

PROGRESS REPORT

WITH

STATEMENTS OF COORDINATING  
COMMITTEES.

NATIONAL RESOURCES COMMITTEE

1936

**PROGRESS'S REPORT**

**NATIONAL  
RESOURCES  
COMMITTEE**

•

**JUNE 15, 1936**

# **PROGRESS REPORT**

WITH

**Statements of Coordinating Committees**

**June 15, 1936**



Submitted to THE PRESIDENT in accordance with  
Executive Order, No. 7065, June 7, 1935

by the

**NATIONAL RESOURCES COMMITTEE**

UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON : 1936

•

For sale by the Superintendent of Documents, Washington, D. C. Price 25 cents

NATIONAL RESOURCES COMMITTEE  
INTERIOR BUILDING  
WASHINGTON

*June 15, 1936.*

The PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT:

We have the honor to transmit herewith a progress report by our Advisory Committee, which summarizes the organization and work of the National Resources Committee and its coordinating committees during the last year and suggests further activity for the future. Supplementary reports by the Land, Water, and Industrial Committees are included with this report.

The members of the Committee desire to indicate to you their belief in the value and importance of the work which is being carried forward through this planning agency.

Sincerely yours,

HAROLD L. ICKES

*Secretary of the Interior, Chairman*

GEORGE H. DERN,  
*Secretary of War.*  
HENRY A. WALLACE,  
*Secretary of Agriculture.*  
DANIEL C. ROPER,  
*Secretary of Commerce.*  
FRANCIS PERKINS,  
*Secretary of Labor.*

HARRY L. HOPKINS,  
*Works Progress Administrator.*  
FREDERIC A. DELANO.  
CHARLES E. MERRIAM.

•  
HENRY S. DENNISON.  
BEARDSLEY RUML.

# NATIONAL RESOURCES COMMITTEE

HAROLD L. ICKES, *Chairman*  
*Secretary of the Interior*

FREDERIC A. DELANO  
*Vice Chairman*

GEORGE H. DERN  
*Secretary of War*

HENRY A. WALLACE  
*Secretary of Agriculture*

DANIEL C. ROPER  
*Secretary of Commerce*

HARRY L. HOPKINS  
*Federal Emergency Relief Administrator*

FRANCES PERKINS  
*Secretary of Labor*

CHARLES E. MERRIAM

---

## ADVISORY COMMITTEE

FREDERIC A. DELANO, *Chairman*

CHARLES E. MERRIAM

HENRY S. DENNISON

BEARDSLEY RUML

---

## STAFF

CHARLES W. ELIOT, 2d  
*Executive Officer*

HAROLD MERRILL  
*Assistant Executive Officer*

---

## COMMITTEES

### *Land*

M. L. WILSON, Ch.  
L. C. GRAY  
MORDECAI EZEKIEL  
OSCAR L. CHAPMAN  
W. C. MENDENHALL  
F. R. CARPENTER  
JACOB BAKER  
C. W. ELIOT, 2d  
F. A. SILCOX

### *Water*

ABEL WOLMAN, Ch.  
THORNDIKE SAVILLE  
N. C. GROVER  
T. R. TATE  
R. E. TARBETT  
J. C. PAGE  
Maj. Gen. E. M.  
MARKHAM  
H. H. BARROWS  
I. N. GABRIELSON  
H. H. BENNETT  
E. HYATT  
SHERMAN WOODWARD

### *Industrial*

JACOB BAKER, Ch.  
ERNEST DRAPER  
ISADOR LUBIN  
E. G. NOURSE  
LEON HENDERSON  
T. C. BLAISDELL, Jr.  
D. T. HARRIS, Jr.  
C. W. ELIOT, 2d  
G. C. MEANS, Dir.

### *Urbanism*

C. A. DYKSTRA, Ch.  
M. L. WILSON  
ARTHUR COMEY  
H. D. SMITH  
LOUIS WIRTH  
LOUIS BROWNLOW  
C. W. ELIOT, 2d  
L. SEGOE, Dir.

### *Science*

FRANK LILLIE  
E. B. WILSON  
J. C. MERRIAM  
E. C. ELLIOTT  
C. E. JUDD  
W. D. COCKING  
W. M. OGBURN  
H. A. MILLIS  
C. GOODRICH

### *Population*

E. B. WILSON, Ch.  
W. F. OGBURN  
C. E. JUDD  
D. L. EDSALL  
WARREN THOMPSON

### *Technology*

W. F. OGBURN, Ch.  
J. C. MERRIAM  
E. C. ELLIOTT

### *Transportation*

J. B. EASTMAN, Ch.  
H. M. TATE  
Maj. Gen. E. M.  
MARKHAM  
T. H. MACDONALD  
E. L. VIDAL  
T. M. WOODWARD  
C. W. ELIOT, 2d

# PROGRESS REPORT

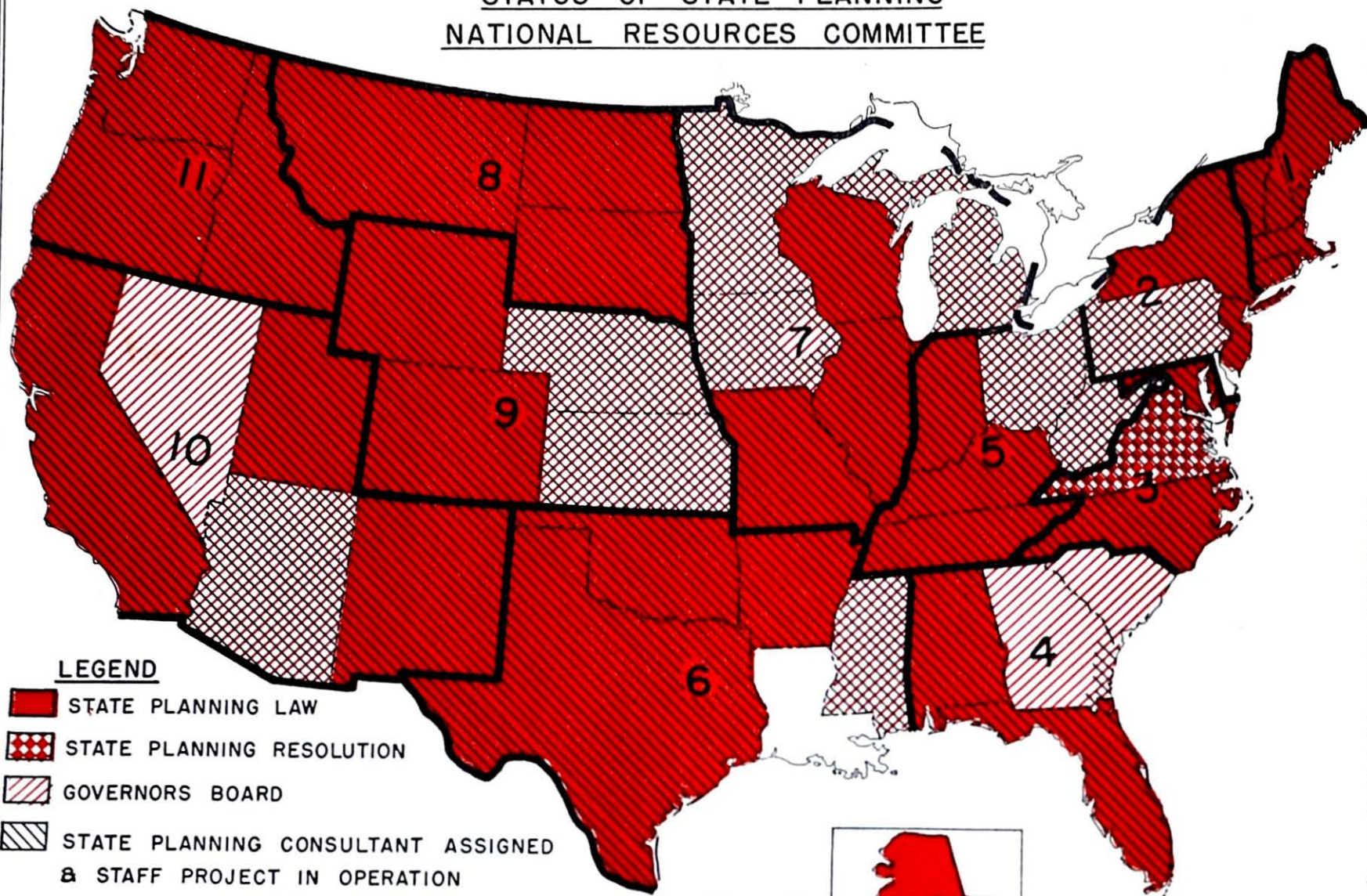
## Contents

<b>Part I. Report of Advisory Committee</b>	<b>Page</b>
1. Introduction	1
2. Public Works	3
3. The Use of Land	6
4. The Use of Water	10
5. Mineral Resources	13
6. Production, Transportation, Consumption	15
7. Science, Technology, and Population	16
8. Regional Coordination	16
9. State and Local Planning Boards	19
10. Summary—Current Activities	20
<b>Part II. Report of Executive Officer</b>	
1. Functions and Duties of the Committee	23
2. Organization and Staff	23
3. Financial Statement	30
<b>Part III. Reports of Technical Committees</b>	
A. Report of the Land Planning Committee	31
B. Report of the Water Resources Committee	33
C. Report of the Industrial Committee	47
<b>Appendix</b>	
List of Publications	53

NATIONAL RESOURCES COMMITTEE

STATUS OF STATE PLANNING  
NATIONAL RESOURCES COMMITTEE

1A



Prepared in Office of The National Resources Board

100 0 100 200 300 400 500 600 Miles

June 15, 1936



# PART I. REPORT OF ADVISORY COMMITTEE

## 1. Introduction

The public affairs of the American people are managed by some 175,000 different governments—Federal, State, and local. In addition, many of the governments have separate departments working more or less independently on various kinds of public service. The chance for confusion, cross purposes, and wasted effort is almost unlimited. The National Resources Committee and similar State and local bodies throughout the country are organized to study public policies and to assist in cooperative endeavors among the various governmental units.

The job of the National Resources Committee naturally includes several kinds of work. In order to understand public policies, it brings together the men in different departments of the Government and in the world of science and engineering, to collect into one place the facts that underlie each kind of public work. For instance, the Geological Survey has many of the facts about stream flow and flood control, the Department of Agriculture has certain kinds of facts about soils, and the Reclamation Bureau has still other facts that relate to the same problems. All these different lines of information need to be laid out on the table, together with information about rainfall, forests, wildlife, recreation needs, transportation, mineral resources, and so on, to see where they fit into the picture and affect one another. Each Government office is not only provided with its own line of factual material; it is also entrusted by congressional authority with an administrative program. Some departments are directed to do scientific work, others carry out engineering operations, such as building dams or controlling soil erosion. The operations of one department often develop those of

another to some extent; sometimes their policies are in apparent conflict. Only by bringing the different programs into a single picture is it possible to find out where the duplications and conflicts are.

Another duty of the National Resources Committee is to encourage similar bodies in States and localities. There is a field of action for such bodies in helping their own governments to avoid internal conflicts and waste effort. More important from the national point of view is the possibility of aiding the States and localities to solve various problems that require cooperation among themselves. River pollution, for example, is usually a knotty problem because the rivers have no respect for political boundaries. If the needs and difficulties of all the cities and States concerned can be studied and set forth clearly, and if the Federal interest in the problem can be defined, then there is a chance to obtain general agreement on a policy that will get the best results at the lowest cost.

When the Public Works Administration was set up in 1933, one of the Administrator's first acts was to provide for a National Planning Board, the immediate purpose of which was to study public works and help the Administration to allocate the funds to the best possible advantage. Owing to the limited time available in this emergency program, the Board could not hope to study the complete schedule of operations, but had to confine itself to advising the Administration on matters of policy which could be considered under the circumstances. It also prepared for the President a report of the kind of work needing to be done by a coordinating committee, especially in regard to public works. At the same time the Mississippi Valley Committee was making a study of the

special problems of the control and utilization of the Mississippi River and its tributaries. In 1934 the National Resources Board was established by Presidential order to study the resources of the Nation—physical, human, and technological. The Mississippi Valley Committee became the water agency of the Board in that same year. The name of the Board was changed in 1935 to the National Resources Committee.

The work of the Committee has developed gradually along the two lines of its interests, in Federal and local cooperation. It has made studies of public-works programs and of the allocation of costs of public works, of the use of land and water resources, of the basic mineral resources of the country, and of such fundamental work as the topographic mapping and stream-flow measurement programs. At the same time it has provided State consultants to confer with State and local governments on the work of their own organizations for the formulation of State and local problems. Mainly as a result of these efforts, such boards are now set up in 46 States.

The 48 States of the Union contain nearly 2 billion acres of land, varying in quality from the Mississippi bottoms to the snow-clad peaks of the Rockies. The land, the water, the minerals, and the human and technical resources of this country present a mass of facts which can never be completely known. Large masses of scientific data are now available, but the arrangement and judgment of the known facts must necessarily be a slow process, never fully completed. The Committee does not expect to be able to burst forth at any time with a perfected program for all governmental services, even for the Federal Government alone. It hopes only to be able to provide a background of coordinated knowledge that will make it easier for the President and Congress to judge the various proposed programs of action with which they have to deal.

Moreover, public policies are not made up entirely of scientific facts. Facts are only the background; they determine what lines of action are possible. The policies that will actually be adopted depend upon the desires of the people, modified by their understanding of the facts. The function of a national resources committee is therefore purely advisory. It cannot prescribe what shall be done, but can only advise as to the most probable results

of various lines of action, and as to unrecognized conflicts between separate policies that may be adopted. Often the existing development of public opinion may be such that the Government cannot adopt the most scientifically correct method of obtaining a desired result, but must content itself with temporary measures while the needs of the situation gradually become clear to the voters. This lag between scientific knowledge and public action is a necessary price which we pay for the many advantages of a democratic form of government. For example, public action to assist in returning certain areas to pasture could not be put under way until the spectacular dust storms had drawn public attention to the facts. In the same way, the value of large public expenditures for river control was not evident to many voters in the East until the floods of 1936. Other needed public services may remain inadequately performed for many years because the public is occupied with other interests. The experience of Dutchess County, N. Y., where a considerable expenditure for recreational facilities has led to an extremely low cost for juvenile delinquency, is not generally known, or no doubt the sums available for recreation would be largely increased in all parts of the country. The National Resources Committee, accordingly, in submitting its various reports on the utilization and conservation of natural resources, cannot expect that its suggestions can all be immediately adopted. As a matter of fact, among the many suggestions included in the past reports of the Committee, some are already embodied in Federal programs, while others could not be put into action at the present time.

As the country develops, the need for a permanent organization to study the policies of government and suggest ways to avoid overlapping and waste becomes more urgent. The National Resources Committee has therefore recommended to the President and Congress that a permanent committee or board be set up by act of Congress to continue the work of the present committee, which depends on a temporary Presidential order. Bills to this end have been introduced in the Senate and in the House.

According to constitutional theory the job of comprehending all the functions of the Government, and of seeing that they all march in the same general direction, is the job of the executive—the Governor of the State, or the Presi-

dent of the United States, respectively. In a small and simple government the executive head can have direct knowledge of the problems of the State and of the work of the governmental departments. When the government becomes large and complicated there should be available an organization that can bring together this information in usable form to serve as a basis for his recommendations to the legislature. The fact that a resources committee or similar body is logically a part of such a staff needs to be kept clearly in mind in discussing the proposal for a permanent committee.

There are two technical obstacles to the successful delegation of the executive function of surveying the national and governmental scene. One is that the committee may become entangled in details and may fail to observe those general relationships which it is the special duty of the executive to consider. The committee should have a research staff so organized as to report the data in a form that will not swamp the committee. It should also have authority to invite into consultation any public or private person who may have useful information to contribute.

