140 kilometres from the capital.

After crossing the Danakli plain, the road rises at a gentle gradient and then runs along the hillside or along the top of the watershed. It passes through various fertile districts before it reaches the town of Dessie. This road was opened to wheeled traffic at the beginning of 1934.

Technical conditions of construction :

(1) Gradient : not more than 6 to 10%;
(2) Total length of road : 425 kilometres;
(3) Total width : 8 metres;
(4) Curves : not less than 20 metres.

4. *The Jihur Road.*—This road is 200 kilometres long and 8 metres wide.

(b) *Departmental Roads.*

1. Roads built in the Harrar district :
   (a) Dirre-Daua - Harrar road : 58 kilometres.
   (b) Harrar - Jijiga road : 200 kilometres.
   (c) Harrar - Dadar road : 110 kilometres.
   (d) Harrar - Midagallola road : 70 kilometres.
   (e) Adale - Garamuleta road : 60 kilometres.
   (f) Garamuleta - Burka road : 11 kilometres.
   (g) Harrar - Kembolchta road : 30 kilometres.
2. Roads built in the Chterchter district :
   (a) Asbe-Tefferi - Hirna road : 40 kilometres.
   (b) Asbe-Tefferi - Minet road : 110 kilometres.
   (c) Asbe-Lebelti - Biket road : 70 kilometres.
   (d) Asbe-Modjo - Adama road : 50 kilometres.
3. Roads built in the Jijiga district :
   (a) Jijiga - Ai-Cha road : 190 kilometres.
   (b) Jijiga - Tefferi-Ber road : 70 kilometres.

(c) Jijiga - Herguessa road : 180 kilometres.
(d) Jijiga - Deguehabur road : 180 kilometres.
(e) Deguehabur - Tamene road : 80 kilometres.
(f) Deguehabur - Bulale road : 50 kilometres.
(g) Deguehabur - Urgo road : 230 kilometres.
(h) Urgo - Fassika road : 200 kilometres.
(i) Urgo - Tenane road : 100 kilometres.
(j) Tenane - Dijino-Ber road : 100 kilometres.
(k) Dijino-Ber - Admula-Kolafo road.
(l) Adamola - Fassika road : 50 kilometres.
(m) Fassika - Busle road : 20 kilometres.

All these roads are simply tracks, but they will be paved in the near future.

The Government has arranged for the distribution of a certain type of cart in all districts served by the new roads.

(c) *Airports.*

Since the beginning of 1929, airports have been built in several places and are now in use.

In particular, a large airport has been built at Akaki, not far from the capital.

The site, which has been well chosen, is in a large plain 2 kilometres long and 1.5 kilometres wide.

Taking-off and landing operations can thus be effected with the utmost facility.

Most of the airports consist of three hangars, two workshops and a building for the administrative services.

A large hangar has been built entirely of local timber; it has a span of 40 metres, a depth of 30 metres and a height of 12 metres.

Another hangar, made entirely of metal, is 20 metres long by 12 metres wide.

A third and last hangar, the framework of which rests on masonry pillars, is quite large enough to take two aeroplanes.

A principal workshop and an up-to-date mechanical workshop are attached to the aerodrome for the repair and manufacture of aeroplane spare parts.

During the " Kremt "—*i.e.*, the season of heavy rains—aircraft will take off from and land on a large platform.

A stone-paved road connects the aerodrome with the capital.

This aerodrome has been built entirely by Ethiopian technicians under the direction of the engineers of the Ministry of Public Works.

(d) *Administrative Offices.*

Certain premises used by the administrative services of the Ministry of Public Works and the Ministry for Foreign Affairs have been demolished and entirely rebuilt on a new plan.

(e) *Other Works* (works included in a general plan and carried out since 1929).

1. *Prison.*—During 1932, a large up-to-date prison was built at Akakia, at a distance of 7 kilometres from the capital, on the same lines as the modern European and American prisons.

The cells are arranged in accordance with a system which makes it possible to house an odd number of prisoners. This prison can accommodate some 400 prisoners.

The main building consists of a ground floor and a first floor.

The rooms of the Governor of the prison and the offices of the administration are on the first floor of the main building.

An infirmary, with a room for the medical examination of the prisoners, has been installed in the prison.

2. *Wireless Station.*—During 1933, a large wireless station was built at Akaki, on the outskirts of the capital.

This station, which was built by a foreign company, is equipped with the most up-to-date receiving and transmitting apparatus.

As the construction of this station was expected to take a fairly long time, it was necessary to instal a smaller one, which is at present being used for broadcasting in the capital itself.

Another secondary station has been built in the town of Godjam for internal communications.

Other wireless stations similar to that at Godjam will be established shortly in certain inland towns.

The construction of the Akaki station has been fully completed, but it is not yet working.

3. *Barracks.*—Two large barracks have now been completed, one in the capital and the other at Genette.

The Addis-Ababa barracks, which has been planned on rational lines, consists of twelve large buildings situated between the two Guebis (Imperial palaces).

The Genette barracks consists of nine large buildings, three of which have a first floor, where the dormitories are situated. One building contains the refectory and another the administrative services. Two buildings are used as stables, while one has been fitted up as an infirmary.

4. *Hospitals.*—Various hospitals have been built in certain provincial towns, and two large ones in the capital itself, since 1929.

(a) The Bete-Saida hospital consists of eight detached buildings, it is specially intended for surgical cases. However, it also includes other services, such as radiography, etc.

(b) The Felloha hospital, adjoining the thermal station of Felloha, provides accommodation for maternity cases.

5. *Cathedral.*—The Sellssie cathedral has been built in the capital of the Empire on the same plan as western cathedrals.

6. *Parliament.*—The new Parliament House has been built (1933-34) at the side of the large Guebi (Imperial Palace). This building, which is of reinforced concrete with brick filling, comprises the Senate and the Chamber of Deputies. The main building, which has been planned on the most up-to-date lines, consists of a ground floor and a first floor.

7. *Monuments.*—The following monuments were erected in the capital of the Empire at the time of the coronation of His Majesty Haile-Selassie by the engineers of the Public Works Department :

(a) In St. George's Square, opposite St. George's Cathedral, a large gilt-bronze statue representing the Emperor Menelik II on horseback. This monument is surrounded by a park.

(b) A monument symbolic of the Holy Trinity was erected in the centre of the town on the occasion of the coronation of His Majesty Haile-Selassie I in 1930.

B.—*Principal Works in course of Execution.*

1. *National Roads.*

(a) The main road Addis-Ababa - Ballé;

(b) The main road Addis-Ababa - Godjam.

2. Various departmental roads are also under construction and will shortly be completed.

3. A small palace measuring 60 metres by 35 metres is now being built at Addis-Ababa in the grounds of the little Guebi. The building consists of a ground floor and two other floors, comprising a hundred rooms.

The internal decorations and part of the furniture have been ordered in Europe.

The palace, beside which a chapel will be built, is surrounded by a park of 25 hectares.

The construction of an Imperial palace at Harrar, which was put in hand at the beginning of 1934, will shortly be completed.

4. *Church.*—A church dedicated to St. Mary is now being built in the capital of the Empire.

C.—*Works the Execution of which is at present in Contemplation.*

The engineers of the Ministry of Public Works are studying plans for the following public works :

1. Various national and departmental roads such as :

The Addis-Ababa - Alague road;
The Dessie - Aheïa-Fège road;
The Dessie - Baté road;
The Dessie - Gonder road;
The Beguemder - Godjam road;
The Djima - Maji road.

2. Various surveys have been made in the vast arid regions of Wamaet of Guibie, with a view to ascertaining whether it is possible to irrigate them and grow crops there. The cultivation of cotton, rice, etc., was found to be practicable. Provision has been made in the scheme for the carrying out of all the operations required to enable these crops to be grown.

Surveys are now being made with a view to ascertaining the hydraulic possibilities of the region, the establishment of waterways and the harnessing of waterfalls. The work will be begun as soon as these surveys have been completed.

Schemes are also under consideration for the construction of several wireless stations and hospitals, a large military school, law-courts, an up-to-date town-hall, etc.

A large Imperial palace will be built in the grand Guebi (Imperial Palace) of Addis-Ababa in the very near future.

Other Imperial palaces are to be built in various provincial towns.

II. Administrative Methods.

In general, the plans for the works mentioned under I are drawn up by the engineers of the Ministry of Public Works; they are then submitted for approval to a commission appointed by the Minister.

The members of this commission are chosen from among the Public Works engineers. The commission may also include technicians who are not Government officials but whose assistance has been requested by the Minister.

However, in the case of particularly important works, public tenders must be invited.

All works are carried out by order and for account of the central authority, either by the Administration itself or by a contractor, according to circumstances.

If it is decided to entrust the execution of the works to a contractor, tenders are always invited.

However, in very exceptional circumstances, a private contract may be placed with the Minister's authorisation.

Works the execution of which is at present in contemplation will be carried out in accordance with new laws which are now being prepared and will shortly be promulgated. In accordance with present requirements, these laws will be more detailed than the old ones.

Up to the present, the administrative methods employed for the execution of public works have met Ethiopia's requirements, but in view of the steady growth in the country's activities, it was necessary to revise, supplement and improve the old laws relating to public works.

III. Methods employed for financing the Work.

The methods at present employed will be revised under the new laws now in course of preparation.

Generally speaking, all expenditure on the work carried out for account and by order of the central authority is covered by an extraordinary budget of the State.

IV.

A part of the material and equipment for the public works described under I is of national origin, while the remainder is supplied by European and American industries.

The whole of the labour employed is Ethiopian.

The problem of unemployment in Ethiopia does not present the same aspect as in the industrial countries of Europe and America. European or American workers are chiefly employed in industry, whereas the vast majority of Ethiopian workers are small artisans. As there are practically no large industries in Ethiopia, the problem of unemployment, with all its burdens, as it is generally understood, does not arise.

V.

The Ethiopian Government has every reason to be satisfied with the results obtained from the execution of the works enumerated under I. However, no country can claim to have escaped the disastrous results of the economic depression which prevails throughout the world, and although Ethiopia is not an industrial country, she has not been able to protect herself from this universal calamity. Notwithstanding this unprecedented economic depression, the Ethiopian Government is glad to have been able to carry out the greater part of its public works programme and to note the steady improvement in the country's economic activity.

FRANCE.[1]

Legislative and Administrative Provisions of the Plan of Large-scale Works for combating Unemployment.

DECREE-LAW OF MAY 15TH, 1934.

[*Translation.*]

REALISATION OF A PLAN OF LARGE-SCALE WORKS FOR COMBATING UNEMPLOYMENT BY MEANS OF THE LIQUID ASSETS OF SOCIAL INSURANCE OFFICES.

Article 1.

§ 1. Notwithstanding the provisions of Article 31 of the Law on Social Insurance, Old Age Insurance Offices and Old Age and Invalidity Insurance Offices and the General Guarantee Office (Caisse générale de garantie) shall, in respect of the fund for increased benefits and joint responsibility (fonds de majoration et de solidarité), allot, from June 1st, 1934, to December 31st, 1940, 75 % of their liquid assets to the constitution of a Common Fund administered by the Deposit and Consignment Office (Caisse des Dépôts et Consignations) under the control of the National Commission provided for in Article 3 of the present decree.

§ 2. The liquid assets of this Common Fund shall be invested by preference in loans to collectivities taking part in the execution of works with a view to reducing unemployment under the conditions laid down in the following articles.

Article 2.

The collectivities referred to in the above article may be departments, communes, syndicates of communes, large railway systems of general interest, public establishments, colonies, protectorates, concessionnaires of public works specially appointed by a decree which is subject to the counter-signature of the Ministers of Finance, Public Works and Labour, or any other regularly constituted organs which obtain the guarantee of a department or of a commune.

Article 3.

The programme of works to which the provisions of the present decree will apply shall be drawn up by a National Commission the composition of which shall be fixed by a decree issued by the Council of Ministers on the proposal of the Minister of Labour.

Article 4.

§ 1. Loans granted out of the Common Fund instituted by Article 1 above shall be concluded under contracts of a uniform type drawn up by the National Commission and between the collectivities concerned and the Deposit and Consignment Office. The said

[1] Information additional to the reply previously sent by this Government and published in the first volume.

loans shall be redeemed by annual payments within a maximum period of thirty years, which period may, however, be extended to fifty years in the case of the large railway systems of general interest. The annual redemption payments shall be calculated in accordance with a uniform rate of interest, fixed periodically by decree of the Minister of Labour and the Minister of Finance after consulting the National Commission provided for in Article 3 above.

§ 2. The contracts referred to in § 1 shall provide not only for annual redemption payments, but also for the obligation on the part of the borrowing collectivities to pay interest for the period between the conclusion of the contract and the drawing, to the debit of the Common Fund, of the amounts borrowed.

Article 5.

§ 1. At the end of each year from 1934 to 1940, the Deposit and Consignment Office shall transmit to the General Guarantee Office and to the social insurance offices concerned a bond stating the amount to be allotted to them in future years out of the annual payments in respect of the loans granted in the previous year and fixed in accordance with the payments made for their account into the Common Fund during the said year.

§ 2. During the entire period of amortisation of the loans granted, the Deposit and Consignment Office shall credit the account of each office every year with the proportion of the annual payments due to them after such payments have been received.

§ 3. The interest payable by the borrowers before the date taken as the starting-point for the amortisation of the loans shall be paid into the Common Fund. All the revenues of this fund shall be distributed by the Deposit and Consignment Office at the end of each year among the General Guarantee Office and the social insurance offices in proportion to the sums paid into the said fund for account of each organisation after deduction of costs of administration.

§ 4. Should its needs so require after December 31st, 1940, the treasury of a social insurance office may cede the whole or a part of its claims to another office. In the absence of a direct agreement, the Deposit and Consignment Office shall deduct the amounts necessary for this transaction from the portion of the liquid assets which it has to invest under Article 31 of the Law on Social Insurance.

Article 6.

The liquid assets of the Old Age Insurance Offices and the Old Age and Invalidity Insurance Offices and of the General Guarantee Office which have not been invested under the conditions laid down in Articles 1 to 5 above shall be invested in accordance with the rules laid down in Article 31, paragraph 1, of the Law on Social Insurance.

Article 7.

§ 1. Paragraph 1 of Article 31 of the Law on Social Insurance shall be replaced by the following provisions :

" The liquid assets of the insurance offices shall be invested, with due reference to the nature and extent of the risks insured by the offices :

" (1) In State securities or in securities guaranteed by the State; in securities of the Treasury and of the autonomous Amortisation Office; in land or communal bonds of the Land Credit Institution; in bonds or bills of the National

Credit Institution; in bonds or bills of the large railway companies of general interest; in bonds of the departments, communes or syndicates of communes or in loans to those bodies; in the purchase of buildings constructed and entirely completed and situated in towns of more than 100,000 inhabitants or in the Department of the Seine;

" (2) Up to 50% and on the indication of the Board of Administration of the Office or of a commission chosen and empowered by the Office, not only in the securities mentioned in paragraph (1) above but also, subject only to the prior acceptance of the Board of Administration of the General Guarantee Office or a commission empowered by it;

" In loans to departments, communes, syndicates of communes, colonies, protectorates or public establishments, or in loans or securities guaranteed by such collectivities or establishments; in subscriptions to bills or bonds of the National Office of Agricultural Credit, the purchase of buildings which have been constructed and entirely completed and are situated in towns of more than 100,000 inhabitants or in the Department of the Seine; in first mortgage loans on buildings complying with the same conditions up to a total amount of 50% of the value of the building; lastly, in all securities accepted as a guarantee of advances granted by the Bank of France, other than those already included in paragraph (1) above.

" The whole of the investments in buildings by one and the same Office may not exceed 10% of the total amount of its investments. No further investment in buildings may be effected by offices which have already exceeded the above proportion or for their account, so long as the position of such societies has not been regularised.

" The rate of interest on long- and short-term investments of social insurance offices may not be less than minimum rates to be fixed periodically by a decree adopted on the proposal of the Ministers of Finance and of Labour. "

§ 2. Article 76 of the Law on Social Insurance shall be replaced by the following provision :

" The rules for the deposit and investment of social insurance funds prescribed in Articles 30 and 31 of the present law shall be applicable to the autonomous Old Age Insurance Offices engaged in agricultural social insurance and to Mutual Assistance Societies applying Articles 75 and 80 of the present law."

§ 3. Article 77 of the Law on Social Insurance shall be replaced by the following provision :

" The autonomous Old Age Insurance Offices, however, which deal specially with insured persons engaged in agricultural occupations and the Mutual Assistance Societies applying Articles 75 and 80 of the present law may, within the limit of the authorised cash balance, make deposits at sight with the National Office of Agricultural Credit."

Article 8.

The present decree shall be subject to ratification by the Chambers, in accordance with the provisions of Article 36 of the Law of February 28th, 1934.

Article 9.

The President of the Council, the Minister of Finance and the Minister of Labour shall be entrusted, each in so far as he is concerned, with the execution of the present decree, which shall be published in the *Official Journal.*

DECREE-LAW OF JUNE 29TH, 1934.

PROCEDURE IN URGENT CASES AND SAFEGUARDING CLAUSE AGAINST SPECULATIONS.

Article 1.

The public works included in the scheme of large-scale works for combating unemployment provided for in the Decree of May 15th, 1934, may be authorised, whatever their nature or extent or the amount involved :

(1) By a decree countersigned by the Minister of Finance and the Ministers concerned, and issued in the form of public administrative regulations, whenever expropriation is necessary;

(2) By a decree countersigned by the Minister of Finance and the Ministers concerned, in the other cases to which, under the legislation in force, a law or a decree issued by the Council of State applies.

The list of works to which this procedure is to be applied must be communicated by the Ministers concerned to the two Chambers within three months from the date on which the works are undertaken.

Article 2.

The application of Article 76 of the Law of May 3rd, 1841, shall be extended to all public works included in the scheme of large-scale works for combating unemployment provided for in the Decree of May 15th, 1934.

Article 3.

Whenever, by application of Articles 2 and *2(a)* of the Law of May 3rd, 1841, as amended by the Law of November 6th, 1918, it is necessary to extend the expropriation to buildings situated outside the area of the proposed works, the authorisation for such purpose may in all cases be given by decree of the Council of State.

Article 4.

In the case of expropriation, for purposes of public utility, of buildings affected by the operations necessitated by the public works included in the scheme of large-scale works for combating unemployment provided for by the Decree of May 15th, 1934, the jury shall take as the basis of its estimates the value of such buildings on January 1st, 1934, as ascertained either from declarations made by the taxpayers or from administrative estimates which have not been contested or have been rendered final under the fiscal laws.

Article 5.

The present decree shall be submitted to the Chambers for ratification in accordance with the provisions of Article 36 of the Law of February 28th, 1934.

Article 6.

The President of the Council, the Minister of Finance and the Minister of Labour shall be entrusted, each in so far as he is concerned, with the execution of the present decree, which shall be published in the *Official Journal.*

LAW OF JULY 7TH, 1934, AUTHORISING THE PARTICIPATION OF THE STATE AND OF THE LARGE RAILWAY SYSTEMS OF GENERAL INTEREST IN THE EXECUTION OF LARGE-SCALE WORKS FOR COMBATING UNEMPLOYMENT.

Article 1.

The Ministers concerned shall be authorised to grant State participation in the payment of works undertaken for combating unemployment and carried out under the conditions provided for in the Decree of May 15th, 1934, amending the law on social insurance.

State participation prescribed by the regulations in force for the various kinds of work shall be furnished in the form of annual payments equal to the interest and amortisation charge of the portion borne by the State of the loan contracted by the collectivity concerned. Such annual payments may be made either to the borrowing collectivity or directly for its account to the Common Fund instituted by the Decree of May 15th, 1934. They shall be chargeable to the credits opened in the budgets of the various Ministries for the purpose of executing or subsidising the works in accordance with the table annexed to the present law.

The State participation referred to in the preceding paragraph may not exceed the aggregate amount of 2,897 million francs, this sum including, up to the amount of 425 millions, the subsidies granted under Budget B of the Law of July 11th, 1933, in favour of agricultural equipment, elementary school buildings and local roads.

The above aggregate grant shall, by a decree countersigned by the Ministers of Finance and Labour and the Ministers concerned, be distributed among the various chapters of the budget in such manner that the annual charge per Ministry, after due allowance for charges arising out of authorisations given under Schedule A annexed to the Law of July 11th, 1933, may in no case exceed the total credits opened in the corresponding chapters of the 1934 budget.

Article 2.

The maximum initial outlay for supplementary works and for purchase of rolling-stock which may be carried out by the large railway systems of general interest under annual authorisations contained in the finance laws shall be increased during the years 1934-1940 inclusive, within the limit of 2,725 millions, by the value of works carried out and purchases made with the assistance of loans granted by the Deposit and Consignment Office out of the Common Fund instituted by the above-mentioned Decree of May 15th, 1934.

The loans granted to the large railway systems under the above conditions shall, in respect of the guarantee provided by the Common Fund instituted under Article 13 of the Convention approved by the Law of October 23rd, 1921, and, subsidiarily, in respect of the State's guarantee, be wholly assimilated to the bonds issued under Article 16 of the said Convention.

The works or material, movable or immovable, paid for by means of such loans, shall be returned in full free of cost to the State at the end of the concession or in the event of redemption.

Moreover, no deduction shall be made for replaced or discarded installations or for material which has been scrapped and written off in connection with such work or deliveries.

The present law, after having been discussed and adopted by the Senate and by the Chamber of Deputies, shall be enforced as a State law.

Programme of Large-scale Works.

The programme comprises :

1. Works to be carried out without a State subsidy :

(a) By the large railway systems :

The value of these works amounts to 2,625 million francs, composed as follows :

	(In millions of francs)
(1) Electrification works	1,300
(2) Modernisation of signalling	767
(3) Various safety works (tripling of lines, improvement of railway stations)	558

(b) By other bodies :

The value of these works amounts to 2,995 million francs, composed as follows :

	(In millions of francs)
(1) Town-planning and municipal administration works in the Paris area (water-supply, general sanitation, demolition of insanitary blocks of buildings, reconstruction of bridges in Paris, by-passing through the military boulevards, etc.)	1,410
(2) Extension of the Metropolitan Railway in Paris and its immediate suburbs	1,100
(3) Conservancy work on waterfalls, construction of high-tension transmission lines, electric interconnections of the Paris area and other industrial equipment work	355
(4) Industrial port of Lyons in connection with the Rhone conservancy works	80
(5) Tourist traffic (preservation of sites)	50

2. Works to be carried out with State subsidies :

(a) By the large railways :	(In millions of francs)
Abolition of level crossings	200

(b) By other bodies :

The cost of these works amounts to 4,180 million francs, composed as follows :

	(In millions of francs)
(1) Cheap dwellings	400
(2) National education (school-buildings) and fine arts	1,070
(3) Agriculture (rural equipment works)	1,160
(4) Interior (department and local roads)	200
(5) Air (Marseilles-Marignane airport, various works)	35
(6) Public works (roads, seaports and inland navigation ports)	1,315

Summary.

	Railway systems	Other bodies	Total
Works without State subsidy	2,625	2,995	5,620
Works with State subsidy	200	4,180	4,380
Total...	2,825	7,175	10,000

Work subsidised by the State.

The cost of the work " subsidised by the State " amounts to 4,380 million francs. The total includes 400 millions for cheap dwellings; in this matter, State participation is confined to interest allowances under existing legislation and does not involve any special authorisation.

The following table shows the distribution, among the Ministries, of the other work, amounting to 3,980 millions, the total expenditure and that chargeable to the general budget (Law of July 7th, 1934) being shown separately.

	Total works	State share
National education.....	1,070	808
Agriculture	1,160	925
Interior	200	140
Public works	1,515	1,001
Air	35	23
Total ...	3,980	2,897

Regulations of the Common Labour Fund.

I. Collectivities desiring to carry out large-scale works in order to combat unemployment and to benefit for this purpose from the provisions of the Decree-Law of May 15th, 1934, shall send in their applications to the Ministry of Labour :

(1) Direct, in the case of works for which they are entirely responsible;
(2) Through the Ministries called upon to share in the expenditure, in the case of works subsidised by the State.[1]

In the latter case, the collectivity's application for a loan may relate solely to its own share; the Ministry concerned, in forwarding it with its opinion, shall state the rate and amount of the subsidy allocated to the collectivity for the work in question. The payment of such subsidy shall, moreover, be subject to special rules.

II. Applications so put forward shall be subject to examination by the Technical Sub-Committee and by the National Commission set up by the Ministry of Labour.

This Commission may request either the collectivities themselves or the Ministry to which they are attached to furnish any supplementary information (drafts, estimates, plans, etc.).

The Commission shall decide whether the works in question may be included in the programme referred to in Article 3 of the Decree-Law of May 15th, 1934. The Commission's

[1] The only Ministries authorised by the Law of July 7th, 1934, to take part in important works combating unemployment are the Ministries of the Interior, Agriculture, Public Works, the Air and National Education. To this list should be added the Ministry of Public Health, in respect only of cheap dwellings.

decisions shall be notified by the Minister of Labour to the collectivities concerned and, if they are favourable, to the Director-General of the Deposit and Consignment Office, who shall immediately request the borrowers to send him the documents necessary for drawing up the loan contract.

III. The draft loan contracts shall be submitted to the Finance Sub-Committee, which shall be convened whenever desirable by the Minister of Labour.

The Director-General of the Deposit and Consignment Office shall, however, be authorised to sign, without previously consulting the Sub-Committee, any contracts for amounts less than 1 million francs, when such contracts are in conformity with the model drawn up by the National Commission and when the financial situation of the borrowing collectivity calls for no reservation on his part. The Finance Sub-Committee shall be informed of loan contracts so concluded at its next meeting.

IV. Special regulations have been provided for the payment of State subsidies.

The Decree of September 11th, 1934, authorised the Minister of Finance to procure funds equivalent to the State contribution by drawing on the liquid assets of the Labour Fund. The widest interpretation must naturally be placed on this text and it should be applied whenever the State has to pay a subsidy or assumes responsibility for the whole of a particular work.

Proposals for the allocation of subsidies and schemes of work devolving exclusively upon the State shall be transmitted by the Ministers concerned to the Minister of Labour, who shall submit them to the Technical Sub-Committee and subsequently to the National Commission. Such proposals shall be examined under the same conditions as applications for loans received from collectivities. The Commission's decisions shall be notified by the Minister of Labour to the Ministers concerned.

In order to enable these subsidies to be paid, the Deposit and Consignment Office shall make payments into the Treasury. The sums so paid in shall be entered in a suspense account, to which the actual payments of subsidies made to the recipient collectivities will subsequently be charged. In return for its payments, the Deposit Office shall receive, on behalf of the Common Labour Fund, certificates representing a number of bonds bearing interest at the rate fixed by the total amount of the loans. The suspense account opened in the Treasury's books shall comprise as many subdivisions as there are budgetary chapters concerned. The sums received from the Deposit Office, which are subdivided by chapters, shall be paid every three months on the due date. Each payment shall be equivalent, in principle, to a quarter of the grants appearing in the Decree of July 26th, 1934, which distributes the State subsidy among the various chapters of the general budget; [1] but the total sums relating to a particular chapter may at no time exceed the total amount of the subsidies which the National Commission is authorised to draw from the Common Labour Fund.

Special circulars shall be issued by the Minister of Finance stating the accountancy rules applicable to transactions effected in respect of the above-mentioned suspense account.

V. The Ministries concerned shall, at the end of each month, transmit to the Ministry of Labour, in duplicate, a statement comprising a detailed list of the following items on that date under each budget chapter and department :

(1) Subsidies granted, with the name of the recipient collectivity, the amount of the subsidy, the date of the decision taken and the probable scale of payments;

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[1] As an exception, in 1934, the advances—two in number—shall be equal to half the grants provided for that financial year; the first payment shall be made on September 30th and the second on December 31st.

(2) State works undertaken, with the amount of the total expenditure, the amount of payments made and the rate of subsequent payments.

One copy shall be forwarded by the Ministry of Labour to the Deposit and Consignment Office for its information.

VI. The Deposit and Consignment Office shall inform the Ministry of Labour day by day of :

(a) Contracts concluded;

(b) Sums paid in to the Treasury.

At the end of each month, it shall transmit to the Ministry of Labour a statistical return stating :

(1) The total amounts placed to the credit of the Common Labour Fund (since the beginning) by drafts on the liquid assets of the social insurance offices and the General Guarantee Office;

(2) The total amount of loans granted and sums paid in respect of subsidies ;

(3) The quarterly distribution of the amounts paid or to be paid to borrowers and to the Treasury in respect of all the transactions which have taken place up to that date.

HUNGARY.

In reply to the Circular Letter of March 7th, 1934, the Hungarian Government stated that information on the public works already carried out in Hungary could be found in the closed accounts of the last budgetary period of the Hungarian State and in the reports of the International Danube Commission and of the Hydraulic Technical System Commission of the Danube.

The Secretariat has accordingly consulted these documentary sources and has prepared the three tables given below.

The data which they contain have been taken :

In the case of Table I, from the closed accounts of the Hungarian State for the budgetary period 1932-33;

In the case of Table II, from the annual returns of current maintenance and improvement works submitted by the Hungarian Government to the International Danube Commission and annexed to the memoranda on the questions submitted to that Commission;

In the case of Table III, from the annual summary statements submitted by the Hungarian Government to the Hydraulic Technical System Commission of the Danube and annexed to the Protocols of the Commission.

Table I.

EXPENDITURE ON PUBLIC WORKS DURING THE BUDGETARY PERIOD 1932-33.

	Pengö
Ministry of Trade :	
Equipment of aerodromes	131,909.60
Acquisition of land for aerodromes	320,000.—
Bridges on main roads	389,829.91
Materials for construction of roads	12,000.—
Repair of roads	608,756.57
Subsidies to communes for the construction of roads	436,015.32
Improvement of roads for motor traffic	4,000,000.—
Reconstruction of roads	7,241,977.—
Bridges on local roads	38,490.28
Loans of towns and districts for road-building	1,550,000.—
Road-building work for the purpose of relieving unemployment	2,671,750.43
Ministry of Agriculture :	
Hydraulic works	6,224,880.93
Post, Telegraphs, Telephones, Wireless :	
Construction of buildings and installation of power-houses	5,102,386.83

Table II.

CURRENT WORKS FOR THE UPKEEP AND IMPROVEMENT OF THE HUNGARIAN SECTOR OF THE DANUBE AND ITS INTERNATIONALISED TRIBUTARIES (TISZA, MAROS, DRAVE), CARRIED OUT DURING THE FISCAL YEARS 1929-30, 1930-31, 1931-32, 1932-33 AND 1933-34.

Type of works	Expenditure in pengö				
	1929-30	1930-31	1931-32	1932-33	1933-34
1. Preparation of plans and soundings	33,051	27,278	3,861	9,532	17,519
2. Buoyage of the channel	35,724	35,911	31,906	1,011	21,046
3. Removal of obstacles	5,872	29,925	5,528	64,650	13,929
4. Dredging	290,629	136,984	51,841	92,428	258,465
5. Protection of embankments	1,741,265	1,382,521	901,044	969,677	507,805
6. Narrowing of the bed	429,468	397,238	195,614	59,338	316,702
7. Closure of secondary arms	66,700	86,700	39,446	155,458	69,460
8. Miscellaneous works	199,809	155,939	88,198	239,754	231,372
Total...	2,802,518	2,252,496	1,317,438	1,591,848	1,436,298

Table III.

EXPENDITURE EFFECTED BY THE HUNGARIAN GOVERNMENT ON HYDRAULIC WORKS (REGULARISATION OF WATERWAYS, ANTI-FLOOD DEFENCES, IMPROVEMENT OF INLAND WATERWAYS) IN 1929-30 AND 1931-32.

Works	Expenditure in pengö			
	1929	1930	1931	1932
1. On the Danube and its tributaries (the Drave and the Mura)	1,427,560	1,354,500	1,194,936	923,809
2. On the Tisza and its tributaries (the Körös and the Maros)	1,242,000	1,189,500	1,028,037	1,167,513
3. On other waterways (including stabilisation work and shoring-up of ravines)	1,877,000	801,500	2,235,325	1,009,023
4. State contributions, subsidies and loans to syndicated associations for dyke-building and drainage	8,759,400	602,500	572,800	1,660,062
Total...	13,305,960	3,948,000	5,031,098	4,760,407
The syndicated associations for dyke-building and drainage spent the following sums:				
(1) In the Danube basin	3,163,346	3,234,732	1,147,327	1,975,797
(2) In the Tisza basin	11,206,872	9,857,835	5,953,851	2,302,974
Total...	14,370,218[1]	13,092,567[2]	7,101,178	4,278,771
Aggregate expenditure...	18,916,778	16,438,067	12,132,276	9,039,178

[1] Including the sum of 8,759,400 pengö advanced by the State; the syndicated associations themselves therefore spent 5,610,818 pengö on these works out of their own funds.

[2] Including the sum of 602,500 pengö advanced by the State; the syndicated associations themselves therefore spent 12,490,067 pengö on these works out of their own funds.

INDIA.

Two statements have been furnished by the Government of India giving particulars under Heads I to III of the League's questionnaire in respect of public works in India costing Rs. 50 lakhs (i.e., 5 million rupees or £375,000) or more.

Statement I relates to works :

(a) Undertaken since the beginning of the year 1929 and now completed;
(b) Now in course of execution; and
(c) The execution of which is at present under contemplation.

Statement II relates to works undertaken prior to January 1st, 1929, and since completed.

STATEMENT I.

I. *A Brief Description of the Main Public Works*					II. *The Principal Administrative Methods followed or contemplated for the Execution of the Work referred to in* 1 *and any Legal Provision relating to the Work*	III. *The Principal Methods employed for financing Such Work*
Name of work and category	Estimated cost in crores [1]	Year of commencement	Year of actual or anticipated completion	Remarks on the nature of the work		
1	2	3	4	5	6	7
(a) *Undertaken since the beginning of the year* 1929 *and now completed.*						
Hydro-electric Schemes :						
1. Pykara hydro-electric scheme.	1.36	1929–30	1932–33	The project provides for the generation of electric energy from a fall of over 3,000 feet in the Pykara River and its transmission to neighbouring districts in the Madras Presidency.	Executed by the Government of Madras as a Government work under the control of Government engineers.	Expenditure charged to capital and financed from loan funds (0.37 crore) and provincial balances (0.99 crore).
Railway Lines :						
2. Bidar-Purli Railway (Hyderabad State).	0.96	1931	1933	New line intended to open out fertile areas which were not previously served by a railway.	Executed by His Exalted Highness the Nizam's Government as a State work.	Financed by His Exalted Highness the Nizam's Government.
(b) *Now in course of execution.*						
Irrigation Projects :						
1. Hira Valley development project.	5.20	1912–13	1939–40 (most of the work will, however, be completed by 1936-37).	The project comprises : *(a)* The Lloyd dam, at Shatgar, impounding about 24,200 million cubic feet of water in a storage tank formed by a masonry dam which opens the valley of the Yolwandi River in the Bombay Presidency; *(b)* A right bank canal, 106 miles long, designed to irrigate 132,000 acres of land; and *(c)* The remodelling of the old Hira left bank canal.	The work is being executed by the Government of Bombay as a Government work under the control of Government engineers.	Expenditure charged to capital and financed from loan funds.