The second obstacle is the tendency for any such agency to lose contact with the executive, whose decisions have to be made daily under the stress of pressing events. The experience of similar organizations in many governments indicates that the committee cannot permanently retain vitality unless close contact is maintained. The committee should be in constant touch with the day-by-day problems of the executive and should report directly and confidentially to him, with the additional duty of reporting as requested to the legislature. A workable set-up in the Federal Government would serve as an example to the States, where the same dangers of failure are to be feared.

These technical details derive importance from the fact that a governmental unit, if inadvertently placed where it is disconnected from its job, invariably degenerates in time into a useless bureau with no function except self-perpetuation. The job of the National Resources Committee can be easily misunderstood. It is not a committee for doing original scientific research or for administering a public works program, and it should therefore not be placed in one of the departments. It is a committee for doing a part of the routine work of the executive, and should be directly attached

to the executive staff. Otherwise, the committee will in time become only another "advisory board" presenting periodical reports which serve merely to encumber the public archives.

## 2. Public Works

The experience of the Public Works Administration, which was forced to organize a large program for an emergency, showed that national and local governments had generally neglected the advance preparation of engineering plans for their public work. The National Resources Board in its report of December 1, 1934, recommended that a new effort should be made to arrange public works programs 6 to 10 years in advance, so as not to be caught again unprepared. The Board recommended that in future programs all projects should be cleared through a central agency in order to avoid overlapping and misunderstandings, and also that the State planning boards should be invited to assist in coordinating the works in each of the several States. At the same time the Board proceeded with the task of compiling lists of proposed public works showing those which should be given priority.

The subcommittee on water resources, continuing the work of the Mississippi Valley Committee, prepared a list of water projects derived from various sources, including the records of the Public Works Administration, the reports of the Army engineers, the President's Committee on Water Flow, and various other Federal agencies and several State planning boards. These lists were checked first by separate committees from each of 13 regions, representing regional or State agencies and engineers. The projects then went to the general water committee for final classification, first as Federal and non-Federal, then as worthy of immediate action, worthy of action within 10 years or 25 years, or unsuitable for use. The projects were also arranged in order of priority within each classification, and each was analyzed in regard to the amount of employment which it would offer. In all, the water study included 2,041 proposed projects with a total estimated cost of nearly 6 billion dollars. This inventory, prepared by intensive effort in a few months, is not complete or scientifically accurate to the last decimal. However, the allocation of funds to public work can never be entirely scientific, owing to

the numerous and shifting social factors involved. The priority list will be valuable as a help in approaching the best allocation as closely as possible in future programs.

In the last 2 months two new studies for priority lists of public works projects have been begun in accordance with the request of the President. A new study of the major drainage basins of the country has been undertaken with the cooperation of State and regional planning agencies through the appointment of regional water consultants. For each of some 20 drainage basin areas a report will be prepared developing in broad scope the principal water problems and in as great detail as possible a picture of the ultimate development of the water resources. With this objective or picture as the ultimate goal, projects will be listed in their order of priority for all types of water development. In some basins pollution control and navigation will receive primary consideration; while in others reforestation, recreation, soil conservation, water power, flood control, or other uses will appear as the most important next steps. This drainage basin report, prepared under the general direction of the water committee, will be ready for transmittal to the President on December 1, 1936.

Concurrently with the preparation of priority lists of water projects the Resources Committee with the help of the Public Works Administration is assembling lists of 6-year programs of work from all Federal construction agencies. In this effort to carry on and revise the previous programs developed by the Federal Employment Stabilization Board, the Public Works Administration will assemble projects not only dealing with water but with all other kinds of public works.

One of the useful activities of some of the State planning boards has been the preparation of general priority lists of the public work proposed within the States. These lists have been useful to the State public works and relief administrations in finding work for the unemployed. In January 1935, the National Resources Board suggested to all the State planning boards that they cooperate in preparing a general list of available projects, for use in the coming work-relief program. The response was immediate and unanimous. The State offices sent questionnaires to local officials and others. The resulting lists were examined by the State planning boards and the Public

Works Administration State engineers as to the relative value and availability of the projects, and as to what public agency could most appropriately take charge of the work—the Public Works Administration, the Civilian Conservation Corps, Reclamation Service, or others.

The remarkable feature of this survey was the number of organizations which cooperated in furnishing information. Returns were received from 21,800 different units, ranging from 81 Federal offices to 7,800 municipal and 468 private organizations. There were listed 138,300 separate projects, estimated to cost 20 billion dollars. The State authorities who passed judgment on the value of these projects listed about 12 billion dollars worth as needed. The annual public works outlay of national, State, and municipal governments averaged a total of \$2,400,000,000 for the years 1921–30. Twelve billion dollars represents, therefore, a normal 5-year program on the predepression basis.

The general public works list was of limited usefulness in the program of 1935, because, owing to the state of public opinion, the appropriation had to be severely limited. It was therefore necessary to choose projects on a basis of capacity to provide employment, rather than on a basis of usefulness. Useful and efficient public work generally requires considerable amounts of material as well as engineering design and superintendence, making the cost run well above \$2,000 for each man-year of direct employment. When the funds are limited to about half this amount per man-year, proper materials and superintendence cannot be supplied, and much of the money expended produces only a part of the money value in permanent works. It is to be hoped that in future public works programs the appropriations may be adequate to cover sound and economical construction. Under such circumstances the priority lists of projects now available may serve as a basis for choosing public works which will add proportionately to the capital wealth of the Nation.

The inventory brought out clearly a need for funds to be used in each State to prepare engineering drawings and specifications for public buildings, schools, parks, reservoirs, etc., so that these projects may be listed as "ready for action." The Federal Government, in view of the manifest advantage of

having in readiness a good backlog of desirable projects, might well grant a few thousand dollars to be used in each State for this purpose.

The work of the State planning boards in collecting and analyzing work projects has placed them in a position to be increasingly useful in connection with public works in their States. A new effort to bring the inventory up to date and to secure the cooperation of the State planning agencies in developing new long-range programs of public works is now under way, with the cooperation of the Public Works Administration and the Works Progress Administration. State planning boards can assist in unsuaring conflicting projects, and in promoting the advance completion of engineering drawings, the acquisition of land and the working out of legal formalities, all of which are apt to be a source of delay and of added expense if they have to be done in a hurry in time of emergency. The work connected with these activities will lead by natural steps into a wide field of general study and coordination of state and local policies which will help to strengthen and vitalize these levels of government.

In addition to the water projects and general public-works inventories, the President suggested that a list be prepared of projects for the collection of scientific data needed by the several branches of the Government. At the request of the Resources Committee, a large number of scientific research projects were suggested by the Federal departments, the Science Advisory Board, the Social Science Research Council, the Council on Education, and other independent authorities. Some of the projects were new, others were extensions of work regularly carried on by the Departments of Agriculture, Interior, Commerce, etc. The list represented a total proposed expenditure of about \$250,000,000 for so-called white-collar work. Owing to the fact that technical supervision was only rarely available from the relief rolls, the cost of these projects per man-year rendered them generally unacceptable in the 1935 program. These scientific surveys have not been dropped and will be taken up again at the earliest opportunity. They include the completion of the base map of the United States, a census of the population and of the unemployed, studies of stream flow and of soil erosion conditions, and other surveys which are urgently needed in order to prevent waste

of effort and unnecessary losses in the budgetary expenditures of national and local governments. Special reports on deficiencies of basic data and methods of collecting information needed for the design of water projects have been prepared by special subcommittees of the Board.

At the request of the President, a special study is approaching completion dealing with principles underlying the allocation of costs of public works among the various levels of government and private beneficiaries, respectively. The policy of giving national aid to localities for objects in which the Nation is interested is older than the Constitution. The ordinance setting up the Northwest Territory in 1785 provided land grants for public schools. By 1934 a total of 115 million acres of public land had been granted to States for the support of educational institutions. Federal grants have been made since early times for military roads and canals, river improvements, railroads, public buildings and institutions and many miscellaneous objects including more recently such purposes as agricultural experimentation, eradication of venereal disease, vocational training, marine schools, employment exchanges, and protection against forest fires. During 1932 Federal grants to the States for all purposes were more than \$269,000,000.

A policy begun in the earliest years of the Republic, and yielding, in spite of occasional disappointments, generally satisfactory results, is not likely to be abandoned. In general, the use of Federal grants is based on two factors: the evident national interest in promoting certain kinds of development, and the fact that public funds derived from national taxes rest less heavily on business activity and on the smaller incomes than funds raised by local taxation. The actual administration of public expenditures can often be done in a more satisfactory way by local than by Federal agencies, but there seems to be a growing tendency to collect the funds by Federal rather than by local taxation. The long-standing custom of Federal grants-in-aid may therefore be expected to continue on an expanded scale.

When it comes to deciding on the actual amounts which ought to be granted, the problems involved are numerous and subtle. The Board appointed a committee to study the subject, with Dr. Robert Whitten as chairman, and

with an able group of consultants and representatives of various Government departments. The researches of the committee indicate that many factors have to be considered, the relative importance of which will depend to some extent on general economic conditions. The estimated money cost of the project in relation to probable local and private benefits should be taken into account, together with the ability of the benefited parties to pay. Equalization of opportunity and of community facilities is an important factor, partly balanced by the necessity for avoiding throwing money away on a dying community that is destined for depopulation owing to unpreventable economic changes. The principle should be recognized that a wise policy of Federal subsidy will aim to preserve local initiative and to reinforce a proper distribution of Federal, State, and local responsibility.

The relative weight of these various considerations is evidently different in prosperous times and in time of emergency, the Federal responsibility being greatest in time of greatest national stress. An important part of the work of the National Resources Committee should be to advise on changes in the national policy with regard to grants, in accord with changes in the economic weather. The actual policies to be pursued will, of course, have to be decided from time to time by the Congress.

To sum up the work of the National Resources Committee on public works—it has prepared and is revising lists of water projects, scientific research projects, and general public works showing recommended order of priority, and is now engaged on an extensive study into the problem of allocating the costs among Federal, local, and private parties.

The Committee believes that studies of this kind should be extended and kept up to date, as a means of assuring the possibility of a rapid and economical expansion of public works activity whenever economic conditions may require.

The Committee also renews its recommendation that a National Development Administration be established, to carry out in detail the negotiation of agreements with Federal departments and local governments for the performance of work and the allocation of costs in accordance with policies prescribed by the Congress.

### 3. The Use of Land

The dust storms have given the American people an unpleasant shock. For many years there have been a few forward-looking men who saw that the American land was in danger. Thomas Jefferson wrote:

Our country is hilly, and we have been in the habit of plowing in straight rows, whether up or down hill, or however they lead, and our soil was all rapidly running into the rivers. We now plow horizontally, following the curvature of the hills and hollows on dead level, however crooked the lines may be. Every furrow thus acts as a reservoir to receive and retain the waters, all of which go to the benefit of the growing plants instead of running off into the streams.

Jefferson's countrymen were slow to follow his example. They went ahead, generation after generation, destroying billions of dollars worth of their own property until the time came when outraged nature rose in wrath and darkened the sky with the portent of coming disaster. It has been a costly but useful lesson, which we hope will not have to be often repeated.

The fact is that most of the territory occupied by the United States is not naturally suited for a permanent civilization. It is like the land of the Mayas of Yucatan or the land of Babylon—a rich country where civilization can flash into a blaze of glory and then collapse in a few generations into ruin. Our soil is not enriched by the usual methods of cultivation, but impoverished. By the normal processes of our farming, our mining, and our lumbering we create a desert. Americans need to realize that all other national hopes and aspirations are secondary to the question whether we can continue to eat. Without a fertile soil and self-renewing forests, the splendor of our bankrupt cities will become a ghastly joke. Armies and navies cannot defend a nation against the scourge of wind and flood; constitutions and courts have no authority over natural law. Any nation whose land naturally tends to turn into desert must either take measures to preserve the land or it will surely die.

Nations in other parts of the world have prospered for hundreds or thousands of years because either by luck or good management they were able to preserve their soil. In the Orient some of the flat lands have been preserved by careful fertilization. In Peru the land was terraced at a staggering public cost, creating a stable civilization which endured

until it was conquered by the Spanish invasion. The cost of survival depends on the density of population and on the extent to which it is forced to use poor or sloping land. If the population is small enough to afford land for grazing rather than for plow crops, the problem of preserving the land is far simpler and the necessary discipline is less severe. In America, with our present population and our present knowledge of agricultural technology, we can easily support ourselves by plowing only the flat lands or the lands that can be terraced without great expense. We have land enough to afford to raise cattle without overgrazing, and we can afford to turn our mountain sides into forest without overcrowding ourselves in the valleys. America, therefore, does not need to submit to the drastic antlike discipline by which Egypt and Peru held back the desert. But America cannot escape the necessity of controlling the present ominous wastage of the land.

The National Resources Committee has had a subcommittee studying the numerous aspects of the land problem. The State and Federal Governments have long been struggling with the problems of land use, and since the recent droughts and floods awakened popular interest, they have been able to make fair progress along many lines. Many of the specific recommendations offered by the Committee in 1934 are already being put into action by various agencies of Government; others are making more or less progress. The general feeling of the committee is one of encouragement. There will be no serious danger of national disaster from soil erosion if a comprehensive program of erosion control can be in full swing within 10 years and if the soil can be under control in 20 years. Measured on that time scale, the progress of the last 2 years is satisfactory—provided no reaction to previous conditions of irresponsibility occurs.

Maps of the United States have been prepared<sup>1</sup> to show "problem" areas, where the present use of land is leading to undesirable results. On the map are shown areas where it appears desirable to buy up some of the land now under plow. Other areas would be more prosperous if farms were larger; still others require encouragement toward changes in crop systems or other farm practices. In

<sup>1</sup> See Supplementary Land Report, pt. VI, Maladjustments in Land Use.

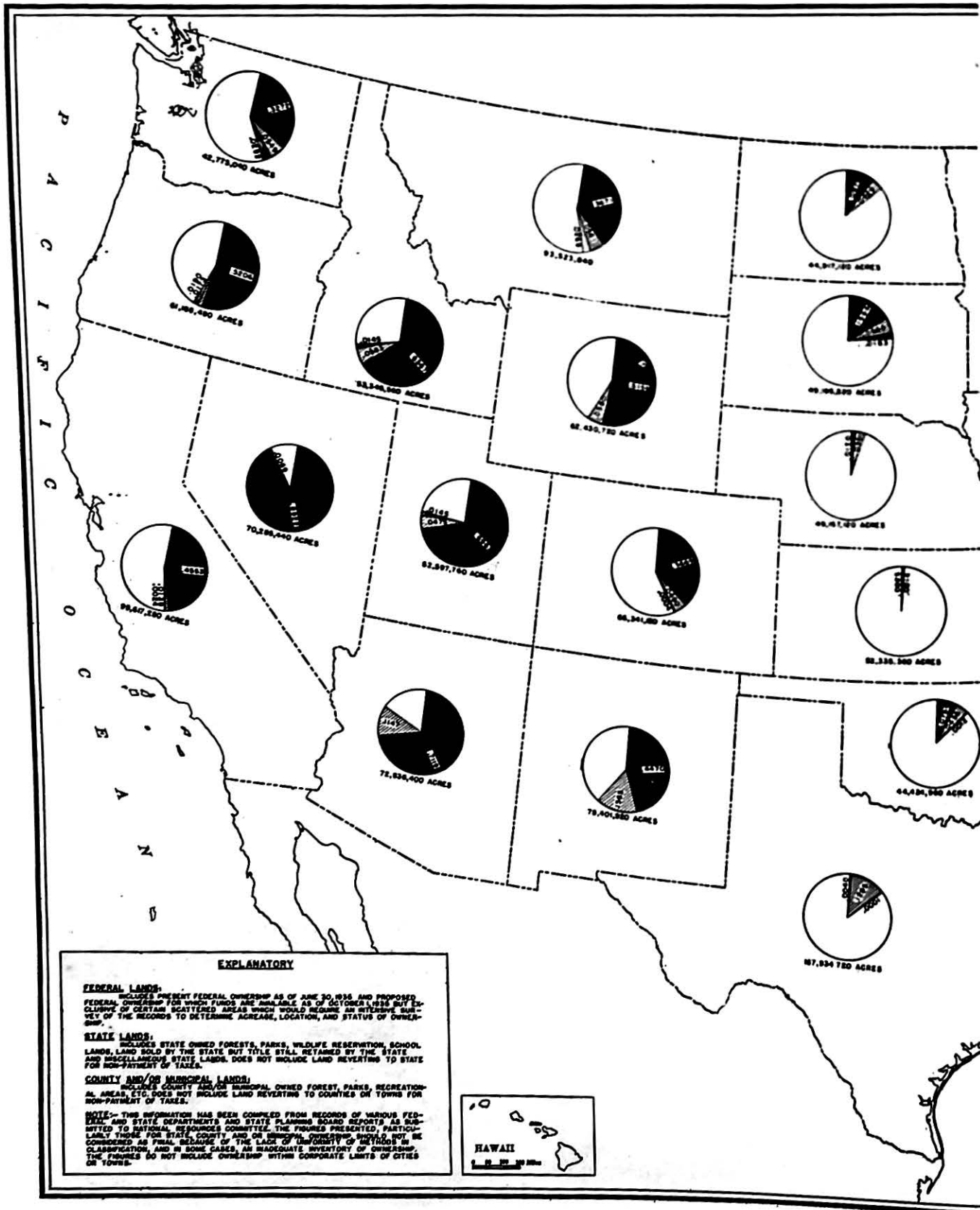
some places the farmers need better drainage, flood control, or water supply, or a relief from overwhelming debts that rest on their irrigation or drainage districts. In others the use of range land needs better regulation to prevent overgrazing and destruction of the range. Information has also been collected from all available sources as to good lands now unoccupied, to which farmers may be encouraged to move, to the mutual benefit of themselves and the Nation.