[1] 1 crore = 100,00,000 rupees = £750,000.

STATEMENT I *(continued)*.

I. *A Brief Description of the Main Public Works*					II. *The Principal Administrative Methods followed or contemplated for the Execution of the Work referred to in* I *and any Legal Provision relating to the Work*	III. *The Principal Methods employed for financing Such Work*
Name of work and category	Estimated cost in crores 1	Year of commencement	Year of actual or anticipated completion	Remarks on the nature of the work		
1	2	3	4	5	6	7
(b) *Now in course of execution* (continued).						
2. Sukkur (Lloyd) barrage project.	20.03	1923–24	1936–37	The project consists of a barrage across the River Indus, situated about three miles below the gorge at Sukkur, in the Bombay Presidency, with three canals on the right bank and four on the left bank taking off immediately above the barrage. The scheme is designed to irrigate about 5,453,000 acres of land.	The work in being executed by the Government of Bombay as a Government work under the control of Government engineers.	Expenditure charged to capital and financed from loan funds.
3. Cauvery (Mettur) reservoir project.	6.79	1925–26	1934–35	This projet provides for the irrigation of 301,000 acres of land by means of canals from a reservoir on the Cauvery River, at Mettur, in the Madras Presidency.	The work is being executed by the Government of Madras as a Government work under the control of Government engineers.	Expenditure charged to capital and financed from loan funds (6.13 crores) and provincial balances (0.66 crore).
4. State tube wells.	0.72	1933	1938	This project provides for irrigation by hydro-electric pumping of the dry tracts in the western districts of the United Provinces.	The work is being executed by the Government of the United Provinces as a Government work under the control of Government engineers.	Expenditure charged to capital and financed from loan funds.
5. Damodar canal project.	1.11	1926–27	1935–36	This project provides for the irrigation of 160,000 acres of land by means of canals from the River Damodar, in the Bengal Presidency.	Executed by the Government of Bengal as a Government work under the control of Government engineers.	Expenditure charged to capital and financed from loan funds.
6. Irwin canal (Mysore State)	1.98	1927	In course of execution.	The canal, with its branches and sub-branches, is 180 miles long. The discharging capacity of the canal is 2,200 cusecs and it [illegible] two reservoirs impounding [illegible] and a system of channels to irrigate 70,000 acres of	The work is being carried out departmentally by the Public Works Department of the Mysore State. [illegible] departmentally, and the rest of the work	The work is being financed by the Mysore State from loan funds.
7. [illegible] project (Gwalior	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] the State.

project (Gwalior State).				two reservoirs at Parasnagi 10,000 million cubic feet and a system of channels to irrigate 70,000 acres of land.	Works Department by the Gwalior State departmentally, and the rest of the work is being done by contract.	loan funds from the ordinary budget of the State.
Building Schemes :						
1. New capital at Delhi.	0.90	1933–34	1935–36	The project provides for the construction of additional residential accommodation for officers and members of the Indian Legislature and of a hospital at New Delhi.	The work is being executed by the Government of India as a Government work under the control of Government engineers.	Expenditure charged to capital and financed from loan funds.
2. Osmania University Buildings (Hyderabad State).	1.29	1933	1938	Programme for a residential university in the Hyderabad State.	The work is being carried out through contract agency.	Financed from the ordinary budget of the Hyderabad State.
3. Provision of railway staff quarters at Howrah, East Indian Railway.	0.53	1929	1934	To provide housing for the employees of the East Indian Railway, owing to dearth of suitable private accommodation.	The work is being executed by the Government of India through the East Indian Railway.	Financed by the Government of India from loan funds.
Roads and Bridges :						
1. Rangoon - Prome - Taungdwingyi - Yenangyaung - Kyaukpadaung - Meiktila road, inclusive of alternative alignment *via* Shwebandaw - Meiktila Border - Zayetkon.	1.41	1926	Cannot be forecast owing to prevailing financial stringency.	The project provides for the construction of a trunk road from Rangoon *via* Prome to Meiktila.	The work is being executed by the Government of Burma as a Government work under the control of Government engineers.	Expenditure charged to capital and financed from ordinary revenue.
2. Rangoon - Moulmein - Mergui road.	1.71	1926	Cannot be forecast owing to prevailing financial stringency.	The project provides for the construction of a trunk road from Rangoon to Mergui.	The work is being executed by the Government of Burma as a Government work under the control of Government engineers.	Expenditure charged to capital and financed from ordinary revenues.
3. Nili Bar communications project.	1.81	1925–26	In abeyance since 1931–32 for want of funds.	The project was framed to provide communications and other facilities accessory thereto in the Nili Bar Colony Area (Punjab).	The work is being executed by the Government of the Punjab as a Government project under control of Government engineers.	Expenditure charged to capital.

[1] 1 crore = 100,00,000 rupees = £750,000.

STATEMENT I *(continued)*.

I. *A Brief Description of the Main Public Works*					II. *The Principal Administrative Methods followed or contemplated for the Execution of the Work referred to in* I *and any Legal Provision relating to the Work*	III. *The Principal Methods employed for financing Such Work*
Name of work and category	Estimated cost in crores [1]	Year of commencement	Year of actual or anticipated completion	Remarks on the nature of the work		
1	2	3	4	5	6	7
			(b) *Now in course of execution* (continued).			
4. Improvement of road communications in Assam.	0.97	1929–30	In abeyance since 1933–34 as a result of financial stringency.	The project provides for the improvement of 735.56 miles of roads in Assam.	The work is being executed by the Government of Assam as a Government work under the control of Government engineers.	Expenditure charged to capital and financed from loan funds.
Railway Bridges :						
1. Rebuilding Berbudda Bridge.	1.04	1932	Not known at present.	The project relates to the reconstruction of a railway bridge.	The work is being executed by the Government of India through the Bombay-Baroda and Central India Railway.	Financed by the Government of India from loan funds.
2. Protection works of the Hardinge Bridge at Sara.	1.16	1933	Not known at present.	The project is intended to meet an attack by the River Ganges, which is showing a tendency to return to an old channel.	The work is being executed by the Government of India through the Eastern Bengal Railway.	Financed by the Government of India from loan funds.
Hydro-electric Schemes :						
1. Ganges Canal hydro - electric scheme.	2.32	1928–29	1937–38	This project is for generating electric energy from the Ganges Canal and transmitting it to the neighbouring districts in the United Provinces.	The work is being executed by the Government of the United Provinces as a Government work under the control of Government engineers.	Expenditure charged to capital and financed from loan funds.
2. Pallivasal hydro-electric project (electric installation, hydro-electric and heating power centres, motive power transmission).	0.71	1933	1936	The works comprise a water tunnel 10,000 feet long, 2 penstock lines for discharging 64 cusecs of water, installation of 3 generating sets each of 5,000 KVA. capacity, 106 miles of 66 KV. transmission lines, 60 miles of 11 KV. subsidiary lines, and 45 miles of 1,100-volt distribution lines to complete the distribution of supplies [illegible] the supply of electric energy for lighting and industrial purposes.	The scheme is worked by the Travancore Government through their electrical engineer.	The scheme is being financed by the Travancore Government from the State revenues.
3. Hydro-electric installations	3.64	1933	In progress.	[illegible]	[illegible]	[illegible] the State.

installations (Kashmir).			progress.	the supply of electric energy in the Kashmir State for lighting and industrial purposes.	ried out by the Kashmir State departmentally.	being charged to the ordinary budget of the State.
Railway Electrification Schemes :						
1. Great Indian Peninsula Railway main line electrification, Kalyan to Poona and Igatpuri.	5.13	1925	1935	The project provides for the substitution of electric for steam traction.	The work is being executed by the Government of India through the Great Indian Peninsula Railway and with the advice of Messrs. Merz and Partners, electrical engineers.	Financed by the Government of India from loan funds.
2. Kalyan (Chola) Power House, Great Indian Peninsula Railway.	1.31	1926	1935	To supply power for the above scheme.	Ditto.	Ditto.
3. Great Indian Peninsula Railway suburban electrification scheme, Bombay.	2.61	1923	1935	The scheme provides for the substitution of electric for steam traction.	Ditto.	Ditto.
4. Madras suburban electrification scheme, South Indian Railway.	0.72	1929	1935	Ditto.	The work is being executed by the Government of India through the South Indian Railway and with the advice of Messrs. Merz and Partners.	Ditto.
5. Bombay - Baroda and Central India Railway suburban electrification scheme, Bombay.	2.02	1925	1935	Ditto.	The work is being executed by the Government of India through the Bombay-Baroda and Central India Railway and with the advice of Messrs. Merz and Partners.	Ditto.
Railway Lines :						
1. Doubling of the Cawnpore-Tundla section, East Indian Railway.	0.94	1930	1935	The scheme is intended to cope with the existing and anticipated traffic.	The work is being executed by the Government of India through the East Indian Railway.	Ditto.

[1] 1 crore = 100,00,000 rupees = £750,000.

STATEMENT I *(continued)*.

I. *A Brief Description of the Main Public Works*					II. *The Principal Administrative Methods followed or contemplated for the Execution of the Work referred to in* I *and any Legal Provision relating to the Work*	III. *The Principal Methods employed for financing Such Work*
Name of work and category	Estimated cost in crores [1]	Year of commencement	Year of actual or anticipated completion	Remarks on the nature of the work		
1	2	3	4	5	6	7
(b) *Now in course of execution* (continued).						
2. Shoranur - Cochin. Conversion to broad gauge, South Indian Railway.	0.79	1930	1934	The scheme is intended to facilitate traffic to and from the new harbour at Cochin and is in pursuance of the decision to serve the harbour on the broad gauge.	The work is being executed through the agency of the South Indian Railway Administration from funds provided by the Cochin State.	Financed by the Cochin State.
3. Mauli-Phulad Railway (Mewar State, Rajputana).	0.92	1928	1936	65 miles in hilly and undulating country and 13 miles of mountainous railway.	The work is being carried out by the executive of the Mewar State's open line railway.	The work is being financed from the Mewar State funds.
Other Works :						
1. Back Bay reclamation scheme, Bombay.	7.23	1920–21	1948–49	The project provides for the reclamation of 440 acres of land in the Back Bay, in Bombay, and for the gradual development of part of this area for leasing as building sites.	The work is being executed by the Government of Bombay as a Government work under the control of Government engineers.	Expenditure charged to capital and financed from loan funds.
2. Combined Poona drainage improvement scheme.	0.53	1925	The major portion of the work has already been completed. The remaining portion is expected to be completed by about 1946–47.	The project provides for the internal sewerage of the Poona City with an outfall sewer and pumping station common to all the Poona local bodies—viz., the Poona City Municipality, the Poona Suburban Municipality, the Poona Cantonment Authority and the railway authorities.	The work is being executed by the Government of Bombay partly by Government and partly by contribution under the control of Government engineers.	The work has been financed partly from provincial funds and partly by grants-in-aid and loans to the Poona City Municipality and advances to other local bodies mentioned in column 5.
3. Sewerage works and storm-water drainage works.	0.68	1930	1936	The scheme is for sewer-laying and its appurtenances, including construction of [illegible] detection scheme, construction of pumping-stations,	The work is being executed partly by contract and partly by [illegible] departmentally.	Financed by means of loans and grants sanctioned by the [illegible] Government of Madras.
4. Similar works, supply works,						

supply works, Madras City.				tion of pumping-stations, filter-beds, conduit, elevated tank, etc.	executed mostly by contract and the rest departmentally.	loans and grants sanctioned by the Government of Madras.
5. Development of Cochin Harbour.	1.86	1920	Major portion of the work has been carried out, but the execution of the remaining work has been suspended since 1933-34.	The scheme is intended to convert the port of Cochin into a really important port by providing a good inner harbour with all terminal facilities for handling passenger and goods traffic.	The scheme is governed by the " Summary of ports agreed upon by the Government of India, the Government of Madras and the Darbars of Travancore and Cochin for the development of Cochin Harbour ". The scheme is being executed by the Government of Madras as a Government work under the supervision of their Harbour Engineer-in-Chief.	The scheme is being financed by the Government of Madras from the provincial balance and also from contributions made by the Travancore and Cochin Darbars.
6. Development of Bhurkunda colliery.	0.55	1924	Not known at present.	The work is intended to supply the State Railways with their own coal, instead of relying on the open market.	The work is being executed by the Government of India under the administrative control of the Chief Mining Engineer, Railway Board.	Financed by the Government of India from loan funds.
7. Indore City water supply and drainage project.	0.73	1929	1937	The work consists of a lake for the storage of water for Indore City, including pumping plant and filtration works. Part of the drainage scheme designed for Indore City is also included in the project.	The works are given out mainly by contract and partly are being carried out departmentally by the Indore State.	The work is being financed partly from the Indore State revenues and partly from loan funds.
8. Willingdon water works, Trivandrum.	0.52	1928–29	1936–37	The scheme is a combination of pumping and gravity services for continuous supply of drinking-water, filtered and purified chemically and bacteriologically, for a daily supply of $4\frac{1}{2}$ million gallons for a population of 135,000 in 1961.	The work is being carried out partly by contract and partly by the Travaneore Government departmental labour.	Expenditure is being charged to capital not charged to the revenue of the State.

[1] 1 crore = 100,00,000 rupees = £750,000.

STATEMENT I *(continued)*.

I. *A Brief Description of the Main Public Works*					II. *The Principal Administrative Methods followed or contemplated for the Execution of the Work referred to in* I *and any Legal Provision relating to the Work*	III. *The Principal Methods employed for financing Such Work*
Name of work and category	Estimated cost in crores 1	Year of commencement	Year of actual or anticipated completion	Remarks on the nature of the work		
1	2	3	4	5	6	7
(b) *Now in course of execution* (concluded).						
9. Sri Chamarajendra reservoir and water works for water supply to Bangalore.	0.63	1933	1935	The reservoir dam is made of rubble masonry in Surki mortar. It is proposed to be completed in two stages. At the second and final stage, maximum height of dam at deepest portion would be 162 feet, and length 1,400 feet. Length of the rising main to Bangalore is 16 miles 2 furlongs, of which 13¼ miles is of cast-iron pipes, balance being of steel of 24 inches diameter. Total head against which water is pumped is 880 feet. There are 6 units of Jewell filters erected.	The entire work has been carried out by the Public Works Department of the Mysore State.	The work is being financed by the Mysore State from loans.
10. Krishnaraja-Sagora (Mysore State).	2.50	1911	In course of execution.	The reservoir is across the River Cauvery and is made of rubble masonry in Surki mortar. It is 1¾ miles long and 130 feet in height above river bed, consists of irrigation sluices (three of 6 by 12 feet), turbine sluices, 4 pipes of 6 feet diameter, scouring sluices (three of 6 by 15 feet and eight of 6 by 12 feet) and 152 sluices for passing of flood discharges. Of these 152 gates, 48 are of automatic type and the rest are operated electrically by lifting machines. Effective capacity : 4,400 million cubic ft.	The work is being carried out departmentally by the Public Works Department of the Mysore State.	The work is being financed by the Mysore State from loan funds.
11. Remodelling Hyderabad water supply (Hyderabad State).	0.60	1931	1940	The existing system of water supply is based on 25 gallons per head. Remodelling	The work is being carried out through contract agency.	The work is being financed from the ordinary budget of
(c) *The execution of which is at present in contemplation or schemes for which are in preparation.*						
1. Reconstruction of Government etc.	1.00 (approxi-	The estimates, etc., are at present un-		The project is for the reconstruction of Government	The work will be carried out by the Go-	Expenditure charged to capital and financed

(c) The execution of which is at present in contemplation or schemes for which are in preparation.

	Government, etc., buildings in Bihar, consequent on the earthquake of January 1934.	(approximate).	are at present under preparation.		The project is for the reconstruction of Government and local bodies buildings damaged during the earthquake of January 15th, 1934.	The work will be carried out by the Government of Bihar and Orissa as a Government work under the supervision of Government engineers.	Expenditure charged to capital and financed from loan funds.
2.	The Mettur hydro-electric scheme.	1.30	1935–36	1937–38	The scheme is for the generation of electric energy from the Mettur reservoir of a minimum of 5,760 kw. primary or continuous power and development of additional power to meet seasonal requirements during the main irrigation season, when there will be more supply of water. Power will be transmitted to the neighbouring districts in the Presidency.	To be executed by the Government of Madras as a Government work under the control of Government engineers.	Either from loans from the provincial loans fund or from the provincial balances, as may be found convenient from time to time.
3.	New Howrah bridge over the River Hooghly.	2.47	1935	—	The scheme provides a cantilever bridge to replace the existing connecting bridge between Calcutta and Howrah.	The work will be executed through contracts under the supervision of the New Howrah Bridge Commissioners, a local body constituted under the New Howrah Bridge Act, 1926.	The work will be financed mainly from internal loans guaranteed by Government, but also from Government contributions from funds raised by taxation on motor-vehicles. The loans will be repaid from the bridge fund created by direct taxation and from contributions from public revenues.
4.	Hydro - electric scheme (Cochin State).	0.68	1940	1942	The scheme is to harness the waterfalls at Poringalkothu, on the Chalakudi River, in the Cochin State. Available head is about 550 feet and capacity of initial installation is to be 4,500 kw. Power will be transmitted to the towns of Trichur, Ernakulam and the Cochin Harbour.	The work will be undertaken by the Cochin Government, and the actual execution will be on contract.	The work will be financed probably by a loan raised for the purpose.

[1] 1 crore = 100,00,000 rupees = £750,000.

STATEMENT I *(concluded)*.

I. *A Brief Description of the Main Public Works*					II. *The Principal Administrative Methods followed or contemplated for the Execution of the Work referred to in* I *and any Legal Provision relating to the Work*	III. *The Principal Methods employed for financing Such Work*
Name of work and category	Estimated cost in crores 1	Year of commencement	Year of actual or anticipated completion	Remarks on the nature of the work		
1	2	3	4	5	6	7
(c) *The execution of which is at present in contemplation or schemes for which are in preparation* (concluded).						
5. Lakkavalli reservoir project across the Bhadra River (Mysore State).	6 to 7	—	—	The project is under investigation for constructing a reservoir with a storage depth of 180 feet to irrigate about 2 lakhs of acres in the parched areas of Shimoga and Chitaldrug districts and also to generate power to an extent of 17,000 h.p. to serve the local needs.	—	—
6. Joint irrigation scheme on the Tungabhadra by the Madras Government and the Hyderabad State.	2.91 (joint works) and 4.25 for canal on Hyderabad side.	—	—	The project relates to the construction of a storage reservoir with distribution system for irrigating 570,000 acres of land.	Will be carried out by the Hyderabad State Public Works Department departmentally.	The question of financing the scheme will be taken up when it is decided to start the work.
7. Lower Krishna reservoir (Hyderabad State).	12.15	—	—	The project relates to the construction of a storage reservoir with distribution system for irrigating 900,000 acres of land.	Will be carried out departmentally by the State Public Works Department.	The question of financing the scheme will be taken up when it is decided to start the work.
8. Upper Krishna reservoir (Hyderabad State).	8.57	—	—	The project relates to the construction of a storage reservoir with distribution system for irrigating 595,000 acres of land.	Will be carried out departmentally by the Hyderabad State Public Works Dept.	The question of financing the scheme will be considered when it is decided to take up the work.
9. Bheema reservoir project (Hyderabad State).	3.00	—	—	The project relates to the construction of a storage reservoir with distribution	Will be carried out departmentally by the Hyderabad State	The question of financing the scheme will be considered when

STATEMENT II.

I. *A Brief Description of the Main Public Works*					II. *The Principal Administrating Methods followed or contem-*

Name of work and category	Estimated cost in crores [1]	Year of commencement	Year of actual or anticipated completion	Remarks on the nature of the work	II. *The Principal Administrative Methods followed or contemplated for the Execution of the Work referred to in* I *and any Legal Provision relating to the Work*	III. *The Principal Methods employed for financing Such Work*
1	2	3	4	5	6	7
Works undertaken prior to 1929 *and since completed.*						
Irrigation Schemes :						
1. Sarda Canal project.	10.02	1919–20	1932–33	This project provides for the irrigation of 1,350,000 acres of land by means of canals from the Sarda River in the United Provinces.	Executed by the Government of the United Provinces as a Government work under the control of Government engineers.	Expenditure charged to capital and financed from loan funds.
2. Sutlej Valley project.	23.86	1921–22	1932–33	This project provides for the annual irrigation of 1,867,000 acres of land by means of canals from the Sutlej River in the Punjab. A further large area is irrigated in the Bahawalpur and Bikaner States.	Executed by the Government of the Punjab as a Government work under the control of Government engineers.	Expenditure charged to capital and financed from loan funds. A portion of the expenditure was contributed by the States of Bikaner and Bahawalpur.
3. Kharung tank project.	0.65	1920–21	1930–31	This project provides for the irrigation of 60,000 acres of land by means of channels from the Kharung tank in the Central Provinces.	Executed by the Government of the Central Provinces as a Government work under the control of Government engineers.	Expenditure charged to capital and financed from loan funds.
4. Maniari tank project.	0.60	1923–24	1932–33	This project provides for the irrigation of 68,600 acres of land by means of channels from the Maniari tank in the Central Provinces.	Executed by the Government of the Central Provinces as a Government work under the control of Government engineers.	Expenditure charged to capital and financed from loan funds.
5. Nizamsagar project (Hyderabad State).	3.66	1924	1931	This project provides for a storage reservoir with distribution system for irrigating 275,000 acres of land.	Carried out departmentally by the Hyderabad State Public Works Department.	Financed from the general balances of the State and from loan funds.

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STATEMENT II *(continued)*.

I. *A Brief Description of the Main Public Works*					II. *The Principal Administrative Methods followed or contemplated for the Execution of the Work referred to in* I *and any Legal Provision relating to the Work*	III. *The Principal Methods employed for financing Such Work*
Name of work and category	Estimated cost in crores 1	Year of commencement	Year of actual or anticipated completion	Remarks on the nature of the work		
1	2	3	4	5	6	7
Works undertaken prior to 1929 *and since completed* (continued).						
Hydro-electric Schemes :						
1. The Uhl River hydro-electric scheme.	7.00	1926–27	1933–34	The scheme consists in diverting the Uhl River at an altitude of 6,000 feet through a pressure tunnel of 9¼ feet diameter and nearly three miles long, at the end of which the water is dropped through a fall of 1,800 feet to a power station. At this stage, the scheme is capable of developing 36,000 kw. From the power station, the energy is transmitted over 224 miles of 132 kv. and 140 miles of 66 kv. lines covering a large portion of the Punjab.	Executed by the Government of the Punjab as a Government work under the control of Government engineers, important sections of the work having been given out on erection contracts for execution in accordance with prescribed specifications. The construction of the system in British India and the distribution of energy are subject to the provisions of the Indian Electricity Act, 1910.	Expenditure charged to capital and financed from loan funds.
Building Schemes :						
1. Mingaladon cantonment project.	0.95	1925	1930	The project provides for the construction of accommodation for troops, arsenal and ordnance, supply and transport lines, brigade staff, cantonment department and ancillary services.	Executed by the Government of Burma as a Government work under the control of Government engineers.	Expenditure charged to capital and financed from ordinary revenues.
2. University project, Rangoon.	1.25	1926	1931	The project provides for the construction of the buildings required for the University of Rangoon, ancillary services and a training college.	Executed by the Government of Burma as a Government work under the control of Government engineers.	Expenditure charged to capital and financed from ordinary revenues.
3. Law Courts project.	0.50	1926	1930	The project provides for the construction of additional office accommodation for magistrates and police, and other Government offices of various Departments, [illegible] gauge shops for the South Indian Railway system in	Executed by the Government of Burma as a Government work under the control of Government [illegible] Indian Railway.	Expenditure charged to capital and financed from ordinary revenues.
4. Railway Central Workshops, Golden Rock, Trichinopoly	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] work under the control [illegible]	[illegible] revenues.

	workshops and town scheme at Golden Rock Tiruchinopoly.					
				bined broad and metre Indian Railway system in place of the old scattered arrangements, with the necessary quarters for staff.		
Roads and Bridges :						
1.	Rangoon - Toungoo - Mandalay road.	2.06	1926	1933-34	The project provides for the construction of a trunk road from Rangoon to Mandalay.	Executed by the Government of Burma as a Government work under the control of Government engineers.	Expenditure charged to capital and financed from ordinary revenues.
2.	Ava Bridge, at Sagaing (Burma).	1.51	1927	1934	The scheme provides for the replacement of ferry arrangements which were unsatisfactory during flood seasons and for connecting up permanently the two large sections of the Burma Railways.	Executed by the Government of India through the Burma Railways.	Financed by the Government of India from loan funds, the roadway being paid for by the Burma Government.
Railway Lines :							
1.	Kangra Valley railway.	2.96	1926	1929	A new railway line.	Executed by the Government of India through the North Western Railway.	Financed by the Government of India from loan funds.
2.	Chiniot - Khusal railway.	1.30	1927	1932	Ditto.	Ditto.	Ditto.
3.	Sind left bank feeders railway.	0.84	1928	1931	Ditto.	Ditto.	Ditto.
4.	Amritsar-Narowal railway.	0.62	1926	1929	Ditto.	Ditto.	Ditto.
5.	Kila Saifulla - Fort Sandeman railway.	0.56	1927	1929	Ditto.	Ditto.	Ditto.
6.	Calcutta Chord railway.	3.20	1926	1932	The scheme is intended to provide direct access (previously not available) to the docks for mineral trains from the coal-fields. It includes a bridge over the Hoogly.	Executed by the Government of India through the East Indian Railway.	Ditto.
7.	Lucknow-Sultanpur - Safarabad railway.	0.97	1928	1932	A new railway line.	Ditto.	Ditto.

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STATEMENT II *(concluded)*.

I. *A Brief Description of the Main Public Works*					II. *The Principal Administrative Methods followed or contemplated for the Execution of the Work referred to in I and any Legal Provision relating to the Work*	III. *The Principal Methods employed for financing Such Work*
Name of work and category	Estimated cost in crores[1]	Year of commencement	Year of actual or anticipated completion	Remarks on the nature of the work		
1	2	3	4	5	6	7
				Works undertaken prior to 1929 *and since completed* (concluded).		
8. Abdulpur-Nawabganj railway.	0.84	1927	1933	A new railway line.	Executed by the Government of India through the East Bengal Railway.	Financed by the Government of India from loan funds.
9. Kalukhali - Bhateapara railway.	0.55	1928	1932	Ditto.	Ditto.	Ditto.
10. Taungdwingyi-Kyankpadaung railway.	0.95	1925	1933	Ditto.	Executed by the Government of India through the Burma Railways.	Ditto.
11. Myingyan-Nategyi-Paleik railway.	0.66	1926	1933	Ditto.	Ditto.	Ditto.
12. Pollachi - Palghat railway.	0.54	1928	1932	Ditto.	Executed by the Government of India through the South Indian Railway.	Ditto.
13. Nidadavolu-Narasapur railway.	0.69	1925	1929	Ditto.	Executed by the Government of India through the Madras and Southern Mahratta Railway.	Ditto.
14. Cawnpore remodelling.	0.78	1926	1933	To provide adequate and up-to-date arrangements for the increased traffic.	Executed by the Government of India through the East India Railway.	Ditto.
15. Erode remodelling.	0.60	1928	1934	Ditto.	Executed by the Government of India through the South Indian Railway.	Ditto.
16. Victoria terminus	0.95	1925	1934	Ditto.	Executed by the Go-	Ditto.

				certain suburban sections and consequent remodelling of yards.	through the South Indian Railway.	from loan funds.
18. Bombay central station.	1.41	1925	1933	In replacement of facilities which had to be abandoned at Colaba when the land was surrendered for housing developments in Bombay.	Executed by the Government of India through the Bombay-Baroda and Central India Railway.	Ditto.
19. New locomotive repair shops at Dohad.	1.40	1926	1933	The transfer of the locomotive shops from Parel, Bombay, to Dohad was to do away with the disabilities suffered by the broad-gauge shops at Parel, which were old and gave no room for expansion, and where labour rates were high.	Ditto.	Ditto.
20. Remodelling locomotive shops at Kanchrapara.	0.51	1925	1934	To provide adequate and up-to-date facilities.	Executed by the Government of India through the Eastern Bengal Railway.	Ditto.
Harbour Scheme :						
Vizagapatam Harbour.	3.99	1925	1933	To provide a new, all-the-year-round harbour for ocean-going vessels and to provide a direct outlet for the produce (mineral) of the Central Provinces.	Executed by the Government of India through the agency of the Bengal Nagpur Railway Administration.	Ditto.

SUPPLEMENTARY STATEMENT.

(c) *Work the execution of which is at present in contemplation or schemes for which are in preparation.*

Housing programme of the Nizam's Regular Forces. (Hyderabad State.)	1.00	1935	1940	The scheme is intended to provide accommodation for men and horses in modern buildings.	The work will be carried out by the State Public Works Department.	The State is not yet committed to the liability, but when it is decided to take up the work it will be financed from the State Revenues. (Three 'A' Class units have already been provided for during 1929-1934 at a cost of Rs. 300,00,000 debited to State Revenues.)

[1] 1 crore = 100,00,000 rupees = £750,000.

IRISH FREE STATE.

(*a*) Roads and Bridges.

I.

(a) Before dealing with the period from 1929, it may be well to refer briefly to the position concerning the roads of the country prior to the establishment of the Irish Free State (Saorstát Eireann).

The roads of the State comprise about 47,000 miles, of which there are :

(1) About 9,800 miles of main roads — *i.e.*, roads of national and provincial importance, subdivided into approximately :

(i) 4,000 miles of through-traffic importance, considering the State as a whole; and

(ii) 5,800 miles of through-traffic value mainly from the county point of view;

(2) 36,500 miles of local or district roads, very many of them carrying merely local traffic.

As to the conditions of the roads themselves prior to 1922, they were frequently stated to be among the worst in Europe. There had been relatively trifling sums expended upon their improvement. The road conditions were particularly difficult from 1914 onwards. Between the years 1922 and 1929, the Government allocated amongst the various local authorities a sum of £5,809,503 for the maintenance and improvement of roads and bridges. Much of this had to be expended, owing to the very seriously run-down condition of the roads, on what might be termed foundation work. The roads in the Irish Free State had not been built to carry heavy motor traffic. Many of them had very poor foundations, so that the first task to be taken in hand was the strengthening of the principal traffic routes. Very many of even those routes were narrow and uneven. Such repairs as had, from time to time, been carried out resulted in the crown of the road being, in the average case, much higher than the sides. Furthermore, the type of work carried out was necessarily of the cheapest form of water-bound macadam, and the result was that even moderately heavy traffic very quickly disintegrated the surface. The Government, therefore, in order to provide roads which would stand up to modern traffic, aimed at strengthening and widening the roads, and having them resurfaced, as far as practicable, with a waterproof surface.

Prior to 1929, upwards of 1,000 miles of roads had been strengthened and resurfaced. The resurfacing, however, was, in many instances, laid down from the point of view of preparing the roads for more enduring surfaces in subsequent years. In the period 1926

to 1930, a special scheme of improvement was carried out, embracing 1,121 miles. The improvement involved the following work:

	Miles
Resurfacing:	
(1) By steamrolling: including the laying of tar or bitumen macadam	1,048
(2) In concrete and asphalt	62
Alterations, diversions, etc.	11

The following is a summary of the work carried out since 1930, approximately:

3,000 miles of water-bound macadam steamrolled and tar-dressed;
600 miles laid in tar macadam or bitumen macadam;
135 miles laid in concrete or asphalt;
2,000 widenings and corners removed;
400 bridges improved or replaced, including 100 new bridges where no bridge previously existed;
500 miles of new roads made or taken over;
2,000 miles of roads annually surfaced by dressing with tar or bitumen.

The mileage of dust-free road surfaces in 1933-34 was approximately 6,400, compared with 3,500 in the year 1929-30.

(b) During the financial year 1933-34, works similar to the foregoing were being carried out at a cost to State (Government) funds of approximately £750,000.

(c) The road and bridge programme for the year 1934-35 embraces an expenditure of approximately £800,000, and will be generally of the nature of the work outlined under *(a)*.

II.

The State does not undertake the actual work of road improvement. It makes grants to the councils of counties, county boroughs and urban districts. These grants are partly a contribution towards the cost of the maintenance of main roads, and, before payment is made, the State, through the Department of Local Government and Public Health, must be satisfied that the work is efficiently and economically carried out. The work to be carried out on roads by way of *maintenance* is selected by the local authority, acting on the advice of their chief engineer or surveyor. In addition to the maintenance of roads, works of improvement are also carried out by the councils referred to. The Department of Local Government and Public Health indicates to the councils the amount of money available from State funds for *improvement*, and also indicates the particular work to be carried out. The council's engineer or surveyor carries out the work, either by employing men directly or through the medium of a contract entered into between his council and a firm of road contractors. The Department's inspectors visit both the maintenance work and improvement work from time to time during progress, and report to the Department as to the value of the work done before the Department makes payments. The councils, at the same time, vote money for the repair and, to some small extent, the improvement of their roads. The work of repair is carried out by the council's engineer or surveyor, who has a technical staff of assistant surveyors under his charge. The work of repair is carried out on approximately half the mileage of roads by the employment of men directly, and, on the other half, by setting out the work in small lengths to contract. The contractors in such cases are either labourers, or landholders with usually very small holdings. These small road contracts involve an annual expenditure of about £250,000, almost 100% of which represents expenditure on labour. They keep the small land-

holders occupied at a period of the year when agricultural work is not possible or necessary. Such contracts are, however, confined to the rural areas of the counties, and are only made, generally, in respect of roads of minor importance. The total amount expended by the councils in the same areas by direct employment of men is about £1,250,000 per annum.

The legal provisions relating to roads and bridges are to be found scattered in many enactments. The main enactments dealing with the subject are the Local Government Act, 1925, the Roads Act, 1920, and the Development and Road Improvement Funds Act, 1909.

III.