Many States are experimenting with rural zoning, intended to prevent farmers from attempting to settle land which is fit only to break their hearts. The land committee has made a study of zoning legislation, and has been able to give useful information to those who were pushing legislation of this kind in the several States. Studies have also been made of the tenancy problems, especially of proposed laws for compensating tenants for improvements which they may make on rented property.

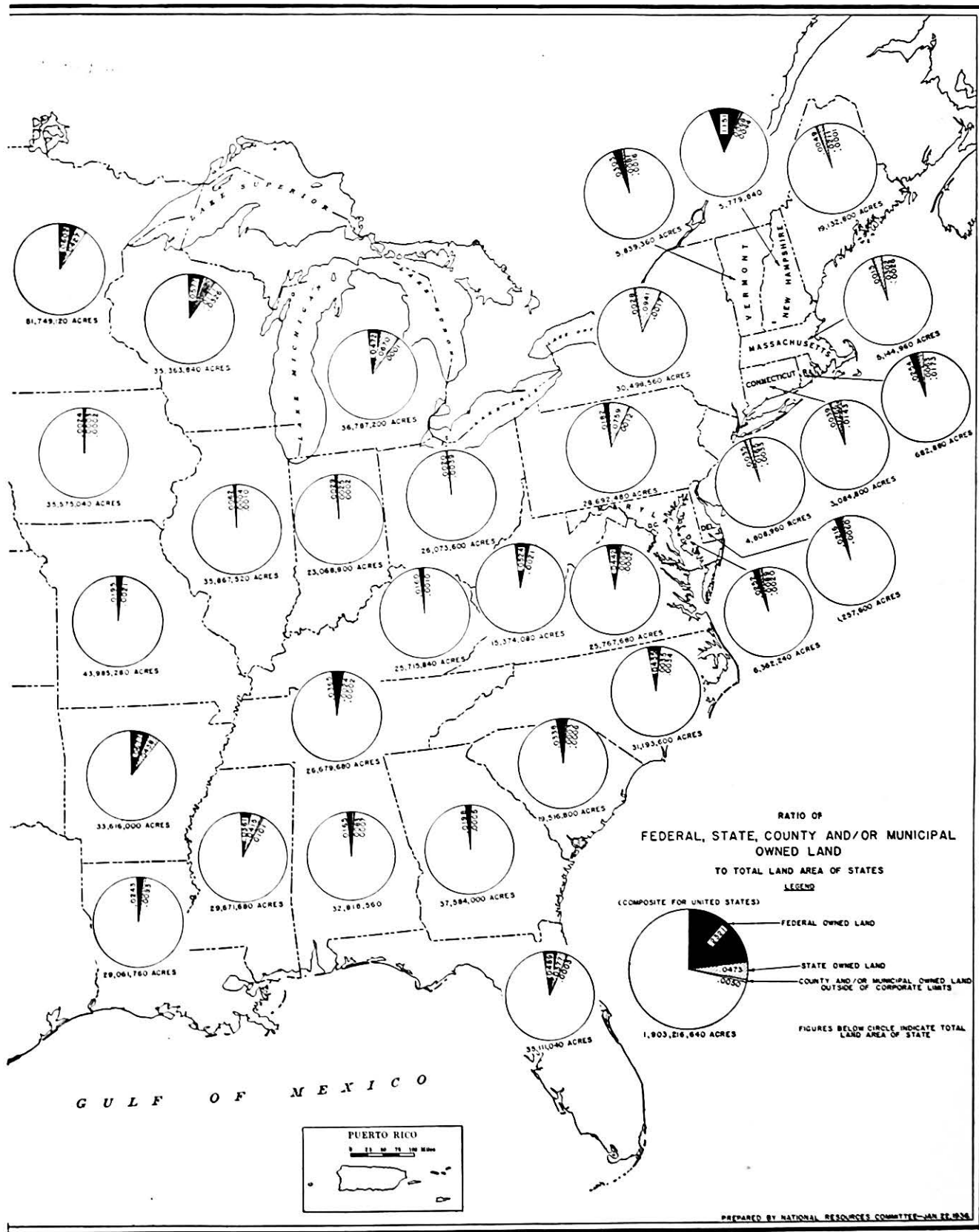
A good beginning has been made through a land record service, on the job of collecting information as to all proposed public purchases of land, with a view to preventing competition and overlapping of such programs among the State and Federal agencies. The difficult problem of disentangling the functions of different Government authorities dealing with separate uses of land is being examined with the help of representatives of the various bureaus. At the suggestion of the Secretary of Agriculture a special study was made for the Committee on the interchange of expert personnel among Federal bureaus dealing with land management problems.<sup>2</sup> Another report on designation of areas for recreational use has assisted coordination of management policies in that field of land use.

Each of the governmental agencies, through its representative on the subcommittee, has made careful recommendations for the improvement and coordination of work in its separate field. The wide area of national interests covered in these recommendations includes the extension and improvement of national forests and parks, arrangements for encouraging the renewal of forests under private management; the enlargement of Indian reservations and a more enlightened policy toward the Indians

<sup>2</sup> See J. W. Fessler's *The Loan of Expert Personnel Among Federal Agencies*.







generally; protection of marshes used by wild fowl, and of the ranges of upland wildlife; and the restoration or preservation of natural beauty, especially along highways which are principally used for scenic travel. Each of these numerous public services has been established with the approval of enlightened public opinion; they need now to be drawn together into a consistent picture that will stand as an inspiring program for the enrichment of civilization on this continent.

Progress during the past year has been accomplished in an encouraging number of lines. Soil conservation has become a matter of widespread national concern. A permanent Soil Conservation Service was established by the Seventy-fourth Congress, and the Supreme Court decision invalidating the Agricultural Adjustment Administration has served to transfer the farm problem from the field of market control to the more fundamental basis of preservation of the soil. The Resettlement Administration has been charged with the acquisition of land unsuited for farming, which will be used for parks, wildlife refuges, etc., and about 11 million acres have already been acquired or are under option. Public land has been closed to homesteading by Executive order, pending classification, so as to avoid letting any more homesteaders in for losses on unsuitable land. Congress has begun consideration of measures for curbing the alarming growth of tenancy and for encouraging farm ownership.

The committee recommends that a permanent land section be established under the National Resources Committee, with representation from the various agencies concerned with land, to continue the study and coordination of governmental policies. It recommends further purchases of land on a large scale, as the most practical means of protecting lands that cannot be made commercially profitable if used in ways consistent with the public interest. It recommends further encouragement of zoning by states and counties, resolute pushing of soil conservation, and a restudy of reclamation problems by the Departments of Agriculture and the Interior.

The application of common sense and of scientific knowledge to our vast land resources will call for better management than this country has had in the past. Our scientists have done an immense amount of valuable

preliminary work. Many Government agencies have started useful but inadequate programs of improvement. We need now a general program of coordination, of popular education in the fact that money spent in preventing waste is well invested, and of general advance along the whole front.

#### 4. The Use of Water

One inch of rain over the whole United States would drop upon our country 230,000 million tons of water, or eighteen hundred tons of water for each inhabitant, enough to drown all of us if it could catch us. In many parts of the United States several inches of rain will fall in a single storm. Water is a menace to life and property—water is also a necessity.

Engineering works for the control and use of water vary in size from the Panama Canal and Boulder Dam down to farm terracing and trout-stream improvements. The same water may be used for irrigation, for hydroelectric power, for boating and fishing, for a city water supply, and for navigation. A dam may serve one or all of these purposes. Often the various beneficial uses are in conflict. A dam to be used for flood control must be emptied between floods, spoiling the lake for recreation purposes and seriously interfering with its use as a source of power. The engineers can decide on the best method of building dams, canals, and levees. But when a choice has to be made between conflicting uses of water, the question has to be decided in the long run by the voters. There is no valid principle of choice between, for example, electric power and natural beauty except what the public want.

The National Resources Committee, in directing a study of the utilization of water resources, is interested primarily in providing for a balance of use that will come as near as possible to satisfying the desires of the people. The various authorities, Federal and State, having charge of water services, serve on the water committee with a view to promoting this basic purpose.

In most cases, the engineering works for river control should be designed for the whole drainage basin of the river, as most of the problems take shape in terms of the river basin as a whole. In the early stages of settlement, there is no great harm in building isolated dams and irrigation works, but as the various control systems begin to interfere with one

another a general design becomes essential if disastrous waste is to be avoided. If the river developments are to make sense, they must be related not only to the simple engineering problems, but to the whole economic and social situation including land use, industries, towns and cities, and the needs of aesthetics, health, and recreation. Engineers are required, but engineers are not enough.

Any design for water use needs to be changed from year to year to keep up with new and unforeseen developments. Moreover the scientific records of surface and ground water behavior are more or less incomplete. Present designs have to be made with the available data. All possible pressure should be used to increase the program of collecting scientific records and keeping them up to date, so that projects may be revised and perfected as the information at hand becomes more accurate.<sup>3</sup>

The country is now so thickly settled, and conflicts of water use are so common, that all public authorities dealing with water should be brought into close cooperation as rapidly as possible. The Water Resources Committee constitutes a clearing house for water problems and should be continued under the National Resources Committee as a permanent agency to serve as a coordinating agency, cooperating with Federal, State, and local authorities, with the best available engineering and scientific advice, so that all the agencies having to decide on water policy may be able to obtain such information and assistance as they may desire. In particular, the water committee should maintain through the National Resources Committee and the State planning boards, an effective contact with the President and with the State Governors, so as to keep the responsible executives currently informed as to problems that call for action.

The recent and current work of the Water Resources Committee is described in the accompanying report. During 1935, subcommittees have been developing systematically its program of basic researches. A special committee has been studying the problem of water pollution, which is having an increasingly serious effect on public health, fish life, and the cost of obtaining water supplies. The special committee includes representatives of the Biological Survey, the Army Engineers, the Bureau of Mines, the Public Health Service,

the Maryland State Department of Health, and the New York University Department of Sanitary Engineering. The committee has suggested that a Potomac River conservation district should be set up to serve as a demonstration and research unit.

Another special committee has been studying the collection of scientific records and the possibility of agreement on standard forms for such information which will make it more useful in engineering practice. The Mississippi Valley Committee has secured the cooperation of the Geological Survey in collecting information on rainfall and run-off and on flood flows.

Special studies have been made of the Central Valley of California project, of the drought problem of the Dakotas, of the general water shortage problem, and of Kansas City flood control.

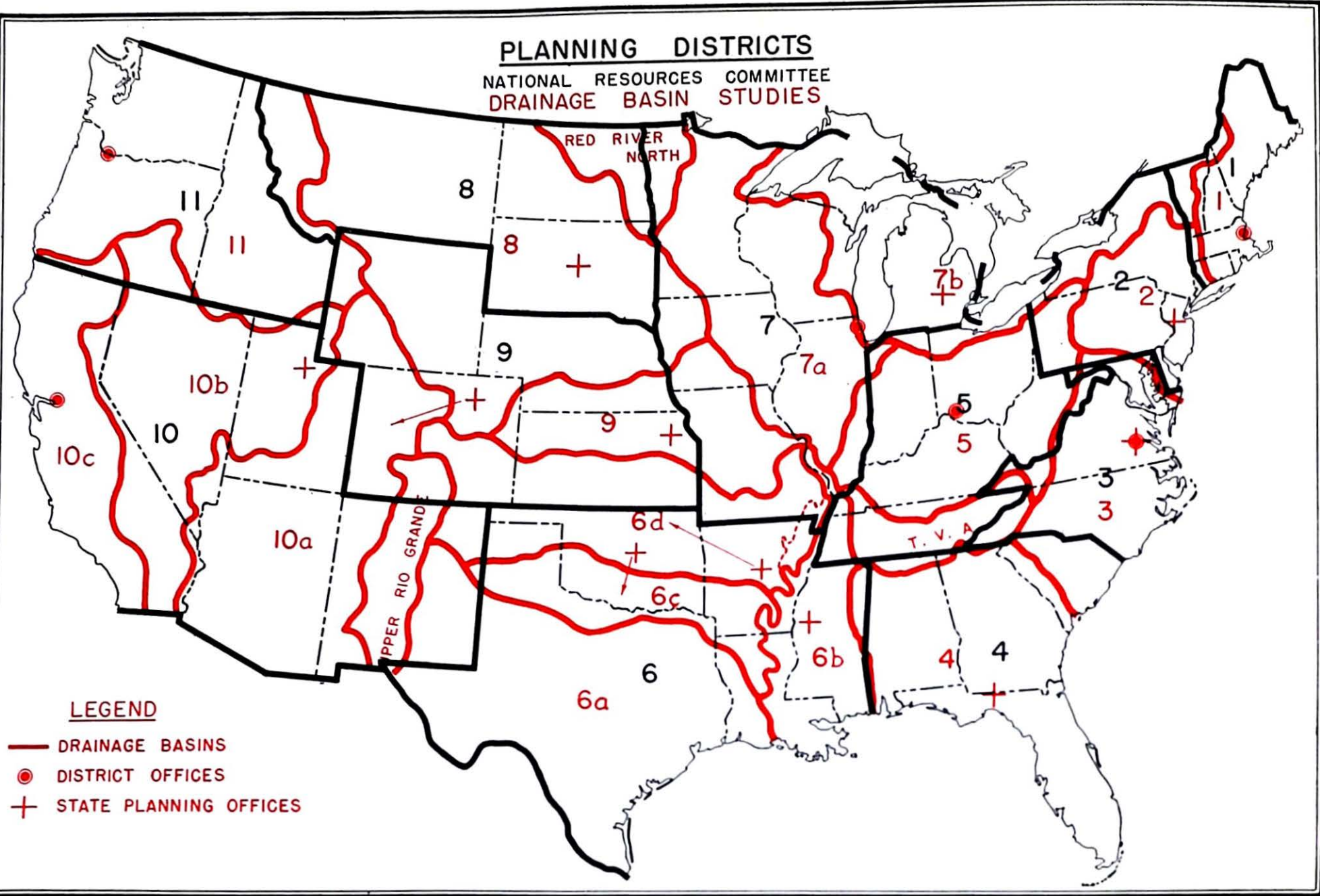
The Water Resources Committee, representing eight Federal and two State agencies, together with two consultants of national reputation, has devoted attention to the collection of basic information and to promoting cooperation among various public agencies. Following a request from the Secretary of Agriculture for the consideration of conflicts of interest in land drainage, the Committee organized a subcommittee representing the various responsible agencies. The subcommittee achieved notable progress in harmonizing the views, policies, and methods of the agencies represented. Although the field of drainage activities cannot be completely covered by the action of Federal agencies, the subcommittee was able to suggest Federal policies that would at least decrease the danger of undesirable projects in the future. The subcommittee's work is one of the outstanding accomplishments of the year's program.

Another subcommittee of three special consultants examined the urgent water problem of the Upper Rio Grande Basin. It found that Federal investments in water projects were in danger of injury by subsequent allocations of other Federal funds, and that additional allotments were being urged which would aggravate the situation and also violate the Rio Grande compact between Colorado, New Mexico, and Texas. As a result of this report the President ordered all Federal agencies to obtain the review of the National Resources Committee before approving allotments for the use of Rio Grande waters pending an exhaustive survey.

<sup>3</sup> See separate report on Basic Hydrologic Data, May 1936.

# PLANNING DISTRICTS

NATIONAL RESOURCES COMMITTEE  
DRAINAGE BASIN STUDIES



## LEGEND

- DRAINAGE BASINS
- DISTRICT OFFICES
- + STATE PLANNING OFFICES

A joint investigation of the situation in the Upper Rio Grande Valley has been made possible by an allocation of funds from the Public Works Administration, contributions from the States concerned and through the cooperation of Federal and State bureaus and departments. As a result there is a gratifying opportunity to readjust the program so as to prevent discord, social insecurity, and severe economic losses to the people of this area.

The Red River of the North presented a difficult problem, because of lack of necessary basic surveys. A conference was held with about 40 representatives from Minnesota and the Dakotas, dealing with the need for a comprehensive program, with the selection of certain projects which could be started at once with confidence that they would fit into the final scheme, and with measures to promote needed legislation. The conference was a success, and a committee was formed to proceed with the needed investigations.

With these experiences in mind, the National Resources Committee, through its Committee on Water Resources, is now engaged on a national study of water use and control in the major drainage basins of the United States. The Committee hopes to obtain a reasonably clear picture of the long-range pattern for each important drainage basin and at least a preliminary list of projects which may be properly constructed in keeping with that pattern. This preliminary plan or reconnaissance it is hoped will be submitted to the President of the United States on December 1, 1936. This can only be accomplished through the complete cooperation of State and regional planning boards, of interested Federal, State, and local agencies and of private industry.

By this effort the Committee is attempting to provide a sound and Nation-wide outline for securing the greatest beneficial use of the water resources of each major drainage basin in the United States. Obviously with the limited time and financial resources available for the study only a skeleton plan, largely of preliminary character, is feasible. Such a bird's-eye view, however, of the national problem and of the available data shedding light thereon should be the beginning of recurring and continuing adjustments in each major basin.

By this study the Committee should also be able to furnish various Federal, State, and local agencies a clear statement of the dominant

physical and economic considerations affecting the use and control of water resources in each basin, even though such a reasonably integrated pattern of development can be furnished only in broad outline. Out of this study a series of specific construction projects should also appear which might properly be executed as time goes on, in accordance with the integrated plan of ultimate development. It should be clear that uneven programs of development will necessarily result from this study. Some areas of the country have been intensively studied for years, while others have had little or no detailed review by either State or Federal agencies.

In the latter areas, the elements of an investigative program for further study and revision of the general program which may be outlined during 1936 are to be presented.

The three major objectives, therefore, of the Committee in this proposed study of drainage basin water resources are—

(1) To point out the outstanding problems of water use and control in the different parts of the country;

(2) To outline in broad terms a reasonable and integrated pattern of development; and

(3) To present specific construction and study projects which, in the light of available information, are consistent with the broad plan.

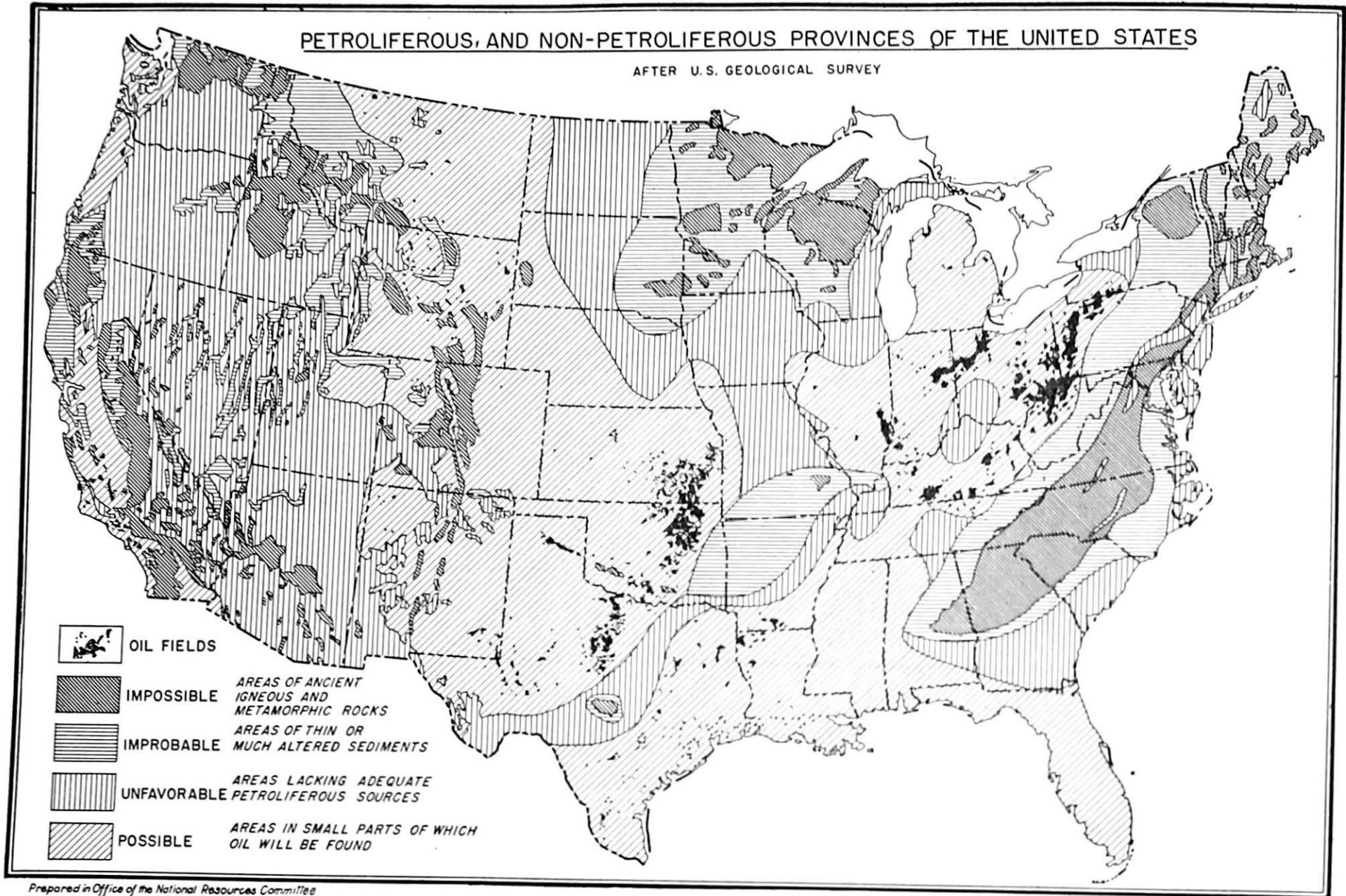
The work of the Water Resources Committee, like that of the other subordinate committees, illustrates at the same time the valuable immediate results that can be obtained by promoting cooperation among Government agencies, and the large field of action in which only a small beginning can be made in a short time. The work of the water committee should be continued and enlarged to cover other problems as conditions may require.

## **5. Mineral Resources**

America is a rich country. The United States has five-eighths of all the coal in the world and nearly half of all the iron ore. We can burn coal at the present rate for many centuries to come, during which time the scientists are more than likely to find some new source of power. But there are other resources, such as petroleum, that may be exhausted within the present century, and others such as phosphate rock, which exist in comfortably large but not in unlimited amounts. Phosphate rock, for example, is the source of an

# PETROLIFEROUS, AND NON-PETROLIFEROUS PROVINCES OF THE UNITED STATES

AFTER U.S. GEOLOGICAL SURVEY



Prepared in Office of the National Resources Committee

element of soil fertility on which the maintenance of life depends. Animals in a state of nature return their borrowed phosphorus to the soil. But we send our sewage to the sea and our bones to the churchyard; the phosphates leave the farm and never come back. America cannot afford to waste nor to export its precious phosphate rock.

Many minerals are lacking in America; they have to be brought in from abroad. There is a problem of locating reserves of these strategic materials in our own territory, or of accumulating reserve stocks against the possibility of foreign disturbances which might temporarily shut off our supplies. Thus in one way or another, the future of our country is vitally involved in the skillful management of our mineral resources.

The mineral section of the National Resources Committee has been conducting a number of fundamental studies which will be useful as a basis for national policy. A report has been prepared by D. M. Liddell on the productive capacity of mines, smelters, and refineries in 25 leading mineral industries. A comparison report by Kenneth Leith shows the best available estimates of ore reserves in the producing camps and of submarginal reserves, supplemented by brief statements as to the possibilities of utilizing the submarginal ores if they should be needed. G. S. Strasser has prepared a valuable report on the effects of production control in the coal-mining industry of Great Britain. Mineral flow maps have been prepared by the Bureau of Mines showing the flow of strategic raw materials from foreign countries to the United States.

The widely representative character of the committee on minerals responsible for these articles is indicated by the membership list: Harold L. Ickes, Secretary of the Interior, is chairman; Dr. C. K. Leith, of the University of Wisconsin, representing the Science Advisory Board; Herbert Feis, economic adviser to the Department of State; J. W. Furness, Chief of the Economic Branch of the Bureau of Mines; Lt. Col. C. T. Harris, Jr., Director of the Planning Branch, Office of the Assistant Secretary of War; Leon Henderson, formerly Director of the Division of Research and Planning of the National Recovery Administration; W. C. Mendenhall, Director of the United States Geological Survey; F. A. Silcox, Chief Forester of the Forest Service; Wayne

C. Taylor, special assistant to the special adviser to the President on Foreign Trade; Dr. W. L. Thorp, formerly Director of the Consumer's Division, National Emergency Council; and John W. Finch, Director of the Bureau of Mines. This list illustrates in a striking way the fact that the work of the National Resources Committee is primarily that of bringing together the existing agencies for concerted action.

This mineral committee recommended in 1934 that the mineral industries should be allowed to organize to prevent wasteful production practices, subject to control in the interest of wage earners, consumers, and the national requirement of conservation. The experience under the National Recovery Administration should be studied with care, so that legal and practical measures may be found to obviate the most wasteful features of the industries. The subsequent passage of the Bituminous Coal Conservation Act in 1935 is an important development in this field, from which further experience will be gathered as to both the physical and legal aspects of the problem. Laws have also been passed prohibiting interstate shipments of petroleum produced in violation of State laws, and consenting to an interstate compact to conserve oil and gas.

The committee called attention to the necessity for prompt study and action upon the distressed condition of populations stranded in mining areas where the mines are closed. It recommended also that the scientific agencies of the Government should be given the funds to make needed investigations on which future policy can be based.

At the suggestion of the President, the Mineral Policy Committee was discontinued in January as a separate agency and provision made for continuation of its work as an activity of the National Resources Committee. Steps are now being taken to inaugurate further studies in this field and particularly on problems of competing fuels.

## 6. Production, Transportation, Consumption

Since 1929, enough labor and machine capacity has been wasted in America to have rebuilt practically all the factories, railroads, and utilities in the United States. The Federal Government is properly interested in examining the characteristics of industry—its capacity to

make and transport goods—and the requirements of the consumer—the unsatisfied demands that would appear in the market if the consumer had sufficient amounts of money to spend.

General surveys of America's capacity to produce have been made by the Brookings Institution and by the National Survey of Potential Product Capacity. The National Resources Committee appointed Dr. Gardiner C. Means in September 1935, as director of the industrial section to conduct a more detailed study of the problems concerned with the productive capacity of American industries, partly by original research and partly by cooperation with other agencies which are concerned with particular industries. At the same time, with the assistance of a staff under Dr. Hildegard Kneeland, plans have been developed for a large scale survey of family expenditures which is being conducted by the Bureau of Labor Statistics and Bureau of Home Economics, with the help of relief labor, to obtain data on consumer habits and desires. The transportation committee of the National Resources Committee, with the cordial cooperation of the Federal Coordinator of Transportation and the other interested Federal bureaus, has laid the foundation for an investigation of the kind and quantity of service that various types of carriers, from railroads and ships to trucks and airplanes, are prepared to supply, and at what cost these services can be rendered.

The uses for which such data are needed are many and important. Great economic losses have fallen on individual producers and on the community because of mistaken ideas as to consumer demand or the productive capacity of competitors. More accurate data will be valuable as warnings to prevent overbuilding of industrial plants or overproduction of certain types of goods. At the same time a knowledge of the capacity of industry and of the demands of consumers will be useful to State and Federal governments in the formulation of economic policy.

The studies to date have been mainly concerned with developing methods of measuring capacity and of judging the significance of the obtainable facts concerning industrial plants, and with planning the family expenditure survey. Progress reports will be made available as the studies go forward.

## 7. Science, Technology, and Population

In preparing its preliminary report the National Planning Board was greatly aided by a memorandum submitted, at the request of the Board, by a committee of the National Academy of Sciences on the role of science in national planning, and another memorandum submitted by the Social Science Research Council on the role of the social sciences in national planning.<sup>4</sup>

In the hope of continuing this important relationship with scientific bodies, the National Resources Board set up (with the specific approval of President Roosevelt) an advisory committee on science. This committee consists of nine persons, three appointed by the National Academy of Sciences (President Frank R. Lillie, Dr. E. B. Wilson, of Harvard, and Dr. John C. Merriam, of the Carnegie Institution of Washington); three appointed by the American Council on Education (President Edward C. Elliott, of Purdue University, Dr. Charles E. Judd,<sup>5</sup> of Chicago, Dr. Walter D. Cocking, commissioner of education, Nashville); and three designated by the Social Science Research Council (Dr. William F. Ogburn, University of Chicago, Dr. Harry A. Millis, University of Chicago, and Dr. Carter Goodrich, University of Pennsylvania).

In this committee are brought together for the first time representatives of natural science, social science, and education, hitherto working separately, but now cooperating with the National Government through the advisory committee of the National Resources Committee.