The principal methods employed for financing road and bridge work are as follows :

(a) The local authorities—*i.e.*, the councils of the several counties, county boroughs and urban districts—estimate annually the cost of keeping the roads in their areas in proper repair, and then raise the amount required by levying a rate on the occupiers of lands and buildings on the basis of valuation of the premises. For works of improvement, a similar course is followed, but, if the cost of carrying out a particular type of improvement is large and the work of improvement likely to last for many years, the council borrows from its treasurer the amount required. Such borrowing cannot be made except with the consent of the Minister for Local Government and Public Health.

(b) Under the Finance Act, 1920, and subsequent Finance Acts, and the Roads Act, 1920, the owners of mechanically-propelled vehicles pay an annual duty for the use of the public roads. The amount is collected, in the first instance, by the council of each county and county borough, and lodged to the credit of the State in a Government account, known as the Road Fund. Apart from certain administrative charges incidental to the collection of the duty, the Government does not use any portion of the receipts from the annual duty on mechanically-propelled vehicles for general revenue purposes. By virtue of the Roads Act, 1920, no portion of the receipts can be expended otherwise than on the maintenance and improvement of roads and bridges.

The following statement sets out the expenditure each year, from State and local funds, respectively, on the maintenance and improvement of roads and bridges for the financial years 1929-30 to 1933-34 inclusive :

ROADS.

Amount allotted for year ended March 31st :

	State funds	Local funds	
	£	£	
1929-30	664,188	1,319,207	
1930-31	683,543	1,343,224	
1931-32	937,947	1,388,953	
1932-33	1,697,502	1,367,291	
1933-34	748,641	1,313,518	(approximately)

In addition to the foregoing, local authorities raised, during the period 1929-1934, loans amounting to £278,561 for road and bridge work. They also raised loans within the same period, amounting to £7,604, for the purchase of road plant.

As indicated in Section II above, the annual outlay by the councils on maintenance work is about £1,500,000. A portion of the amounts in the foregoing total, listed under the

head of State funds, goes in relief of the sum falling on local authorities. The contribution under this head varies from about £320,000 to £350,000 per annum. The revenue from the annual duties was supplemented in the year 1927-28 by an advance of £790,000, made by the Government on the security of the Road Fund, for the carrying-out of more extensive improvements than could be undertaken on the strength of the annual revenue from mechanically-propelled vehicles alone. From August 1932 to December 1933, the Government advanced, on the same security, a sum of £1,000,000 to carry out works on roads and bridges for the relief of unemployment. These advances must be repaid out of the annual duties collected—*i.e.*, the repayment is charged to the Road Fund.

IV.

The labour content of the various public works described above is approximately as follows: Where no bitumen, cement or asphalt is used, the labour content is approximately from 75 to 80%. This would include the preparation of local materials. Where bitumen, cement or asphalt is used, the labour content would scarcely be more than 50%, as all bitumen, cement and asphalt have to be imported. In either case, practically all the machinery required has to be imported.

V.

Had the works of road and bridge improvement described above not been carried out, the economic development of the State would have been very much handicapped. The provision of better facilities for the transport of their produce is considered to have benefited the agricultural community considerably. They have rendered possible the employment, in certain areas, of pneumatic-tyred farm vehicles, bearing double the load which they formerly carried. Moreover, due in large measure to these improvements, passenger road services and goods road services by motor-vehicles have become established since about 1926, with the result that parts of the country remote from railways are now linked up, by both passenger and goods road motor services. An effort made in previous years to establish a motor road service for the benefit of the agricultural community had to be abandoned, owing mainly to the unsuitable condition of the roads. In fact, it was found necessary, in 1925, owing to the fact that the roads were unsuitable and the burden of maintenance too onerous on the local authorities, to issue an order restricting the load carried by motor-vehicles. The work done in subsequent years has rendered heavier traffic possible, and complaint of damage occasioned to the roads thereby is now very rare. The carrying-out of the road works mentioned above secures the employment, on an average, of about 16,000 men per month on the works carried out by direct labour alone.

It is the considered opinion of the authorities that road and bridge improvement is an important element in the economic development of the State, and that, from the point of view of the State, the annual outlay provides an effective and substantial measure of employment, particularly to the rural population.

(b) Railway Operating Equipment.

I.

The reconditioning of a train of passenger vehicles, constructed to test, under actual working conditions, an improved electric storage battery invented by Dr. James Drumm, was undertaken in 1933 and completed before the end of March 1934.

II.

The work was carried out by the Great Southern Railways Company.

III.

The cost of the work, amounting to £1,800, was provided from funds voted by " Dail Eireann " for schemes for the relief of unemployment.

IV.

The allocation of the cost was : labour, £744 ; materials and equipment, £1,056.

V.

It is considered that this comparatively small work contributed usefully to the relief of a class of railway maintenance employee which had suffered from the general depression of preceding years.

(c) Land Reclamation and Improvement.

1. *Estate Improvement under the Land Commission.*

The annual parliamentary vote for the services of the Irish Land Commission includes a sum provided for the improvement of estates coming within the Commission's operations under the Land Purchase Acts. This provision was initiated under the Irish Land Act, 1903, and has been extended under subsequent land Acts.

Expenditure on estate improvements under the vote is incurred (1) on the improvement of existing holdings in matters of drainage, roads of access, supply of turbary, repairs and additions to buildings ; (2) on the equipment of new holdings (created on the division of untenanted land among approved allottees) with buildings (including dwelling-houses and out-offices), fences, drains, roads and turbary; (3) on embankments, the reclamation of waste land, etc. The greater part of the money so expended is given by way of free grant; but, where the circumstances of the benefited tenant warrant it, a portion of the expenditure is made recoverable from the tenant purchaser by way of an addition to his land purchase annuity. In this case, the period of repayment and the rate of annuity are similar to those for ordinary advances made for land purchase—in regard to lands purchased under the Land Acts 1923-1933, the rate is $4\frac{3}{4}$ % and the term of repayment approximately $66\frac{1}{2}$ years. The annuities received in respect of improvements are utilised as appropriations-in-aid of the parliamentary vote for the Land Commission.

The actual work is carried out under the supervision of Land Commission Inspectors, after the improvement schemes have been duly approved by the Land Commissioners (and, in the case of lands already vested in purchasers under the Land Purchase Acts, by the Minister for Finance also). Local labour is utilised as far as possible, the labourers working under the control of " gangers " appointed by the Land Commission. In some cases, particularly where the land concerned is of poor quality, the tenants on the lands being improved are themselves employed by the Land Commission. In the case of buildings and repairs of dwelling-houses, it is sometimes necessary to give the work out to contractors. It is difficult to estimate accurately the ratio of expenditure on wages to that on material, as this varies with the nature of the work. In the case of buildings, probably about half the cost would be for materials; but in the case of general land improvements, the cost of materials is usually less than 10%.

Of the untenanted land acquired by the Land Commission under the Land Acts 1923-1933 for the relief of congestion, roughly about one-half has been distributed to local smallholders as additions sufficient to bring up their farms to an economic size—that is, large enough to support a family in frugal comfort. The remainder has been divided among various classes such as : Herds and labourers who have lost their employment by reason of the lands being acquired by the Land Commission ; suitable local landless men,

usually sons of small farmers; persons (or their descendants) who had previously been evicted from their holdings in the course of the land campaigns prior to enactment of land purchase legislation; and migrants who had given up their lands in other parts of the country for the relief of local congestion. The land acquired by the Land Commission for distribution is usually in the nature of large tracts which have not been worked by the owners to their full potential capacity, but power is given under the Land Acts to acquire any class of agricultural land required for the relief of congestion, subject to the payment of due compensation to the owners and to the right of certain classes of owners to demand in exchange an alternative holding, within certain limits, as part or whole of their compensation.

The policy of redistributing the land of the country so as to afford decent subsistence to the greatest possible number of working farmers has general support, as it is recognised that the best economic and social interests of the nation are served thereby.

The accounts of the Land Commission are made up in financial years ending on March 31st. The total expenditure on estate improvements (including certain miscellaneous items and supplies not strictly in the nature of actual works) during the last five years was as under :

Year	Buildings	General improvements	Total
In year ended March 31st :	£	£	£
1930	69,487	139,647	209,134
1931	61,033	122,021	183,054
1932	54,290	100,816	155,106
1933	63,910	111,106	175,016
1934	74,763	153,249	228,012
Total for five years 1929 to 1934...	£323,483	£626,839	£950,322

The expenditure during the current year (1934-35), owing to the increase in land division, is expected to amount to about £320,000.

In addition to the normal expenditure on improvement of estates, the staff of the Land Commission have been entrusted with the disbursement of a considerable share of the various votes for the relief of unemployment and distress passed by the " Oireachtas " of the Irish Free State during the period from 1924 to 1931. Since March 31st, 1929 (but mostly in the years 1930-31 and 1931-32), a sum of approximately £134,000 has been expended by the Land Commission in relief works, mainly in the nature of the construction and repair of roads of access to turbary and to isolated homesteads, the improvement of existing roads and bridges, the execution of minor drainage schemes, and other works of public utility. These works are designed to distribute as much as possible in wages, so that the cost of materials would probably represent less than 5% of the total expenditure.

No further relief works are being allocated to the Land Commission, as relief schemes are now being administered by other Departments of State.

2. *Land Reclamation.*

The Land Reclamation Scheme, inaugurated in the year 1931-32, is designed to encourage the reclamation, for agricultural purposes, of land hitherto regarded as virtually useless, the property of smallholders in the congested districts.

The actual work of reclamation is carried out by the individual holders, after registration under the scheme and inspection of their lands by the officers of the Department of Agriculture. If the work is completed to the satisfaction of the Department, a grant equal to one-fourth of the total cost of reclamation (but not less than £1, nor more than

£5, per statute acre) is paid to the applicant. The maximum area in respect of which payment will be made to one applicant in any year is—except in very special circumstances—two acres.

The materials required, such as lime, sand and marl, are all available from home sources. The cost of the materials in relation to the total cost of the work varies considerably according to the nature of the land dealt with, but 25% of the total cost might perhaps be taken as representing materials, the remaining 75% representing labour.

The following table gives the total number of approved applicants, the acreage reclaimed, the average cost per acre and the amount paid in grants under the scheme during the years 1931-32, 1932-33, 1933-34 :

Year	Number of approved applicants	Acreage reclaimed	Total amount of grants paid	Average cost per statute acre £ s. d.
1931-32	266	220	950	4 6 0
1932-33	2,402	1,875	8,032	4 6 0
1933-34	4,078	2,824	12,116	4 6 0

Apart from the value of the scheme in providing additional land in districts where acute scarcity of arable land exists, the work of reclamation has, to some extent, provided alternative employment for those migratory labourers who have, in recent years, failed to find seasonal employment in England or Scotland. As will be seen from the above figures, the acreage reclaimed annually is steadily increasing, and it is hoped that considerable benefits will follow on the extension of the scheme.

3. *Improvements to Creameries.*

Improvements to creameries have, since 1931, been encouraged by the Department of Agriculture by the granting of loans to co-operative creamery societies to defray part of the cost of extension and erection of chilling stores, poultry-fattening houses, egg stores and the provision of additional plant which lack of capital would otherwise have prevented them from proceeding with. The loans are free of interest and repayable in ten equal annual instalments, with penal interest on overdue instalments.

The work is, in most cases, done by contract, but some societies have had it carried out by direct labour. As the purposes for which the loans are made are various, it is difficult to make an accurate estimate of expenditure as between cost of material and cost of labour, but labour might perhaps be taken as representing from 30 to 40% of the total outlay on the work.

The following table shows the numbers of approved applicants and the amounts of the loans granted under various heads up to the present :

Purposes	Number of approved applicants	Amount of loans £
Erection, alteration and/or equipment of chilling stores for butter	55	10,065
Erection, equipment and initial stocking of poultry-fattening houses	2	600
Erection and equipment of egg stores ...	3	750
Sinking of wells	3	650
Sewage disposal	1	600
Manufacture of processed cheese.....	1	6,000
Production of sterilised tinned cream....	1	3,000
Resurfacing of yards and carways at creameries	60	2,555
	126	£24,220

The amount expended by the societies out of their own funds, in connection with these works, is estimated at £18,448.

The scheme has, since its inauguration, provided a considerable amount of employment of a temporary nature, inasmuch as the works detailed above—while useful and desirable in themselves—would not have been undertaken without State aid. In addition, continuous employment has been afforded to a large number of hands by the setting-up of the manufacture of processed cheese and by the provision of facilities for the production of sterilised tinned cream, the latter representing a new development in the dairying industry in this country.

(d) Canals and Inland Waterways, etc.

Under this category come certain schemes controlled by the Office of Public Works, such as improvement works and defensive works against floods on certain rivers.

These operations were carried out under arterial drainage legislation enacted by the " Oireachtas ", and were financed partly by free grants made by the Central Government and partly by free grants made by local authorities, the balance of the cost being raised by means of a charge on the benefited lands.

The expenditure on arterial drainage throughout the State for the five years 1929 to 1934 was approximately £620,000, towards which the State contributed, by way of free grants, £243,000. The State also issues loans to enable the local authorities and riparian owners to provide their respective proportions of the costs.

The largest scheme of arterial drainage under construction during the period dealt with is that of the River Barrow and its tributaries, on which approximately £345,000, out of a total estimate of £550,000, was expended during the five years under review.

The programme of works for 1934-35 and 1935-36 contemplates an expenditure of about £75,000 in each year.

The execution of arterial drainage works is undertaken directly by the Commissioners of Public Works and the expenditure on labour is approximately 60% of the total cost.

(e) State Afforestation.

I.

The following table shows the respective areas of land acquired and land planted in connection with State afforestation schemes during the past five years.

(a)

Season	Area of land acquired (acres)	Area of land planted (acres)
1929-30	6,124	3,069
1930-31	2,030	3,565
1931-32	4,336	3,646
1932-33	3,900	3,564
1933-34	10,707	4,179

(b) During the current financial year, it is hoped to complete the acquisition of over 20,000 acres of land for afforestation, and, up to the present date, some 18,000 acres have been acquired. The programme of planting for the current season provides for the planting of between 5,000 and 6,000 acres of new plantations.

(c) Up to the season 1932-33, the average rate of planting had been about 3,500 acres per year, but, in that season, a scheme was approved by the Government which provided for the planting of 4,000 acres during the season 1933-34, 5,000 acres during the season

1934-35, and 6,000 acres during the season 1935-36 and each subsequent season. It is now the Government's intention to increase the annual planting programme to 10,000 acres within the next two seasons.

II.

State forestry operations are under the control of the Minister for Lands, and, in the acquisition of land for State afforestation, there are three methods adopted—namely, *(a)* direct purchase by agreement; *(b)* a long-term lease, usually for 150 years, so as to allow of two crops being grown on the land, and *(c)* compulsory acquisition when purchase by agreement is impracticable. Compulsory powers for the acquisition of land for State afforestation are vested in the Minister for Lands by the Forestry Acts, 1919 and 1928. In the large majority of cases, however, acquisition is by direct purchase.

III.

The moneys required for State afforestation are provided by means of an annual vote by the " Oireachtas ". Particulars of the amounts voted during the past six years are as follows :

	£
1929-30	56,803
1930-31	59,969
1931-32	64,588
1932-33	62,015
1933-34	92,226
1934-35	121,804

IV.

The approximate allocation of the total amount provided is as follows :

	%
Labour	60
Materials	10
Land acquisition and administrative expenses	30

The total area planted in connection with State afforestation up to March 31st, 1934, is as follows :

	Acres
Total area of woodlands replanted since acquisition	11,654
Total area of new plantations established	26,647
Total area of land planted	38,301

The Government attaches considerable importance to the extension of afforestation as a means of using profitably land unsuitable for tillage or pasture and of providing employment. The extended planting operations will give immediate employment to a large number of men and the forests arising in the future will offer a permanent source of employment, particularly in the winter months, when it is most needed. The favourable climatic effects of increasing the wooded area of the country are also held in view, particularly from the point of view of affording shelter for agricultural land.

(f) Provision of Gravitation Water Supplies and Sewerage Schemes.

I.

(a) The responsibility for the carrying-out of waterworks and sewerage schemes rests with the local sanitary authorities, who are charged with the duty of administering the statutory enactments relating to public health.

Between 1929 and 1932, 345 such works were undertaken at a total average yearly cost of about £250,000.

(b) During the financial year 1933-34, 77 public health works were in course of execution and the total expenditure thereon is estimated at about £250,000.

(c) A further programme of public health works similar to those indicated under *(a)* and *(b)* is in contemplation. The cost is estimated at £350,000 for the present financial year (1934-35).

II.

As stated under head I, local authorities are charged with the duty of providing essential sanitary services within their respective areas, and they are empowered to borrow moneys for the financing of such works, subject to the sanction of the Department of Local Government and Public Health. Before giving sanction, the Department requires to be satisfied as to the general merits of the scheme proposed and the suitability of the plans for its execution.

III.

In the financial years ended March 31st, 1931, 1932, 1933 and 1934, the Government made available sums for the financing of works for the relief of unemployment. A sum of £300,000 was provided in 1930-31, £250,000 in 1931-32, £1,500,000 in 1932-33, and £550,000 in 1933-34. Such sums are normally met out of revenue. Many new public health works were initiated in these years and a proportion of the relief funds were allocated in aid of the execution thereof. The balance of the expenditure on public health works was met by the local authorities by way of loans advanced, in most cases, by the Government out of the Local Loans Fund, repayable over a period of twenty-five years.

IV.

The labour content of contract work on a waterworks scheme is estimated at from 47 to 50% of the cost. If indirect labour benefits resulting from the work are taken into consideration, the labour content would be about 55%. All cast-iron pipes required for such schemes are imported.

The labour content of contract work on a sewerage scheme would be about 50% where sewer-pipes are imported. The manufacture of concrete sewer-pipes in the Free State was begun in 1932, and these pipes are being increasingly utilised for sewerage schemes, with consequent benefits to home labour in the manufacture and transport of pipes, and in the work of quarrying, etc., for concrete aggregate. The calculation of these items would bring the total labour content of sewerage schemes to about 65% of the cost.

V.

The carrying-out of works of sanitary improvement is necessitated primarily by reference to public health requirements. While such works are in progress, they afford useful employment over periods of from six to twelve months. The value of such schemes as an employment factor is handicapped by the fact that they do not fit easily into a

prearranged time-programme of public works. The carrying-out of essential waterworks and sewerage schemes has a high social value. They are an important contribution towards the health of the community, and they encourage building and industrial development with consequent increase of employment.

(g) Harbours.

I.

(a) *Works undertaken since* 1929 *and completed.*

Buncrana Harbour.—Construction of :

(1) Reinforced concrete pier 320 feet long and 30 feet wide;

(2) Reinforced concrete wharf 200 feet long, with return berth of 80 feet;

(3) Quay 203 feet long (retaining an area of reclaimed land about 1 acre in extent, which can be utilised for fish-curing or general harbour purposes);

(4) Dredging the channel alongside wharf and quay 100 feet wide and 6 feet deep.

Work commenced in 1929 and completed towards end of 1933 at a cost of £30,000.

Burtonport Harbour.—Construction of new ferro-concrete pier, dredging the approach and building slip for landing and packing fish. This work was commenced in 1919 but suspended in 1920. Work was resumed in 1925 and completed in 1930 to a modified scheme at a total cost of £10,253.

Rathmullan Harbour.—Construction of :

(1) Solid masonry pier 340 feet long and 33 feet surface width;

(2) A pair of dolphins, each 40 feet long, joined to form a landing-berth 145 feet long;

(3) A timber viaduct 10 feet wide and 420 feet long, connecting dolphins with masonry quay.

Work completed towards end of 1933, at a total cost of £7,900. Timber viaduct was subsequently replaced by a viaduct of reinforced concrete and the width increased to 13 feet at a cost of £8,000.

Dublin Harbour.—Constructing a new bridge, and other works consisting of re-roofing a generating-station, reclaiming lands, etc. Work completed in 1933 at a cost of £50,000.

(b) *Works undertaken since* 1929 *and not yet completed.*

Limerick Harbour.—Construction of a new dock and other works. This work consisted of two parts estimated to cost £84,000 and £18,000 respectively. The second part of the work, which consisted of the erection of a " gate chamber " to the western entrance, was commenced in 1934, on the completion of the first part.

Foynes Harbour.—Construction of reinforced concrete extension to west pier in substitution for existing timber extension, open extension in reinforced concrete to east jetty, an open quay or wharf in reinforced concrete connecting east jetty and west pier, and other minor improvements. Total estimated cost, £23,000. Work at present in progress.

(c) *Contemplated New Works.*

Galway Harbour.—A general improvement of the docks and dredging of approach channel to facilitate the calling at the port of transatlantic liners and other heavy draught vessels.

The Galway Harbour Commissioners are promoting a Bill to acquire the necessary powers to undertake the works. The full scheme is estimated to cost about £350,000, but it is intended, at present, only to proceed with a partial scheme estimated to cost about £150,000.

Fenit Harbour.—Construction of a new viaduct in substitution for existing viaduct, widening of east pier and widening of main pier. Total estimated cost, £94,000.

Authority to undertake this work has been sought and certain preliminary investigations completed. It is assumed that the work will commence in 1935.

Wexford Harbour.—Construction of a new approach channel with training walls, and dredging of harbour. Estimated total cost, £170,000.

The Wexford Harbour Commissioners are promoting a Bill to acquire the necessary powers to undertake these works, and it is estimated that the necessary preliminaries will be completed in time to permit of the commencement of the work in 1936.

II.

The principal commercial ports and harbours in the State are controlled by local authorities, and the direct activities of the State in regard to new works and improvements at harbours are limited. The works may be carried out by the local harbour authority at the more important harbours, or by the Commissioners of Public Works in the case of the smaller harbours, and by contract or direct labour, according to the nature and extent of the work involved, and there is no uniformity in the administrative methods by which such works are undertaken.

III.

The works mentioned above are financed partly by free grants from the central Government, by loans raised by the harbour authorities on the security of harbour revenues, or, where a harbour authority is also the local authority, on the security of local rates, or out of surplus harbour revenues. Here, again, there is no uniformity as to the methods adopted, and combination of two or more of the methods mentioned may be employed in any particular case.

In the years 1929-1934, approximately £40,000 was expended out of State funds in connection with harbour works.

IV.

The divergent nature of the works comprised under this head renders unreliable any attempt to segregate the cost into materials and labour.

V.

The works referred to above have only an indirect effect on the resumption of economic and industrial activities and are of more local than national importance. During the construction, they solve to some extent the unemployment problem in the particular area, and it is anticipated that, in course of time, these works will contribute to the general well-being to an extent fully justified by the expenditure on them.

(i) Building Work.

1. *Dwelling-houses.*

I.

(a) The following table shows the number of dwelling-houses completed under Government schemes during each of the years under review :

Year ended	Number completed by private persons and public utility societies		Number completed by local authorities		Totals for each year	
	In towns	In rural areas	In towns	In rural areas	In towns	In rural areas
March 31st :						
1930	940	1,419	1,065	79	2,005	1,498
1931	411	1,845	759	76	1,170	1,921
1932	1,071	2,418	1,732	179	2,803	2,597
1933	402	407	1,054	124	1,456	531
1934	1,608	1,830	3,092	719	4,700	2,549
Totals for five years...	4,432	7,919	7,702	1,177	12,134	9,096

Grand total for five years : 21,230 dwellings.

(b) The following table shows the number of dwelling-houses now in course of construction under Government schemes :

By private persons and public utility societies		By local authorities		Totals	
In towns	In rural areas	In towns	In rural areas	In towns	In rural areas
1,857	6,531	2,852	2,263	4,709	8,794

Total number of dwelling-houses in course of construction : 13,503.

(c) The following table shows the number of dwelling-houses at present in contemplation under Government schemes :

By local authorities	Towns	Rural areas
Number of houses for which tenders have been accepted	670	3,115
Number of houses for which tenders have been invited	2,246	1,280
Number of houses for which sites have been acquired and plans approved	4,537	1,962
Number of houses in other schemes at present being prepared	3,506	2,337
Total...	10,959	8,694

Total number of dwelling-houses at present in contemplation : 19,653.

Summary : Dwelling-houses :

1.	*(a)* Completed	21,230
	(b) In course of construction	13,503
	(c) Contemplated	19,653
	Total..	54,386

II.

The State does not engage directly in the actual building of houses. This work is undertaken under the control of the State authorities by private persons, public utility societies and local authorities, with the aid of loans and subsidies provided by the State. The houses provided by local authorities in towns and rural areas and the houses provided by private persons and public utility societies in towns are mainly built by contract. In a few instances, direct labour methods have been used, but, generally, the contract method has been found more satisfactory. The houses provided by private persons and public utility societies in rural areas are built mainly by direct labour, as they are largely intended for occupation by small farmers and rural workers who apply their own labour in the building, so as to keep down the capital cost.

A condition attaching to the payment of State subsidies to local authorities is that the houses be let at rents approved of by the State authorities. In settling these rents, the State insists that some annual contribution be made from the local authorities' resources during the period fixed for repayment of the loan raised for the building of the houses. The annual outgoings of the local authority in respect of the houses are made up of loan repayment, insurance, maintenance charges, collection and other minor administration costs. These outgoings are, therefore, met by the tenants' rents, the State subsidy and a contribution from the local authority's funds. The local authority's contribution is raised by rating on their area.

Local authorities in towns provide houses for the working-classes only; and those in rural areas, for rural workers only. Public utility societies, generally bodies registered under the Industrial and Provident Societies Acts, whose profits are limited to 5%, may obtain State subsidies for the provision of houses in towns, irrespective of the class for whom the houses are intended; but in rural areas, such societies are given State subsidies for the provision only of houses for small farmers and rural workers. In all instances, however, the total floor area of the house measured on all floors is restricted to 1,250 square feet.

Any private person building a dwelling-house, either for his own occupation or as a speculation, may obtain a State subsidy, but larger subsidies are paid to small farmers and rural workers building houses for their own occupation. State subsidies are also paid to these classes for the reconstruction of their own dwellings.

Local authorities in towns operate, so far as the erection of dwelling-houses is concerned, under the Housing of the Working-Classes Acts. This code also empowers both town and rural authorities to secure the demolition of unhealthy houses. In rural areas, local authorities are empowered by the Labourers Acts to provide houses and plots of land (usually one acre in extent) for rural workers.

These two codes enable local authorities to acquire land compulsorily for the provision of houses (and plots in rural areas).

The power of the State to pay subsidies is conferred by the Housing Act, 1929, for houses completed up to the year ended March 31st, 1932, and by the Housing (Financial and Miscellaneous Provisions) Act, 1932, for houses since completed, under construction and at present in contemplation.

Power to local authorities to advance loans to private persons for the purchase or erection of houses for their own occupation is contained in the Small Dwellings Acquisition Acts.

III.

In a few cases, local authorities have raised housing loans in the open market and, in many cases, private persons apply their own capital in the building of houses for themselves; but, generally speaking, the capital cost of the national housing programme is

provided by the State out of the Local Loans Fund. State loans are made direct to local authorities for building schemes. Loans to private persons providing houses for their own occupation are made by the State through the intermediary of the local authorities.

State loans for housing are repayable within a period of thirty-five years by an annuity to cover principal and interest.

Under the Housing Act, 1929, State subsidies took the form of cash grants ranging from £45 to £60. Under the Housing (Financial and Miscellaneous Provisions) Act, 1932, which applies to houses completed since April 1st, 1932, State subsidies are subject to the following maxima :

(a) To local authorities providing houses in towns to replace unhealthy houses : $66\frac{2}{3}$% of the annual loan charges.

(b) To local authorities providing houses in towns for persons other than those displaced from unhealthy houses : $33\frac{1}{3}$% of the annual loan charges.

(c) To local authorities providing houses in rural areas : 60% of the annual loan charges.

(d) To public utility societies providing houses in towns for letting at rents approved of by the State authorities : a cash grant of £100 per house provided the local authority concerned agrees to give a supplemental cash grant of £50.

(e) To private persons and public utility societies providing houses in urban areas without restriction as to sale or letting : a cash grant of £50.

(f) To small farmers providing houses in rural areas for their own occupation : a cash grant of £60 or £70, depending on value of farm.

(g) To rural workers providing houses for their own occupation : a cash grant of £70.

(h) To public utility societies providing houses in rural areas for small farmers : a cash grant of £70 or £80, depending on value of farm.

(i) To public utility societies providing houses in rural areas for rural workers : £80.

(j) To private persons in rural areas other than small farmers and agricultural labourers : £45.

(k) To small farmers and rural workers for the reconstruction of their own houses : £40.

In addition, two-thirds of the rates are remitted for a period of seven years on the houses in categories *(e)* to *(j)* inclusive, while in the case of reconstructed houses, the valuation on which rates are assessed is not increased, as a result of the reconstruction, for a period of seven years. Rates reliefs are not given in respect of houses in categories *(a)* to *(d)*, the local authorities being required to contribute to these houses in the form of an annual loss in letting in the case of *(a)*, *(b)* and *(c)*, and in the form of a supplemental cash grant in the case of *(d)*.

Loans under the Small Dwellings Acquisition Acts to persons purchasing or erecting houses for their own occupation are limited to 90% of the market value of the houses, and the market value must not exceed £1,000 per dwelling.

Loans to local authorities are secured on the local rates; loans to private persons are secured by mortgage on the house in respect of which the loan is issued.

The annual expenditure of the State in subsidies is charged to the ordinary budget of the State.

IV.

The cost of the average working-class house in a town is divided generally about 45% materials and 55% labour. In rural areas, the percentage cost of materials increases, even for contract work (labour being cheaper); but in the case of most of the houses being built or reconstructed by small farmers and rural workers, the bulk of the cost is for materials, as the persons building or reconstructing the houses apply their own labour to the work.

For houses completed up to the year ended March 31st, 1932, national materials represented about 30% of the total value of materials used. Since then, the percentage of national materials has increased to about 45%.

V.

The passage into law of the Housing (Financial and Miscellaneous Provisions) Act, 1932, marked the initiation of a special national housing drive, under which it is hoped to secure the provision of the State's total housing needs within a period of ten years. The full housing need was estimated in 1932 at about 75,000 houses, and from the progress since made (see Section I of this category), it is clear that the programme will be completed within the allotted period.

This housing programme is an important part of the Government's plan for national economic reconstruction. It is hoped, by means of it, to build up a sound national social structure seated in the homes of the people.

The working-classes in towns have been hindered by high rents and unhealthy homes in their efforts to bring up their families in a way that would enable them to become fully self-supporting. The provision of decent homes at low rents (combined with increased facilities for education—including vocational training) will overcome this handicap and produce in the people the healthy civic spirit essential to the fulfilment of the Government's aims to create a wholesome national social system. The rural worker, who depends largely for his livelihood on the casual hire of his labour, will, when provided with a house and plot at a low rent, become an economic unit in the rural community. The provision of these houses and plots in rural areas will also check the migration of rural workers to the towns and hold labour available for the farming community at reasonable cost.

The housing programme has enabled the development of native industry in the production of building materials and appliances. As shown in Section IV of this memorandum, the percentage of national materials used in house-building has increased from 30% of the whole in 1932 to 45% of the whole in 1934. This development is still in its early stages.

It is hoped that the clearance of slums and unhealthy houses and the provision of proper homes for the people will, in time, greatly reduce the national bill for public health services.

The present housing activity has provided considerable employment for both skilled and unskilled labour. It is a requirement attaching to the payment of State subsidies that trade-union wages and conditions of employment be observed. The limit of activity will be reached when all available skilled labour is absorbed. This peak will be reached in the early years of the ten-year programme; and a gradual tapering-off to the end of the period will enable the labour so released to be absorbed into other channels opened by the Government's general plan for industrial development.

2. *Public Buildings.*

During the years 1929-1934, many large administrative buildings, undertaken during the reconstruction period following the establishment of the Irish Free State, were completed.

The expenditure in the period under review on administrative buildings, including Government offices, military and police barracks, post offices (exclusive of the telegraph, telephone and wireless broadcasting installations which are provided by the Post Office authorities), employment exchanges, etc., was about £1,025,000, all of which was provided from State funds. In addition, about £600,000 was expended on the erection and improvement of national (primary) schools, towards which contributions amounting to about £130,000 were made from local sources.

The expenditure on new administrative buildings in 1934-35 will be approximately £150,000, while the expenditure on school buildings will be about £155,000, of which about £35,000 wil be provided from local sources.

The programme for 1935-36 contemplates an expenditure of over £300,000 on

administrative buildings and £260,000 on national school buildings, of which latter figure £60,000 will be contributed from local sources.

The major portion of the expenditures mentioned above was incurred on works undertaken by contract under Government supervision. It is estimated that the proportion of labour costs in these building schemes amounts to about 55% of the total cost.

(j) Electric Storage Battery Development.

I.

A company was formed under Government auspices to develop and exploit an improved electric storage battery, the invention of Dr. James Drumm. Its application to railway locomotion was first proceeded with, and an arrangement was made with the Great Southern Railways Company under which some passenger vehicles were adapted and equipped and put into operation for suburban traffic. Attention has also been devoted to road locomotion and other uses of the battery.

II.

The entire development and exploitation is carried on by the company.

III.

Working capital amounting to £71,913 was furnished by the Government from moneys provided by " Dail Eireann ". Of this amount, about £16,000 was furnished since March 1934.

IV.

Information is not available at present on which an allocation of the company's expenditure as between labour and other costs might be made, but it may be taken that the direct labour content of expenditure up to the present was low.

V.

The company's operations have already been responsible for appreciable activity in the opening-up of employment new to the Irish Free State, and it is anticipated that the future advantages to be derived therefrom, and from the promotion of the use of electrical energy produced within the State, will be substantial.

(m) Other Works.

I.

Mines and Minerals.

The following is a summary of the mineral exploration and development assisted since the beginning of the year 1929 and completed before March 31st, 1934.

Mineral	Number of cases Classification *(m)*	Classification *(a)*
Clay	2	
Coal	1	
Glass sand	1	
Limestone	6	
Marble	1	
Phosphate	1	
Roads of access		3 districts
Sandstone	1	
Silica	2	
Slate	7	

(b) The following works were in course of execution at March 31st, 1934 :

Mineral	Number of cases	
	Classification *(m)*	Classification *(a)*
Barytes	1	
Brick-clay	2	
Limestone	1	
Phosphates	1	
Roads of access		1 district
Slate	4	
Sulphur	1	

(c) The following works are in contemplation (in April 1934) :

Mineral	Number of cases	
	Classification *(m)*	Classification *(a)*
Brick-clay	1	
Granite	1	
Limestone	3	
Marble	1	
Pipe-clay	1	
Roads of access		2 districts
Slate	9	

The nature of the work is the removal of overburden, the clearing away of debris, the construction or improvement of means of ingress to and egress from the deposit and, generally, the proving of the deposit and facilitating its working.