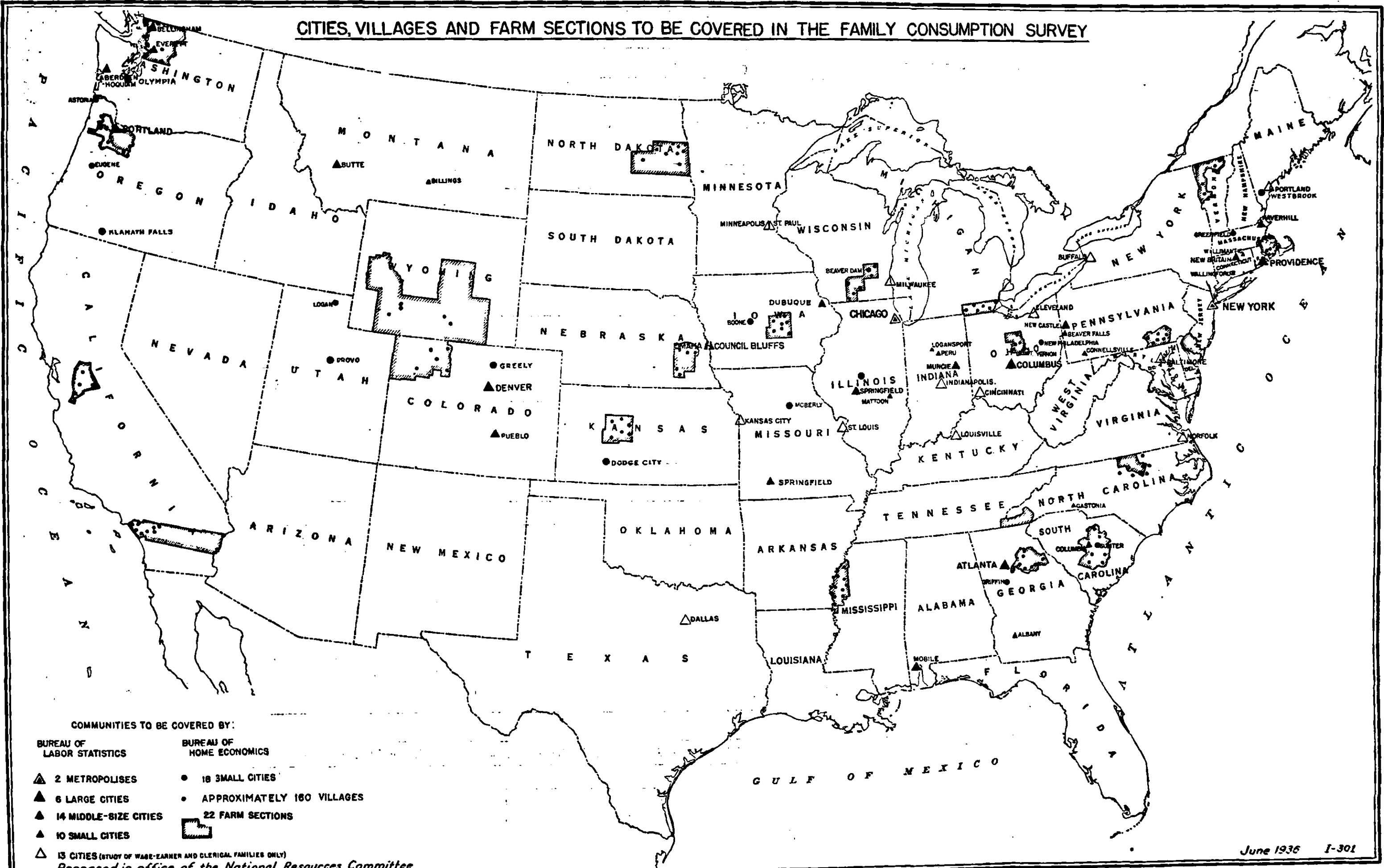
The science committee has already authorized the organization of two studies, one on the impact of new inventions on the social organization, the other on population problems. For these studies, subcommittees have been organized; in the case of the technological study with Dr. William F. Ogburn, chairman, Dr. J. C. Merriam, and President Edward Elliott; and in the case of population problems, with Dr. E. B. Wilson as chairman, Dr. Wm. F. Ogburn, Dr. Charles E. Judd, Dr. David Linn Edsall, and Dr. Warren Thompson, members. This second committee is served by a staff under the direction of Mr. Frank Lorimer and

<sup>4</sup> These documents are printed in the appendix to the report of the National Planning Board.

<sup>5</sup> Succeeded Dr. Edward L. Thorndike of Columbia who resigned on account of illness.



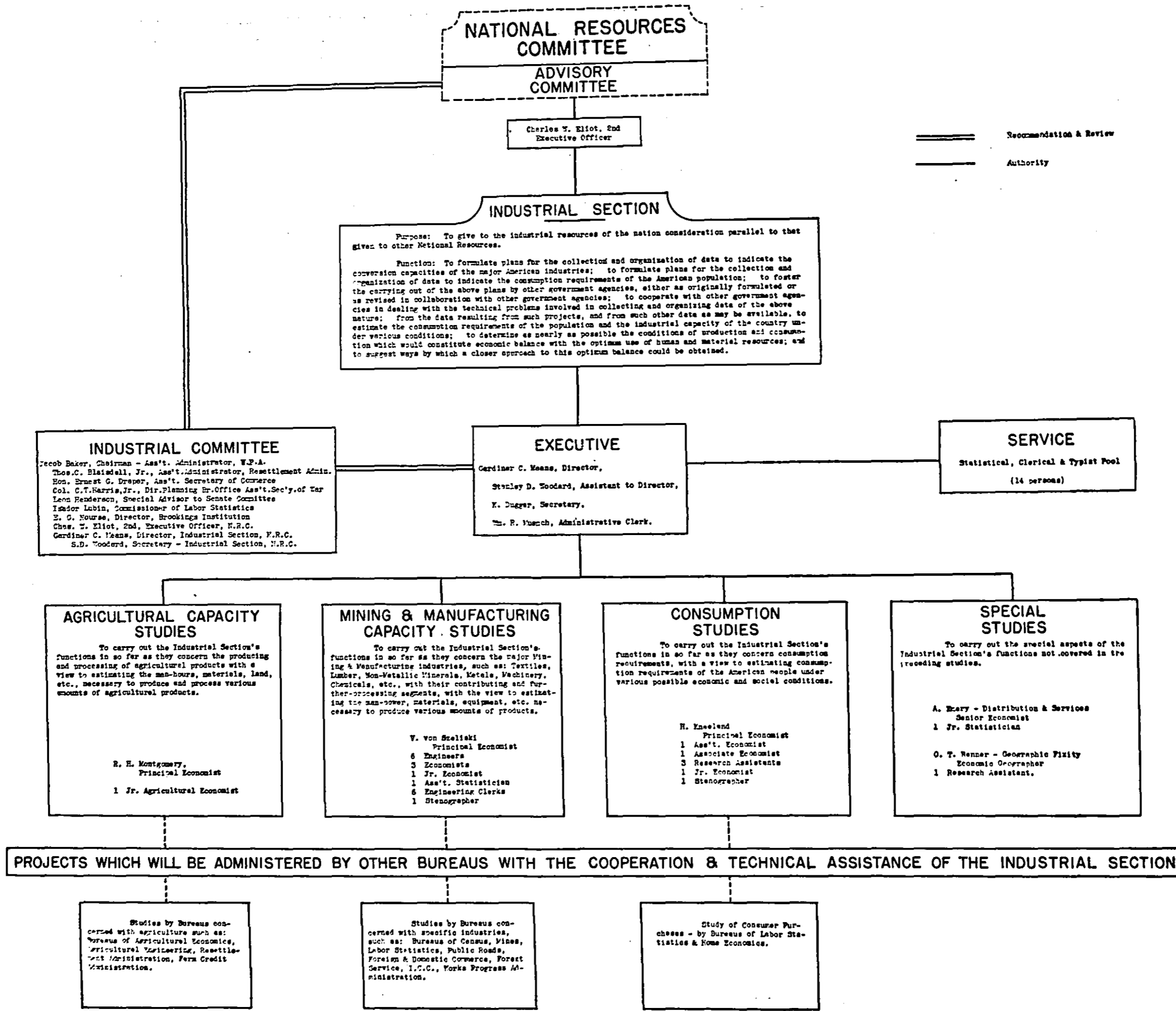
# CITIES, VILLAGES AND FARM SECTIONS TO BE COVERED IN THE FAMILY CONSUMPTION SURVEY



COMMUNITIES TO BE COVERED BY:

<b>BUREAU OF LABOR STATISTICS</b>	<b>BUREAU OF HOME ECONOMICS</b>
▲ 2 METROPOLISES	● 18 SMALL CITIES
▲ 6 LARGE CITIES	● APPROXIMATELY 160 VILLAGES
▲ 14 MIDDLE-SIZE CITIES	■ 22 FARM SECTIONS
▲ 10 SMALL CITIES	
▲ 13 CITIES (STUDY OF WAGE-EARNER AND CLERICAL FAMILIES ONLY)	

Prepared in office of the National Resources Committee



==== Recommendation & Review  
 \_\_\_\_\_ Authority

both groups expect to produce preliminary reports during the next few months.

#### 8. Regional Coordination

One of the most important functions of government is that of organizing the people for the conquest of natural enemies—fire and flood, disease and insect pests, all of which show a complete disregard for State boundary lines. The police power of the Federal Government is limited by the Constitution—that of the States by their geographical boundaries; the public interest requires that neither human criminal nor natural enemy should be allowed to escape between the two. Many necessary public services have to be organized in an area that is larger than the State but smaller than the Nation; they are regional.

A report has been prepared by a special research committee dealing with the methods now in use for handling regional problems and making recommendations for further development. This report was published in December 1935.

For some purposes the interstate compact has been found useful, and the number of compacts has increased greatly since 1900. The Tennessee Valley Authority, a regional organization based on flood control and navigation, has led to a series of proposals for establishing similar authorities in other river basins. General regional organizations have been set up in New England, in the Pacific Northwest, and in the Ohio Valley, representing groups of States which have a number of problems in common.

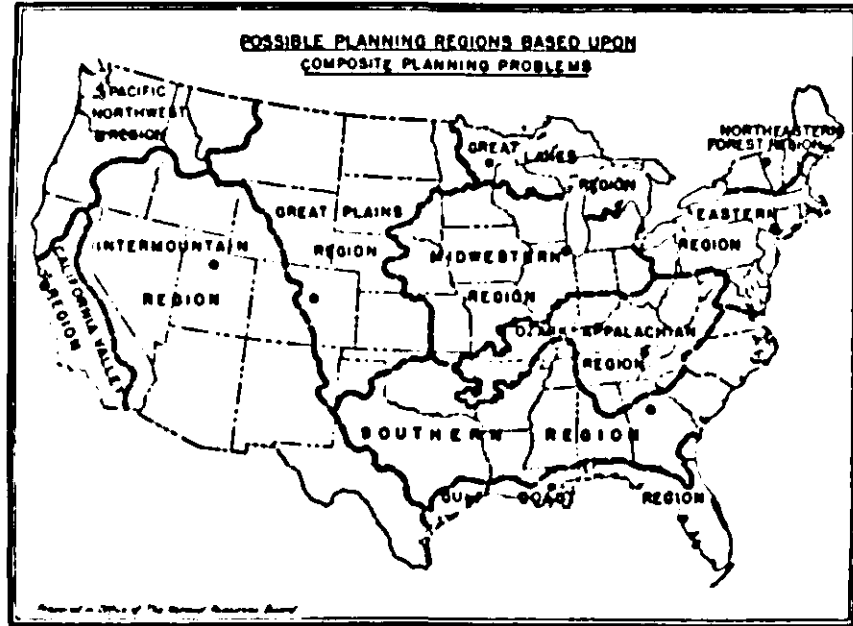
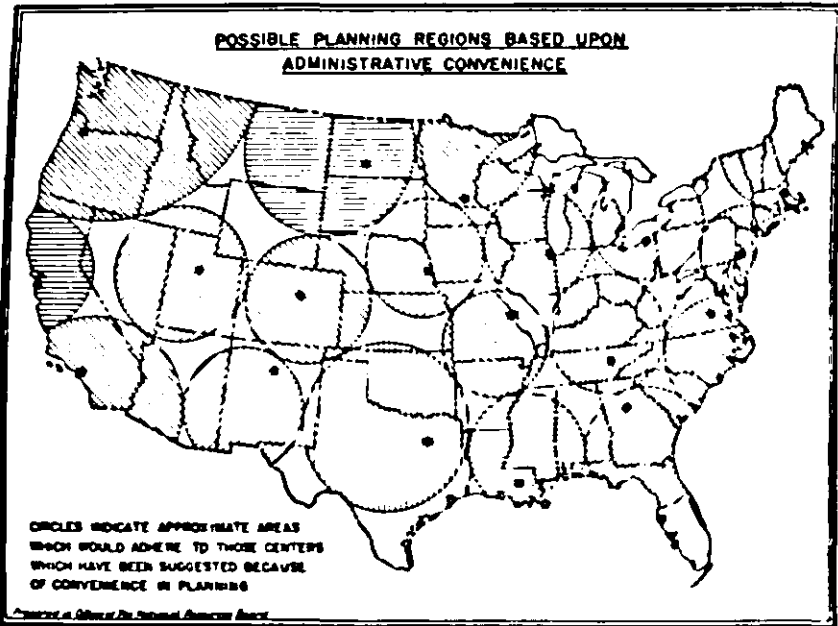
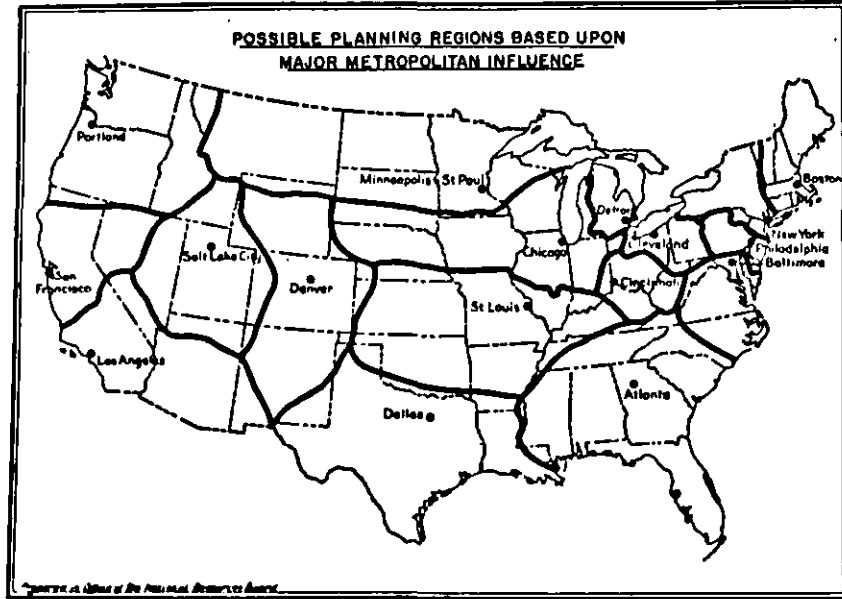
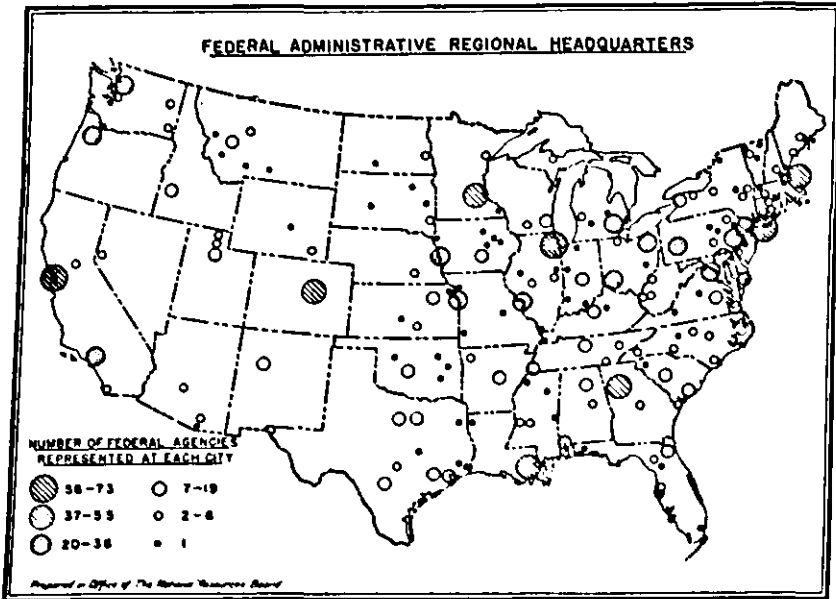
The National Resources Committee suggests the organization of a number of regional commissions which would have the special duty of bringing together the various regional interests and suggesting methods of carrying out such programs as may be needed. The number of such regions should be left indefinite, and in the early stages regional offices should be set up only as the demand for them arises, lest they find themselves without functions and succumb to atrophy.

The regional commission should not be considered as a new form of governmental unit, even in embryo. Consequently the region need not have definitely located boundaries, or a definite body of citizens. A citizen can regard himself as belonging to one region for one purpose and to the adjoining region for

another. The region should be defined as it is in popular speech, as an indefinite area in which some particular natural or human characteristic is prevalent. The regional commission should be a representative group of citizens, with headquarters in some convenient city, concerning themselves with a number of regional problems largely overlapping but each having its own and perhaps different geographical area. The problem areas of adjoining regions may be expected to interlace and overlap, with frequent opportunities for cooperation and for joint action.

A valuable feature of having no definite regional boundaries is in the welding effect of interlacing regions upon the national structure. The rapid and drastic changes that are occurring necessarily subject the nation to heavy internal strains. Some areas are subject to heavy debts and absentee ownership—others depend for their prosperity upon the power to collect debts. Normally the conflicting sectional interests interact through the national elections and the Federal Congress, leading to adjustment without civil war. If regions with serious problems were to be organized with definite boundaries, the tendency to defend the regional interests at the boundary line, so characteristic of Europe, would be encouraged in America. A series of interlacing and overlapping regions, closely cooperating with the Federal establishment, will help to cement the Union and to promote a national solution of intersectional maladjustments.

Regional centers may be located and problems defined with a view to obtaining regions that are homogeneous, or with a view to setting up diversified regions embracing different types of agriculture and industry. The National Resources Committee suggests that diversification, decentralization of industry, and regional self-sufficiency are desirable ends. No region is likely to become excessively self-contained, but if extreme specialization can be overcome, the danger of sudden disaster from technological or business changes may be diminished. Overspecialized regions, containing powerful centralized employer and labor groups, are also peculiarly liable to violence and to disregard of the Federal Constitution. Diversification and self-sufficiency are important means for stabilizing and strengthening the American social order.



If a regional planning commission is to live and thrive, it must be carefully designed. There being no regional government, there will be no regional executive of which the commission can become a part. Its proposals will therefore hang in the air, unless it is effectively connected with an executive who can bring them before some legislative body for action. The commission should therefore have a continuous contact with the National Resources Committee and with the several State planning boards of its region, so as to be able to submit its recommendations to the President and to the State Governors. The regional commissions can be made strong and useful if the Federal and State executives are willing to lend them due consideration and countenance.

### 9. State and Local Planning Boards

The depression has made the task of State government extremely difficult. With limited taxable resources the States have been faced with heavy expenses for relief. On the one hand, the necessity of saving cities and counties from financial disaster, and on the other, the need for Federal assistance in carrying the relief load, could not fail to create intricate problems of adjustment. The advantage of a State planning board to coordinate the public works projects as well as to consider other problems of State policy has therefore become increasingly evident.

At the same time the Federal Government has been able to supply white collar relief workers and also the advice of expert consultants, which have made the establishment of State planning boards feasible even under the stringent financial conditions with which most of the States have to contend. The result is that there are over 40 State planning boards in active operation.

As a rule, the State planning boards are organized by the Governor, who appoints representative citizens to serve without pay. The board appoints an executive to direct the work of a paid staff. On request the National Resources Committee offers the services of a consultant to assist in the work of the board. In 31 cases the board acts under State law or legislative resolution; in others, it exists only by executive order to assist the Governor in his work.

The expenses of the board are met sometimes by appropriation of State funds, by loan of office space and personnel from other State departments, or by the allocation of white collar workers from the Federal Works Progress Administration. The National Resources Committee does not grant subsidies to State boards, but pays the salaries and expenses of consultants. The State appropriations show encouraging evidence of growing appreciation in the State legislatures of the value of the work of the boards.

Most of the State boards began their work with the pressing problems which have been brought to public attention by the depression. These included a State program of public works for an extended period, a study of needed improvements in transportation, a general classification of the land of the State as to present use and recommended use, and other matters such as housing and Government reorganization, as indicated by the special needs of the State.

The first step was to make a survey of data already available, pieced out where necessary with special research by the staff from population figures, climatic and topographic records at one extreme, to social studies at the other. This was put into usable form and illustrated where possible with maps, charts and graphs.

As well as might be, the desires of the people in various sections of the State were ascertained, and estimates were attempted of the probable effects on the State economy of industrial and social influences in other States. With these factors considered, the organized information led naturally to various suggestions for State policies to meet the anticipated developments in industry, commerce, land use, and social patterns. Such reports and recommendations have been published by many of the boards, and are available to the public generally, as well as to interested governmental authorities.

The National Resources Committee brought together a number of these State reports and other documents concerning State planning in a report issued in November 1935 entitled "State Planning—Progress and Activities."

In order that basic data, such as maps and statistical material, collected by State planning boards, may be easily made useful for national purposes, the National Resources Committee has made a number of suggested outlines of

procedure for the collection and recording of such material. These outlines are being sent around to the State boards for comments and suggestions, in the hope that standard forms may be adopted for certain types of research.

The State planning boards are cooperating effectively with Federal agencies in the emergency relief program, by keeping the lists of proposed public works up to date, and providing advice and assistance as to priorities among proposed projects. The boards have also suggested a large number of projects for collecting scientific data needed in their work, by the use of relief labor. These projects are examined in Washington by the Central Statistical Board as to their value and their coordination with other similar work.

Local planning agencies, in town, city, county, and metropolitan areas, have received valuable help from the organizations administering the Federal works program, such as the National Youth Administration, and especially the Works Progress Administration, which have supplied staff personnel to supplement the needs of the local agencies. Formation of county planning boards has spread widely during the past year, partly because of the need for preparation of local works projects, and perhaps even more because of the example supplied by the State planning boards. Of the several hundred county planning agencies now in operation, about two-thirds are as yet unofficial, though 17 States now have enabling acts for county planning.

At the request of a number of national organizations,<sup>9</sup> the National Resources Committee has initiated an intensive study of the role of the urban community, under a group of specialists headed by Clarence A. Dykstra, city manager of Cincinnati. This committee on urbanism has begun the collection of data from a selected list of cities, with the help of the city authorities and State planning boards.

The study will include a review of recent urban-rural population movements, the urban unemployment situation, an analysis of recent experiments in model town building, the developing functions of city government and its relation to the States and to recent Federal programs, and an account of the formal and informal associations of city governments and city officials.

<sup>9</sup> Including the American Municipal Association, the Conference of Mayors, and the Joint National Conference on Planning.

As for the future, it seems to be clear that State and local planning will continue to be a decentralized function, the primary concern of State and local governments. The interest of the Federal Government lies in the fact that if local problems are clearly formulated, and comprehensive data are made available, the Federal policies may be more intelligently adjusted so as to produce generally satisfactory results. The National Resources Committee is therefore concerned to encourage the growth of local, State, and regional planning agencies, in order that the public services and the use of natural resources of the United States may be coordinated in as efficient and economical a manner as possible.

## 10. Summary—Current Activities

The committees and staff of the National Resources Committee are now engaged on a number of studies and continuing activities. The status of this work may be summarized in the order of the previous discussion as follows:

### (1) A Permanent Organization for This Work

Bills to establish a permanent National Resources Board or National Planning Board are pending in both Houses of Congress. The Senate bill (S. 2825), introduced by Senator Copeland, has been reported out of the Commerce Committee and has been recommitted to the Senate Committee on Public Lands. The House bill (H. R. 10303), introduced by Representative Maverick, is still pending in the Public Lands Committee, for which hearings have been completed and printed.

### (2) Public Works

(a) *The Report on Division of Costs and Responsibility for Public Works* is being reviewed for preparation of findings and recommendations, with a view to its publication about December 1. Professor Simeon Leland is in charge of this review.

(b) *Public Works Program*.—In accordance with the President's request a 6-year program of Federal projects is being prepared under the direction of Mr. Fred. E. Schnepfe of the Public Works Administration.

(c) *State Public Works*.—To bring up to date the inventory of public works projects prepared last year by the State planning boards, State planning boards have been requested, with the cooperation of the Public Works Administration

and the Works Progress Administration, to engage in further work on programming public works comparable to the proposed listing of Federal projects.

### (3) Land Use

The Land Planning Committee continues or has started:

(a) *Record* of proposed land purchases, as provided in Executive order of June 7, 1935.

(b) *A Recreation Subcommittee* has agreed on terminology concerning development of areas for recreational and wilderness purposes. A report is expected early in the next fiscal year.

(c) *A Tenancy Study* proposed by the Land Committee is being examined through an exploratory survey, for which Mr. George Wehrwein, of the University of Wisconsin, has been selected as consultant.

### (4) Water Studies

The Water Resources Committee is at work on:

(a) *General Drainage Basin Study*.—Water consultants, to serve under the direction of Mr. Frederick H. Fowler, have been appointed for 16 drainage basins with a view to formulating reports on the future development of each of these drainage basins with a listing of projects in the order of their priority. The report is to be transmitted to the President before December 1, 1936, after review by the National Resources Committee.

(b) *Special Drainage Basin Studies*.—

(1) For the Rio Grande Joint Investigation the Public Works Administration allotted \$200,000 to the National Resources Committee, and cooperative agreements have been negotiated for substantial contributions from the States and interested Federal bureaus. The field investigation is now under way under the direction of Engineer in Charge Harlowe M. Stafford, with a view to a report at the end of the calendar year.

(2) The Red River of the North Study, under the direction of W. W. Horner, is proceeding with the cooperation of the States of Minnesota, North Dakota, and South Dakota, and a report is expected at an early date.

(3) Kansas City Flood Studies, under the direction of Mr. Fowler, are continuing, and a report will be included in the general drainage basin study.

(c) *Drainage and Storage Coordination*.—After completion of the Report on Coordination of Drainage Projects, the President issued an executive memorandum establishing the Water Resources Committee as a clearing house for drainage and storage projects. A monthly report of such projects is distributed to all agencies concerned.

(d) *Flood Studies Coordination*.—By direction of the President, a budget circular requires reporting of proposed flood studies to the National Resources Committee for clearance with related projects.

(e) *Hydrologic Data*.—A special subcommittee of the water group has completed reports on methods of collecting hydrologic data and needed information, which it is hoped will be published within the next few months.

(f) *A Report on Pollution Problems* has been issued and transmitted to committees of Congress considering legislation. A further investigation, with the cooperation of Mr. John Dickinson, Assistant Attorney General, is now under way concerning relations between different levels of government for enforcement of pollution control.

### (5) Competing Fuels

A study of competing fuels, with a new steering committee consisting of representatives from Government agencies concerned, has been authorized by the advisory committee. Preliminary outlines are complete, and arrangements made for an exploratory survey.

### (6) Industrial Resources

The industrial committee and its staff, under the direction of Dr. Gardiner C. Means, is concerned with a major consumption study and a production capacity study.

(a) *Consumption Study* is now in operation through joint projects of the Works Progress Administration with the Bureau of Labor Statistics and the Bureau of Home Economics, with a coordinating committee of which representatives of the Resources Committee are members.

(b) *Production Studies* are continuing under a staff in the Resources Committee office.

### (7) Science Committee

The science committee, composed of nine members, three each designated by the Na-

tional Academy of Sciences, the Social Science Research Council, and the American Council on Education, has set up the two committees on technology and population problems. Its functions are described in an executive memorandum by the President.

(a) *Technology*.—The technology committee composed of Prof. Wm. F. Ogburn, Dr. John C. Merriam, and President Elliott of Purdue, is proceeding with the preparation of a report on the effect of new inventions on the social organization, with a view to having material in hand by July 1 and ready for submission to the advisory committee in the autumn. It is hoped to publish a report before the end of the year.

(b) *Population*.—A population committee, under the chairmanship of Dr. E. B. Wilson, is engaged in the preparation of a report on population problems and policies dealing especially with “quality, quantity, distribution, and opportunity of life.” A preliminary report will be published next autumn and is being prepared by a staff under the direction of Frank Lorimer.

#### (8) Regional Coordination

The report of the committee on “Regional factors in national planning and development” has received wide publicity. Various methods of organization of interstate cooperation are being tried in the field.

A series of reports on regional planning are in press and the first part has been issued. These documents review regional problems in—

- Part I. Pacific Northwest.
- Part II. St. Louis Metropolitan Area.
- Part III. New England.

In other areas, the district chairmen of the National Resources Committee are interested in setting up continuing contacts among the State planning boards—an Ohio Valley Re-

gional Planning Commission has been set up in district no. 5; a Georgia East Coast Planning Association, involving activities in Georgia, South Carolina, and Florida, is being organized in district no. 4; and Chairman B. M. Woods on the Pacific coast proposes the organization of an interstate cooperating group in his district. A recent meeting in Philadelphia, called by the council of State governments, voted to establish a regional planning agency for the States of New York, New Jersey, Pennsylvania, and Delaware.

#### (9) State Planning

Assistance to the 46 State planning boards is being continued through—

(a) *Consultants* are (June 1, 1936) assigned to 44 boards. In several cases associate consultants or other assistants are also provided.

(b) *A Staff Project* sponsored jointly by the Resources Committee and the Works Progress Administration is in operation in 44 States and employs over 1,850 persons, engaged on studies described in a recent bulletin of the National Resources Committee.

(c) *The State Research Section* in the office of the Committee has issued outlines of procedure on symbols and water studies, and has in preparation similar outlines on land planning studies, population studies, etc.

#### (10) Urbanism

The committee, under the chairmanship of City Manager Clarence A. Dykstra, is engaged in the preparation of a report on the “Role of the urban community in the national economy”, and expects to have material all in hand by September 1, with a view to publication next winter. Different chapters in the report are being prepared by experts at the University of Chicago, Harvard University, in Cincinnati, in Detroit, and in Washington.



## PART II. REPORT OF EXECUTIVE OFFICER

### 1. Functions and Duties of the Committee

The National Resources Committee succeeded to the functions and duties of the National Planning Board of the Federal Emergency Administration of Public Works and the National Resources Board.

*The National Planning Board* was appointed by the Administrator of Public Works on July 20, 1933, consisting of Frederic A. Delano, Charles E. Merriam, and Wesley C. Mitchell, "to advise and assist the Administrator \* \* \* through the preparation, development, and maintenance of comprehensive plans \* \* \* through surveys and research \* \* \* and through the analysis of projects for coordination and sequence \* \* \* and to obtain the maximum amount of cooperation and correlation of effort among the agencies of the Federal, State, and local Governments."

The report of the National Planning Board was submitted to the President on June 24, 1934, and led directly to the reorganization of the Board as the National Resources Board.

*The National Resources Board* was established by Executive order of the President on June 30, 1934, "to prepare and present to the President a program and plan of procedure dealing with the physical, social, governmental, and economic aspects of public policies for the development and use of land, water, and other national resources and such related subjects as may from time to time be referred to the Board by the President." The new Board included the three former members of the National Planning Board and the Committee on National Land Problems, so that the resulting membership consisted of the Secretary of the Interior, chairman; the Secretary of War, the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Labor, the Federal Emergency Relief Administrator, Frederic A. Delano, Charles E. Merriam, and Wesley C. Mitchell.

The National Resources Board prepared a series of reports to the President as required by

the Executive order, the most comprehensive being the document dated December 1, 1934, transmitted to Congress with a special message from the President on January 24, 1935. This report dealt with problems of land, water, and minerals, the organization and timing of public works programs, basic data for planning, and State and regional planning. A second report was submitted on June 14, 1935, the day the Board was succeeded by the National Resources Committee.

*The National Resources Committee*, with the same membership as the National Resources Board and with virtually identical powers and duties, was established effective June 15, 1935, by Executive order of the President (No. 7065), dated June 7, 1935, and under authority of the Emergency Relief Appropriation Act of 1935, in order to continue the work of the previous agencies which drew their authority from the National Industrial Recovery Act.