II.

In every case, the works are carried out by private persons or firms who are given a grant for the purpose from the State. These parties must satisfy the Department of Industry and Commerce that they possess the necessary title to work the deposits over the areas in question. In addition, they must carry out only the types of work specified by the Department and they must recruit any labour additional to their normal staffs from the local offices of the Department.

III.

These grants are charged against the ordinary budget of the State. Operations are commenced by the authorisation of the Department and, in every case, reimbursement is made fortnightly to the grantees on receipt from them of properly vouched claims. Any expenditure over and above the amounts of the grants is borne by the grantees. The total amount of such grants for the period under review was £25,000.

IV.

On most of the works, the expenditure is wholly in respect of labour, but, in special circumstances, a maximum of 15% is allowed towards the costs of materials and equipment.

V.

The works involved have a direct value in providing for the relief of unemployment in the districts concerned, and this aspect of the matter is one of the factors considered in determining the question of giving these grants. The indirect value is in the possible development of mineral deposits following the exploratory work covered by the grants. The Department is satisfied that, on the whole, there has been substantial development as a result of these operations.

Miscellaneous.

A number of other works for the relief of unemployment, costing about £350,000, were undertaken in the five years 1929-1934. The majority of these works were carried out since 1932. They consisted, principally, of minor works for the benefit of the poorer rural areas of the State, such as accommodation roads, clearance of drains, erection of small bridges, turbary development, fishery slipways, etc.

In 1934-35, the expenditure on works of this character will amount to, approximately, £180,000. Further expenditure the amount of which has not yet been determined is contemplated during 1935-36.

With the exception of some trivial local contributions, the entire cost of these works is borne from State funds.

Labour charges account for about 85% of the expenditure on these works.

* * *

In addition to the schemes of public works which have been described in detail above, a number of schemes involving considerable expenditure and providing a appreciable measure of relief for the prevailing unemployment have been undertaken, in pursuance of the Government's policy, for the development of the peat resources of the country, the production of sugar from sugar beet, and the production of industrial alcohol.

POLAND.

[*Translation from the Polish.*]

SUMMARY.

INTRODUCTION.

The present report comprises a statement of the activities of the Labour Fund functioning as a public institution for the execution of public works as a remedy for unemployment, together with a list of the works undertaken by the various branches of the State administration, in the order prescribed in the questionnaire.

It has obviously not always been possible to give complete replies, particularly as certain problems, such as the distribution of expenditure between materials and labour, frequently present considerable difficulties. In the main, however, the plan of the questionnaire has been followed in alluding to the various works.

The report refers to certain categories of works (water supply and water mains, electrification, gas supply, etc.), in so far as these have been carried out principally by autonomous territorial bodies. For such works, certain data will be found for the years 1933-34 and 1934-35 in the report, attached hereto, of the Labour Fund, which helps to finance the works carried out by these autonomous territorial bodies. Another source of information is the table of approximate credits for works in the extraordinary budgets of the communal unions (after deducting the sums for the repayment of debts and the

purchase of lands and buildings, and also, from 1933-34, of sums to cover the deficit of previous years).

	Millions of zloty
1929-30	357.1
1930-31	259.5
1931-32	125.0
1932-33	86.0
1933-34	75.0
1934-35	70.0
Total...	972.6

As regards the report as a whole, certain sums may appear both in the report on the Labour Fund and in the list of the various categories of works; the Labour Fund, indeed, frequently finances works undertaken by State administrations.

PUBLIC WORKS CARRIED OUT WITH THE ASSISTANCE OF THE LABOUR FUND.

I. *Object and Scope of the Labour Fund.*

The Labour Fund is a State institution, created in virtue of the Law of March 16th, 1933, which provides that :

> " The purpose of the Labour Fund is to supply work or means of livelihood for persons without work and without other resources, chiefly by the carrying-out of public works or works of public utility. "

The same law provides also that :

> " The Labour Fund shall achieve its object :
>
> " *(a)* By collecting and distributing funds and contributions in kind;
>
> " *(b)* By taking the initiative and collaborating in the promotion of schemes for public works or works of public utility, and also of any other works of considerable importance from the standpoint of the reduction of unemployment;
>
> " *(c)* By financing works;
>
> " *(d)* By taking measures to increase the number of persons having an occupation;
>
> " *(e)* By taking measures of all kinds to procure an independent livelihood for the persons mentioned in Article 1, and by collaborating in such measures;
>
> " *(f)* By supplying, so far as this is indispensable, either directly or through the social organisations, immediate assistance for the persons mentioned in paragraph 1 who are not in receipt of any other form of assistance."

Public works are thus the chief but not the sole object of this institution. They absorbed 58% of the total expenditure for the budgetary year 1933-34, and 78% of such expenditure during the first eleven months of 1934-35.

Apart from public works, the Labour Fund has given immediate relief in the form of food and fuel to the most destitute unemployed persons and their families; it has organised the work of intellectual workers, created individual gardens for the unemployed, etc. These activities have, however, been of secondary importance, and are declining. [1]

[1] See Table II.

II. *Methods of Financing.*

The financial resources of the Labour Fund were as follows :

(1) A levy of 2% on the wages of physical and intellectual workers, paid half by the workers and half by the employers (58% of the total revenue in 1933-34);

(2) Contributions in kind from the urban communes and autonomous district unions (6% of the revenue in 1933-34);

(3) Various consumption taxes (10% of the revenue);

(4) Contribution by the State (22% of the revenue).

The other sources of revenue were of lesser importance. [1]

With these resources, the Labour Fund financed public works executed by State institutions or autonomous administrations, and also by private undertakings with the participation of public administrations (of the State or of the autonomous bodies).

In 1933-34, State institutions received 32% of the credits paid by the Labour Fund, institutions belonging to 'autonomous bodies 61%, and undertakings with the participation of public administrations 7%. The credits were given in the form of advances or subsidies. During the first year of the Labour Fund's activities, subsidies represented only 12% of the amounts of the contracts concluded; the following year, the proportion increased considerably. Credits for productive works, such as water- supply and gas-supply works, electric power stations, etc., were, as a rule, in the form of advances, whereas works not producing direct revenue—such as roads—were carried out with the help of subsidies.

III. *Methods of executing the Works.*

The Labour Fund does not carry out works directly; it finances them, co-operates in drawing up the programme of State works carried out with its financial assistance, co-ordinates and, to some extent, directs the activities of the institutions attached to the autonomous administrations responsible for their execution; lastly, it exercises supervision over the works, so as to ensure that they are in conformity with the objects of the Labour Fund, those objects being set forth in the contracts concluded between the Labour Fund and the institutions in receipt of credits from the latter. First among such objects is the provision of work for unemployed persons. The Labour Fund sees, first and foremost, that the plan of public works is so framed as to reduce unemployment as far as possible, The works are accordingly carried out, in the main, in centres in which unemployment is most acute.

The works are carried out either directly by the authorities or under individual contract by the parties in receipt of credits—that is to say, by State institutions and autonomous administrations and by undertakings in which the public administrations are represented.

IV. *Nature of the Works.*

The Labour Fund executes works the choice of which is determined by reference to the economic objects pursued by those in receipt of credits, such objects being subject to the scrutiny of the Labour Fund and also to their influence on the labour market (in particular, the proportion represented by labour in the cost of construction) and the possibility of mobilising, for the financing of any given work by the Labour Fund, either the capital of the Fund itself or capital derived from other sources.

To sum up, during the year 1933-34, [2] roads and bridges absorbed 31% of the sums

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[1] See Table I.

[2] See Tables III, A and B.

expended by the Labour Fund; railways and tramways, 9%; waterways and river ports, 5%; improvement works, 16%; water supply and water mains, electrification, and gas supply, 22%; construction of public buildings and dwellings, 14%.

The sum allocated for metalled roads, streets and bridges is increasing yearly; in 1934-35, it already represented 36% of the total contracts concluded; according to the plan, it will amount to 46% for 1935-36. The sum allocated to waterways is also on the increase (7% in 1934-35, 14% in 1935-36). On the other hand, there is a drop in the amount allocated to railways and tramways (6% in 1934-35 and 2% in 1935-36) and public utility works (19% in 1934-35 and 11% in 1935-36). There has also been a drop in the amount allocated for buildings (15% in 1934-45 and 9% in 1935-36).

V. *Employment of Labour, Distribution of Expenditure.* [1]

The works executed with the financial assistance of the Labour Fund in 1933-34 represented 9.8 million working-days; in 1934-35, increased funds permitted of employing more labour, representing during the first eleven months 14.6 million working-days. For the whole year, the labour employed will probably represent 15 million working-days.

In the expenditure on works executed by the Labour Fund, labour represents 48%. The expenditure on labour was heavier in fundamental improvements and the correction of waterways (73%), the construction of dwellings (54%) and railway construction (39%); it was particularly low in electrification works (13%) and in gas-supply works (8%).

The extent to which any given work was financed by the Labour Fund depended chiefly on the proportion of expenditure on labour, as the Fund, in principle, only finances the employment of unemployed persons and covers the expenditure on labour, granting credits for materials in proportion to the expenditure on labour. In principle, its contribution towards expenditure on material must not exceed 30%. Departures from this rule were admitted only in exceptional cases. The bulk of the expenditure on material was covered, by means of other resources, by those in receipt of credits.

The technical results are shown in Tables VI, A and B, and VII.

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[1] See Tables IV, A and B, and V.

Table I.

REVENUE OF THE LABOUR FUND.

Source	Estimated revenue		Actual revenue					
	1933-34	1934-35	Budgetary year 1933-34		From 1.IV.1933 to 28.II.34		From 1.IV.34 to 28.II.35	
	In thousands of zloty		In thousands of zloty	% of total revenue	In thousands of zloty	% of total revenue	In thousands of zloty	% of total revenue
1. Tax on private incomes:								
(a) Of workers and workshops[1]	57,000	58,800	51,132	57.9	42,747	56.7	51,934	52.9
(b) Other sources ...	1,160	1,160	656	0.7	556	0.7	885	0.9
Total...	58,160	59,960	51,788	58.6	43,303	57.4	52,819	53.8
2. Tax on income of autonomous administrations	8,500	8,500	5,706	6.5	5,027	6.7	4,617	4.7
3. Tax on consumption[2]	4,700	5,535	8,668	9.8	7,279	9.7	9,147	9.3
4. Contribution from the State Treasury	20,000	29,900	19,172	21.7	17,573	23.3	28,752	29.3
5. Other sources of revenue[3]	8,640	8,215	3,004	3.4	2,197	2.9	2,790	2.9
Total...	100,000	112,110	88,338	100.0	75,379	100.0	98,125	100.0

[1] 2% of the income of physical and intellectual workers, paid half by the workers and half by the establishments employing them.

[2] Sugar, beer, electric-light bulbs, gas, rent, foodshops and places of amusement, " pari mutuel ".

[3] Refund of credits, interest on advances, extraordinary revenue.

Table II.

EXPENDITURE OF THE LABOUR FUND.

Object	Estimated expenditure		Actual expenditure					
	1933-34	1934-35	Budgetary year 1933-34		From 1.IV.1933 to 28.II.34		From 1.IV.34 to 28.II.35	
	In thousands of zloty		In thousands of zloty	% of total expenditure	In thousands of zloty	% of total expenditure	In thousands of zloty	% of total expenditure
Administration	88	450	279	0.3	224	0.3	378	0.4
Public works	50,000	75,865	49,891	58.3	43,194	58.6	71,697	78.3
Special measures[1]	2,000	7,735	1,413	1.6	634	0.8	3,555	3.9
Urgent relief (food and fuel)	35,000	25,860	32,088	37.5	28,778	39.1	14,900	16.3
Financial outlay	100	2,180	1,461	1.7	863	1.2	933	1.0
Other expenditure.....	—	20	522	0.6	5	—	43	0.1
Reserve	12,712	—	—	—	—	—	—	—
Total...	100,000	112,110	85,654	100.0	73,698	100.0	91,506	100.0

[1] Employment of intellectual workers, organisation of gardens for unemployed persons, professional re-adaptation of unemployed persons, etc.

Table III.

FINANCING OF PUBLIC WORKS.

Allocation of Credits.

A. TOTAL WORKS.

Nature of works	Contracts concluded In 1933-34 For an amount of (in thousands of zloty)	%	Paid to recipients of credits In 1933-34 In thousands of zloty	%	Paid by recipients for works In 1933-34 In thousands of zloty	%	Contracts concluded In 1934-35 For an amount of (in thousands of zloty)	%	Estimates for 1935-36 In thousands of zloty	%
1. Roads and bridges :										
(a) Paved roads and bridges	11,555	22.6	11,469	23.0	9,993	24.3	22,651	28.8	28,775	42.4
(b) Road surfaces.....	3,948	7.7	3,937	7.9	3,379	8.2	5,467	7.0	2,408	3.5
Total...	15,503	30.3	15,406	30.9	13,372	32.5	28,118	35.8	31,183	45.9
2. Railways and tramways :										
(a) Railways	3,685	7.2	3,632	7.3	3,099	7.5	4,505	5.7	1,170	1.7
(b) Tramways.....	1,190	2.3	989	2.0	976	2.4	175	0.2	—	—
Total...	4,875	9.5	4,621	9.3	4,075	9.9	4,680	5.9	1,170	1.7
3. Waterways and ports.....	2,354	4.6	2,355	4.7	2,138	5.2	5,823	7.4	9,607	14.2
4. Fundamental improvements	8,047	15.7	8,047	16.1	8,501	20.6	8,212	10.4	9,944	14.7
5. Water-supply work and water mains.....	9,462	18.6	10,931	21.8	6,259	15.2	10,613	13.5	7,368	10.9
6. Electrification	726	1.4			589	1.4	1,207	1.5	365	0.5
7. Gas supplies.....	923	1.8			854	2.1	3,061	3.9	—	—
8. Construction :										
(a) Public buildings.....	4,803	9.4	4,486	9.0	2,217	5.4	5,351	6.9	875	1.3
(b) Dwelling-houses [1].....	2,906	5.7	2,636	5.3	2,096	5.1	6,504	8.3	5,602	8.2
Total...	7,709	15.1	7,122	14.3	4,313	10.5	11,855	15.2	6,477	9.5
9. Other works.....	1,514	3.0	1,409	2.9	1,070	2.6	5,108	6.4	1,746	2.6
General total...	51,113	100.0	49,891	100.0	41,171	100.0	78,677	100.0	67,860	100.0

B. WORKS EXECUTED BY BODIES OTHER THAN THE STATE (AUTONOMOUS ADMINISTRATIONS; PRIVATE UNDERTAKINGS WITH PARTICIPATION OF PUBLIC ADMINISTRATIONS).

1. Roads and bridges :										
(a) Paved roads and bridges	6,528	18.5	6,443	18.7	5,426	21.0	5,818	11.8	10,025	41.6
(b) Road surfaces.....	3,949	11.1	3,936	11.5	3,379	13.1	4,551	9.2		
Total...	10,477	29.6	10,379	30.2	8,805	34.1	10,369	21.0	10,025	41.6
2. Railways and tramways :										
(a) Railways	383	1.1	330	0.9	250	1.0	1,860	3.8	1,170	4.9
(b) Tramways.....	1,190	3.4	989	2.9	587	2.3	160	0.3	—	—
Total...	1,573	4.5	1,319	3.8	837	3.3	2,020	4.1	1,170	4.9
3. Waterways and ports.....	—	—	—	—	—	—	1,875	3.8	—	—
4. Fundamental improvements	4,186	11.8	4,186	12.2	4,008	15.5	2,505	5.1	2,321	9.6
5. Water-supply work and water mains.....	9,462	26.7	9,283	27.0	6,260	24.3	10,540	21.4	7,368	30.6
6. Electrification	726	2.1	726	2.1	589	2.3	2,940	6.0	365	1.5
7. Gas supplies.....	323	0.9	323	0.9	254	1.0	513	1.0	—	—
8. Construction :										
(a) Public buildings.....	4,803	13.6	4,677	13.6	2,217	8.6	5,220	10.6	475	2.0
(b) Dwelling-houses [1].....	2,905	8.2	2,636	8.0	2,095	8.1	6,268	12.7	603	2.5
Total...	7,708	21.8	7,313	21.6	4,312	16.7	11,488	23.3	1,078	4.5
9. Other works.....	917	2.6	867	2.2	720	2.8	7,102	14.3	1,746	7.3
General total...	35,372	100.0	34,396	100.0	25,785	100.0	49,352	100.0	24,073	100.0

[1] Including the adaptation of building lands.

Table IV.

EXECUTION OF WORKS CARRIED OUT WITH THE ASSISTANCE OF THE LABOUR FUND IN 1933-34.

A. Total Works.

Nature of works	Cost of works						Employment of labour
	Total cost	Participation of the Labour Fund		Labour		% of cost of labour with relation to participation of the Labour Fund	
	In thousands of zloty		% of total cost	In thousands of zloty	% of total cost		Working-days (in thousands)
1. Roads and bridges:							
(a) Paved roads and bridges	19,250	9,993	51.9	10,317	53.6	103.2	3,004
(b) Road surfaces	4,727	3,379	71.5	2,715	57.4	80.3	735
Total...	23,977	13,372	55.8	13,032	54.4	97.5	3,739
2. Railways and tramways:							
(a) Railways	10,228	3,099	30.3	3,953	38.6	127.6	948
(b) Tramways	1,693	976	57.6	481	28.4	49.3	79
Total...	11,921	4,075	34.2	4,434	37.2	108.8	1,027
3. Waterways and ports	2,731	2,138	78.3	1,990	72.8	93.1	584
4. Fundamental improvements	11,869	8,501	71.6	8,682	73.1	102.1	2,537
5. Water-supply work and water mains	9,155	6,259	68.4	2,903	31.7	46.4	760
6. Electrification	1,038	589	56.7	132	12.7	22.4	29
7. Gas supplies	3,475	854	24.5	284	8.2	33.3	56
8. Construction:							
(a) Public buildings	5,703	2,217	38.9	1,899	33.3	85.7	411
(b) Dwelling-houses [1]	2,926	2,096	71.6	1,589	54.3	75.8	374
Total...	8,629	4,313	50.0	3,488	40.4	80.9	785
9. Other works	1,987	1,070	53.9	965	48.6	90.2	259
General total...	74,782	41,171	55.0	35,910	48.0	87.2	9,776

B. Works executed by Bodies other than the State (Autonomous Administrations; Private Undertakings with Participation of Public Administrations).

1. Roads and bridges:							
(a) Paved roads and bridges	10,811	5,426	50.2	5,309	49.1	97.8	1,483
(b) Road surfaces	4,727	3,379	71.4	2,715	57.4	80.3	734
Total...	15,538	8,805	56.7	8,024	51.6	91.1	2,217
2. Railways and tramways:							
(a) Railways	619	250	40.4	282	45.6	112.8	80
(b) Tramways	2,693	587	21.8	480	17.8	81.8	80
Total...	2,312	837	36.2	762	33.0	91.0	160
3. Waterways and ports	—	—	—	—	—	—	—
4. Fundamental improvements	5,799	4,008	69.1	3,951	68.1	98.6	1,104
5. Water-supply work and water mains	9,155	6,260	68.4	2,902	31.7	46.4	760
6. Electrification	1,038	589	56.7	131	12.6	22.2	29
7. Gas supplies	271	254	93.7	63	23.2	24.8	10
8. Construction:							
(a) Public buildings	5,703	2,217	38.9	1,900	33.3	85.7	410
(b) Dwelling-houses [1]	2,926	2,095	71.6	1,590	54.3	75.9	374
Total...	8,629	4,312	50.0	3,490	40.4	80.9	784
9. Other works	1,501	720	48.0	738	49.2	102.5	203
General total...	44,243	25,785	58.3	20,061	45.3	77.8	5,267

[1] Including the adaptation of building lands.

Table V.

EXECUTION OF WORKS CARRIED OUT WITH THE ASSISTANCE OF THE LABOUR FUND IN 1934-35.[1]

Works executed by Bodies other than the State (Autonomous Administrations; Private Undertakings with Participation of Public Administrations).

Nature of works	Cost of works						Employment of labour
	Total cost	Participation of the Labour Fund		Labour		% of cost of labour with relation to participation of the Labour Fund	
	In thousands of zloty		% of total cost	In thousands of zloty	% of total cost		Working-days (in thousands)
1. Roads and bridges :							
(a) Paved roads and bridges....	8,485	4,866	57.3	4,100	48.3	84.3	1,335
(b) Road surfaces	5,128	3,959	77.2	2,908	56.7	73.5	738
Total...	13,613	8,825	64.8	7,008	51.5	79.4	2,073
2. Railways and tramways :							
(a) Railways	3,175	2,041	64.3	1,564	49.3	76.6	403
(b) Tramways	454	235	51.8	136	30.0	57.9	25
Total...	3,629	2,276	62.7	1,700	46.8	74.7	428
3. Waterways and ports.....	2,618	1,818	69.4	1,629	62.2	89.6	500
4. Fundamental improvements....	2,192	1,913	87.3	1,639	74.8	85.7	421
5. Water-supply work and water mains	11,956	8,392	70.2	5,182	43.3	61.7	1,307
6. Electrification	3,288	2,284	69.5	686	20.9	30.0	152
7. Gas supplies.....	920	411	44.7	289	31.4	70.3	41
8. Construction :							
(a) Public buildings	8,952	5,539	61.9	3,309	37.0	59.7	712
(b) Dwelling-houses [2]	4,482	3,137	82.6	2,355	52.5	75.1	528
Total ...	13,434	8,676	64.6	5,664	42.2	65.3	1,240
9. Other works.....	2,691	1,750	65.0	1,487	55.3	85.0	387
General total ...	54,341	36,345	66.9	25,284	46.5	69.6	6,549

[1] Period April 1st to December 31st, 1934.
[2] Including the adaptation of building lands.

Table VI.

TECHNICAL RESULTS OF THE WORKS FINANCED BY THE LABOUR FUND IN 1933-34.

A. Total Works.

Nature of work	Technical results	Share of the Labour Fund in the costs of construction (%)
1. Roads and bridges :		
(a) Paved roads and bridges	New roads : 195 kilometres. Roads rebuilt : 2,059 kilometres. 88 new bridges and culverts : length, 1,976 metres. 154 bridges and culverts rebuilt : length, 3,279 metres.	51.9
(b) Road surfaces.....	New roads : 74.4 kilometres. Roads remade : 15.1 kilometres. 1 bridge built : 18 metres.	71.5
2. Railways and tramways :		
(a) Railways	Railway lines : 151 kilometres.	30.3
(b) Tramways	Tramway lines : 17.3 kilometres.	57.6
3. Waterways and ports.....	Regulation of rivers : 34.6 kilometres. Port works (in four ports) : 273,500 cubic metres.	78.3
4. Fundamental improvements.	Regulation of rivers : 297.4 kilometres. Works of upkeep : over 30.1 kilometres. New dykes : 119.6 kilometres. Works of upkeep : over 241.9 kilometres. Drainage and irrigation channels and outflow ditches : 21.4 kilometres.	71.6
5. Water-supply work and water mains	Canals : 39.2 kilometres. Connections with the canal system : 42 kilometres. Piping : 28.8 kilometres. 1 filter. 1 pumping-station. 5 reservoirs. Buildings : 10,100 cubic metres.	68.4
6. Electrification.....	Inter-urban systems : 145 kilometres. Low-tension lines : 6.8 kilometres.	56.7
7. Gas supplies	Inter-urban gas supply systems : 75.8 kilometres. Urban gas-supply systems : 8.6 kilometres. Internal installations : 88.	24.5
8. Construction :		
(a) Public buildings.....	9 schools built, 46 completed. 1 hospital built, 6 completed. Other buildings : cubic contents, 69,800 cubic metres.	38.9
(b) Dwelling-houses [1]	Construction of houses : cubic contents, 40,900 cubic metres. Adaptation and consolidation of building lands of an area of 575.3 square metres.	71.6

[1] Including the adaptation of building lands.

B. Works executed by Organs other than the State (Autonomous Administrations; Private Undertakings with the Participation of Public Administrations).

Nature of work	Technical results	Share of the Labour Fund in the costs of construction (%)
1. Roads and bridges :		
(a) Paved roads and bridges	New roads : 159 kilometres. Roads rebuilt : 1,309 kilometres.	50.2
(b) Road surfaces.....	New roads : 74.4 kilometres. Roads rebuilt : 15.1 kilometres.	71.4
2. Railways and tramways :		
(a) Railways	Railway lines : 8 kilometres.	40.4
(b) Tramways	Tramway lines : 17.3 kilometres.	21.8
3. Waterways and ports.....	—	—
4. Fundamental improvements.	Regulation of rivers : 297.4 kilometres. Dykes : 119.6 kilometres.	69.1
5. Water-supply work and water mains	Canals : 39.2 kilometres. Piping : 28.8 kilometres. Connections with canals : 42 kilometres.	68.4
6. Electrification.....	Inter-urban systems : 125 kilometres. Low-tension lines : 26.8 kilometres.	56.7
7. Gas supplies	Gas supply systems : 8.6 kilometres.	93.7
8. Construction :		
(a) Public buildings	Construction : 230.000 cubic metres.	38.9
(b) Dwelling-houses [1]	Construction : 41,000 cubic metres. Adaptation and consolidation of building lands of an area of 575,000 square metres.	71.6
9. Other works	Various constructions.	48.0

[1] Including the adaptation of building lands.

Table VII.

TECHNICAL RESULTS OF THE WORKS FINANCED BY THE LABOUR FUND IN 1934-35.[1]

WORKS EXECUTED BY ORGANS OTHER THAN THE STATE (AUTONOMOUS ADMINISTRATIONS; PRIVATE UNDERTAKINGS WITH THE PARTICIPATION OF PUBLIC ADMINISTRATIONS).

Nature of work	Technical results	Share of the Labour Fund in the costs of construction (%)
1. Roads and bridges :		
(a) Paved roads and bridges	New roads : 249 kilometres.	
	Roads rebuilt : 20 kilometres.	57.3
(b) Road surfaces	New roads : 78.7 kilometres.	77.2
2. Railways and tramways :		
(a) Railways	Railway lines : 20 kilometres.	64.3
(b) Tramways	Tramway lines : 1.1 kilometres.	51.8
3. Waterways and ports.....	Regulation of navigable rivers : 28 kilometres.	69.4
4. Fundamental improvements.	Regulation of rivers : 25.8 kilometres.	
	Drainage : 27.6 kilometres.	
	Special improvements : 5,708 hectares.	87.3
5. Water-supply work and water mains	Canals : 74 kilometres.	
	Piping : 74 kilometres.	70.2
6. Electrification.....	Inter-urban systems : 333.8 kilometres.	
	Low-tension lines : 28 kilometres.	69.5
7. Gas supplies	Gas-supply systems : 41.6 kilometres.	44.7
8. Construction :		
(a) Public buildings	Construction : 841,000 cubic metres.	61.9
(b) Dwelling-houses[2]	Construction : 71,000 cubic metres.	
	Adaptation and consolidation of building lands of an area of 394,000 square metres.	82.6
9. Other works	—	65.0

[1] From April 1st to December 31st, 1934.
[2] Including the adaptation of building lands.

(a) ROADS AND BRIDGES.

ROADS.

I. *Summary.*

Stage	Construction of new paved roads [1]	Laying of modern [2] surfaces on existing roads	Remarks
(a) Undertaken since the beginning of 1929 and now completed.	5,000 kilometres	1,000 kilometres	[1] Including a roadway of gravel and compressed fine gravel on a foundation of ashlar, or, alternatively, of half-dressed stones laid by hand on a foundation of sand. [2] This category includes paving with setts, bituminous and asphalt surfaces and dressings, brick surfaces, concrete, cemented macadam, etc.
(b) Now in course of execution [3].	800 kilometres	300 kilometres	[3] The works year corresponds to the budgetary year, which begins, not on January 1st, but on April 1st.
(c) The execution of which is at present in contemplation, or schemes for which are in preparation [4].	5,200 kilometres	4,800 kilometres	[4] These figures correspond to the programme just drawn up for a six-year period. Its execution will be begun early in the next works year. In connection with this somewhat extensive programme, several of the country's chief quarries will be fitted with up-to-date plant for the manufacture of tar, asphalt and bituminous compositions, together with large-scale breaking and sizing plant.

The above figures include all categories of roads. A special effort was made on the departmental roads in Upper Silesia, where 70 % of the roads have been given an up-to-date surface.

The breadth of the roads in Poland varies from 7 to 14 metres (that is, the all-over width).

Under the new standards, a national, departmental or cantonal road in the open country will have a roadway proper of from 5 to 6 metres broad and two pathways not less than 1 metre broad and, in some cases, as much as 3.50 metres.

Local (communal) roads may be reduced to a width of 3 metres for the actual road surface and 7 metres for the all-over width, including pathways.

II.

The works in question are carried out on behalf of the central authority (Ministry) in the case of national roads, or on behalf of the regional authorities in the case of roads of general importance, or it may be even by the communes, which have recourse, at least in part, to contributions in kind.

The central authority remains in charge of the work as a whole.

A recent law provides for the granting of exclusive concessions for public road transport to companies or individuals, in return for participation in the cost of maintaining and improving the roads used.

The regional and communal authorities frequently receive subsidies from special funds (Labour Fund and Road Fund), when they carry out road works on behalf of such funds.

In the case of paved roads (for definition see above), and roads covered with a modern surface of the light type (light surface dressings, coatings, tarring, etc.), the work is, as a general rule, directly carried out by public authorities, sometimes with the assistance of piece-workers.

As regards modern surfacing of the medium or heavy type, the works are generally placed in the hands of specialised undertakings, contracts being awarded on the basis of public tenders, restricted or otherwise, and sometimes, in special cases, by private treaty. In future, the administrative authorities propose to have certain of these works carried out under their own direct control, either to train technical staff, or for experimental purposes, or in certain cases to check costs of production.

III.

Expenditure on road works is met :

1. Out of a special fund : State Road Fund, which is simply a subsidiary budget annexed to the State budget;

2. Out of the budgets of the regional and local authorities, sometimes with the voluntary contributions from public bodies.

Payments are made either in cash or by means of debt certificates, issued by the Road Fund under State guarantee.

These debt certificates bear interest at 6 %, and are redeemable at par within a period which, at present, is between five and ten years.

They represent amounts in gold zloty, which vary according to requirements.

The system of paying for works by means of debt certificates is also applied to foreign undertakings.

Hitherto no loans, internal or external, have been floated for the special purpose of financing road works.

IV.

It may be estimated that the expenditure on road works may, on an average, be allocated between materials and equipment and labour as follows :

	%
In the case of paved roads :	
Materials and equipment	60
Labour directly employed	40
In the case of roads with modern surfaces :	
Materials and equipment	70
Labour directly employed	30

The only materials of foreign origin employed for these works (with very rare exceptions) are the special American and Mexican asphalts, which, in any case, are being increasingly supplanted by national products.

Part of the equipment for the laying of modern surfaces also comes from abroad.

V.

As soon as the first symptoms of the economic depression began to make themselves felt, the execution of road works was closely linked to the problem of finding work for the unemployed.

In the six-year programme which is now on foot, special attention is given to this aspect of the matter.

The execution of this programme is expected to produce two other equally important results :

1. Economic development of the eastern part of the country, which has hitherto lacked means of communication. The greater part of the road system which it is proposed to build will be situated in vast territories which, as compared with the economic and industrial development of the rest of the country, are in a somewhat backward state.

2. The development of motor traffic, which is of vital importance to the country. Insufficiency of roads and the state of existing roads are holding up the development of motor transport and of the related industries.

The development of motor traffic, which is of such importance in the modern transport system, is dependent in Poland on the construction of new roads and the improvement of the existing roads.

Road Bridges.

I. *Summary.*

Stage	Bridges on State roads			Bridges on roads under regional authorities			Total	Remarks
	Iron	Reinforced concrete	Wood	Iron	Reinforced concrete	Wood		
	Metres	Metres	Metres	Metres	Metres	Metres	Metres	
(a) Undertaken since the beginning of the year 1929 and now completed.	5,960	2,220	3,350	930	618	3,219	13,297	
(b) Now in course of execution.	850	300	1,400	—	—	—	2,550	Both on State roads and roads under regional authorities.
(c) The execution of which is at present in contemplation or schemes for which are in preparation.	7,100	7,350	10,700	2,580	2,230	16,300	46,260	Six-year programme. Estimated expenditure approximately 90 million zloty.

II.

In general, the administrative methods followed in regard to the execution of the road bridges are the same as those employed in regard to the roads themselves.

The works are executed :

(1) On behalf of the public authorities, under the supervision of their own specially appointed engineers, or else, in the case of ordinary bridges, under the supervision of the district heads of the Road Administration;

(2) By commercial undertakings, the contracts being awarded on the basis of public tenders.

III.

The financial methods employed are the same as in the case of the roads.

IV.

The material and equipment (almost all of national origin) represent 62 %, and labour directly employed 38 %, of the total expenditure.

V.

As regards the effects of this work on economic and industrial activity and on unemployment, what has already been said in regard to road works also applies in the case of bridges.

(b) RAILWAY LINES.

I.

Railway works represent one of the most important categories of public works.

The scheme of capital investment on the railways comprises works on the construction of a certain number of new lines and connections, the improvement of already existing lines, and the repair of damage done during the war.

As regards the execution of this programme :

(a) During the last five-year period—viz., from the beginning of 1929 to the end of 1933—the more important railway works were completed—viz. :

At a total cost of approximately 229 million zloty, 600 kilometres of new lines have been built. The most important of the new lines is that connecting the Upper Silesian coalfield with the port of Gdynia; it is 458 kilometres long and is intended more particularly for the transport of coal.

A great deal of money has been laid out on the existing railways with a view to increasing their traffic capacity and safety—viz., the construction of second tracks, the rebuilding of stations and junctions, the construction of shunting tracks, haulage installations, railway tanks, and appliances for ensuring safety of operation, etc.—representing in all an outlay of 246 million zloty. One of the most important of these works was the reconstruction of the Warsaw Junction, which was completed in 1933, at a cost of approximately 80 million zloty; in its first phase, this undertaking included the opening of a double-track line, 7 kilometres long, connecting the railway system on the right bank of the Vistula with that on the left.

The following railway equipment, which was devastated during the war, has been reconstructed : 173 railway bridges, representing a total length of 4,326 metres; 36 stations; 52 other buildings; 14 tanks, etc. : total cost : 21.9 million zloty.

A considerable quantity of rolling-stock was purchased exclusively in local factories, and old engines and worn-out trucks were withdrawn from use. During the past five years, 475 new engines, 576 coaches and 17,890 goods trucks have been purchased at a total cost of 350 million zloty; 347 engines, 245 coaches and 3,155 goods trucks have been withdrawn from service.

(b) Among the works in course of execution but not yet terminated, mention may be made of the following : works in connection with the construction of 273 kilometres, approximately, of new railway lines; works necessitated by the reconstruction of railway junctions, more especially that at Warsaw, where the electrification of the connecting line opened to traffic in 1933 and of the suburban sections of the railway are being continued.

Work is also in progress on certain existing railway lines for the doubling of certain tracks, installation of haulage apparatus and safety appliances, etc. The rebuilding of 10 bridges destroyed during the war is proceeding.

(c) During the next few years, apart from the completion of the above-mentioned works already in progress, it is proposed to build a series of new railway lines of a total length of 1,400 kilometres, at a cost of 500 million zloty. The necessity for this further considerable extension of the railways is due to the fact that the Polish railway system is very undeveloped, particularly in the east and centre of the country. In Poland, the railway system represents a density of 4.6 kilometres per 100 square kilometres of territory, which is much lower than that of Western Europe.

It is also necessary to take in hand the rebuilding and strengthening of a considerable number of bridges on existing lines, as these bridges were built to carry trains much lighter than those at present in operation; as a result, they are subject to undue strain, which means that the traffic has to be restricted.

The estimates for these works amount to 50 million zloty.

In view of the increase in train speeds, one of the most important needs of the Polish railways is the modernisation and improvement of the present safety appliances, which are for the most part out of date and inadequate to their purpose. This remark also applies to conditions of safety at level-crossings, which must be brought up to the standards required under the regulations in force. The cost of these works is estimated at several tens of million zloty. Apart from the rebuilding of stations and buildings destroyed during the war, new stations, housing accommodation and other railway buildings will have to be constructed. The cost is estimated at 80 million zloty.

It is proposed to purchase new rolling-stock as worn-out stock is withdrawn from service; it is also proposed to improve the rolling-stock at present in use by fitting it with Westinghouse coupled brakes.

The execution of the full programme of necessary works within a period of ten years would entail an average annual expenditure of approximately 150 million zloty.

II. *Administrative Methods followed or contemplated for the Execution of the Above-mentioned Works.*

Almost the whole of the Polish railway system (more than 95 %) is State property; only an insignificant number of railways belong to private companies. All lines, both State and private, are managed by the State undertaking known as the " Polish State Railways " (P.K.P.), which is incorporated as an independent body. Such being the case, the railway works are carried out under the control of the P.K.P., with the exception of works connected with the construction of railways for which concessions have been granted, which are carried out by private companies, and those on local railways in the Voivodeship of Silesia, which are carried out directly by the Voivodeship authorities.

All works connected with the reconstruction of installations destroyed during the war on the existing railway lines are carried out by the Polish State Railways under the general supervision of the central authorities (Ministry of Communications).

Contracts in respect of the more important works and supplies are awarded on the basis of public tenders, in the majority of cases to local undertakings.

III. *Method of financing the Above-mentioned Works.*

Expenditure on works executed is covered in the following ways :

(1) Out of grants from the P.K.P. Investment Funds, which are included in the ordinary general budget of the Polish State Railways—an undertaking which is managed on commercial lines;

(2) By means of grants from the labour funds, the purpose of which is to provide work for the unemployed and which are included in the general ordinary State budget;

(3) Out of the budgets of the district offices (Voivode of Silesia);

(4) By means of international loans.

In 1934, two international loans were contracted, more particularly for electrification of the Warsaw junction—that is to say, of the connecting line and suburban sections; for this purpose, an agreement was concluded between the P.K.P. and the English Electric Company, Limited, and Metropolitan Vickers Electrical Export Company, Limited, under which the English company undertook to carry out the works in question at a cost of £1,450,000, to be paid in quarterly instalments during a period of six years as from 1936.

The second contract, that with the Westinghouse Company for fitting coupled brakes to the rolling-stock, was for a total of 132,400,000 zloty. According to the contract, the brakes are to be supplied within six years, while payments are spread out over a period of ten years, the sums due to bear interest at 6 %.

IV. *Allocation of Expenditure as between Labour and Material.*

As the works executed are not all of the same kind, it is impossible to make a detailed accurate allocation of the expenditure between labour and material respectively.

The percentage of the total expenditure spent on labour during the construction of the new lines was in the neighbourhood of 35 %. The material used on the works was almost exclusively of local origin.

V. *Benefits of an Economic Nature, with Particular Reference to Unemployment, of the Works carried out or proposed.*

As stated in the introduction, all works carried out or proposed are designed to raise the national railway system to a level in keeping with the economic requirements of the country and are regarded as the most urgent and indispensable works in the national programme. Furthermore, the undertaking of extensive works makes it possible to find employment for a considerable number of persons who would otherwise be idle, and thus helps to mitigate the rigours of unemployment. In the current year, more than 8,000 unemployed have been engaged on railway works.

(c) and *(e)* REDISTRIBUTION OF PROPERTIES, IMPROVEMENTS AND CONSTRUCTION IN RURAL AREAS.

A. Division into Lots.

I.

Up to January 1st, 1935, redistribution had been carried out over 2,662,000 hectares and 390,000 farms, at an expenditure of 59,200,000 zloty; the redistribution by years was as follows :

	Hectares	Farms
1929	430,000	58,650
1930	510,000	70,750
1931	558,000	75,800
1932	403,000	60,750
1933	402,000	63,900
1934	359,000	60,150

During the present year, operations have been carried out in 2,403 villages with 247,094 farms, over an area of 1,583,293 hectares.

Plans for the immediate future concern the redistribution of about 500,000 hectares of land per annum.

II. *Administrative Methods.*

Redistribution is carried out by order of the State, within its jurisdiction and on its behalf, by State officials or specially appointed sworn surveyors.

III. *Method of Financing.*

The cost of general supervision over operations is paid out of the State budget and is not repayable by the parties concerned.

The financing of the technical execution of the redistribution scheme is borne by the working capital fund for agrarian reform. The sums expended must be repaid, but not in their entirety, by those benefiting by the redistribution. The latter are sometimes granted partial or total exemption from this obligation.

IV. *Distribution of Expenditure.*

Surveyors' fees represent 89 % of the expenditure, the remaining costs of execution (technical survey, travelling and allowances of personnel and other minor expenditure) representing about 11 %.

The population provides—by way of contributions in kind—lodging, heating and light for surveyors, cartage, workers for surveys, material for delimitation marks, etc. The value of these contributions is approximately 5 % of the expenditure mentioned above.

B. Improvements.

Since 1929, fundamental improvements, as well as improvements of detail, have been carried out.

The former concern, chiefly, the regulation of non-navigable waterways and the construction of dykes for the protection of lands against floods. For this category of works, public improvement undertakings have been created, with the assistance of the landowners concerned, organised into water syndicates or groups for the building of dykes,

and with the assistance of the autonomous regional administration. The State Treasury also contributes towards the payment of the costs by granting subsidies for the execution of the works. The subsidy is fixed, according to the nature of the work, at a certain percentage of the estimate. To provide for the participation of the Treasury in the expenditure on works carried out by the public improvements undertakings, a fund, known as the State Improvement Fund, was created under the law for promoting public improvement undertakings. This fund is supplied by budgetary credits. Works relating to the regulation of waterways are executed on account of the public improvement undertakings. Supervision and control over their execution are carried out chiefly by Government services.

Works relating to the regulation of waterways by years may be seen from the following table :

Budgetary year	Dyking of rivers				Regulation of rivers and mountain streams			
	Number of undertakings	Length of dykes (kilometres)	Area protected (hectares)	Expenditure (zloty)	Number of undertakings	Length (kilometres)	Area drained (hectares)	Expenditure (zloty)
1	2	3	4	5	6	7	8	9
1929-30	15	77	22,900	2,570,000	66	361	28,000	6,085,000
1930-31	14	38	18,300	1,719,000	68	285	24,000	4,826,000
1931-32	16	20	19,400	1,286,000	65	183	15,900	3,071,000
1932-33	14	19	18,500	506,000	57	64	13,600	1,232,000
1933-34	21	79	83,700	2,545,000	82	368	42,600	3,961,000

The expenditure also includes disbursements by the autonomous regional administrations and the individuals concerned. For the dyking of rivers, Treasury credits amounted to about 5,444,200 zloty; the autonomous administrations paid close upon 2,324,200 zloty, and the individuals concerned about 857,200 zloty. For the regulation of rivers and mountain streams, the State Treasury contributed approximately 11,009,000 zloty. Payments made by the autonomous administrations amounted to 5,166,000 zloty and those made by individuals to about 3,000,000 zloty.

During the financial year 1934-35, improvement works on waterways were carried out in 99 cases, at an expenditure of 6,800,000 zloty, in addition to the sums expended on those works out of payments made by the autonomous administrations and individuals.

Since 1934, the Labour Fund, created in 1933 by a special law, has played an important part in financing the hydraulic improvement works. During the financial year 1933-34, a sum of 4,461,000 zloty was expended out of this fund for such improvement works; the following year, the expenditure was close upon 6 million zloty.

For 1935-36, provision has been made for the execution of hydraulic improvement works in 149 cases, at an approximate expenditure of 9,400,000 zloty, the Labour Fund contribution being about 8,300,000 zloty, in addition to payments by autonomous administrations and individuals. The fact that a great deal has to be done in the matter of the regulation and dyking of rivers and that it is important to employ as many unemployed workers as possible on these works will ensure the development of the latter.

In hydraulic improvement works, labour represented about 70 % of the total expenditure, material about 20 %, and inspection and control about 10 %. These works are well suited to unemployed persons, especially non-specialised workers.

Improvements in regard to detail consist chiefly of the draining of marshlands under the programme for the reorganisation of the agrarian regime (redistribution of properties, abolition of servitudes, breaking up of State properties). Drainage work takes the form of the regulation of small watercourses (apart from more fundamental regulation works) and the construction of canals and cutting of open ditches.

Up to 1932-33, these works were financed by the provincial budgets and by the working capital fund for agrarian reform; since 1932-33, they have been financed entirely by the latter.

These improvement works are carried out by State organs on behalf of owners interested in the reorganisation of the agrarian regime and with assistance in kind supplied by the latter, chiefly in the form of labour (for the redistribution of properties).

The development of such works depends largely on the extent of the contributions in kind, which it is possible to obtain in the form of labour. The more the population realises the advantages of these improvement works, the more readily contributions are found to be forthcoming, a fact which is important in increasing the extent and reducing the cost of drainage.

Improvements in the matter of detail and the credits expended may be seen, by years, in the following table :

Budgetary year	Works executed			Expenditure (zloty)
	Regulation of rivers and canals (kilometres)	Drainage by means of ditches (kilometres)	Area (hectares)	
1	2	3	4	5
1929-30	58	1,107	29,400	4,600,000
1930-31	54	1,134	29,500	6,200,000
1931-32	143	1,124	43,400	2,800,000
1932-33	253	2,438	91,400	3,100,000
1933-34	140	1,815	66,100	1,900,000

The above expenditure includes expenditure on the improvement and sowing of lands employed for agriculture after the draining of part of the marshes in the State domain of Staniewicze, in Polesia.

In 1934-35, the regulation of rivers and mountain streams was carried out over 228 kilometres, and outflow ditches were dug over close upon 1,974 kilometres, at a cost of about 1,800,000 zloty. The expenditure for next year on improvement works in the matter of detail, in connection with the reorganisation of the agrarian regime, is estimated at about 2 million zloty, with a considerable increase in the expenditure on preparatory works (experts' opinions, survey of the ground and plans).

In view of the interest taken by the rural population, there is likely in the near future to be an increase in the labour available for such works carried out in connection with the reorganisation of the agrarian regime, and this will mean an increase in the extent of the works and a reduction in the costs of execution.

C. Construction of Farm Buildings.

The construction of farm buildings in connection with the reorganisation of the agrarian regime was begun by the former Ministry for Agrarian Reform towards the end of 1928. The work proceeded simultaneously with the breaking-up of State properties and redistribution operations.

1. On the breaking-up of State properties, two systems were employed for the construction of farm buildings :

(a) Under the first, the settlers are given building credits, and it is they who are responsible for construction, under the supervision of the Voivodeship; this occurs principally when, in any given locality, there is a need for farm buildings only in isolated cases;

(b) Under the second, the Voivodeship administration arranges for the building works to be carried out, either directly by the authorities or by contract, or again by a method consisting of the purchase of materials by the Voivodeship which entrusts the various works to artisans. When the Voivodeship carries out the construction direct, the settlers take over the farms complete, with the farm buildings already erected.

The costs of construction are borne by the working capital fund for agrarian reform and are added to the sale price of the land, which the settlers pay by instalments over a large number of years (about forty years).

Since the institution of this scheme—that is to say, since 1928—farm buildings have been erected in conjunction with the breaking-up of State properties for about 3,300 farms.

2. In connection with redistribution operations, the persons concerned have received from the working capital fund for agrarian reform credits either in cash or in building timber derived principally from the State forests. They have, in addition, received from the Voivodeship technical assistance in the form of building plans or technical suggestions and advice. At present, however, the attention of the Voivodeships is being concentrated chiefly on the following points :

(a) The improvement of the plan of villages from the point of view of future economïc possibilities and building methods (building plans are drawn up, as far as possible, at the same time as the plans for the redistribution of property);

(b) The situation of the buildings in the various farm lands.

Building works and the sums expended on farm buildings in connection with the reorganisation of the agrarian regime, the breaking-up of State properties, and the redistribution operations may be seen, by years, from the following table :

Year	Number of schemes supplied		Plans drawn up		Built with the assistance of the Voivodeship architects		Expenditure on construction (zloty)
	Main buildings	Farm buildings	Improvement of settlements	Arrangement of farm buildings	Main buildings	Farm buildings	
1928 ..	211	191	—	—	—	—	9,794,650
1929-30	1,863	4,115	—	—	179	765	12,186,000
1930-31	3,749	6,753	—	—	707	2,542	15,392,990
1931-32	1,208	2,192	—	3,252	2,469	5,745	8,463,330
1932-33	749	1,299	23	4,980	6,523	12,246	2,800,430
1933-34	These figures have not been received.		105	7,020	6,481	13,436	2,019,090
1934-35	The new forms had not been sent out when the present report was drawn up.						2,800,000 (approximately)

(d) NAVIGABLE WATERWAYS.

1. General Conditions.

Poland is particularly suited by nature for the development of inland navigation. The most important watercourse—the Vistula—flows through the heart of the country, linking the capital with the sea. In the neighbourhood of the capital, it is also joined by two of its chief tributaries, the Narew and the Bug.

Poland is the flattest country in Europe. Its streams flow gently. The watersheds dividing the waters of the Vistula from those of such other great streams as the Dnieper, the Oder and the Niemen lie in marshy plains where there is an abundance of water.

Such conditions are highly favourable to the operation of the natural navigable waterways and to the construction of canals.

The rather unusual position of the chief centres of exploitation of Poland's natural wealth, and more particularly the proximity to the frontiers of her coal-mines, her most valuable forests, and, almost diametrically opposite them, of her sea-ports, necessitate the transport of raw materials over distances of 600 to 800 kilometres (coal, 630 kilometres from Silesia to the sea; timber, 800 kilometres from Polesia to Danzig; granite, 500 kilometres from Volhynia to Warsaw, etc.). These distances are sufficiently great for the cost of transport by water to be very appreciably lower than the cost of transport by rail.

It may therefore be concluded that, in Poland, both the economic conditions and physical conformation of the country are suitable for the use of navigable waterways.

2. Present Position of the Natural Navigable Waterways.

The greater part of Poland's vast network of waterways is still in a very primitive state. Conservancy works have only been carried out over a distance of 213 kilometres in the lower reaches of the Vistula (former Prussian Vistula) and to some extent over a distance of 260 kilometres of the Upper Vistula (former Russo-Austrian frontier).

Similarly, the Warta has been improved for a distance of 236 kilometres in the territory which formerly belonged to Germany and now offers a navigable channel with a depth of from 1.4 to 1.8 metres.

From the mouth of the San to the former Russo-German frontier, the Vistula is in an absolutely primitive state for a distance of 426 kilometres.

The hydrological characteristics of the Vistula make it certain that conservancy works intelligently carried out would make it possible to obtain a depth of not less than 1.5 metres—which is quite sufficient for 600-ton barges—below the confluence of the San, and a depth of 2 metres—which would permit of the navigation of 1,000-ton barges—below the confluence of the Bug.

The Bug and the Narew, which are the chief tributaries of the Vistula, might also, if properly improved, become first-class navigable waterways. As their fall is less than that of the Vistula (on an average 0.16 °/₀₀, and in the upper reaches as little as 0.1 °/₀₀), these rivers, after the necessary works, would no doubt be even more suitable for navigation than the improved Warta, which is their equal in the matter of basin and flow but—on account of its greater fall—their inferior in the matter of navigability. With a fall not exceeding 0.06 metre per kilometre, the Prypeć is even more suitable for navigation.

3. Schemes for the Future.

Appreciating the importance, from the point of view of communications and agriculture, of the improvement of the country's watercourses—a task which has hitherto been neglected—the Polish Government has given the closest attention to the study of this question. Detailed surveys have been made of the most important watercourses, plans drawn up, preparatory works carried out and certain of the major works actually begun and partially completed (the river port at Warsaw and Plock, the Porombka reservoir, various conservancy works, etc.). These works have demonstrated that the cost of improving the course of the Vistula is not less than 600,000 zloty per kilometre, the corresponding figures for the Bug, the Prypeć, the Narew, etc., being approximately 100,000 zloty per kilometre.

The scheme for the rebuilding of the Royal Prypeć-Bug Canal for 600-ton vessels and its use for drainage purposes has been worked out in detail. The estimate amounts to 35 million zloty for a distance of 170 kilometres. With the scheme for the improvement of the Bug by means of the regulation of the flow and to some extent by means of canalisation is combined an interesting scheme for a vast reservoir embracing a group of lakes

in the neighbourhood of Wlodawa and containing 500 million cubic metres of water, a lateral canal from Malkinia to Warsaw making 30,000 h.p. of power constantly available on a 20-metre fall, and a fixed-level industrial river port on the outskirts of Warsaw.

The question of the transport of coal by water has attracted the attention of the Polish Government ever since the earliest days of the country's independence.

The following are the only two solutions possible :

(a) Exportation down the Vistula. This would require, in addition to the regulation of the waterway, the construction of a lateral canal above Cracow — Cracow-Spytkowice and Spytkowice-Myslowice—as far as the coal-field. As the construction of part of this canal was begun by the Austrian Government before the war, this would appear to be the less costly solution, and the completion of this part of the canal has been decided by the Polish Government;

(b) Construction of a canal from Silesia to the Lower Vistula, making use of part of the Warta (approximately 150 kilometres), Lakes Goslawice and Goplo (45 kilometres) and the Upper Noteć Canal.

The construction of this navigable waterway for 600-ton vessels would necessitate the outlay of a considerable sum, perhaps as much as 300 million zloty.

The lower section of this waterway—the canal between Lake Goplo and the Warta river—would not, however, cause any great difficulties, and the scheme worked out in detail shows an estimated cost of not more than 13 million zloty for 600-ton vessels and 6 million zloty for 300-ton vessels. In 1929, more than 8 million tons of coal were sent from Silesia to the sea. The construction of a navigable waterway which might be used for this very heavy traffic—which is probably destined to still further development in the future—over a distance of 600 kilometres represents one of the most important tasks in Poland's economic life.

The country's most important navigable waterways follow two main lines which intersect in the heart of the country, near the capital :

1. *South-North : the Vistula.*

This system links the coal-fields and heavy industrial area to the Polish ports at the mouth of the Vistula.

The Vistula is a natural trade route 940 kilometres long. From the point of view of transport requirements, its natural characteristics from end to end vary considerably and call for different technical treatment.

2. *West-East.*

This system is made up by the Noteć and the Brda, which have been canalised, the Vistula, the Bug, the Royal Canal, and the Prypeć, as far as the frontier.

This waterway maintains commercial communications and acts as a link between Western and Eastern Europe. Apart from coal and the products of the metallurgical industry, which use the North-South route for purposes of transit, this system is used for transporting timber, granite and foodstuffs.

The two main systems would have to be completed by the opening-up of a navigable waterway between the coal-basin and Spytkowice (on the Upper Vistula).

Another important branch would be the Warta-Golpo Canal, which, after the improvement of the Warta between Konin and the mouth of the Prosna and the additional conservancy works above Poznan, would form the Warta-Vistula waterway, linking up the rich Polish provinces of Poznan and Lodz to the system of navigable waterways.

The traffic on Poland's navigable waterways (including timber floating) exceeds 1 million tons annually.

Group	Type of construction	No.	Name of the navigable waterway or new works	A. The scheme has been approved B. The scheme has not been approved or no scheme has been drawn up	Ad 1	Ad 2	Ad 3	Ad 4
						Technical plans and designs	General estimate of cost and extent to which the expenditure is to be covered by the State and communes and internal or foreign loans	Duration of the works (years)
		1	Conservancy works on the Vistula, 438 kilometres between the San and Otloczyn (former German frontier).	A		The general scheme is in the possession of the Ministry of Communications. It was examined in 1926 by the League Committee of Experts. The various sections of the detailed schemes are at the Department of Navigable Waterways, Warsaw.	The estimated cost is 200 million zloty. Funds may be obtained either from the State budget or by means of an internal or foreign loan.	
		2	Additional improvements on the Vistula between the Dunajec and the San, 119 kilometres.	A		The general scheme, together with the detailed schemes drawn up as the work is put in hand, is in the possession of the Department of Navigable Waterways, Cracow.	Estimated cost, approximately 30 million zloty. Finance : see No.1 above.	
		3	Improvement of the Royal Canal (Vistula-Dnieper) between Brześć and Pińsk, 190 kilometres.	A		The detailed scheme is in the possession of the Ministry of Communications.	The execution of this work has been divided into two stages : 1. Adaptation of the canal to take boats of 400 tons : cost price, 15 million zloty. 2. Subsequent adaptation so as to take 1,000-ton vessels : cost price, 20 million zloty. Finance : see No. 1 above.	
		4	Improvement of the Bug below Brześć, 360 kilometres with a feed reservoir containing 500 million cubic metres to be formed out of Lakes Switeź and Pulma, near Wlodawa.	B		A detailed survey has been made and is now in the possession of the Ministry of Communications. The scheme is now in course of preparation.	Estimated cost : *(a)* Of the river improvements, approximately 10 million zloty. *(b)* Of the reservoir, approximately 25 million zloty. Finance : see No. 1 above.	

Ad 5	Ad 6		Ad 7	Ad 8	Ad 9 and 10 of the questionnaire and points 1 and 2 of the general indications
Number of man-days to be worked (millions)	Materials to be used		Cost of maintenance and operation of completed works	Anticipated productivity of the works and plan of amortisation	
	Type	Value in million zloty			
			3,000 zloty per kilometre per annum.	*(a)* Present traffic, approximately 500,000 tons; traffic expected, approximately 4 million tons. Estimated tolls, approximately 2 million zloty. *(b)* The decrease in the losses hitherto caused by periodic floods on this section of the stream is estimated at 5 million zloty per annum. *(c)* The productivity of this work is based upon the beneficial indirect influence of the river improvements on the economic development of the country.	
7.5			2,000 zloty per kilometre per annum.	*(a)* Traffic expected, approximately 3 million tons. Estimated tolls, approximately 500,000 zloty. *(b)* and *(c)*: See No. 1 above.	
			1,000 zloty per kilometre per annum.	The canal forms part of the West-East system (Vistula-Dnieper), the future traffic to be carried by which is estimated at 4 million tons. Tolls, approximately 1,500,000 zloty. The canal is of importance from the point of view of the drainage of the country (Polesia) (more than 400,000 hectares).	
.5			500 zloty per kilometre per annum.	The river forms part of the West-East system, the future traffic to be carried by which is estimated at 4 million tons. Tolls, approximately 1 million zloty. The reservoir and its operation are closely bound up with the use of the water-power of the Malkinia-Warsaw Canal (see No. 5).	

Group	Type of construction	No.	Name of the navigable waterway or new works	A. The scheme has been approved B. The scheme has not been approved or no scheme has been drawn up	Ad 1	Ad 2	Ad 3	
						Technical plans and designs	General estimate of cost and extent to which the expenditure is to be covered by the State and communes and internal or foreign loans	D
		5	Canal from Warsaw to Malkinia, 90 kilometres.	B		A detailed survey to the scale of 1 : 2,500 has been made and is now in the possession of the Ministry of Communications. The detailed scheme is in course of preparation.	Estimated cost : approximately 100 million zloty, including the plant of 4 hydro-electric power stations of 30,000 h.p. generating 200 million kw.h. per annum. Finance : State or private enterprise.	
		6	Myslowice-Spytkowice Canal (Coalfield, Vistula), 55 kilometres.	B		The scheme is in course of preparation.	Estimated cost : approximately 20 million zloty. Finance : see No. 1.	
		7	Navigable waterway from Spytkowice to Cracow, 36 kilometres.	A		40 % of the work has been completed. The scheme is in the possession of the Navigable Waterways Department, at Cracow.	Estimated cost : approximately 30 million zloty. Finance : see No. 1.	
		8	Canal from Lake Goplo to Warta, 40 kilometres, 18 kilometres through lakes.	A		The draft is in the possession of the Ministry of Communications.	Estimated cost : 6 million zloty. State.	
		9	Port of Cracow (Vistula).	A		The scheme is in the possession of the Navigable Waterways Department, Cracow.	Estimated cost : 4 million zloty. 25 % of the work completed. State.	
		10	Port of Pulawy (Vistula).	B		The scheme is in the possession of the Ministry of Communications.	Estimated cost : 4 million zloty. State.	
		11	Commercial river port of Warsaw at Saska Kempa (Vistula).	A		75 % completed.	Estimated cost : Total, 8 million zloty. Remaining to be done, 2 million zloty. State.	

5	Ad 6		Ad 7	Ad 8	Ad 9 and 10 of the questionnaire and points 1 and 2 of the general indications
per days worked ons)	Materials to be used		Cost of maintenance and operation of completed works	Anticipated productivity of the works and plan of amortisation	
	Type	Value in million zloty			
0			3 million zloty. The canal, 5,000 zloty per kilometre per annum. Hydro-electric power stations, etc.: 2,500,000 zloty.	The canal forms part of the West-East system (Vistula-Dnieper), the future traffic of which is estimated at 4 million tons. Tolls: 1 million zloty. Power generated : 2 million kwh. at 0.08 zloty per kwh. = 16 million zloty. Consumption at Warsaw ensured.	
4			3,000 zloty per kilometre per annum.	The canal forms part of the navigable waterway between the coalfield and the sea, via the Vistula. The traffic is estimated at 3 million tons. Tolls: 500,000 zloty.	
6			2,000 zloty per kilometre per annum.	See No. 6.	
1.2			1,000 zloty per kilometre per annum. = 40,000 zloty.	The canal is an extension of the Upper Noteć Canal, the present traffic borne by which is 80,000 tons (250-ton vessels). Expected traffic: 300,000 tons: after extension as far as Lenczyca (near Lodz) and canalisation of the Warta, the traffic may be increased to 3 million tons (coal).	
0.6			30,000 zloty per annum.	The goods handled are expected to amount to 500,000 tons. Charge, 0.5 zloty per ton.	
0.8			See 8.	See 8.	
0.4			30,000 zloty per annum.	Goods handled : At present, approximately 100,000 tons; estimated, 2 million tons. Charge, 0.5 zloty per ton.	

Group	Type of construction	No.	Name of the navigable waterway or new works	A. The scheme has been approved B. The scheme has not been approved or no scheme has been drawn up	Ad 1	Ad 2	Ad 3	Ad
						Technical plans and designs	General estimate of cost and extent to which the expenditure is to be covered by the State and communes and internal or foreign loans	Dura... of ... wor... (ye...
		12	Industrial port of Warsaw, at Zezan; fixed level with a canal 20 kilometres long, Zezan-Zegrze (Bug).	A B		The scheme is in the possession of the Ministry of Communications.	Value of land acquired and work already carried out, approximately 10 million zloty. Cost price of work remaining to be done, 12 million zloty. State or joint-stock company.	
		13	River port of Plock (Vistula).	A		The scheme is in the possession of the Navigable Waterways Department, at Warsaw.	Estimated cost : 5 million zloty. 60 % having already been laid out, leaving 2 million zloty still to be spent. State.	
		14	Porabka reservoir on the River Sola, 32 million cubic metres.	A		The scheme is in the possession of the Navigable Waterways Department, Cracow.	Estimated cost : 15 million zloty, 60 % having already been laid out, leaving 6 million zloty still to be spent. State.	
		15	Rojnow reservoir on the River Dunayetz, 228 million cubic metres.	B		The scheme is in the possession of the Ministry of Communications.	Estimated cost : 30 million zloty. State.	
		16	Kosewo Wkra reservoir, 80 million cubic metres.	B		The scheme is in course of being drawn up at the Ministry of Communications.	Estimated cost : 12 million zloty. State.	

Ad	Ad 6		Ad 7	Ad 8	Ad 9 and 10 of the questionnaire and points 1 and 2 of the general indications
	Materials to be used		Cost of maintenance and operation of completed works	Anticipated productivity of the works and plan of amortisation	
	Type	Value in million zloty			
20			50,000 zloty per annum.	It is expected that approximately 3 million tons of freight will be handled. The productivity is based on the increase in the value of the port sites and of those along the canal, which is closely connected with the drainage of the marshes in the vicinity of the capital.	
05			30,000 zloty per annum.	Freight expected to be handled: 500,000 tons.	
10		Concrete, 80,000 cubic metres; cement, 16,000 tons.	500,000 zloty per annum.	Hydro-electric power station, 20,000 kw. Output, 27 million kw.h.	
40		Concrete, 270,000 cubic metres; Cement, 54,000 tons.		1. Hydro-electric power station, 50,000 kw. Output, 147 million kw.h. 2. Works for the prevention of dangerous floods.	
12				Hydro-electric power station, 10,000 kw. Output, 15 million kw.h.	

The traffic on the Vistula amounts to 500,000 tons and represents a total of 150 million ton-kilometres.

An analysis of the present railway traffic, which in 1929 amounted to 85,862,000 tons, shows that the Vistula and the other navigable waterways might take over at least 10 million tons of goods, or 12 % of the total traffic from the railway system (30 % in the direction of Germany, 40 % in the direction of Russia).

In order to complete the South-North route over its entire extent between the coal-field and the mouth of the Vistula, the following works would have to be carried out :

1. Canal between the coal-field and Spytkowice.

2. Canal between Spytkowice and Cracow.

3. Additional conservancy works on the Vistula between Cracow and the mouth of the San.

4. Conservancy works on the Vistula between the mouth of the San and Otloczyn.

5. Construction, on its tributaries rising in the Carpathians, of a number of reservoirs with a total capacity of more than 300 million cubic metres in order to protect the inhabitants of the districts threatened by dangerous floods.

These reservoirs, together with the feed reservoir at Wlodawa, on the Bug (see below), with a capacity of 500 million cubic metres, would ensure a minimum flow of 500 cubic metres per second on the Vistula below the Bug.

6. The Warsaw-Malkinia Canal with hydro-electric power stations generating 30,000 h.p. and an annual output of 200 million kw. h.

7. Conservancy of the Bug, below Brzesc, with a feed reservoir of 500 million cubic metres capacity, built round the lakes near Wlodawa.

8. Reconstruction of the Royal Canal between Brzesc, on the Bug, and Pinsk.

The above brief account of the state of the navigable waterways in Poland, their conditions of operation and the highly important part that they are probably destined to play in the life of the country, justify the conclusion that, being extremely backward in this respect, Poland has now every reason to take a keener interest in inland navigation questions.

(g) MARITIME PORTS.

I.

	Zloty
From January 1st, 1929, up to date, maritime hydraulic works, such as the construction of docks, breakwaters, wharves, landing-stages for passengers in the ports of Gdynia and Hela and along the Polish littoral were undertaken to a total value of.....	65,700,000
Port warehouses, service buildings for the maritime prefecture, dwelling-houses, administrative and industrial premises, such as workshops, garages, luggage depots, waiting-rooms for workers, public conveniences, etc., were constructed to the value of.....	16,200,000
For the construction of roads, railways, viaducts, water-supply works and water mains and for digging and levelling, expenditure amounted to....	9,000,000
For 38 harbour cranes, the expenditure was	8,200,000
This brings the total value of the works carried out to.....	99,100,000

The plan of works for the immediate future—that is to say, for the budgetary year 1935-36—includes the following items :

	Zloty
Hydraulic works	2,900,000
Construction	275,000
Roads	1,100,000
Transhipment equipment (8 cranes)	1,100,000
Total...	5,375,000

II.

The above works have been and are at present being carried out by private undertakings under tender on account of the State.

III.

The bulk of the works is carried out by means of long-term credits, which are reimbursed by monthly payments under the budget of the State.

The transhipment works for the current year are being carried out under two-year credits.

IV.

It is difficult to allocate the expenditure as between costs of material and costs of labour. Approximately, 60 % represents labour and 40 % materials.

(h) AIRPORTS.

I.

Between 1929 and 1934, the Ministry of Communications completed the following works, which were listed among the most urgent of those included in the general scheme drawn up in 1929 for the five following years :

1. The landing-grounds of the chief airports at Warsaw, Lwów, Poznan, Cracow, and Gdynia have been purchased, evened out and made ready for use.

2. At the above-mentioned airports (with the exception of Gdynia), 6 hangars have been constructed.

3. Plant has been installed at the above-mentioned airports for the storage of petrol and oil.

4. The buildings and plant required for ordinary air traffic have been constructed; boiler-rooms for central heating, housing accommodation, stores, workshops, stations, barriers, approach roads and connecting roads, and electrical, telephonic and heating installations.

5. Including housing accommodation for the staff, 5 transmitting air stations (wireless telegraphy) have been constructed together with 7 wireless direction-finding stations, which are essential for the purpose of guiding aeroplanes.

6. The lighting of the lines has been begun, 4 air beacons having been already constructed, while in 4 airports lights have been placed in position marking the boundaries of the landing-field and various obstacles.

7. During the current year, it is proposed to construct two airports (each of which will be provided with a hangar, a station, and an office building, together with approach roads and the necessary installations).

Plans are at present under consideration for the extension of an airport in the vicinity of Warsaw, the construction of which is to be set on foot in 1935.

II.

The expenditure necessitated by the various works enumerated above has been borne, as from April 1st, 1931, by the budget of the Polish State Railways, and previously by the State budget.