### 2. Organization and Staff

The National Resources Committee consists of 9 members named in the Executive order, of whom 6 are administrative officials of the Government and 3 are the former members of the National Planning Board. The Secretary of the Interior was designated as chairman to serve with the Secretary of War, the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Labor, the Administrator of Emergency Relief, and Mr. Frederic A. Delano, Dr. Charles E. Merriam, and Dr. Wesley C. Mitchell.<sup>1</sup>

Some of the administrative officials serving on the Committee have been represented at different meetings by members of their respective staffs, but all of them, within the limits dictated by their other responsibilities, have actively participated in the discussion and formulation of the policies recommended by the Committee. This participation in the

<sup>1</sup> Dr. Mitchell resigned effective Dec. 1, 1935.

## EXECUTIVE ORDER

## CREATING THE NATIONAL RESOURCES COMMITTEE

By virtue of and pursuant to the authority vested in me under the Emergency Relief Appropriation Act of 1935, approved April 8, 1935, 49 Stat. 115, and to provide a means of obtaining information essential to a wise employment of the emergency appropriation made by said Act, I hereby establish an agency within the Government to be known as the National Resources Committee, consisting of the Secretary of the Interior (Chairman), the Secretary of War, the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Labor, the Federal Emergency Relief Administrator, Frederic A. Delano, Charles E. Merriam, and Wesley C. Mitchell, who shall serve as members without compensation.

A committee advisory thereto, consisting of Frederic A. Delano (Chairman), Charles E. Merriam, and Wesley C. Mitchell, is hereby constituted, to which advisory committee members may be added from time to time by the President. The compensation of the members of the advisory committee shall be fixed by the President.

I hereby prescribe the functions and duties of the National Resources Committee as follows:

(a) To collect, prepare and make available to the President, with recommendations, such plans, data and information as may be helpful to a planned development and use of land, water, and other national resources, and such related subjects as may be referred to it by the President.

(b) To consult and cooperate with agencies of the Federal Government, with the States and municipalities or agencies thereof, and with any public or private planning or research agencies or institutions, in carrying out any of its duties and functions.

(c) To receive and record all proposed Federal projects involving the acquisition of land (including transfer of land jurisdiction) and land research projects, and in an advisory capacity to provide the agencies concerned with such information or data as may be pertinent to the projects. All executive agencies shall notify the National Resources Committee of such projects as they develop, before major field activities are undertaken.

In the performance of such duties and functions and within such amounts as may be allocated by the President, expenditures are hereby authorized for necessary supplies and equipment; law books and books of reference, directories, periodicals, newspapers and press clippings; travel expenses, including the expense of attendance at meetings when specifically authorized by said committee; rental at the seat of Government and elsewhere; printing and binding; and incidental expenses; and I hereby authorize the said committee to accept and utilize such voluntary and uncompensated services and, with the consent of the State, such State and local officers and employees, and appoint without regard to the provisions of the civil service laws, such officers and employees, as may be necessary, prescribe their duties and responsibilities and, without regard to the Classification Act of 1923, as amended, fix their compensation: *Provided*, That in so far as practicable, the persons employed under this authority of this Executive Order shall be selected from those receiving relief.

The National Resources Board and the advisory committee established by Executive Order No. 6777, dated June 30, 1934, are hereby abolished, and all personnel, property, records, rights, etc., of said Board are hereby transferred to said National Resources Committee.

There is hereby transferred to the National Resources Committee the unexpended balance of all moneys heretofore made available for expenditure by the National Resources Board, which moneys shall be available for discharge of obligations lawfully incurred by said Board; and for the expenses of the National Resources Committee hereunder funds will be hereafter allocated to said Committee from the appropriation made by the Emergency Relief Appropriation Act of 1935.

This Executive Order shall take effect at the close of business on June 15, 1935.

THE WHITE HOUSE,  
June 7, 1935.

FRANKLIN D ROOSEVELT

work by Cabinet officials has secured for the Committee the hearty cooperation of bureau chiefs and subordinate officials. It has also provided for interpretation of the work and proposals of the Committee in meetings of the Cabinet and Emergency Council.

The nonofficial or citizen members of the Committee are also members of an Advisory Committee and through their dual office both advise and act upon proposals and policies pending before the Committee.

The whole Committee has met at the call of the chairman five times during the fiscal year covered by this report. At the first meeting authority for approval of budgets and appointments was delegated to the chairman and the Advisory Committee, so that subsequent meetings were devoted entirely to discussion and action upon reports and recommendations. Authority was also granted at the first meeting for the organization of a series of technical committees.

#### Advisory Committee

The Advisory Committee, consisting of Frederic A. Delano, chairman, Charles E. Merriam and Wesley C. Mitchell and more recently of Henry S. Dennison<sup>2</sup> and Beardsley Ruml,<sup>2</sup> has acted from the outset as a steering or executive committee, working in close cooperation with the chairman and developing reports and recommendations for action by the Resources Committee. Continuity of the work of the former National Planning Board and the Advisory Committee of the National Resources Board has been provided through the services of the same individuals in these organizations, while cordial working relations and the limited membership of the Advisory Committee have facilitated arrangements for and action at all meetings. The Advisory Committee has held 16 meetings in different parts of the country during the year ending June 15, 1936.

To keep in touch with public opinion and obtain special knowledge on various problems, the Advisory Committee has cooperated with national institutions and has met with special groups and consultants in different parts of the country. Cordial working relations have been established, after approval by the President, with the National Academy of Sciences, the Social Science Research Council and the Amer-

ican Council on Education, each of which has designated special committees to work with the Resources Committee.

#### Executive Officer

The Executive Officer of the Committee, Charles W. Eliot, 2d, and the assistant executive, Harold Merrill, have acted as coordinating officers, secretaries, or administrators for the work of the technical committees and the staff. The organization and methods of work under the direction of the executive officer may be divided, for convenience of discussion, into four groups—the technical committees, staff sections, field organization—all served by a common administrative organization or central office.

#### Technical Committees

The experience of the Committee with different technical committees has illustrated a variety of procedures and results of coordinating methods and warrants further description and comment. Each committee or section differs from the others in its organization, method of work and in the results obtained.

#### *Land Planning Committee*

The Land Planning Committee was organized at the suggestion of the National Planning Board in the summer of 1933 through the appointment of three representatives each by the Secretary of the Interior and the Secretary of Agriculture to serve with the executive officer of the Board. It was almost immediately recognized as the successor to the Land Use Planning Committee set up in 1931 by the Secretary of Agriculture at the request of the land-grant colleges. When the submarginal-land program was inaugurated under the Surplus Relief Corporation later in 1933, Mr. Jacob Baker was added to the membership representing the Emergency Relief Administration and now the Works Progress Administration. Still later, after the establishment of the Resettlement Administration, Dr. L. C. Gray represented that organization in the Committee's work. The Committee membership has thus been drawn entirely from Government officials and is now composed of Assistant Secretary M. L. Wilson, chairman; Mr. F. A. Silcox and Dr. Mordecai Ezekiel from Agriculture; Assistant Secretary Chapman, Dr. W. C. Mendenhall and Mr. F. R. Carpenter

<sup>2</sup> Appointed following resignation of Dr. Mitchell.

from Interior; Mr. Jacob Baker, Federal Emergency Relief Administration, Dr. L. C. Gray, Resettlement Administration, and Mr. Charles W. Eliot, 2d. At different times during the last year Dr. Tugwell, Arno B. Cammerer, and H. H. Bennett have been members of the committee. The Land Committee has held five formal meetings during the fiscal year covered by this report in addition to numerous group conferences.

The land section of the National Resources Committee, which was originally set up under the direction of Dr. L. C. Gray, in order to prepare the large report on land resources submitted in the report of the National Resources Board of December 1, 1934, was continued through July 1935 and then reduced to only two technicians who have been chiefly concerned with the "land record source" and with preparing and arranging the printing of an extended supplementary report by the Land Committee on major land use problems. This work has involved cooperation with a number of bureaus who have provided not only data and excellent guidance for the work but who have also designated members of their regular staff to review these reports. Eleven parts of this supplementary report have been completed and published during the year.

In addition to the staff in the Washington office of the Land Section and in addition to work with cooperating bureaus, a field staff of regional and State land consultants was organized in 1934 with clerical assistance to secure field data in cooperation with State planning boards, State agricultural colleges, experiment stations, and regional directors of the Agricultural Adjustment Administration. This field staff was transferred early in this fiscal year to the newly organized Resettlement Administration through which their former work of delineating and defining problem areas and resettlement areas has been continued.

In accordance with the terms of the Executive order establishing the National Resources Committee and following directly the recommendations of the National Resources Board concerning the continuing functions of a Land Planning Section, new activities have been undertaken by this part of the Resources Committee organization.

A "clearing house" for recording proposed purchase projects is maintained by the staff of the Land Section. Agencies concerned are

notified whenever overlapping purchase areas are discovered or the need for coordination is apparent. As a first step in organizing this work, the Land Committee and Section on July 4, 1935, compiled and presented to the President a full record of proposed land purchases by all Government agencies. Over 35 cases of overlapping purchase areas have been detected through this. By the terms of the Executive order, transfers of jurisdiction over lands among Federal agencies are also recorded by this "clearing house" or record service. For the coordination of land-use research projects, similar records have been set up, and a system of reporting proposed research projects has been inaugurated in order that people working in the same area may collaborate.

#### *Water Planning Committee*

The Water Planning Committee, which consisted of the former Mississippi Valley Committee of the Public Works Administration (organized at the suggestion of the National Planning Board), was reorganized soon after the establishment of the National Resources Committee, with the following membership:

Abel Wolman, American Waterworks Association, and chairman of the Maryland State Planning Board, chairman.

Thorndike Saville, American Society of Civil Engineers, and dean of College of Engineering, New York University.

N. C. Grover, Chief Hydraulic Engineer, Water Resources Branch, United States Geological Survey.

Dr. Elwood Mead, Commissioner, Bureau of Reclamation, Interior Department.\*

Ira N. Gabrielson, Chief, Biological Survey, Agriculture Department.

H. H. Bennett, Chief of Soil Conservation Service, Agriculture Department.

Maj. Gen. Edw. M. Markham, Chief of Engineers, United States Army.

R. E. Tarbett, Sanitary Engineer, Public Health Service.

Thos. R. Tate, Director of National Power Survey, Federal Power Commission.

Sherman M. Woodward, Consultant, Tennessee Valley Authority.

H. H. Barrows, Chairman, the Department of Geography, University of Chicago.

Edward Hyatt, State Engineer of California.

This new Water Resources Committee is served by a small continuing staff. It will be noted that the reorganized committee

\* Following the death of Dr. Mead, John C. Page, acting commissioner, Bureau of Reclamation, was appointed to fill his place.

includes both representatives of the major bureaus of the Government dealing with water activities and experts from outside the Government, some of whom were formerly members of the Mississippi Valley Committee and of the committee which prepared the water report for the National Resources Board in December 1934. The Water Resources Committee has held 11 meetings during the fiscal year, and has considered a great variety of problems, as summarized elsewhere.

For special work, cooperating groups and subcommittees have been brought together, particularly on pollution problems and hydrologic standards. Cooperating committees of the American Society of Civil Engineers and the American Water Works Association have been established by those agencies to work with the Water Section and Committee.

The principal activity of the Committee at the present time is the drainage basin study, described in the Committee report below, for which a special staff has been organized.

#### *Committee for Mineral Policy*

The planning Committee for Mineral Policy represents still a third type of organization. Set up, in accordance with a letter from the President under date of April 7, 1934, with the Secretary of the Interior as chairman, it has worked under the leadership of Dr. C. K. Leith with a membership drawn from the experts in government departments, as follows: Herbert Feis, J. W. Furness, C. T. Harris, Jr., W. C. Mendenhall, F. A. Silcox, Wayne C. Taylor, W. L. Thorp, J. W. Finch, and Leon Henderson.

The members of this committee personally wrote a large part of the mineral report printed in the December 1934 report of the National Resources Board. The staff of the Section consisted of Mr. W. P. Rawles, Secretary, with occasional and incidental assistance.

Research reports on plant capacity and mineral reserves were developed through short-time employment of experts working with the appropriate government bureaus. A transfer of funds to the Bureau of Mines enabled that agency to prepare a set of 27 world maps showing the flow of strategic minerals into the United States. An analysis has been made of British experience in regulation of the coal industry. The funds of the Resources Board and Resources Committee have thus provided staff and research possibilities for the Mineral

Committee, while the Committee has acted as a unit of the Board's technical organization.

In accordance with the suggestion of the President on January 2, 1936, the Committee was discontinued, and organization of a new committee and staff for the development of a report on competing fuels is now under consideration by the National Resources Committee.

#### *Industrial Resources Committee*

An Industrial Resources Committee was authorized at the initial meeting of the National Resources Board and continued by the National Resources Committee. It consists of:

- Ernest G. Draper, Assistant Secretary of Commerce.
- Jacob Baker, Assistant Administrator, Federal Emergency Relief Administration, chairman.
- Dr. Isador Lubin, Commissioner of Labor Statistics.
- E. G. Nourse, Brookings Institution.
- Leon Henderson (formerly with the National Recovery Administration).
- Thomas C. Blaisdell, Jr., Resettlement Administration.
- Col. C. T. Harris, Jr., Office of Assistant Secretary of War.
- Chas. W. Eliot, 2d, Executive Officer, National Resources Committee.
- Gardiner C. Means, Director, Industrial Section, National Resources Committee.

The Committee has held nine meetings during the fiscal year and has devoted its attention to the development of methods for study of industrial capacity and for coordination of consumption statistics and surveys.

The staff under Dr. Gardiner C. Means, who has been loaned by the Agriculture Department for the purpose, has made an experimental study of capacities of blast furnaces. Under his direction, and with the help of Dr. Hildegarde Kneeland, a group has been assembled to coordinate consumption studies.

#### *Transportation Committee*

A Transportation Committee was set up on March 15, 1935, and held three meetings for discussion of a proposed transportation survey which might be undertaken with the funds provided by the Work Relief Act. The Committee consists of:

- Jos. B. Eastman, Federal Coordinator of Transportation, chairman.
- Hugh M. Tate, Chairman, Interstate Commerce Commission.
- Maj. Gen. E. M. Markham, Chief of Engineers, United States Army.

Thos. H. MacDonald, Chief, Bureau of Public Roads, Agriculture Department.

E. L. Vidal, Director, Bureau of Air Commerce.

T. M. Woodward (formerly vice president, U. S. Shipping Board Merchant Fleet Corporation).

Chas. W. Eliot, 2d, executive officer, National Resources Committee.

During the summer this Committee was assisted by a small staff under the leadership of Mr. Douglas L. Cullison.

#### *Advisory Committee on Science*

The National Resources Board set up (with the specific approval of President Roosevelt) an Advisory Committee on Science. This Committee consists of nine persons, three appointed by the National Academy of Sciences;

President Frank R. Lillie

Dr. E. B. Wilson, Harvard University

Dr. John C. Merriam, Carnegie Institution of Washington

three appointed by the American Council on Education;

President Edward C. Elliott, Purdue University

Dr. Charles E. Judd,<sup>2</sup> Chicago, Ill.

Dr. Walter D. Cocking, Commissioner of Education, Nashville

and three designated by the Social Science Research Council;

Dr. William F. Ogburn, University of Chicago

Dr. Harry A. Millis, University of Chicago

Dr. Carter Goodrich, University of Pennsylvania.

The Science Committee has already authorized the organization of two studies, one on the Impact of New Inventions on the Social Organization, the other on Population Problems. For these studies, subcommittees have been organized, in the case of the technological study with Dr. William F. Ogburn, chairman Dr. J. C. Merriam, and President Edward Elliott; and in the case of Population Problems, with Dr. E. B. Wilson as chairman; Dr. Wm. F. Ogburn, Dr. Charles E. Judd, Dr. David Linn Edsall, and Dr. Warren Thompson, members. This second committee is served by a staff under the direction of Mr. Frank Lorimer and both groups expect to produce preliminary reports on or about July 1.