Altogether, the expenditure borne by the Ministry of Communications in respect of the laying-out of landing-grounds and the construction of buildings and various installations during the last five years amounts to approximately 15 million zloty, including 5.6 million zloty for the expropriation of land and 3.8 million zloty for labour. All material used in the construction of the airports was of Polish origin, with the exception of the air-beacons, which were purchased in France.

III.

All the works have been carried out by the Ministry of Communications and its subordinate authorities.

(i) CONSTRUCTION OF DWELLING-HOUSES.[1]

Economic and social considerations have prompted the public authorities in many countries to take measures for the construction of dwelling-houses, either by granting long-term public credits at low interest or by granting subsidies, or, lastly, by giving indirect assistance in the form of fiscal privileges for new dwelling-houses. In Poland, the first and last of these types of assistance are employed. Public credits are furnished by the State Building Fund, which is administered by the National Economy Bank. Up to 1932, credits to the amount of 90 % of the cost of construction were granted, the chief recipients being co-operative societies constructing large blocks of dwellings. The public funds employed for this purpose amounted to upwards of 60 % of the cost of construction. From 1932 onwards, credits were granted mainly for small dwellings, to which particular attention was paid in view of the requirements of the labour market and the demand for housing accommodation. The financing of this form of building activity is very advantageous from the point of view of the economic utilisation of public funds, since in 1932 and 1933 public credits represented about 20 % of the total cost of construction.

The following table shows the credits granted by the National Economy Bank by years and the number of dwelling-houses built with the help of these credits (supplementing the builder's own capital).

Year	Credits granted Zloty	Number of houses
1929.....	55,500,000	6,352
1930.....	136,300,000	35,176
1931.....	55,800,000	7,860
1932.....	29,500,000	12,091
1933.....	29,100,000	28,819
1934.....	46,800,000	53,374
1935.....	36,000,000	—

[1] In the present report, no account has been taken of the construction of premises for the various services of the public administration or State undertakings.

No credits are granted from the State Building Fund in the Voivodeship of Silesia, where the Silesian Economic Fund serves a similar purpose. The fund's activities in the construction of dwellings may be seen from the following figures :

Year	Credits granted Zloty	Number of houses
1928-29	6,363,000	4,294
1929-30	6,217,000	3,778
1930-31	7,483,000	4,594
1931-32	5,013,000	3,458
1932-33	5,102,000	3,259
1933-34	2,935,000	2,216

During the period covered by the present report (exclusive of 1935), the total loans from the two funds amounted approximately to 386 million zloty, with the help of which 165,271 houses were built.

The measures taken for the construction of dwelling-houses concern only to a minor extent the construction of workers' dwellings. To supply this deficiency, a special institution, the Workers' Dwelling Company, was founded in February 1934; last year, it obtained credits from the Labour Fund to the amount of approximately 4 million zloty and, during the current year, it will receive for constructions, from the Labour Fund and from the State Fund, credits amounting to 7 million zloty.

(l) TELEGRAPHS, TELEPHONES, POSTS.

I. *Works begun since January 1st, 1929, and now completed or in Process of Execution. Plan of Work for the Near Future.*

A. Conversion of the State Telephone Systems into Automatic Systems.

Very little was done between January 1st, 1929, and the end of 1930 as regards the conversion of the telephone systems into automatic systems. During that period, a new automatic exchange was constructed at Radom with 3,000 numbers, and the capacity of the exchange already existing at Cracow was increased to 4,000 numbers.

It was only in 1931 that the Ministry of Posts, Telephones and Telegraphs undertook the systematic conversion of the telephone systems in Poland under a scheme for the six years following. Up to 1935, 20,400 automatic instruments have been installed—namely :

(1) The regional systems of Upper Silesia (11 exchanges) and Gdynia (3 exchanges);

(2) The urban exchanges at Czestochowa, Cieszyn, Rabka, Krynica, Tczew, Piotrków, Plock, Kielce, Grudziadz, Torun and Przemysl; subsidiary exchanges for subscribers.

The total cost of these works was 19,934,800 zloty, divided as follows :

	Zloty
1. Automatic exchanges and urban system.....	14,766,100
2. Inter-urban exchanges.....	1,668,700
3. Regional cable systems.....	3,500,000

The automatic equipment was supplied by the Automatic Electric Company, Ltd., an English firm, under a contract concluded in 1931 with the Telephone and General

Trust, Ltd. The contract includes credits in goods to the amount of £300,000 and a cash loan to the amount of £250,000.

The telephone systems covered by these works comprised a total of 10,900 subscribers.

After the modernisation of the telephone installations, there was a rapid increase —up to 16,400 or, 53 %—in the number of subscribers in those exchanges which had been made automatic.

At present, automatic exchanges are being installed with a total capacity of 8,800 numbers and inter-urban exchanges. The works in question comprise :

(1) The regional system of the Dabrowa Basin and the suburban system of Warsaw-Otwock;

(2) The extension of the exchanges at Katowice, Gdynia, Torun and Rabka;

(3) The inter-urban exchange at Warsaw and various other exchanges.

The total cost of these works was as follows :

	Zloty
1. Automatic exchange and urban systems.....	4,756,000
2. Regional cable systems.....	2,200,000
3. Inter-urban exchanges.....	3,762,000
Total...	10,718,000

Provision has been made for the construction in the near future of new automatic exchanges (15,000 instruments)—namely :

(1) The suburban system of Grodzisk-Milanówek, Skolimów and others;

(2) Urban exchanges at Poznan and Wilno, and the further extension of the exchanges at Katowice and Gdynia.

The estimated expenditure on these works is as follows :

	Zloty
1. Automatic exchanges and urban systems.....	6,960,000
2. Regional cable systems.....	1,700,000
Total...	8,660,000

Among the works enumerated above, those connected with the regional system and the coal-basin are deserving of special attention.

The Upper Silesian system will constitute, with that of Dabrowa, now under construction, a single regional system for the whole of the coal-basin, with its 670,000 inhabitants.

The system will comprise land cables totalling 92 kilometres. It will include 14 automatic exchanges, 3 of which—at Katowice, Chorzow and Sosnowiec—are junction exchanges; the other 9 auxiliary exchanges connect directly with their respective junction exchanges. The total capacity of the system actually installed is 16,400 numbers. There are at present, in the coal-basin system, about 10,800 subscribers.

During the six-year period envisaged for the modernisation of the telephone systems, the following works are to be carried out :

	Zloty
1. Automatic exchanges and urban systems with a total capacity of about 44,300 numbers, at an expenditure of.....	39,313,000
2. Inter-urban exchanges, comprising a total of 885 circuits and 203 posts, at an expenditure of.....	4,028,500
3. Regional systems, comprising a total of 150 kilometres of cables, at an expenditure of.....	7,400,000
Total...	50,741,500

B. Laying of Underground Cables for Telephonic and Telegraphic Communications.

Since January 1st, 1929, the laying of the Warsaw-Cieszyn cable has been completed, with branches to Ruda Slaska and Cracow, over a distance of about 560 kilometres at a cost of 54 million zloty.

The cable extends, by way of Lowicz, Lodz, Piotrków, Czestochowa, Myslowice k/Katowice, Bielsko, Cieszyn, as far as the Czechoslovak frontier; at Myslowice, it branches to Cracow, on the one hand, and through Katowice and Ruda Slaska in the direction of the German frontier, on the other.

The cable thus connects Warsaw with the principal industrial centres—namely, the region of Todz, where the textile industry is concentrated—and the heavy industry centres of Dabrowa, Upper Silesia, and Cracow, and also ensures communications, through the Czech and German systems, with the States to the west and south of Poland.

At present, the Warsaw-Towicz-Gdynia-Danzig cable is under construction, with a branch Torun-Bydgoszcz, totalling about 450 kilometres. The estimated cost is 22½ million zloty. It is expected that the works will be completed in 1938.

The cable will pass by way of Towicz, Kutno, Krosniewice, Wloclawek, Torun, Grudziadz, Starogard, Gdynia, Danzig. At Torun, there will be a branch to Bydgoszcz.

The cable will connect Warsaw and the principal industrial centres with the ports of Gdynia and Danzig, and, by linking up with the German system at Danzig, it will carry part of the communications with the States to the north of Poland.

It is also proposed, in the east, to lay cables connecting up Warsaw-Bialystok-Baranowicze-U.S.S.R. frontier and Bialystok-Grodno-Wilno-Lithuanian frontier. The total length of these cables will be about 850 kilometres. The cost of laying them is estimated provisionally at 40 million zloty.

This cable system will connect Warsaw with the agricultural region of Wilno, and will carry transit communications between Western and Southern Europe on the one hand, and the U.S.S.R. and the Baltic States on the other.

C. Construction of Buildings.

Since 1929, buildings have been constructed of the approximate cubic content of 409,000 cubic metres, to the total value of about 33 million zloty (see Table 1).

Buildings are under construction of roughly 82,000 cubic metres, to the approximate value of 4,500,000 zloty (see Table 2).

The construction is also contemplated of new buildings of 269,000 cubic metres, to the value of 14,500,000 zloty (see Table 3).

The total value of the construction work carried out since 1929 and that in process of execution, or in contemplation in the near future, amounts, in round figures, to 52 million zloty, with a total cubic content of 760,000 cubic metres.

II. *Administrative Methods followed for the Execution of the Works.*

The works relating to the underground cable system and the construction of buildings have been handed over under tender to private undertakings, which are executing them on account of the Polish Posts, Telegraphs and Telephones, a State undertaking under the permanent supervision of the Ministry of Posts and Telegraphs and of its organs.

III. *Methods employed for financing the Various Works.*

The construction of the Warsaw-Cieszyn cable has been financed partly out of ordinary budgetary credits and party by means of foreign loans.

The financing of the construction of the Warsaw-Gdynia cable is by means of ordinary

budgetary credits; for the construction of the Eastern cable, the method has not yet been decided.

The expenditure on the construction of buildings is covered by budgetary credits; for the construction of automatic exchanges, however, the expenditure is met partly by foreign loans.

Table 1.

WORKS COMPLETED SINCE 1929

No.	Locality	Description of buildings	Contents in cubic metres
1	Bedzin	Posts and Telegraphs Office	13,610
2	Boryslaw	,, ,,	10,230
3	Brzesc n/B.	,, ,,	8,890
4	Czestochowa	,, ,,	23,770
5	Dabrowa Górnicza	,, ,,	7,310
6	Gdynia 5	,, ,,	1,130
7	Gdynia 1	,, ,,	27,840
8	Gdynia 4	,, ,,	4,200
9	Katowice	,, ,,	14,280
10	Kalisz	,, ,,	5,860
11	Cracow	Premises for packing parcels	3,400
12	Cracow	Raising of the Posts and Telegraphs Office	13,420
13	Lublin	Station offices	17,810
14	Lwów	,, ,,	34,070
15	Towicz	Amplification station	3,490
16	Mikolów	Posts and Telegraphs Office	5,890
17	Orlowo Morskie	,, ,,	3,030
18	Poznan	Exhibition pavilion	2,200
19	Radom	Telegraphs Office	7,230
20	Radom-Wacyn	Wireless telegraphy office	6,180
21	,, ,,	Dwelling-house	3,340
22	Stolpce	Station offices	12,580
23	Sandomierz	Posts and Telegraphs Office	4,860
24	Szopienice	,, ,,	6,050
25	Trzebinia	,, ,,	4,430
26	Warsaw-Praga	Garage	19,360
27	Wilno	Exhibition pavilion	310
28	Warsaw	Telegraphic and telephonic communications office	112,560
29	Zebrzydowice	Dwelling-house	4,420
30	Zakopane	Posts and Telegraphs office : raising and transformation	6,370
31	Warsaw	Laboratory attached to the telephonic apparatus factory	6,800
32	Falenica, Józefów Anin, Otwock	Automatic exchange	1,000
33	Grudziadz, Torun, Plock i Kielce	,, ,,	5,400
34	Szarlej	Posts and Telegraphs Office	5,100
35	Bernerowo	Dwelling-house	4,000

Table 2.

WORKS IN PROCESS OF EXECUTION.

No.	Locality	Description of buildings	Contents in cubic metres
1	Otwock	Posts and Telegraphs Office	5,000
2	Sokólka	,, ,,	2,300
3	Równe.....	,, ,,	12,600
4	Poryck	,, ,,	760
5	Pinsk	,, ,,	7,000
6	Iwonicz	,, ,,	1,300
7	Przemysl.....	,, ,,	8,000
8	Krynica	,, ,,	10,800
9	Sosnowiec	,, ,,	8,500
10	Wloclawek	,, ,,	11,900
11	Warsaw 1	Construction of a pavilion	12,000
12	Bernerowo	Dwelling-house	1,500

Table 3.

WORKS CONTEMPLATED.

No.	Locality	Description of buildings	Contents in cubic metres
1	Warsaw 2	Station offices	150,000
2	Warsaw-Praga.....	Posts and Telegraphs Office	15,000
3	Warsaw.....	Dwelling-house and depots	10,800
4	Ciechocinek	Posts and Telegraphs Office	5,200
5	Bydgoszcz.....	Station offices	9,000
6	Dziedzice	,, ,,	3,600
7	Krosniewice	Posts and Telegraphs Office and amplification station	2,000
8	Tódz 3.....	Station offices	11,300
9	Kowel	Posts and Telegraphs Office	8,000
10	Lida.....	,, ,,	8,000
11	Baranowicze.....	,, ,,	9,000
12	Nowy Targ.....	,, ,,	3,600
13	Luck	,, ,,	10,000
14	Wlodzimierz Wolynski	,, ,,	4,000
15	Gdynia nadbudowa...	,, ,,	10,000
16	Gdynia-Oksywia	,, ,,	1,500
17	Kazimierz Dolny	,, ,,	1,500
18	Tarnopol	Construction of an annex	2,000
19	Puck	Posts and Telegraphs Office	4,000

SWEDEN.

[*Translation.*]

PUBLIC WORKS CARRIED OUT IN THE PERIOD 1929 TO 1934 WITH A VIEW TO COMBATING UNEMPLOYMENT.

I. General Survey.

The origin and development of the unemployment crisis, the beginning of which in 1914 coincided with the outbreak of the great war, were such that the State felt bound to take special and immediate steps to assist in combating the evil. Accordingly, a Government organ known as the Central Unemployment Commission (Statens Arbetslöshets-kommission) was set up to organise and direct *action for the relief of the unemployed*. Communal unemployment committees were also set up to encourage or initiate local measures designed to prevent unemployment or attenuate its effects. This organisation has since been maintained.

In accordance with principles adopted for this relief action, the primary aim of the steps to be taken by the public authorities was to provide work. Only where no work could be provided was pecuniary relief to be granted out of public funds. The intention was that the unemployed should, as far as possible, earn their own livelihood by participating in the execution of public works. These works—known as reserve works—were divided into two main groups : State reserve works and communal reserve works subsidised by the State.

State reserve works.—The Central Unemployment Commission, which initiated and directed the execution of *State reserve works*, was required, in *selecting such works*, to follow certain principles—namely :

(1) The work must be of utility to the State, the commune or some other public institution, and must be justifiable on economic or cultural grounds, without, however,

being of such urgency that it would, in any case, have had to be carried out in the near future;

(2) The amount of wages paid must constitute a relatively large proportion of the total cost of the work;

(3) The work must be such that any worker of normal capacity could be employed thereon;

(4) The work must be such as could be continued during the winter;

(5) There must be a possibility of undertaking, abandoning, extending or reducing the work, according to the extent of unemployment.

Generally speaking, reserve works best fulfil these conditions, and so they were usually selected. They include the construction of roads, railways, canals, harbours, hydro-electric installations and log-floating channels, together with land reclamation and forest improvement. In addition to these undertakings, which could be justified on economic grounds, other work was also undertaken that appeared to be of cultural utility, such as the laying-out of sports grounds and the preservation of historical monuments.

Whenever the Central Unemployment Commission concluded that a request for the *employment of out-of-work persons* on State reserve works was justified, it decided how many unemployed persons from each commune could be engaged for the work (basing its decision on a computation of the definite requirements in the light of local labour market conditions), and also arranged their allocation. It then reported to the Communal Unemployment Committee, stating the time-limit within which its offers of employment must be accepted and the obligations and conditions of labour involved.

As regards *the wages payable for reserve works*, the public authorities decided, in principle, that these should be less than the *minimum wage which an unskilled labourer* could currently obtain under open market conditions, but should be such as to enable the persons concerned to live on the sums thus fixed.[1]

Communal reserve works subsidised by the State.—In order to encourage communes to undertake and carry out public works which, though not of immediate necessity, would ultimately have to be undertaken in the interest of the commune's subsequent development, the State made grants towards the execution of these works, known as *State-subsidised communal reserve works*. The object of these State subsidies was to compensate the communes for the burden imposed on them through payment of interest on account of the execution of the work in anticipation. For its part, the State was spared the expense it must have incurred had it been obliged to pay relief to the unemployed or to employ the latter on work carried out on its own account.

State-subsidised communal reserve works were subject to the same rules as State reserve works. Before they could be undertaken, the commune had to apply to the Central Unemployment Commission for permission to carry them out with the aid of a State subsidy. In the request, the nature and extent of the work had to be explained (by submission of plans and estimates), together with the programme of execution, the method of financing it, its importance to the commune and its value as regards provision of work for the unemployed, the time it would be estimated to require as ordinary work, the financial situation of the commune, etc. In granting authorisation, the Central Unemployment Commission fixed the amount of the subsidy to be granted by the State and the rate of wages which could be paid to the workmen. Until June 1928, the subsidy was paid for the number of working-days during which work was provided for the unemployed, and did not exceed, per day per worker, the sum which the State would

[1] For the rules at present in force, see pages 210, 211 and 216.

have had to pay the commune as a subsidy if unemployment relief had been granted to the same workers. After that date, the subsidy was fixed at a certain percentage of the wage to be paid, as decided by the Commission, in each commune authorised to undertake such work with the financial aid of the State. For reserve works of this category, the guiding principle was that wages should be fixed in accordance with the same rules as those applicable to State reserve works.

The Commission determined the maximum number of unemployed who could, in each particular case, be occupied on work of this kind executed in the commune.

" Anticipatory " works (Beredskapsarbeten).— The defects of the above system, to which we shall refer later, led the public authorities to decide in 1931 to make a few slight changes. For each of the budgetary years 1931-32 and 1932-33, the Chambers placed at the Government's disposal a special credit for the execution of public works intended to relieve unemployment, the money to be spent on works which in any case would sooner or later have had to be executed at public expense and through some central authority, and for which, owing to their nature, the Riksdag would, in normal times, have voted the credits demanded by the Government. These " anticipatory " works were not subject to any special rules, but the authorities concerned were allowed to carry them out in accordance with the methods followed for other works. Only works that would ordinarily have been executed by or through the State authorities were allowed to be undertaken as " anticipatory " work. The credits for the purpose had, moreover, to be used exclusively for work which could be completed without the Riksdag being obliged to vote new credits in a subsequent financial year.

Defects of the system.—In the autum of 1930, as the effects of the latest crisis became more noticeable, it also became clearer that there were certain inherent defects in the system of unemployment relief previously followed.

As stated above, the reserve works to be carried out through the Central Unemployment Commission or by means of State subsidies had to be such as would not, as far as could be foreseen, have to be carried out under open-market conditions in the next few years. This principle obviously limited the choice of works to be undertaken. It was also thought that there was no call to devote—and that by way of preference—both labour and capital to work the execution of which did not seem likely to become imperative in the near future. The objections to the system then in force also increased proportionately to the number of unemployed in need of relief, and the sums which consequently had to be devoted to that end. As a result of increased unemployment, the system tended to place a disproportionate burden on the communes in which unemployed were domiciled. The measures taken by the State to combat unemployment proved, in fact, to be quite inadequate, so that the communes were forced to bear a very large part of the cost of unemployment relief without receiving any subsidy from the Government.

Another and a serious criticism levelled against the policy previously followed related to the form of the relief accorded to the unemployed. In spite of the rule which had been laid down, the unemployed, in far too many cases, had been given pecuniary aid instead of work. From the point of view of the unemployed also, the above-mentioned defects—namely, the insufficiency of the subsidies and the totally inadequate extent to which it was possible to afford relief in the form of work—were very appreciable.

With the accentuation of the depression, all these defects became more noticeable.

It therefore seemed indispensable to effect a radical revision of the policy hitherto pursued by the State in the matter of unemployment relief. After the necessary enquiries had been conducted in the autumn of 1932, the Government submitted to the Riksdag, at its 1933 session, a vast and comprehensive plan of campaign against the economic crisis, based on new principles.

The 1933 *programme.*—This programme provided that, in the place of reserve works, the State should arrange to have large-scale public works set in hand immediately. The object was to provide an effective remedy for the lack of employment and, at the same time, to stimulate initiative and also trade and industry in general.

The 1933 programme laid down the principle that more important works should be undertaken in preference to less important ones, and that no category of works should be excluded in principle. It was hoped that, by these means, work for which ruling market prices were paid would be provided for a large number of the genuine unemployed. The aim was also to combat unemployment indirectly by positive measures calculated to stimulate economic life. An important part of the programme consists in a series of projects by which the State accords financial aid to industry, handicrafts, agriculture and forestry.

It was believed that these measures would increase the purchasing-power of various categories of the population and thus help tradesmen and producers to increase their sales. This would, in turn, effectively help to remedy the economic stagnation and open up the way to a resumption of business.

Further, the programme made provision for affording pecuniary relief to unemployed persons unable to find work and so earn their living. It was still necessary, therefore, to vote credits for unemployment relief.

Decision of the Riksdag in 1933.—At its 1933 session, the Riksdag, though maintaining the system of reserve works in addition to public works executed under open-market conditions, approved the main lines of the above programme. Nevertheless, it amended the rates of wages payable for reserve works in such a way as to bring them more closely into line with the wages earned by manual labourers in the open market. The Chambers also adopted the provision in the Government proposal to the effect that State measures for the relief of unemployment should be better adapted to the actual needs experienced in the individual localities.

1934 *programme and decision of the Riksdag.*—The general trend of unemployment policy given by the Riksdag's vote in 1933 was maintained in the Government programme for 1934. This programme, too, accords a large place to public works to be carried out under open-market conditions. It also maintains reserve works and still further limits the granting of pecuniary aid.

II. Survey of the Budget.

Financing.—As already stated, the unemployment policy adopted since the financial year 1933-34 differs in several respects from that previously followed. Moreover, since the financial year 1933-34, new principles have been applied for the financing of unemployment credits.

In accordance with a fundamental and long-established rule of Swedish budgetary policy, recourse to loans is permissible only for the purpose of financing credits voted for remunerative objects. In the 1933-34 budget—and also in the budget for the current year—the application of this rule is extended so as to cover the raising of loans for works on which no immediate return could be expected. A special fund, of which the non-remunerative capital must be written off in a short period under special conditions, has been allocated to these credits, which are financed by means of loans. For the financial year 1933-34, the sums which were raised by loan and were paid into that fund amounted in round figures to 168 million crowns. For purposes of comparison, it should be noted that, for the current year, they will amount to 130 million crowns. Certain special sources of revenue have been earmarked for the amortisation of the non-remunerative

capital of this fund—namely, for the financial year 1933-34, the yield of the estate duty and the duty on donations, estimated at 25 million crowns, and, for the current year, in addition to the yield of these same duties, an extraordinary tax on income and property which is estimated to produce 8 million crowns. As a sum of 3 million crowns has been added to the above amounts, the total sum available for amortisation purposes during the current year will be 36 million crowns. If the proceeds of the above-named sources of revenue are allocated to the same purpose in future years, it is anticipated that the amortisation of the credits financed by loan for the financial years 1933-34 and 1934-35 will be completed in 1940.

Unemployment budget.—The class of credits allocated for the financial year 1933-34 to the relief of unemployment, and financed as stated above, has been grouped in the present survey under the head " unemployment budget ". The other credits in the State budget come under the head " ordinary budget ". Consequently, the unemployment budget, in the sense in which it is used here, appears for the first time in the State budget for 1933-34. It is also found in the State budget for 1934-35. It should be noted, however, that credits corresponding to those contained in the unemployment budget, but for inconsiderable amounts, already figure in the ordinary budget for one or more of the financial years 1929-30 to 1932-33. This applies, for instance, to the credits—mentioned in the previous section—which were voted for each of the financial years 1931-32 and 1932-33 for the execution of " anticipatory " works for the relief of unemployment, and to the credit provided in the budget for the year 1931-32 for occasional works for the upkeep of private forests.

Table of credits.—Table 1 relates to credits available, during the period covered by the present survey, for the execution of public works. It also includes credits earmarked for the relief of unemployment which could not be described as credits for public works. The sums have been entered in round figures, so that they may be shown in hundreds.

The following observations are also called for with regard to this table.

During the financial years 1929-30 to 1932-33, sums allocated to " reserve " works and to unemployment pay or allowances in respect of rent, the organisation of courses, the voluntary labour service, etc., were charged to a credit in the ordinary budget known as the " unemployment relief " credit. It was not until the financial year 1933-34 that a special credit for such works was voted for the first time, while expenditure for the other purposes mentioned above continued to be charged to the unemployment relief credit. The latter was still included in the ordinary budget, whereas the special credit was inserted in the unemployment budget. Consequently, columns 5 and 9 added together show the sums available for each of the financial years 1929-30 to 1932-33 under the unemployment relief credit.

Table 1.

CREDITS FOR PUBLIC WORKS AND OTHER CREDITS RELATING TO UNEMPLOYMENT (1929–30 TO 1933–34).

1	2	3	4	5	6	7
Budgetary year	Credits for public works					
	Carried out under open-market conditions			"Reserve" works		
	Ordinary budget	Unemployment budget	Total (columns 2 and 3)	Ordinary budget	Unemployment budget	Total (columns 5 and 6)
	Crowns	Crowns	Crowns	Crowns	Crowns	Crowns
1929–30...	88,137,900	—	88,137,900	4,096,700	—	4,096,700
1930–31...	102,545,500	—	102,545,500	7,997,600	—	7,997,600
1931–32...	141,820,500	—	141,820,500	22,097,400	—	22,097,400
1932–33...	142,923,600	—	142,923,600	38,410,300	—	38,410,300
1933–34...	142,726,400	79,821,400	222,547,800	—	60,000,000	60,000,000
Total...	618,153,900	79,821,400	697,975,300	72,602,000	60,000,000	132,602,000

1	8	9	10	11	12	13	14
Budgetary year	Total credits for public works	Other credits relating to unemployment			Total of ordinary budget (columns 2, 5 and 9)	Total of unemployment budget (columns 3, 6 and 10)	Grand total (columns 12 and 13)
		Ordinary budget	Unemployment budget	Total of other credits (columns 9 and 10			
	Crowns	Crowns	Crowns	Crowns	Crowns	Crowns	Crowns
1929-30	92,234,600	1,903,300	—	1,903,300	94,137,900	—	94,137,900
1930-31	110,543,100	802,400	—	802,400	111,345,500	—	111,345,500
1931-32	163,917,900	6,002,600	—	6,002,600	169,920,500	—	169,920,500
1932-33	181,333,900	30,389,700	—	30,389,700	211,723,600	—	211,723,600
1933-34	282,547,800	29,800,000	28,281,000	58,081,000	172,526,400	168,102,400	340,628,800
Total ...	830,577,300	68,898,000	28,281,000	97,179,000	759,653,900	168,102,400	927,756,300

The sum of 28,281,000 crowns shown in column 10 of the table is distributed among the following credits :

	Crowns
State orders	10,700,000
Loans for the encouragement of private initiative	10,000,000
Subsidies for the encouragement of private initiative	3,500,000
Advances for the assistance of private railways	1,500,000
Ice-breaking vessel to carry out research and surveillance work on behalf of the fishing industry	650,000
Various measures connected with forestry, etc	475,000
Construction of a new lightship	367,000
Purchase of material for the pilotage service	75,000
Research and preliminary work with a view to mining operations, etc., in the province of Västerbotten	364,000
Construction of roads connecting the metalliferous region of Adak-Kuorbevare with Slagnäs, and Bjurträsk with Orträsk and Högkulla, in the province of Västerbotten	650,000
Total...	28,281,000

In view of the purpose to which they are allocated, certain of the foregoing credits can barely be regarded as intended for " reserve " works. Such are, for instance, the credits for State orders and loans or subsidies for the encouragement of private initiative. Nevertheless, they possess one common feature, inasmuch as they all aim at preventing the suspension or undue restriction of industrial undertakings in progress by providing employment or ensuring the financial assistance of the State. It is to be presumed that the Riksdag would not have voted credits for these purposes unless the position of the labour market had appeared to justify such credits. As, however, they are not intended for the execution of public works, it was considered necessary to include them under the head " other credits relating to unemployment ". For the financial year 1934-35, they amount to a total of 18,710,000 crowns.

Credits for public works have been divided in the table into two main groups—credits for public works carried out under open-market conditions and credits for " reserve " works. No comment on this division appears necessary.

Column 2 relates to credits in the ordinary budget available for the execution of public works carried out under open-market conditions. The latter are dealt with in Section III below. We need only add that, in principle, these credits were not voted on account of unemployment, though in some cases the amount of the credit was fixed with the idea that it would enable more of the unemployed to obtain work. This applies, for example, to credits voted for the construction, improvement and upkeep of roads, land settlement and the reclamation of pastureland on farms not fully developed, drainage works in forests, electrification of State railways, etc. As regards the amount of the credits shown for the financial years 1931-32 and 1932-33, the credit of 3 million crowns for " anticipatory " works provided for each of those years and the credit of 2 million crowns for certain occasional works for the upkeep of private forests voted for the year 1932-33 are included in column 2. In view of the method by which they are financed, the corresponding credits for the year 1933-34 come under the unemployment budget.

Column 3 shows the amount allocated under the unemployment budget to the execution of public works carried out under open-market conditions. Full particulars of these works are given in Section III, A. It need only be noted, for purposes of comparison, that, for the financial year 1934-35, the credits in the unemployment budget provided for this purpose amount to 64,687,250 crowns. As the table shows, they amounted for the financial year 1933-34 to 79,821,400 crowns.

As regards the credits for " reserve " works shown in columns 5 to 7 of the table, full particulars are given in Section IV of the present survey. Column 6 relates to the credits voted for these works in the 1933-34 budget. For the years 1929-30 to 1932-33, column 5 shows the amount of the expenditure, whereas the other columns of the table show the amount of the credits voted. This irregularity, which is of little consequence, is due to the fact that a special credit for " reserve " works was only voted for the first time in 1933-34. It therefore appeared necessary to deal with the financial years 1929-30 to 1932-33 in the manner stated above, in order to furnish, from the point of view of credits, data relating to " reserve " works carried out during that period. Lastly, for the financial year 1934-35, the credit of 46 million crowns voted for the execution of those works will, according to the present estimates, be insufficient.

III. Public Works executed under Open-market Conditions.

This section deals with public works executed under open-market conditions for which credits have been provided in the unemployment budget and works financed out of credits in the ordinary budget.

A. *Public Works borne on the Unemployment Budget.*

Table 1 shows that the total credits included in the unemployment budget for the execution of public works under open-market conditions amount to 79,821,400 crowns (column 3). This total is divided among the various credits as follows :

	Crowns
" Anticipatory " State works	3,000,000
" Anticipatory " communal works	8,500,000
Grants in aid of dwelling-house construction	23,000,000
Road and railway crossings at different levels (overhead- and subways)	7,000,000
Bridges and harbours	6,000,000
Malung-Vansbro line of the State Railways	800,000
Casual work for the upkeep of private forests	5,000,000
Subsidies for plant for storing fertilisers	700,000
Loans for plant for storing fertilisers	500,000
Land reclamation work to combat unemployment	4,000,000
Subsidies for land-drainage works	1,000,000
Construction of roads and log-floating channels in private forests	500,000
Loan Fund for workers' small-holdings	7,500,000
State buildings	12,321,400
Total	79,821,400

Rules governing the allocation of credits.—Briefly, the following are the rules governing the use of the above credits.

In the case of " *anticipatory* " *Government works*, the rules are the same as those applied in the financial years 1931-32 and 1932-33 to the " anticipatory " works for combating unemployment described in Section I.

The credit for " *anticipatory* " *communal works* refers, as its name suggests, to works executed for strictly communal purposes. They must be of such a kind that they cannot be executed as State-subsidised communal reserve works, or, as a rule, with the help of a State subsidy. The contribution to " anticipatory " communal works is given either in the form of a non-interest-bearing loan that is not written off for the first five years, or a non-redeemable grant. Applications must be sent to the Government.

The credit for *grants in aid of dwelling-house construction* refers to the erection of dwelling-houses both in towns and similar centres and in the country.

The provisions governing the former are laid down in the Decree of September 16th, 1933 (Svensk författningssamling No. 558). The State grants loans for the construction of buildings chiefly intended for dwelling purposes. No grants can be made for buildings which would probably be erected in the near future without Government aid, nor for those built directly by the commune concerned. The amount of the loan must not exceed one-fifth of the advance obtained on the open market and forming a first charge on the property. It must also not exceed 15 % of the value of the property, as determined in certain specific circumstances, or of its taxable value after the building is completed. Matters connected with these loans are dealt with by an office specially set up for the purpose—the State Building Loan Department.

The provisions governing buildings for dwelling purposes to be erected in rural districts are laid down in the Decree of June 30th, 1933, concerning the improvement grants and loans for new buildings designed to encourage the building industry in rural districts (Svensk författningssamling No. 473) and in the Decree of September 16th, 1933, extending the application of the said decree (Svensk författningssamling No. 545). Other provisions will be found in the Decrees of June 30th and September 28th, 1934 (Svensk författningssamling Nos. 411 and 486).

Improvement loans are granted for carrying out the necessary sanitary repairs and other housing improvements, and also, in certain circumstances, for building dwelling-

houses to replace others which are in bad condition. These grants must, as a rule, be less than 50 % of the estimated cost of the works and not exceed 1,000 crowns per unit of accommodation.

Loans for new constructions are granted for the same class of buildings as the grants above referred to. They must not exceed 70 %, or, if the improvement grant is included, 80 % of the cost of construction. The maximum figure has been fixed at 3,000 crowns, or, where a grant is also made, 2,000 crowns per unit of accommodation.

This kind of action is carried out through the communal committees of public health, the small holdings committees of agricultural associations and the State Small-holdings Department.

The credits above mentioned for " anticipatory " works for combating unemployment voted for the 1931-32 and 1932-33 financial years have been partly used to finance the construction of *overhead and underground crossings* (road and railway). A special credit for this purpose has been arranged for the 1933-34 financial year. To this credit is charged the whole cost of these works, except a quarter of any necessary land transfer charges, which amount is payable by the proprietors responsible for the upkeep of the road. The railway concerned (State or private) also pays a certain amount, usually about 10 % of the cost of the work.

The use of the *credit for bridges and harbours* is subject to the usual rules governing the grant of State subsidies for the construction of bridges and harbours as laid down in the Decree of May 31st, 1934, on State subsidies for construction of public roads, etc. (Svensk författningssamling No. 207), and the Decree of August 10th, 1928, concerning State subsidies for the construction, improvement and upkeep of public harbours and navigable waterways (Svensk författningssamling No. 328). This credit is therefore supplementary to those provided in the ordinary budget for this purpose.

The credit for the *Malung-Vansbro line of the State Railways* is a continuation of the ordinary budget credits voted for the financial years 1931-32 and 1932-33. Amounts have also been drawn for the same purpose on the credits for " anticipatory " works to combat unemployment, voted for the same financial periods.

The provisions governing the employment of the credit for *certain casual works for the upkeep of private forests* are given in the Decree of June 30th, 1933, as amended by the Decrees of September 16th, 1933, and May 24th, 1934 (Svensk författningssamling Nos. 437, 548 and 198). Further provisions were enacted in a Circular of June 30th, 1934 (Svensk författningssamling No. 438). This credit has a double purpose : to create more openings for employment in forestry and to encourage the upkeep of forests. The credit is drawn upon chiefly for subsidies for forest reclamation and sylviculture. The subsidies are granted by the competent forestry departments after the Government has, at their request, supplied them with necessary funds. In the case of reclamation works, the subsidies amount to a maximum of 60 % of the approved estimated cost; in the case of sylviculture, to a maximum of 50 %.

The credit earmarked for *loans for plant for storing fertilisers* is used under the same conditions as the loan fund for storage of fertilisers. From this fund, created in 1918, agricultural associations can obtain from the State loans which enable them, in turn, to make advances for building suitable tanks for the storing of fertilisers and making the necessary arrangements for the same purpose in stables and cowsheds. The provisions on the subject are contained in the Decree of July 11th, 1918, concerning the terms for loans from the loan fund for storage of fertilisers (Svensk författningssamling No. 576), as amended by the Decrees of June 6th, 1925, June 18th, 1927, and May 29th, 1931 (Svensk författningssamling Nos. 186, 241 and 132).

Loans can be granted to the owners or tenants of fields or other cultivated land, irrespective of the area of the property on which the work is to be carried out, or, in the case of tenants, the length of the lease. These loans may not exceed 2,000 crowns, or 75 % of the estimated cost of the plant.

The credit for *subsidies for plant for the storage of fertilisers* relates, as its name shows, to non-refundable contributions. These may not exceed 25 % of the estimated cost of the plant. If a loan has also been made, the total of the loan and the subsidy may not exceed 2,000 crowns, or 75 % of the cost of the plant. The provisions on the subject, which are substantially similar to those governing loans, are contained in the Decree of June 30th, 1933, on State subsidies for plant for the storage of fertilisers, as amended by the Decree of May 24th, 1934 (Svensk författningssamling Nos. 435 and 189).

Provisions governing the use of the credit for *reclamation works to combat unemployment* were laid down in the Decree of June 30th, 1933 (Svensk författningssamling No. 436). The subsidies are granted by the Government. They must not exceed 50 % of the approved cost of the works, and are further subject to the conditions laid down for the grant by the State of subsidies for land-drainage works.

The credit for *subsidies for land-drainage works* relates to the grant by the State of non-repayable subsidies to the owners or tenants of fields or other cultivated land, irrespective of the size of the property on which the work is to be done or, in the case of tenants, of the length of the lease. The subsidies are allocated by agricultural associations, to which applications have to be sent. They amount to a maximum of 25 % of the total cost of the work to be done. There are also special regulations for cases in which the party concerned has also been given a loan for land-drainage works. The relevant provisions on the subject are contained in the Decree of June 30th, 1933, concerning State subsidies for land-drainage works (Svensk författningssamling No. 434).

The use of the credit for *construction of roads and log-floating channels in private forests* is governed by the provisions of the Decree of September 16th, 1933 (Svensk författningssamling No. 549) and a circular of the same date (Svensk författningssamling No. 550). On the application of the Forests Administration, the Government decides the amount to be allocated to that Administration for distribution as State subsidies. Subsidies may be granted only for undertakings involving either the construction of new roads or log-floating channels or such correction or improvement of existing roads or log-floating channels as may be necessary to enable them to fulfil their purposes. The subsidies amount to not more than 25 % of the approved cost of the undertaking.

The *Loan Fund for workers' small-holdings* was created in 1933. It provides for the grant, to forest labourers or other persons on a similar footing, of loans enabling them to acquire a small piece of land the cultivation of which outside their ordinary working-hours will yield them a return. It is governed by the Decree of June 14th, 1933, on workers' small-holdings subsidised by the State, as amended by a Decree of June 7th, 1934 (Svensk författningssamling Nos. 331 and 234). The Government grants the loans in question on the application of the communes concerned. The maximum amount of such loans is 6,000 crowns. For repayment purposes, loans are subdivided into redeemable and permanent portions. No interest is payable on the former. When the time-limit for redemption expires, interest is payable on the permanent portion at a rate fixed by the Government. Transactions in connection with these loans are carried out under the supervision of the Small-holdings Department.

As regards *State buildings*, various credits have been included in the different fields covered by the various Ministries. For the sake of clearness, they are brought together here. There are, of course, no legislative regulations regarding their use.

Allocation of credits.—Table 2 shows the allocation of the public works credits in the unemployment budget. The headings used in this table—as in the others—call for certain remarks concerning buildings. The credits for building or improving dwelling-houses in the country are shown in a special column, as are those for the construction of dwelling-houses in towns and similar built-up areas. The heading " Buildings in rural districts, other than dwelling-houses " refers to agricultural buildings. The expression " Buildings for public authorities " refers to buildings intended for administrative services (central or provincial administrations, for instance). Lastly, the heading " Other

Table 2.

TABLE SHOWING THE EMPLOYMENT OF THE CREDITS PROVIDED FOR THE FINANCIAL PERIOD 1933-3

1	2	3	4	5	6
Credit and object	Number of works	Comprising			
		Works completed	Total cost	Works in course of execution	Total cost
			Crowns		Crowns
Credit for " anticipatory " State works :					
Public roads (including streets)	4	2	11,600	2	81,5
Basin for ferry	1	—	—	—	—
Railways	1	—	—	1	43,9
Canals and other inland waterways (including log-floating channels)	6	—	—	—	—
Forest improvements	1	1	4,000	—	—
Drinking-water-supply or sewerage systems	3	—	—	3	146,5
Sea and river ports and fishing harbours	17	2	32,000	14	1,208,8
Airports	2	1	110,000	1	135,0
Aerodromes	4	3	49,500	1	29,5
State buildings other than those for public authorities	9	—	—	8	446,5
Other works	20	4	127,374	13	463,9
Total...	68	13	334,474	43	2,554,7
Credit for " anticipatory " communal works :					
Public roads (including streets)	3	—	—	1	86,5
Water-supply and sewerage systems	8	—	—	7	1,106,9
Sea and river ports, fishing harbours	2	—	—	2	290,9
Buildings for public authorities	10	—	—	7	1,027,5
Other buildings	114	1	27,000	76	6,594,3
Gasworks	1	—	—	1	165,0
Total...	138	1	27,000	94	9,271,1
Credit for the encouragement of dwelling-house construction :					
Building and improvement of dwelling-houses in rural districts	15,067	1,475	1,556,880	7,308	12,740,6
Building of dwelling-houses in towns and similar built-up areas	205	—	—	131	20,236,3
Total...	15,272	1,475	1,556,880	7,439	32,976,9
Credit for crossings at different levels :					
Crossings at different levels	66	—	—	53	6,340,6
Credit for bridges and harbours :					
Bridges	13	—	—	13	4,353,2
Sea and river harbours, fishing harbours	21	3	344,900	18	3,874,0
Total...	34	3	344,900	31	8,227,2

Table 2.

EMPLOYMENT BUDGET FOR THE EXECUTION OF PUBLIC WORKS UNDER OPEN-MARKET CONDITIONS.

7	8	9	10	11	12	13
Comprising		Grand total	Comprising		Proportion of grand total allocated to	
planned not gun	Total cost		State contribution	From other sources	Materials	Wages
	Crowns	Crowns	Crowns	Crowns	Crowns	Crowns
—	—	93,100	93,100	—	15,299	77,801
1	34,000	34,000	34,000	—	19,200	14,800
—	—	43,000	43,000	—	13,000	30,000
6	85,500	85,500	85,000	—	28,500	57,000
—	—	4,000	4,000	—	—	4,000
—	—	146,500	146,500	—	79,500	67,000
1	12,600	1,253,400	1,159,715	93,685	417,800	835,600
—	—	245,000	245,000	—	144,550	100,450
—	—	79,000	79,000	—	30,670	48,330
1	24,000	470,500	470,500	—	235,742	234,758
3	47,201	638,475	638,475	—	187,531	450,944
12	203,301	3,092,475	2,998,790	93,685	1,171,792	1,920,683
2	266,500	353,000	279,720	73,280	238,480	114,520
1	41,650	1,148,550	831,750	316,800	815,490	333,060
—	—	290,900	280,000	10,900	125,100	165,800
3	172,641	1,200,191	560,805	639,386	690,337	509,854
37	2,273,098	8,894,425	5,756,440	3,137,985	5,252,999	3,641,426
—	—	165,000	33,000	132,000	115,000	50,000
43	2,753,889	12,052,066	7,741,715	4,310,351	7,237,406	4,814,660
6,284	9,626,231	23,923,715	11,109,416	12,814,299	14,365,899	9,557,816
74	11,041,828	31,278,195	4,640,639	26,637,556	18,766,917	12,511,278
6,358	20,668,059	55,201,910	15,750,055	39,451,855	33,132,816	22,069,094
13	1,741,500	8,082,175	7,082,675	999,500	3,232,870	4,849,305
—	—	4,353,200	3,059,600	1,293,600	2,100,000	2,253,200
—	—	4,218,900	2,923,040	1,295,860	1,626,100	2,592,800
—	—	8,572,100	5,982,640	2,589,460	3,726,100	4,846,000

Table 2 (continued).

TABLE SHOWING THE EMPLOYMENT OF THE CREDITS PROVIDED FOR THE FINANCIAL PERIOD 1933-

1	2	3	4	5	6
Credit and object	Number of works	Comprising			
		Works completed	Total cost	Works in course of execution	Total cost
			Crowns		Crowns
Credit for the Malung-Vansbro Line of the State Railways :					
Railways	1	—	—	1	800,0
Credit for casual works for the upkeep of private forests :					
Forest improvements	8,851	4,165	2,596,271	4,523	4,694,0
Credit for subsidies for fertiliser-storage plant :					
Fertiliser-storage plant	4,170	982	692,372	1,844	1,191,5
Credit for loans for fertiliser-storage plant :					
Fertiliser storage-plant	248	—	—	237	235,0
Credit for land reclamation works to combat unemployment :					
Reclamation	885	112	843,540	528	5,972,9
Credit for subsidies for land-drainage works :					
Subsoil drainage	3,753	1,657	1,500,370	1,354	1,759,0
Credit for construction of roads and log-floating channels in private forests :					
Forestry improvements	57	2	2,855	47	317,0
Credit for Loan Fund for workers' small-holdings :					
Land settlement	820	5	15,000	545	2,550,0
Credit for Government buildings :					
Buildings for public authorities	8	—	—	6	730,0
Other buildings	16	3	120,600	10	10,288,0
Total...	24	3	120,600	16	11,018,0
GRAND TOTAL...	34,387	8,418	8,034,262	16,755	87,909,0

Table 2 (continued).

EMPLOYMENT BUDGET FOR THE EXECUTION OF PUBLIC WORKS UNDER OPEN-MARKET CONDITIONS.

7	8	9	10	11	12	13
Comprising		Grand total	Comprising		Proportion of grand total allocated to	
planned not gun	Total cost		State contribution	From other sources	Materials	Wages
	Crowns	Crowns	Crowns	Crowns	Crowns	Crowns
—	—	800,000	800,000	—	336,800	463,200
163	142,087	7,432,824	3,267,005	4,165,819	148,724	7,284,100
,344	854,489	2,738,384	684,596	2,053,788	1,369,192	1,369,192
11	13,133	248,207	109,975	138,232	124,103	124,104
245	1,749,160	8,565,660	3,979,650	4,586,010	—	8,565,660
742	597,600	3,856,990	950,000	2,906,990	1,542,796	2,314,194
8	39,276	359,213	90,140	269,073	32,396	326,817
270	1,350,000	3,915,000	3,865,000	50,000	2,515,000	1,400,000
2	334,000	1,064,000	1,064,000	—	638,400	425,600
3	848,000	11,257,400	11,257,400	—	6,754,440	4,502,960
5	1,182,000	12,321,400	12,321,400	—	7,392,840	4,928,560
214	31,294,494	127,238,404	65,623,641	61,614,763	61,962,835	65,275,569

Table 3.

RECAPITULATORY TABLE, OBJECT OF THE WORK

1	2	3	4	5	6
Object	Number of works	Comprising			
		Works completed	Total cost	Works in course of execution	Total cost
			Crowns		Crowns
Public roads (including streets)	7	2	11,600	3	168,000
Basin for ferry	1	—	—	—	—
Bridges	13	—	—	13	4,353,200
Railways	2	—	—	2	843,000
Crossings at different levels	66	—	—	53	6,340,675
Land reclamation	4,638	1,769	2,343,910	1,882	7,731,980
Building and improvement of dwelling-houses in rural districts	15,067	1,475	1,556,880	7,308	12,740,604
Fertiliser-storage plant	4,418	982	692,372	2,081	1,426,597
Land settlement	820	5	15,000	545	2,550,000
Canals and other inland waterways (including log-floating channels)	6	—	—	—	—
Forest improvements	8,909	4,168	2,603,126	4,570	5,011,548
Drinking-water supply and sewage disposal	11	—	—	10	1,253,400
Sea and river ports and fishing harbours	40	5	376,900	34	5,373,700
Airports	2	1	110,000	1	135,000
Aerodromes	4	3	49,500	1	29,500
Buildings for public authorities	18	—	—	13	1,757,550
Building of dwelling-houses in towns and similar built-up areas	205	—	—	131	20,236,367
Other buildings	139	4	147,600	94	17,329,627
Gasworks	1	—	—	1	165,000
Other works	20	4	127,374	13	463,900
Total...	34,387	8,418	8,034,262	16,755	87,909,648

Table 3.

TH EXPENDITURE REFERRED TO IN TABLE 2.

	8	9	10	11	12	13
	Comprising	Grand total	Comprising		Proportion of grand total allocated to	
rks aned but t bega	Total cost		State contribution	From other sources	Materials	Wages
	Crowns	Crowns	Crowns	Crowns	Crowns	Crowns
2	266,500	446,100	372,820	73,280	253,779	192,321
1	34,000	34,000	34,000	—	19,200	14,800
–	—	4,353,200	3,059,600	1,293,600	2,100,000	2,253,200
–	—	843,000	843,000	—	349,800	493,200
13	1,741,500	8,082,175	7,082,675	999,500	3,232,870	4,849,305
87	2,346,760	12,422,650	4,929,650	7,493,000	1,542,796	10,879,854
6,84	9,626,231	23,923,715	11,109,416	12,814,299	14,365,899	9,557,816
1,55	867,622	2,986,591	794,571	2,192,020	1,493,295	1,493,296
70	1,350,000	3,915,000	3,865,000	50,000	2,515,000	1,400,000
6	85,500	85,500	85,500	—	28,500	57,000
71	181,363	7,796,037	3,361,145	4,434,892	181,120	7,614,917
1	41,650	1,295,050	978,250	316,800	894,990	400,060
1	12,600	5,763,200	4,362,755	1,400,445	2,169,000	3,594,200
–	—	245,000	245,000	—	144,550	100,450
–	—	79,000	79,000	—	30,670	48,330
5	506,641	2,264,191	1,624,805	639,386	1,328,737	935,454
74	11,041,828	31,278,195	4,640,639	26,637,556	18,766,917	12,511,278
41	3,145,098	20,622,325	17,484,340	3,137,985	12,243,181	8,379,144
—	—	165,000	33,000	132,000	115,000	50,000
3	47,201	638,475	638,475	—	187,531	450,944
9,24	31,294,494	127,238,404	65,623,641	61,614,763	61,962,835	65,275,569

buildings " refers to all other buildings (educational establishments, hospitals, communal buildings).

As regards the figures in the table, the following should be observed :

The amount of the State's contributions, shown in column 10 for each credit, is usually less than that made available by the Government for the budgetary year. This is chiefly because the table does not show the amounts put at the disposal of State authorities or other bodies for administrative expenses. Cases have also occurred in which funds supplied have, for one reason or another, not been used. Such amounts also are not shown in the table.

To encourage the erection of dwelling-houses, the Riksdag voted a total amount of 23,000,000 crowns for the financial year 1933-34. The table, however, shows that only 15,750,000 crowns were expended, 11,109,416 crowns being for dwelling-houses in rural districts. The Government, however, put at the disposal of the Economic Committee for this purpose a total amount of 17,350,000 crowns. This difference is due to the fact that, when the table was drawn up, the committees in question had not had at their disposal more than 11,109,416 crowns.

The figures for the credit for land reclamation works to combat unemployment and for the credit for subsidies for land-drainage works show that 3,979,650 and 950,000 crowns respectively have been expended out of these credits for those purposes. Subsidies amounting respectively to 4,586,010 and 2,906,990 crowns were also paid out of " Other funds ". The latter figure, however, also includes amounts taken from public funds— namely, from the Loan Fund for reclamation works and the Loan Fund for land-drainage works. The former fund supplied about 2,551,030 and the latter about 1,200,000 crowns.

The same is true of the credit for subsidies for fertiliser-storage plant. Of the figure of 2,053,788 crowns shown as supplied by " Other funds ", a total amount of 214,523 crowns represents loans made from the Loan Fund for storage of fertilisers.

In the case of the construction of Government buildings, the expression " provided for but not begun " has been used for works in which actual building operations have not been started. It is therefore possible that preliminary work, drawing-up of plans and designs, etc., is going on.

Finally, the distribution of the total cost between materials and wages has, in many cases, had to be shown as a mere estimate.

Recapitulatory table of allocations.—Table 3 shows how provision has been made for the various objects given in Table 2.

B.—*Public Works borne on the Ordinary Budget.*

Credits voted.—Table 4 shows the various allocations for public works voted in the ordinary budget for the financial years 1929-30 to 1933-34.

The table also shows that the total funds available in the ordinary budget for carrying out public works increased during the period under consideration. Although the figures cannot be considered absolutely accurate, their tendency during the years of crisis is not to reduce but rather to increase the possibilities of carrying out public works within the ordinary budget. This tendency is even more marked in the financial year 1933-34. Indeed, it would appear from the table that the total credits provided for that year are not reduced as compared with the previous year, in spite of the increase in the number of public works for which credits were voted in the unemployment budget.

Credits for " anticipatory " works and for certain casual measures connected with the upkeep of private forests.—The heading " anticipatory works " includes the credits voted for the financial years 1931-32 and 1932-33 for " anticipatory " work for combating

unemployment. The credit provided for the financial year 1932-33 for certain casual measures connected with the upkeep of private forests appears under the heading " forest improvements ". Since the unemployment budget for the financial year 1933-34 provides credits corresponding directly to those referred to above, the employment of which has been explained above under letter A, it appeared logical to give the information in Table 5 in respect of the credits for " anticipatory " work and the credit for certain casual measures connected with the upkeep of private forests.

Table 4.

CREDITS FOR PUBLIC WORKS BORNE ON THE ORDINARY BUDGET.

	1929-30	1930-31	1931-32	1932-33	1933-34
	Crowns	Crowns	Crowns	Crowns	Crowns
Public roads (including streets)	53,688,000	60,560,000	74,370,000	82,257,000	74,480,500
Railways	4,000,000	4,000,000	4,300,000	4,400,000	4,000,000
Crossings at different levels	500,000	575,000	—	500,000	150,000
Reconstruction of railway stations, etc.	3,565,000	1,647,000	1,990,000	1,581,000	2,725,000
Land reclamation	2,850,000	6,250,000	6,350,000	4,300,000	6,500,000
Building and improvement of dwelling-houses in rural districts	—	—	—	100,000	—
Other rural buildings	—	850,000	—	500,000	1,000,000
Fertiliser-storage plant	—	—	100,000	100,000	—
Private roads	350,000	500,000	550,000	540,000	560,000
Land settlement	1,368,275	1,328,330	1,404,000	1,403,900	406,400
Canals and other inland waterways (including log-floating channels)	1,800,000	1,500,000	500,000	324,600	200,000
Forest improvements	520,000	1,320,000	1,250,000	3,390,000	1,150,000
Drinking-water supply and sewage disposal	—	—	50,000	—	70,000
Sea and river ports and fishing harbours	951,900	1,050,000	1,840,000	1,090,000	549,500
Airports	50,000	100,000	94,000	2,600,000	—
Aerodromes	50,000	20,500	5,000	27,000	30,000
Buildings for public authorities	2,187,300	4,119,000	3,403,000	1,570,000	1,351,000
Other buildings	7,298,451	8,795,157	9,591,900	8,505,125	979,000
Electrical plant	100,000	350,000	50,000	100,000	50,000
Hydro-electric and heating power stations	5,400,000	4,300,000	5,450,000	5,950,000	4,325,000
Transmission of motor power	2,400,000	3,215,000	26,300,000	19,600,000	41,800,000
Telegraph installations	630,000	1,041,000	250,000	—	—
Telephone installations	150,000	69,700	—	—	2,200,000
Postal installations	168,000	900,000	730,500	1,085,000	200,000
State " anticipatory " works	—	—	3,000,000	3,000,000	—
Other works	111,000	54,800	242,100	—	—
Total	88,137,926	102,545,487	141,820,500	142,923,625	142,726,400

Other credits.—With regard to the other credits mentioned in Table 4, it would not be possible, without a very exhaustive and prolonged investigation, to furnish information corresponding to that given in respect of the credits for " anticipatory " work for combating unemployment and for certain casual measures connected with the upkeep of

Table 5.

TABLE SHOWING THE USE OF THE CREDITS FOR "ANTICIPATORY" WORKS FOR CO… MAINTEN…

1	2	3	4	5	6	7
Credit and object	Number of works	Comprising				
		Works completed	Total cost	Works in course of execution	Total	
			Crowns		Cro…	
Credit for "anticipatory" works for combating unemployment in 1931-32 :						
Public roads (including streets)	7	6	73,650	1	2…	
Railways	1	—	—	1	30…	
Crossings at different levels	18	14	1,322,750	4	59…	
Canals and other inland waterways (including log-floating channels)	1	1	6,600	—	—	
Forest improvements	3	3	8,450	—	—	
Drinking-water supply and sewage disposal	2	2	103,800	—	—	
Sea and river ports and fishing harbours	3	3	445,900	—	—	
Aerodromes	4	4	84,400	—	—	
Government buildings other than those for public authorities	3	3	47,400	—	—	
Telegraph installations	38	38	422,364	—	—	
Other works	4	4	52,775	—	—	
Total	84	78	2,568,089	6	91…	
Credit for "anticipatory" works for combating unemployment in 1932-33 :						
Public roads (including streets)	8	7	244,072	1	…	
Railways	1	1	260,000	1	60…	
Crossings at different levels	4	1	29,200	3	31…	
Canals and other inland waterways (including log-floating channels)	2	1	4,969	—	—	
Drinking-water supply and sewage disposal	2	2	38,672	—	—	
Sea and river ports and fishing harbours	12	10	543,520	2	16…	
Airports	1	1	15,000	—	—	
Aerodromes	6	6	229,800	—	—	
State buildings other than those for public authorities	5	2	98,927	3	14…	
Telegraph installations	22	22	141,059	—	—	
Telephone installations	1	1	3,410	—	—	
Other works	8	8	312,232	—	—	
Total	72	62	1,920,861	10	1,22…	
Credit for certain casual works connected with the maintenance of private forests in 1932-33 :						
Forest improvements	3,960	3,418	3,348,793	509	67…	
GRAND TOTAL	4,116	3,558	7,837,743	525	2,81…	

Table 5.

PLOYMENT AND OF THE CREDIT FOR CERTAIN CASUAL WORKS CONNECTED WITH THE TE FORESTS.

7	8	9	10	11	12	13
Comprising			Comprising		Proportion of grand total allocated to	
planned not gun	Total cost	Grand total	State contribution	From other sources	Materials	Wages
	Crowns	Crowns	Crowns	Crowns	Crowns	Crowns
—	—	93,650	93,650	—	18,064	75,586
—	—	300,000	300,000	—	126,300	173,700
—	—	1,917,800	1,654,425	263,375	840,300	1,077,500
—	—	6,600	6,600	—	3,000	3,600
—	—	8,450	8,450	—	550	7,900
—	—	103,800	103,800	—	39,036	64,764
—	—	445,900	418,200	27,700	210,600	235,300
—	—	84,400	84,400	—	7,343	77,057
—	—	47,400	47,400	—	16,690	30,710
—	—	422,364	227,000	195,364	207,181	215,183
—	—	52,775	52,775	—	8,947	43,828
—	—	3,483,139	2,996,700	486,439	1,478,011	2,005,128
—	—	249,072	249,072	—	72,924	176,148
—	—	860,000	860,000	—	404,800	455,200
—	—	345,025	285,092	59,933	148,000	197,025
—	—	4,969	4,969	—	1,914	3,055
—	—	38,672	38,672	—	13,711	24,961
—	—	708,520	667,620	40,900	350,500	358,020
—	—	15,000	15,000	—	8,850	6,150
—	—	229,800	229,800	—	22,632	207,168
—	—	240,247	240,247	—	103,676	136,571
—	—	141,059	84,800	56,259	53,477	87,582
—	—	3,410	3,410	—	2,045	1,365
—	—	312,232	312,232	—	86,118	226,114
—	—	3,148,006	2,990,914	157,092	1,268,627	1,879,359
3	35,416	4,054,254	1,696,678	2,357,576	1,081,086	2,973,168
3	35,416	10,685,399	7,684,292	3,001,107	3,827,744	6,857,655

private forests. The following information should, however, be given with regard to the objects for which the first items of the credits were provided.

In Table 4 above, the heading " Reconstruction of railway-station buildings " includes, in particular, bridges and tunnels, points, safety signals and permanent-way repairs. As regards rural districts, the heading " Other buildings " only refers to silos. The heading " Land settlement " includes grants to the owners of arable land, etc., for cultivation and building, settlement in the national parks, and State subsidies for cultivating and improving the pastureland of farms not fully developed. The information regarding building work has been given above. The heading " Transmission of motor power " relates mainly to the electrification of the State Railways. The headings " Telegraph, Telephone and Postal installations " are not quite correct, since they also include credits for the building of telegraph offices and post offices; but it appeared preferable to include these credits under the headings in question rather than under " Other buildings ". Lastly, the heading " Other works " includes certain work carried out for national defence.

Financing of the credits.—The credits relating to the ordinary budget have, for the most part, been financed by other means than by loans. Some of these credits were, however, opened by means of loans issued in accordance with the general rules in force for State loans.

Table 6 below shows the amounts raised by loans :

Table 6.

	1929-30	1930-31	1931-32	1932-33	1933-34
	Crowns	Crowns	Crowns	Crowns	Crowns
Railways	—	—	300,000	400,000	—
Crossings at different levels	500,000	575,000	—	500,000	150,000
Reconstruction of railway stations, etc.	3,565,000	1,647,000	1,990,000	1,581,000	2,725,000
Land reclamation	162,500	1,620,000	1,700,000	910,000	3,200,000
Building and improvement of dwelling-houses in rural districts	—	—	—	90,000	—
Other rural buildings	—	680,000	—	400,000	850,000
Fertiliser-storage plant	—	—	65,000	65,000	—
Canals and other inland waterways (including log-floating channels)	1,800,000	1,500,000	500,000	324,600	200,000
State buildings other than those for public authorities	200,000	714,000	120,000	570,000	80,000
Electrical installations	100,000	350,000	50,000	100,000	50,000
Hydro-electric and heating power stations	5,400,000	4,300,000	5,450,000	5,950,000	4,325,000
Transmission of motor power	2,300,000	3,000,000	26,300,000	19,600,000	41,800,000
Telegraph installations	630,000	1,041,000	250,000	—	—
Telephone installations	150,000	69,700	—	—	2,200,000
Postal installations	168,000	900,000	730,500	1,085,000	200,000
Other work	—	—	128,000	—	—
Total...	14,975,500	16,396,700	37,583,500	31,575,600	55,780,000

IV. Reserve Works.

Table 1 shows that the credits available for carrying out reserve works amounted to a total of 72,602,000 crowns for the financial years 1929-30 to 1932-33 and 60 million crowns for the financial year 1933-34.

Rules applied for the use of credits.—Certain principles mentioned in Section I with regard to reserve works were applied until the budget year 1932-33. It has also been

briefly stated in what respects the principles in force after that date differed from those previously applied. The following explanations should now be given regarding the principles at present in force.

The *general provisions* relating to relief measures taken by or subsidised by the State, whether they take the form of the organisation of reserve works, the allocation of cash allowances or the application of certain measures relating to unemployment among young people, subject the right to unemployment relief to the following conditions :

(a) The person concerned must be a Swedish national or a national of a State with which an agreement has been concluded stipulating reciprocity in respect of unemployment relief ;

(b) He must have completed the age of 16 years or, in the case of work other than reserve work for young people, 18 years;

(c) He must be capable of working and must be at liberty to accept work;

(d) He must have registered himself as seeking employment at a public employment bureau;

(e) It must have been ascertained that, as a result of unemployment lasting at least six working-days from the date of his application, he is in need of unemployment relief.

With regard to the *choice* of the work, no kind of work is, in principle, excluded from the category of undertakings which may be carried out as reserve works. The following rules are, however, applicable :

(a) The work must be justifiable on economic or cultural grounds;

(b) It must be of utility to the State, the commune or some other public body;

(c) It may also be of utility to private persons, provided it is carried out by a public body;

(d) It must be such that the wages paid constitute a comparatively large proportion of the total cost;

(e) It must be such that any worker of normal capacity can usefully be employed at it;

(f) It must, as a rule, be work that can be done in winter;

(g) It must, as a general rule, but not in all cases, be able to be undertaken, stopped, extended or restricted according to the volume of unemployment.

As stated above, these rules relating to the choice of work are substantially the same as those formerly in force. They have, however, been amended to the effect that it need no longer be presumed that the proposed work will be carried out in the near future under open-market conditions. It is also now admitted that work may be carried out as reserve work even if it is in the interest of private persons, provided only that it is of such importance and involves such essential interests that it is advisable to carry it out under the direction of the commune (as communal reserve work subsidised by the State) or through the Central Unemployment Commission (as State reserve work).

The unemployed persons to be allotted to reserve works are chosen by the local unemployment committee concerned, after the Central Unemployment Commission has fixed the number of unemployed from the commune which may be allotted to reserve works undertaken or subsidised by the State. The choice of the unemployed persons is based on the principle that the most needy among those whom the Committee thinks it should take into consideration are always engaged first; the choice is made under conditions which enable the Commission to ascertain whether the persons in question have a desire to work. A refusal to accept work obviously involves the discontinuance of unemployment

Table 7.

TABLE SHOWING THE ALLOCATION OF CREDITS FOR STATE RESERVE

1	2	3	4	5	6
Object	Number of works	Comprising			
		Works completed	Total cost	Works in course of execution	Total cost
			Crowns		Crowns
State reserve works 1929-30 *to* 1932-33 :					
Public roads (including streets)	290	44	8,646,945	206	55,242,500
Bridges	3	1	233,073	—	—
Railways	1	—	—	1	3,941,176
Land reclamation	5	1	50,267	2	30,466
Canals and other inland waterways (including log-floating channels)	23	11	468,313	12	4,857,210
Forest improvements	56	36	2,544,960	20	3,985,485
Drinking-water supply and sewage disposal	1	1	111,918	—	—
Sea and river ports and fishing harbours	2	2	225,350	—	—
Aerodromes	7	2	3,595	4	1,141,000
Other buildings	1	1	6,311	—	—
Other works	29	20	899,769	5	718,469
Total...	418	119	13,190,501	250	69,916,306
State reserve works in 1933-34 :					
Public roads (including streets)	274	1	23,449	223	53,273,443
Bridges	3	—	—	1	300
Railways	3	—	—	2	981,000
Land reclamation	11	—	—	7	772,403
Canals and other inland waterways (including log-floating channels)	23	1	73,637	22	2,096,433
Forest improvements	20	—	—	20	1,400,050
Drinking-water supply and sewage disposal	2	—	—	1	1,700
Sea and river ports and fishing harbours	1	—	—	1	221,800
Aerodromes	8	—	—	4	4,612,400
Buildings for public authorities	1	—	—	1	280,000
Other works	22	1	21,633	17	751,155
Total...	368	3	118,719	299	64,390,684
Total State reserve works...	786	122	13,309,220	549	134,306,990
Communal reserve works subsidised by the State from 1929-30 *to* 1932-33 :					
Public roads (including streets)	367	288	6,691,485	79	5,210,305
Bridges	8	7	99,405	1	11,220
Railways	1	1	233,400	—	—
Land reclamation	55	48	462,185	7	53,785
Private roads	353	232	3,617,045	114	5,304,530
Land settlement	29	28	258,845	1	9,350
Canals and other inland waterways (including log-floating channels)	17	12	123,105	5	218,140
Forest improvements	36	26	148,870	9	38,840
Drinking-water supply and sewage disposal	200	162	3,958,855	38	2,231,830
Sea and river ports and fishing harbours	17	12	393,730	5	310,800
Aerodromes	5	—	—	5	2,301,050
Buildings for public authorities	4	3	61,150	1	2,650
Other buildings	6	5	45,885	1	8,210
Transmission of motor power	1	1	5,700	—	—
Other works :					
Restoration and maintenance of historical monuments	5	4	42,070	1	1,400
Fire wells	13	11	81,855	2	24,890
Sports grounds	79	44	837,710	32	1,310,460
Cemeteries	53	37	289,960	15	335,550
School playing-fields and grounds	37	35	391,325	2	12,475
Other works	103	81	1,223,500	22	400,600
Total...	1,389	1,037	18,966,080	340	17,786,085

Table 7.

WORKS AND COMMUNAL RESERVE WORKS SUBSIDISED BY THE STATE.

7	8	9	10	11	12	13
Comprising		Grand total	Comprising		Proportion of grand total allocated to	
Works provided for but not started	Total cost		State contribution	From other sources	Materials	Wages
	Crowns	Crowns	Crowns	Crowns	Crowns	Crowns
40	9,251,180	73,140,625	57,250,713	15,889,912	15,652,094	57,488,531
2	72,000	305,073	242,536	62,537	65,285	239,788
—	—	3,941,176	3,941,176	—	670,000	3,271,176
2	32,750	113,483	111,288	2,195	6,809	106,674
—	—	5,325,523	5,320,126	5,397	170,417	5,155,106
—	—	6,530,445	5,871,758	658,687	391,827	6,138,618
—	—	111,918	99,154	12,764	23,950	87,968
—	—	225,350	219,443	5,907	48,225	177,125
1	333,000	1,477,595	1,477,595	—	246,758	1,230,837
—	—	6,311	6,311	—	1,067	5,244
4	65,800	1,684,038	1,665,623	18,415	284,602	1,399,436
49	9,754,730	92,861,537	76,205,723	16,655,814	17,561,034	75,300,503
50	13,000,000	66,296,892	58,025,708	8,271,184	14,187,535	52,109,357
2	75,000	75,300	57,255	18,045	16,114	59,186
1	130,000	1,111,000	258,000	853,000	188,870	922,130
4	245,000	1,017,403	1,002,403	15,000	61,044	956,359
—	—	2,170,070	2,109,993	60,077	69,442	2,100,628
—	—	1,400,050	1,400,050	—	84,003	1,316,047
1	6,000	7,700	7,530	170	1,648	6,052
—	—	221,800	199,620	22,180	47,465	174,335
4	950,000	5,562,400	5,427,400	135,000	928,921	4,633,479
—	—	280,000	280,000	—	47,320	232,680
4	170,000	942,788	934,018	8,770	159,331	783,457
66	14,576,000	79,085,403	69,701,977	9,383,426	15,791,693	63,293,710
115	24,330,730	171,946,940	145,907,700	26,039,240	33,352,727	138,594,213
—	—	11,901,790	4,909,550	6,992,240	3,321,075	8,580,715
—	—	110,625	47,845	62,780	33,655	76,970
—	—	233,400	82,260	151,140	96,300	137,100
—	—	515,970	219,480	296,490	116,335	399,635
7	224,600	9,146,175	4,612,335	4,533,840	2,187,435	6,958,740
—	—	268,195	109,680	158,515	42,935	225,260
—	—	341,245	155,970	185,275	77,135	264,110
1	840	188,550	82,545	106,005	17,965	170,585
—	—	6,190,685	2,032,115	4,158,570	2,608,360	3,582,325
—	—	704,530	304,650	399,880	218,940	485,590
—	—	2,301,050	1,261,980	1,039,070	701,850	1,599,200
—	—	63,800	18,530	45,270	30,600	33,200
—	—	54,095	27,970	26,125	18,080	36,015
—	—	5,700	4,275	1,425	—	5,700
—	—	43,470	24,655	18,815	6,700	36,770
—	—	106,745	54,895	51,850	14,685	92,060
3	9,800	2,157,970	771,710	1,386,260	503,480	1,654,490
1	1,300	626,810	368,310	258,500	96,585	530,225
—	—	403,800	214,970	188,830	61,085	342,715
—	—	1,624,100	769,910	854,190	342,205	1,281,895
12	236,540	36,988,705	16,073,635	20,915,070	10,495,405	26,493,300

Table 7 (continued)

TABLE SHOWING THE ALLOCATION OF CREDITS FOR STATE RESERVE

1	2	3	4	5	6
Object	Number of works	Comprising			
		Works completed	Total cost	Works in course of execution	Total cost
			Crowns		Crowns
Communal reserve works subsidised by the State in 1933-34:					
Public roads (including streets)	500	51	681,980	385	24,045,790
Bridges	2	1	8,500	1	96,030
Railways	3	—	—	2	156,700
Crossings at different levels	1	—	—	—	—
Land reclamation	27	8	65,090	15	117,550
Buildings in rural districts other than dwelling-houses	3	—	—	1	2,165
Private roads	347	30	281,965	247	4,441,015
Land settlement	26	9	33,010	12	164,665
Canals and other inland waterways (including log-floating channels)	21	6	102,240	12	287,760
Forest improvements	21	7	56,660	13	113,900
Drinking-water supply and sewage disposal	319	61	898,200	219	14,971,955
Sea and river ports and fishing harbours	24	—	—	19	1,444,900
Aerodromes	3	—	—	3	1,604,000
Buildings for public authorities	6	2	6,460	4	8,315
Other buildings	8	1	15,000	6	58,650
Hydro-electric and heating power stations	1	—	—	1	11,500
Transmission of motor power	3	—	—	3	57,550
Telephone installations	1	1	3,240	—	—
Other works:					
Restoration and maintenance of historical monuments	16	3	278,780	10	170,150
Archive works	7	1	20,000	2	68,000
Fire wells	33	5	7,940	19	75,010
Sports grounds	48	3	13,600	36	1,161,270
Cemeteries	62	11	46,110	47	1,296,275
School playing-fields and grounds	56	12	38,490	33	378,240
Other works	87	21	97,235	61	1,451,765
Total...	1,625	233	2,654,500	1,151	52,183,155
Total communal reserve works subsidised by the State	3,014	1,270	21,620,580	1,491	69,969,240
GRAND TOTAL...	3,800	1,392	34,929,800	2,040	204,276,230

Table 7 (continued).

WORKS AND COMMUNAL RESERVE WORKS SUBSIDISED BY THE STATE.

7	8	9	10	11	12	13
Comprising		Grand total	Comprising		Proportion of grand total allocated to	
Works provided for but not started	Total cost		State contribution	From other sources	Materials	Wages
	Crowns	Crowns	Crowns	Crowns	Crowns	Crowns
64	2,452,360	27,180,130	18,584,820	8,595,310	7,523,660	19,656,470
—	—	104,530	65,700	38,830	42,635	61,895
1	29,000	185,700	47,905	137,795	67,000	118,700
1	9,300	9,300	3,100	6,200	5,300	4,000
4	32,560	215,200	121,030	94,170	41,200	174,000
2	9,675	11,840	7,530	4,310	6,015	5,825
70	1,260,800	5,983,780	3,618,000	2,365,780	1,462,275	4,521,505
5	18,060	215,735	82,760	132,975	66,365	149,370
3	238,140	628,140	344,865	283,275	185,145	442,995
1	1,000	171,560	86,945	84,615	33,260	138,300
39	1,116,080	16,986,235	7,187,260	9,798,975	8,522,480	8,463,755
5	257,000	1,701,900	723,690	978,210	699,780	1,002,120
—	—	1,604,000	1,135,500	468,500	463,000	1,141,000
—	—	14,775	6,540	8,235	3,770	11,005
1	6,950	80,600	35,750	44,850	35,190	45,410
—	—	11,500	9,145	2,355	2,830	8,670
—	—	57,550	31,725	25,825	19,070	38,480
—	—	3,240	750	2,490	1,650	1,590
3	41,350	490,280	243,525	246,755	143,020	347,260
4	8,920	96,920	28,860	68,060	17,150	79,770
9	25,870	108,820	47,455	61,365	36,485	72,335
9	186,190	1,361,060	581,800	779,260	503,520	857,540
4	60,200	1,402,585	591,060	811,525	556,305	846,280
11	31,930	448,660	289,825	158,835	130,460	318,200
5	90,710	1,639,710	882,570	757,140	459,560	1,180,150
241	5,876,095	60,713,750	34,758,110	25,955,640	21,027,125	39,686,625
253	6,112,635	97,702,455	50,831,745	46,870,710	31,522,530	66,179,925
368	30,443,365	269,649,395	196,739,445	72,909,950	64,875,257	204,774,138

relief. But a further offer of work may be made after a certain period — namely, not less than four weeks.

As soon as a commune has applied for and obtained State unemployment assistance, the Central Unemployment Commission must study the *wage conditions* existing in the locality on the open market. It procures the necessary information for this purpose, by means of which the local unemployment committee may give its opinion regarding the lowest labourers' wages at which labour can be procured to any considerable extent in the locality. For this purpose, it must take as a basis, not only the wages fixed by the unskilled workers' organisation, but also ordinary workmen's wages, account being taken also of wages paid in agriculture and forestry.

On the basis of these particulars and of any other information at its disposal regarding wages, the Central Unemployment Commission fixes the reserve-work wage of the locality. The State reserve works and the communal reserve works subsidised by the State must, as far as possible, be carried out as piece-work, and the reserve-work wage is therefore to be regarded as the income provided for in case of piece-work. Wages per hour are fixed at a lower rate and must be applied only in the rare cases where the work cannot be carried out as piece-work.

In fixing piece-work rates, no account must be taken of any skill which the person may have in the work in question. It is merely a question of enabling him to obtain the reserve-work wage by doing normal work. In the case of piece-work he is not guaranteed a fixed amount per hour. If a workman engaged on reserve works earns more than the reserve-work wage, he still receives the amount provided by the piece-work rate. A gang which works harder than the normal may therefore earn more than the wages provided for reserve works.

The above provisions and the other rules regarding reserve works are laid down in the Decree of June 26th, 1933, regarding relief measures taken by or subsidised by the State in case of unemployment (Svensk Författningssamling No. 446). This decree has been superseded this year by a fresh decree on the subject (Svensk Författningssamling No. 434). The amendments introduced by the new decree, however, do not affect the questions treated in the present memorandum.

Allocation of credits.—Table 7 shows the allocation of credits provided for reserve works. It differentiates between the State reserve works for the financial years 1929-30 to 1932-33; that is to say, works financed by the credits of the ordinary budget and works relating to the financial year 1933-34—*i.e.*, works financed by the credits of the unemployment budget. The same division has been adopted for the communal reserve works subsidised by the State.

A glance at this table shows that, in the financial years 1929-30 to 1932-33, the State contribution to the cost of State reserve works amounted to 76,205,723 crowns, while the amount was 67,701,977 crowns (column 10) for the financial year 1933-34. With regard to communal reserve works subsidised by the State, the subsidies amount to 16,073,635 and 34,758,110 crowns respectively. The total State contribution therefore amounts to 92,279,358 crowns for the period 1929-30 to 1932-33 and 104,460,087 crowns for the financial year 1933-34. According to Table 1, the amounts available for reserve works during the periods in question were 72,602,000 and 60,000,000 crowns respectively. The reason for this difference is as follows :

This table includes all the work completed, in course of execution or provided for but not started. The State contribution for the last two groups was estimated on the assumption that the work would be entirely carried out by the Central Unemployment Commission (State reserve works) or would enjoy State subsidies until entirely completed (communal reserve works subsidised by the State). It is, however, impossible to determine in advance whether this assumption will be realised or not. The figures in the table show, however, that the Central Unemployment Commission was, at various times,

under an obligation to pay larger amounts than the State had placed at its disposal during those periods. In practice, this fact does not involve any difficulty. Indeed, in the contracts concluded for carrying out State reserve works, the Commission always inserts a clause reserving the right to suspend the work at any time. Moreover, it is not bound in the case of reserve works subsidised by the State. When it has admitted that an undertaking is of this nature, it sends the authority concerned a letter of notification, in which it states that it can, if necessary, withdraw the State subsidy.

Review of the position regarding the allocation of credits.—As regards the allocation of credits referred to in the above tables, it is advisable, as in the case of public works carried out under the unemployment budget, to draw up the recapitulatory table (Table 8) on pages 218 and 219, which includes under separate headings the State reserve works and the communal reserve works subsidised by the State.

V. Effect on Unemployment.

As regards the reserve works, the effect which their execution has produced on the volume of unemployment is immediately apparent in the figures relative to the number of registered unemployed who have been engaged upon them. In order to realise their effect, it is therefore necessary to ascertain what has been the number—both absolutely and relatively—of registered unemployed who have been engaged upon such works.

The same does not, however, apply to the works carried out at the ordinary market rates. In order to judge of their effect, it is necessary to examine the possibilities of work which they have opened up. In this connection, there is available the statistical material collected by the Ministry of Social Affairs showing the number of days' work performed.

The above-mentioned means of ascertaining the effect on unemployment relate exclusively to the *direct* effect of the execution of public works. On the other hand, there is no material to show statistically the *indirect* effect, which, in the main, makes itself felt in the open market. It resides in the fact that work has been provided for numerous industries in carrying out the orders for various materials (bricks, cement, bridge materials, etc.) necessitated by the public works undertaken. This indirect effect should be borne in mind, as in all probability it has been of great importance to the labour market.

Reserve works.—The effect of the reserve works from the point of view under consideration is shown by the statistical data communicated monthly by the Central Unemployment Commission. The first step was to use these data as a basis for Table 9, which, in respect of the period dealt with in the present memorandum, shows, in the first place, the variations in the unemployment figures and, in the second place, the number—both in absolute figures and also as a percentage of the total figures of the registered unemployed—of workers employed on State reserve works and on State-subsidised communal reserve works. For the sake of clarity, these particulars are given only for the months of January, March, June, September and December.

The table 9 shows at a glance that, at the beginning of the period under consideration, the number of workers employed upon reserve works varied between 28.2 and 16.4% of the registered unemployed. At the end of 1930, this figure had fallen to 12.2%, and in the winter of 1931-32, the percentage of those engaged upon such works also remained low. The same position recurred in the following winter and is clearly due to the fact that it had not been possible to increase the reserve works so as to keep pace with the increase in unemployment, which by then had reached its peak. In the winter of 1933-34, there was an improvement in this respect, while in the summer of 1934, the number of workers engaged upon reserve works was represented by the highest figure, both relatively and absolutely, recorded throughout the depression. In June 1934, indeed, the figure rose to 44,498, or 44.6%, of the registered unemployed. For the months of July

Table 8.

RECAPITULATORY TABLE, AS REGARDS THE OBJECT

1	2	3	4	5	6
Object	Number of works	Comprising			
		Works completed	Total cost	Works in course of execution	Total cost
			Crowns		Crowns
State reserve works :					
Public roads (including streets)	564	45	8,670,394	429	108,515,943
Bridges	6	1	233,073	1	300
Railways	4	—	—	3	4,922,176
Land reclamation	16	1	50,267	9	802,869
Canals and other inland waterways (including log-floating channels)	46	12	541,950	34	6,953,643
Forest improvements	76	36	2,544,960	40	5,385,535
Drinking-water supply and sewage disposal	3	1	111,918	1	1,700
Sea and river ports, fishing harbours	3	2	225,350	1	221,800
Aerodromes	15	2	3,595	8	5,753,400
Buildings for public authorities	1	—	—	1	280,000
Other buildings	1	1	6,311	—	—
Other works	51	21	921,402	22	1,469,624
Total...	786	122	13,309,220	549	134,306,990
State-subsidised communal reserve works :					
Public works (including streets)	867	339	7,373,465	464	29,256,095
Bridges	10	8	107,905	2	107,250
Railways	4	1	233,400	2	156,700
Crossings at different levels	1	—	—	—	—
Land reclamation	82	56	527,275	22	171,335
Buildings in rural districts other than dwelling-houses	3	—	—	1	2,165
Private roads	700	262	3,899,010	361	9,745,545
Land settlement	55	37	291,855	13	174,015
Canals and other inland waterways (including log-floating channels)	38	18	225,345	17	505,900
Forest improvements	57	33	205,530	22	152,740
Drinking-water supply and sewage disposal	51	223	4,857,055	257	17,203,785
Sea and river ports, fishing harbours	41	12	393,730	24	1,755,700
Aerodromes	8	—	—	8	3,905,050
Buildings for public authorities	10	5	67,610	5	10,965
Other buildings	14	6	60,885	7	66,860
Hydro-electric and heating power stations	1	—	—	1	11,500
Motive power transmission	4	1	5,700	3	57,550
Telephone installations	1	1	3,240	—	—
Other works :					
Restoration and upkeep of historical monuments	21	7	320,850	11	171,550
Archæological works	7	1	20,000	2	68,000
Fire wells	46	16	89,795	21	99,900
Playing-fields	127	47	851,310	68	2,471,730
Cemeteries	115	48	336,070	62	1,631,825
School playing-fields and grounds	93	47	429,815	35	390,715
Other works	190	102	1,320,735	83	1,852,365
Total...	3,014	1,270	21,620,580	1,491	69,969,240

Table 8.

OF THE WORKS, OF THE PARTICULARS TO BE FOUND IN TABLE 7.

7	8	9	10	11	12	13
Comprising		Grand total	Whereof		Proportion of grand total allocated to	
Works planned but not begun	Total cost		State contribution	From other sources	Material	Wages
	Crowns	Crowns	Crowns	Crowns	Crowns	Crowns
90	22,251,180	139,437,517	115,276,421	24,161,096	29,839,629	109,597,888
4	147,000	380,373	299,791	80,582	81,399	298,974
1	130,000	5,052,176	4,199,176	853,000	858,870	4,193,306
6	277,750	1,130,886	1,113,691	17,195	67,853	1,063,033
—	—	7,495,593	7,430,119	65,474	239,859	7,255,734
—	—	7,930,495	7,271,808	658,687	475,830	7,454,665
1	6,000	119,618	106,684	12,934	25,598	94,020
—	—	447,150	419,063	28,087	95,690	351,460
5	1,283,000	7,039,995	6,904,995	135,000	1,175,679	5,864,316
—	—	280,000	280,000	—	47,320	232,680
—	—	6,311	6,311	—	1,067	5,244
8	235,800	2,626,826	2,599,641	27,185	443,933	2,182,893
115	24,330,730	171,946,940	145,907,700	26,039,240	33,352,727	138,594,213
64	2,452,360	39,081,920	23,494,370	15,587,550	10,844,735	28,237,185
—	—	215,155	113,545	101,610	76,290	138,865
1	29,000	419,100	130,165	288,935	163,300	255,800
1	9,300	9,300	3,100	6,200	5,300	4,000
4	32,560	731,170	340,510	390,660	157,535	573,635
2	9,675	11,840	7,530	4,310	6,015	5,825
77	1,485,400	15,129,955	8,230,335	6,899,620	3,649,710	11,480,245
5	18,060	483,930	192,440	291,490	109,300	374,630
3	238,140	969,385	500,835	468,550	262,280	707,105
2	1,840	360,110	169,490	190,620	51,225	308,885
39	1,116,080	23,176,920	9,219,375	13,957,545	11,130,840	12,046,080
5	257,000	2,406,430	1,028,340	1,378,090	918,720	1,487,710
—	—	3,905,050	2,397,480	1,507,570	1,164,850	2,740,200
—	—	78,575	25,070	53,505	34,370	44,205
1	6,950	134,695	63,720	70,975	53,270	81,425
—	—	11,500	9,145	2,355	2,830	8,670
—	—	63,250	36,000	27,250	19,070	44,180
—	—	3,240	750	2,490	1,650	1,590
3	41,350	533,750	268,180	265,570	149,720	384,030
4	8,920	96,920	28,860	68,060	17,150	79,770
9	25,870	215,565	102,350	113,215	51,170	164,395
12	195,990	3,519,030	1,353,510	2,165,520	1,007,000	2,512,030
5	61,500	2,029,395	959,370	1,070,025	652,890	1,376,505
11	31,930	852,460	504,795	347,665	191,545	660,915
5	90,710	3,263,810	1,652,480	1,611,330	801,765	2,462,045
253	6,112,635	97,702,455	50,831,745	46,870,710	31,522,530	66,179,925

and August, the percentage was 51.8 and 52.1 respectively. As regards September, the table has been completed by means of the available data.

It is clear from the foregoing that the number of registered unemployed not engaged upon public works has fallen appreciably in the last few months. As a certain number of the workers shown in the table as registered unemployed are engaged upon communal reserve works—financed entirely by the communes themselves—the number of unemployed engaged upon public works is, in reality, greater than is shown by the figures given in the table.

Table 9.

NUMBER OF UNEMPLOYED REGISTERED WITH THE CENTRAL UNEMPLOYMENT COMMISSION AND THE NUMBER OF UNEMPLOYED ENGAGED UPON STATE RESERVE WORKS OR STATE-SUBSIDISED COMMUNAL RESERVE WORKS DURING THE BUDGETARY YEARS 1929-30 TO 1933-34.

	January	March	June	September	December
1929 : Number of registered unemployed	—	—	—	5,036	12,041
Number of unemployed engaged upon reserve works	—	—	—	867	2,367
Percentage of total number of registered unemployed	—	—	—	17.2	19.7
1930 : Number of registered unemployed	16,647	13,572	6,634	8,589	31,901
Number of unemployed engaged upon reserve works	3,743	3,829	1,740	1,408	3,902
Percentage of total number of registered unemployed	22.5	28.2	26.2	16.4	12.2
1931 : Number of registered unemployed	40,245	41,885	31,057	40,377	88,761
Number of unemployed engaged upon reserve works	5,981	8,046	7,819	7,843	11,671
Percentage of total number of registered unemployed	14.8	19.2	25.2	19.4	13.1
1932 : Number of registered unemployed	103,742	109,674	97,370	106,404	161,155
Number of unemployed engaged upon reserve works	15,115	18,761	20,994	22,404	23,084
Percentage of total number of registered unemployed	14.6	17.1	21.4	21.1	14.4
1933 : Number of registered unemployed	189,225	186,561	145,458	151,498	171,065
Number of unemployed engaged upon reserve works	24,736	28,878	34,027	35,073	28,615
Percentage of total number of registered unemployed	13.1	15.5	23.3	23.1	16.8
1934 : Number of registered unemployed	171,540	160,345	99,628	78,918	—
Number of unemployed engaged upon reserve works	33,372	39,980	44,498	40,047	—
Percentage of total number of registered unemployed	19.5	25.0	44.6	50.7	—

Public works at the ordinary market rates.—As regards works of this type, the Ministry of Social Affairs has, since the 1933-34 budgetary year, kept a record of all the decisions taken by the Government in regard to credits provided for various undertakings and objects. In regard to each of these credits, a special table has been compiled showing, in respect of each undertaking subsidised, the date of the decision, the name of the undertaking, the total cost and the amount of the subsidy. A special register has been kept of every commune which is directly subsidised or within which a subsidised undertaking is situated. This register shows the amount of the subsidy, the character of the works and the total number of days' work provided. Every subsidised undertaking is required

Table 10.

NUMBER OF DAYS' WORK UNDER OPEN-MARKET CONDITIONS FOR THE FINANCIAL PERIOD 1933-34.

1	2	3	4	5	6	7	8	9	10	11
Year and month	Anticipatory works		Dwelling-houses		Crossings at different levels	Bridges and harbours	Storage of fertilisers	Land reclamation	Land drainage	Roads and log-floating channels
	By the State	By the communes	Rural	Urban						
1933.										
July	435	—	—	—	—	—	—	—	—	—
August ..	—	—	—	—	—	—	—	—	—	—
Sept. ...	1,625	322	—	—	—	—	—	—	—	—
Oct.	6,103	376	—	—	—	—	—	—	—	—
Nov.....	7,675	2,408	—	—	165	1,128	—	—	—	—
Dec.	6,779	2,314	22,847	—	582	1,522	9,213	31,260	45,989	—
1934.										
Jan.	9,002	3,792	13,762	—	3,207	7,579	11,734	17,442	11,210	—
Feb.	9,971	4,883	34,770	1,584	6,580	14,711	3,916	9,879	13,220	—
March ..	10,757	7,681	56,753	10,525	9,389	21,474	1,993	13,661	6,997	—
April ...	12,896	12,476	97,573	19,460	13,045	18,270	2,497	16,451	21,401	—
May	13,866	18,965	139,287	36,389	16,401	14,269	4,460	35,775	21,148	—
June ...	14,535	24,108	211,777	50,733	20,756	15,128	6,755	47,941	37,902	454
Total..	93,644	77,325	576,769	118,691	70,125	94,081	40,568	172,409	157,867	454

1	12	13	14	15	16	17	18	19	20
Year and month	Upkeep of forests	Loan fund for workers' agricultural small-holdings	State buildings	Total (columns 2 to 14)	State orders	Loans and subsidies	Miscellaneous	Total (columns 16, 17 and 18)	Grand total (columns 15 and 19)
1933.									
July	—	—	5,649	6,084	—	—	2,083	2,083	8,167
August ..	—	—	5,681	5,681	—	2,148	6,178	8,326	14,007
Sept. ...	—	—	5,513	7,460	1,319	4,853	718	6,890	14,350
Oct.	160,377	—	5,644	172,500	2,347	12,433	5,928	20,708	193,208
Nov. ...	137,655	—	4,295	153,326	3,048	29,816	3,566	36,430	189,756
Dec.	73,765	3,578	2,992	200,841	5,879	32,038	8,259	46,176	247,017
1934.									
Jan.	34,052	2,967	1,898	116,645	7,760	45,069	4,089	56,918	173,563
Feb.	15,517	1,373	3,365	119,769	9,330	50,599	3,718	63,647	183,416
March ..	5,530	4,390	6,136	155,286	12,078	66,179	6,129	84,386	239,672
April ...	6,536	4,632	7,590	232,827	12,844	78,376	7,914	99,134	331,961
May	9,694	10,586	11,279	332,119	11,633	92,168	8,220	112,021	444,140
June ...	18,418	18,675	15,178	482,360	11,237	108,339	9,561	129,137	611,497
Total..	461,544	46,201	75,220	1,984,898	77,475	522,018	66,363	665,856	2,650,754

to submit monthly reports showing, *inter alia*, the number of days' work performed in the course of the month. The statistics thus collected by the Ministry make it possible to ascertain the number of days' work provided each month as the result of each separate credit. Table 10 gives particulars relating to the 1933-34 budgetary year.

Columns 2 to 14 show the credits in the unemployment budget for carrying out public works under open-market conditions. Columns 16 to 18 relate to the other credits in the unemployment budget, except the credit for State reserve works and State-subsidised communal reserve works.

In order to judge what effect, from the point of view of this survey, has been produced upon the open market by the execution of public works, it should be observed, in the first place, that the decision taken by the Riksdag at its 1933 session was only reached at the end of June 1933, with the result that the administrative enquiry could not be undertaken earlier than in the first months of the financial period 1933-34, and, in the second place, that a dispute occurred in the building industry, which was not settled before the end of February 1934, and action to put in hand the constructional work approved by the public authorities had to be deferred until negotiations concerning the labour contract had been concluded. Owing to the last-named circumstance, the credits for Government constructional work in particular and for the erection of dwelling-houses could not be put to any general use before March 1934 at the earliest. The above-mentioned circumstances are further reflected in the fact that, of the 79,821,400 crowns appropriated in the unemployment budget for the execution of public works under open-market conditions, a sum of only approximately 23 million crowns was assigned to the purpose in view during the financial period. If the sums which, in the present survey, relate to other unemployment credits are also taken into account (column 10 of Table 1), the total sum of money involved amounts to about 39 million crowns. The full effects of this expenditure will therefore be revealed in the course of the current financial period.

In order to gain some idea of the number of workers represented by the figures in the table of days of work, it has to be assumed that twenty-five days' work per month corresponds to one worker. When this basis of computation is taken, the number of workers for whom the measures in question provided employment works out as follows :

1933 :	July	August	September	October	November	December
	327	560	574	7,728	7,590	9,880
1934 :	January	February	March	April	May	June
	6,942	7,334	9,586	13,278	17,765	24,459

The above figures show that fairly substantial results were only obtained as from the month of October 1933. A glance at Table 10 indicates that these results are due primarily to forestry work. In April 1934, the upward tendency becomes more marked. This is due, in the main, to activity in the building trade. Subsequently, the figures increase from month to month, rising to somewhere around 25,000 workers employed in the month of June. About half of these were engaged in the erection of rural and urban dwelling-houses. The provisional figures for days of work available for July and August 1934 are respectively 721,016 and 828,767. These figures correspond to 28,840 and 33,150 workers respectively. As stated above, these totals are further increased through the work indirectly provided by the credits concerned.

The available data do not yield any exact indication of the number of workers engaged in public works under open-market conditions and recruited from among the unemployed. They suffice to show, however, that this number was fairly considerable. The reduction in the number of unemployed, which is observable from the data at the top of Table 10, and which continued until, by the end of September 1934, the number of registered

unemployed had sunk to 78,918, is ascribable in some considerable measure to the increase of employment which was brought about by the execution of public works under open-market conditions. These works consequently represented an important contribution towards the improvement of the unemployment position.

VI. Recapitulatory Comparison of the Financial Period 1933-34 with Previous Financial Periods.

The differences to be noted on a number of points between the financial periods from 1929-30 to 1932-33 and the financial period 1933-34 have already been mentioned on several occasions. It would appear desirable to give a summary analysis of them by way of conclusion.

The principal difference relates to *public works under open-market conditions*. During the financial periods 1929-30 and 1930-31, the action taken by the public authorities to cope with the unemployment problem did not include works of this kind. Only in the following two financial periods were credits—for small amounts—passed for this purpose. In the 1933-34 period, however, these works formed a prominent feature of the system.

The rules previously applied for *reserve works* were extensively modified. During the period 1929-30 to 1932-33, the works undertaken were not to be of such a kind that they might be expected to be put in hand on the open market in the near future, and they were, moreover, to be of utility to the State, to a commune or to some other public institution. From the 1933-34 period onwards, on the other hand, there are no works that may not, in principle, be carried out as reserve works, and it is, moreover, permissible for such works to be carried out for the benefit of private persons, provided that they are executed under arrangements made by a public body. As regards wages, too, the principles applied since the 1933-34 financial period differ from those previously in force, inasmuch as wages paid for reserve works approximate more closely to ordinary market rates.

The *volume* of public work contemplated in the 1933-34 period shows a considerable increase relatively to previous periods.

The following table, summarising certain data previously given in Sections III and IV, will enable the position to be gauged :

Table 11.

Reserve State works	Number of schemes	Total cost	State contribution	Materials	Wages
		Crowns	Crowns	Crowns	Crowns
1929-30 to 1932-33	418	92,861,537	76,205,723	17,561,034	75,300,503
1933-34	368	79,085,403	69,701,977	15,791,693	63,293,710
State-subsidised communal reserve works :					
1929-30 to 1932-33 ...	1,389	36,988,705	16,073,635	10,495,405	26,493,300
1933-34	1,625	60,713,750	34,758,110	21,027,125	39,686,625
Work carried out under open-market conditions :					
1929-30 to 1932-33....	4,116	10,685,399	7,684,292	3,827,744	6,857,655
1933-34	34,387	127,238,404	65,623,641	61,962,835	65,275,569
Total, 1929-30 to 1932-33	5,923	140,535,641	99,963,650	31,884,183	108,651,458
Total, 1933-34	36,380	267,037,557	170,083,728	98,781,653	168,255,904

The above table shows that, in the 1933-34 financial period, there was a considerable proportional increase in the volume of State reserve works, and that the figures relating to State-subsidised communal reserve works are also considerably higher than those for the period 1929-30 to 1932-33.

Under the heading " Work carried out under open-market conditions ", the credits appearing in Table 4 have been included for the financial period 1933-34. Yet other credits among those of the unemployment budget may, however, be regarded as having their equivalents in the previous ordinary budgets. This is true, for instance, of credits for State buildings. The figures appearing in the above table and referring to the public works carried out under open-market conditions can nevertheless be regarded as characteristic of the expansion of such work during the financial period under review. Table 4 shows that the credits for public works included in the ordinary budget for the financial period 1933-34 have, in fact, not been reduced relatively to previous financial periods. If the credits referred to above for the financial periods 1929-30 to 1932-33, under the heading " Work carried out under open-market conditions ", are deducted, it will be seen, on the contrary, that there has been a notable increase.

Finally, in the matter of the *financing of unemployment credits*, the 1933-34 financial period also displays a marked difference relatively to previous financial periods. Recourse was had in greater measure to loans, which were used to cover certain credits—those of the unemployment budget—even though the immediate payment of interest could not be counted upon. The redemption of loans floated for the purpose is to be effected on a short-term basis by means of special funds.

LIST OF DOCUMENTS, ATTACHED TO THE REPLIES FROM THE VARIOUS GOVERNMENTS AND WHICH HAVE NOT BEEN PUBLISHED OR FROM WHICH ONLY EXTRACTS HAVE BEEN REPRODUCED.

Union of South Africa.[1]

Schedule of Public Works carried out by Local Authorities in the Province of Natal.

Australia.

1. New South Wales : Report of the Metropolitan Water Sewerage and Drainage Board of the Department of Local Government.

2. South Australia : Report of the Municipal Tramway Trust, Adelaide.

China.

1. Report on Public Works of the Kiangsi Provincial Government.

2. Official information published by the Hupei Provincial Government relating to Public Works undertaken in the Municipality of Hankow.

3. Classification List of Public Works undertaken by the Reconstruction Bureau of the Chahar Provincial Government.

4. Report on Public Works of the Kiangsu Provincial Government.

5. Report on Public Works of the Honan Provincial Government.

6. Report on Public Works of the Peiping Municipal Government.

7. Report on Public Works of the Civil Engineering Bureau of the Tientsin Municipal Government.

8. A Plan for improving the Hwai River.

9. Report on Public Works of the Municipal Government of Shanghai.

10. Report on Public Works of the Reconstruction Commission.

11. Yangtse River Commission :

(a) Brief Study of a Water-Power Project on the Upper Yangtse;
(b) The Improvement of Chinkiang Harbour and its River Bed.

Many of these reports are accompanied by plans and drawings.

12. The National Construction Commission : Statistical Report on Electric Utilities in China.

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1. Proposal by the Drainage and Land Improvement Commission of the Department of Tonder, regarding the organisation of drainage of the Tonder Marsh and adjoining districts (March 29th, 1922).

2. Law No. 137 of April 18th, 1925, regarding the drainage of the Tonder marsh.

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[1] Information additional to the reply previously sent by this Government and published in the first volume.

3. Law of December 23rd, 1925, amending the Law of April 18th, 1925, regarding the drainage of the Tonder marsh.

4. Lecture on March 23rd, 1929, regarding the cultivation of moorland (" Vildmose ") and the results obtained.

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1. List of Municipal Electrical Installations :
   (a) Projects carried out since 1929;
   (b) Projects under preparation;
   (c) Probable future projects for electric-light installations.
2. List of Filtered-water Plant and Artesian Well Waterworks created since 1929.

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Ministry of Labour : Legislative and Administrative Provisions of the Plan for Large-scale Works to reduce Unemployment, 1934.

United States of America.[1]

1. "Federal Emergency Administration of Public Works : Cost of construction per Man per Year and Number of Men employed per Year for Various Types of Projects, based upon Actual Expenditure and Employment on Completed Federal and Non-Federal Projects."

2. *Monthly Labor Review*, United States Department of Labor : "Man-Hours of Labor per Unit of Output in Steel Manufacture."

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[1] Information additional to the reply previously sent by this Government and published in the first volume.

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