#### *Miscellaneous Research Projects*

Miscellaneous research projects have also been undertaken under a variety of methods.

<sup>2</sup> Succeeded Dr. Edw. L. Thorndike of Columbia who resigned on account of illness.

The President requested two major studies, one in the field of regional planning, and the other on the allocation of costs of public works. Other studies in the field of urbanism have been undertaken at the request of various agencies.

The Regional Study, which resulted in the report on Regional Factors in National Planning, was organized with the four principal research men acting as a steering committee. These were John Gaus, chairman, Jacob Crane, Marshall E. Dimock, and Dr. George Renner, members. A staff was provided to work under their general direction.

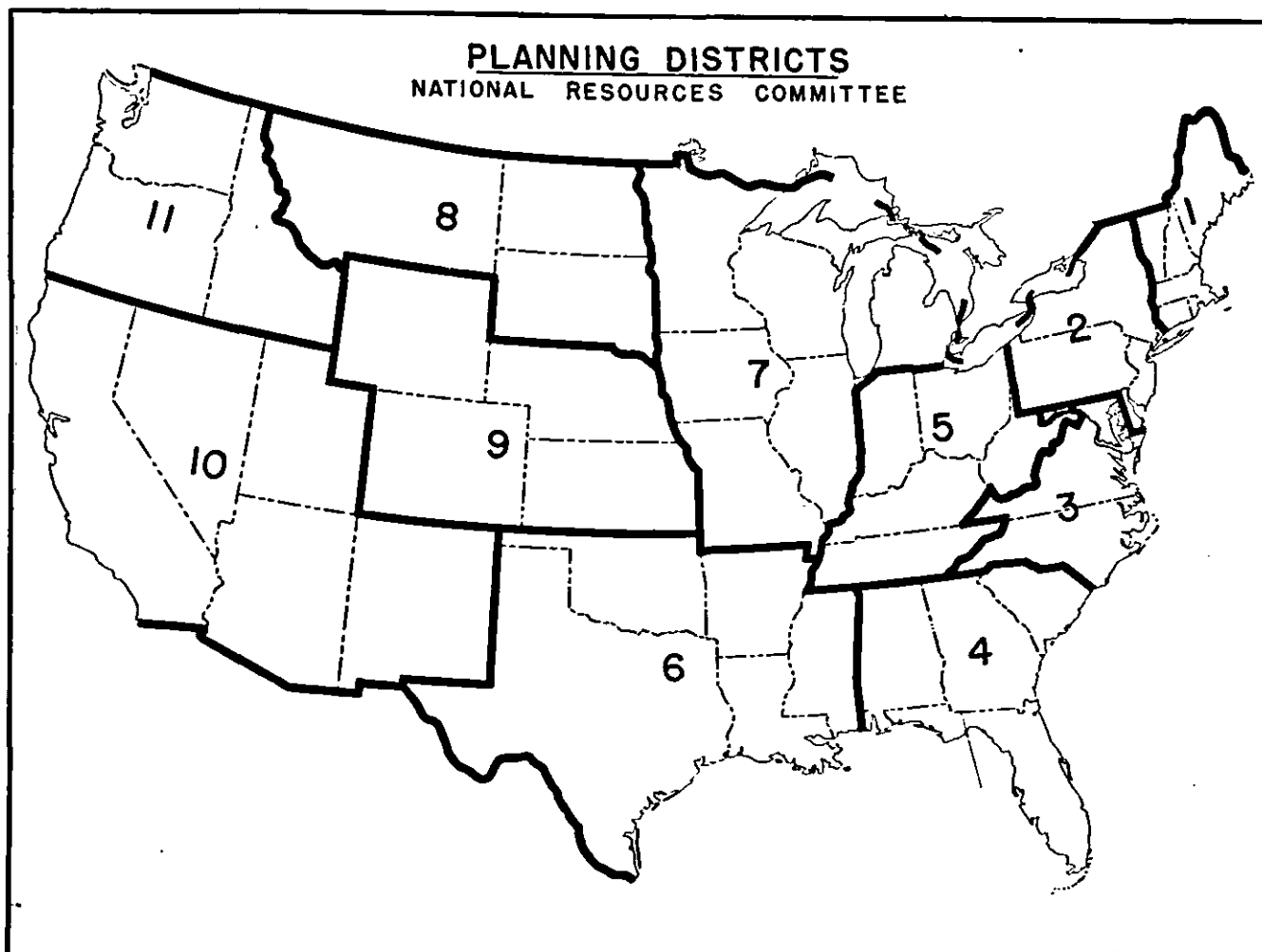
The Public Works Costs Study was set up under a different type of organization, with Dr. Robert Whitten in charge, and a series of special research men employed to develop parts of the material and with special consultants brought in for review of the progress made and criticism or suggestions for additional studies.

The Urbanism Study has been set up under another special committee headed by Mr. Clarence A. Dykstra, chairman, and Dr. M. L. Wilson, Assistant Secretary of Agriculture; Arthur Comey, of Harvard University; Harold D. Smith, Director of the Michigan Municipal League; Louis Wirth, University of Chicago; and Louis Brownlow, Director of the Public Administration Clearing House. In this case different parts of the work are being done by members of the committee at their several headquarters in Washington, Cincinnati, Chicago, Cambridge, and Detroit. Mr. L. Segoe is director in charge of coordinating these separate activities, with a staff in Cincinnati.

For the preparation of the State section's report, State Planning--A Review of Activities and Progress, still another method of organization was utilized. State planning consultants in the field were asked to prepare different parts of the report. Their contributions were then brought together, digested, and summarized in the office of the State section.

#### *Field Organization*

The field organization of the committee, briefly described in the report of the National Planning Board, has been continued with a central contact office in Washington known as the State section, under the supervision of Robert H. Randall. The field work is divided between district chairmen and consultants to State planning agencies. To promote coordi-



nation of interstate projects and to provide contacts between the committee and public officials, district chairmen have been appointed for the districts indicated on the attached map, as follows:

- District no. 1. Victor M. Cutter, Boston, Mass.
- District no. 2. No appointment made.
- District no. 3. Norton L. Wallerstein, Richmond, Va.
- District no. 4. Henry T. McIntosh, Albany, Ga.
- District no. 5. Alfred Bettman, Cincinnati, Ohio.
- District no. 6. Vincent M. Miles, Fort Smith, Ark., served until appointed to the Social Security Board.
- District no. 7. Chas. M. Moderwell, Chicago, Ill.
- District no. 8. No appointment made.
- District no. 9. No appointment made.
- District no. 10. B. M. Woods, Berkeley, Calif.
- District no. 11. Marshall N. Dana, Portland, Oreg.

In three of these districts—New England, the Ohio Valley, and the Pacific Northwest—special regional planning organizations have been established through the efforts of the district chairmen. In other districts, group meetings or personal contacts have provided

for coordination and interpretation of the committee's proposals to public gatherings and public officials. The district chairmen serve on a part-time basis at nominal salaries.

State planning consultants have been provided for State planning boards in accordance with the vote at the first meeting of the National Resources Board to "continue and develop the relationship previously established by the National Planning Board with the State planning agencies." Assignment of technical planning consultants to these boards has been made under conditions similar to those set forth in the final report of the National Planning Board.

State planning consultants and associate consultants have been appointed, serving 44 State planning boards and two regional or interstate planning commissions, and Puerto Rico. Progress and other reports have been received from 46 States as a direct result of these appointments. These progress reports and the present status of the State planning movement are reviewed in the report of the

committee on State Planning—Progress and Activities.

#### Central Office

The central office in Washington has handled all problems of personnel, supplies, files, equipment, office space, messenger service, and the stenographic pool under the general direction of the assistant executive officer. All appointments have been handled through the office of the chairman in the same manner as personnel problems of the Interior Department and the Public Works Administration. The committee has also depended upon the Miscellaneous Service Division, of which Frank C. Updike is chief, and other general services of the Interior Department.

### *National Resources Committee*

#### 3. Financial Statement

The National Resources Committee has been financed by an administrative allocation of \$1,000,000 from the Work Relief fund (Emergency Relief Appropriation Act of 1935). This sum is for administrative expenditures.

The committee has been concerned with a large number of Work Relief projects among which the following are significant:

1. Staff for State planning boards.....	\$2, 644, 538
2. Measurement of consumption capacity..	5, 852, 787
3. Occupational studies—U. S. Employment Service.....	350, 000
4. Flood control data analysis.....	58, 000

A special allocation of \$200,000 for the upper Rio Grande investigation has been received from the Public Works Administration.



## PART III. REPORTS OF TECHNICAL COMMITTEES

During the last year the National Resources Committee has issued a number of special reports prepared by technical committees or staff, including:

- (1) Report on Regional Factors in National Planning and Development;
- (2) Regional Planning, in three parts, covering the Pacific Northwest, St. Louis Region, and New England;
- (3) State Planning, Activities and Progress; and
- (4) A number of mimeographed statements or progress reports on pollution, hydrologic standards, and hydrologic data, etc.

As noted in previous parts of this report, additional documents are in preparation on

public works costs, public works programming, water projects, industrial resources, technology, population, and urban problems.

General statements on the current work of three major technical committees are included here to bring up to date the report of their work and recommendations since the publication of the report of the National Resources Board in December 1934. These reports are presented in the following order:

- A. Report of the Land Planning Committee;
- B. Report of the Water Resources Committee, and
- C. Report of the Industrial Committee

### A. REPORT OF THE LAND PLANNING COMMITTEE

#### 1. Introduction and Summary

On December 1, 1934, the National Resources Board submitted to the President a report on national planning and public works in relation to natural resources. In that report the Board included its findings and recommendations on land planning.

The Land Planning Committee now submits a report on the progress during the past year with respect to the effectuation of these recommendations; it reaffirms its previous recommendations, and adds certain new recommendations which events during the past year appear to necessitate.

#### 2. Progress during the Past Year

A review of the progress made during the past year with respect to the recommendations submitted in December 1934 is most encouraging. With a few exceptions, some measure of

progress has been accomplished on every recommendation. When it is considered that the recommendations covered a program of land-use planning extending over a generation or more, these beginnings, small though they may be in some instances, may be regarded as significant marks of progress. Considering the limited supply of trained men available for work in these fields and the appropriate relationship between the research and the action phases of the recommended program, the progress made is probably all that could reasonably be expected in 1 year.

The most notable points of progress appear to be along the following lines:

(1) Continuation of a central land planning agency by the Executive order creating the National Resources Committee.

(2) Enactment of legislation by the Seventy-fourth Congress permanently establishing a Soil Conservation Service, and other legislation

favorably affecting recreation, forestry, and wildlife.

(3) Appropriations and Executive orders made pursuant to the Emergency Relief Appropriation Act of 1935, which made possible a land acquisition program involving almost 10 million acres for retirement of submarginal farm land and additions to wildlife refuges, parks, and Indian reservations, and a forest-acquisition program involving about 3 million acres.

(4) Closing of lands to homesteading by Executive order, pending classification.

(5) Consideration by Congress for the first time of special legislation not only to curb the growth of tenancy but to take positive steps to aid tenants in becoming farm owners.

(6) Significant progress in the establishment of cooperative relationships between the Federal and the State Governments, as evidenced by the creation of 46 State planning boards, 13 of which have set up land-use committees; by the passage of the Fulmer Act, authorizing cooperation with the several States in stimulating acquisition, development, and proper administration of State forests; and by amendments to the wildlife hunting Stamp Act, providing for participation of States in revenue from certain wildlife refuges.

(7) Continued progress in land research in the various Federal land agencies with beginnings made in coordination of research programs through establishment of a land-research recording unit in the National Resources Committee by Executive order. Significant progress in land classification has been made through the problem-area classifications of the land-planning consultants in the several States.

(8) Centralization in the Resettlement Administration of land acquisition for submarginal land retirement and of certain lands for parks, wildlife areas and Indian reservations; and assistance to destitute people stranded on poor land in relocating on better lands.

### 3. Reaffirmation of Recommendations Made in 1934

The Land Planning Committee reaffirms the recommendations submitted to the President on December 1, 1934, with respect to land planning and the conservation of land resources. In particular it reaffirms its position on the following recommendations:

(1) That a permanent Land Planning Section of the National Resources Committee or its successor be established, with representation from the Federal bureaus primarily concerned, thus laying a basis not only for continued land planning but for better coordination of policies, research, and public land acquisition.

(2) That the program for land purchase, for retirement of submarginal farm lands, additions to national and State forests, wildlife refuges and national and State parks, and enlargement of Indian reservations, be continued.

(3) That an adequate zoning by States and counties be encouraged to promote the best use of lands.

(4) That farm-tenancy conditions warrant early consideration of corrective legislation.

(5) That the economic feasibility of Federal reclamation projects for agricultural purposes be considered both by the Departments of Interior and Agriculture.

(6) That erosion control policies aim at establishment of control measures on all of the most seriously eroded areas in not more than 10 years and effective checking in not more than 20 years.

(7) That congressional approval be sought at the forthcoming Congress to eliminate the 80,000,000 acre limitation imposed by the Taylor Grazing Act.

### 4. New Recommendations

(1) Federal acquisition of land for retirement of submarginal farms, relocation of stranded people on the land, additions to national and State forests, parks, and wildlife refuges, and enlargements of Indian reservations should be provided for by regular congressional appropriations, with establishment of permanent revolving funds where these are essential to the proper administration and disposition of the lands acquired.

(2) As a result of a study made concerning the loan of expert personnel among Federal land agencies, Federal legislation is urged to facilitate interdepartmental loan of personnel and to simplify interbureau loan of personnel. The provision of a central personnel office to determine peak and slack employment and to facilitate clearing of personnel needs, should be examined.

(3) Further steps should be taken to facilitate long-range Indian rehabilitation plans and to provide for research on Indian land problems.

(4) Encouragement should be given to the establishment in the United States of a system of cadastral surveys, similar to the systems in European countries. To this end, the work of

the Federal mapping agencies in establishing positions throughout the United States should be completed at the earliest possible time, and a Federal program is recommended which will encourage legislation in the various States to require property surveys to be linked to a Federal network of control position points.

## B. REPORT OF THE WATER RESOURCES COMMITTEE

### 1. Introduction

The development of an orderly national water program permanently advantageous to the American people offers a challenge to the Nation. Cities, States, and the Federal Government are faced with the necessity of cooperating to solve the problems of using and controlling limited water resources so as to develop the most economical use of water, to control floods and pollution, and to conserve soil resources.

Such a sound and permanent program of water conservation is now lacking. Its development is the ultimate objective of the Water Resources Committee and of the Federal and State agencies which it represents. The Committee looks forward to the establishment of an orderly and sane process for the control and prevention of disastrous floods, the abatement of water pollution, the improvement of waterways, the generation of hydroelectric power, the reclamation of arid and wet lands, the development of adequate water supplies for farms, cities, and industries, and the utilization of water for wildlife and recreation, which will yield the most substantial and permanent benefits to the Nation.

Such results are not to be achieved in a year or in 10 years. They will never be fully realized, for objectives and methods change with the passage of time. Nevertheless, a long step toward the goal may be made by joint efforts and by flexible programs of conservation.

The Water Resources Committee takes this opportunity to state the principles it believes should govern further action, to summarize its major objectives, and to report the specific progress which it has so far made.

### 2. Summary

#### a. Principles of Action

(1) A *coordinated*, unified national water policy is needed, not a collection of *unrelated*

policies applicable respectively to individual types of problems associated with the use and control of water. The constituent parts of such a policy which relate to the various types of use and control (navigation, irrigation, power development, flood prevention, pollution control, municipal and rural water supply, land drainage, recreation, wildlife conservation and erosion control) must be consistent one with another.

(2) The ultimate objectives of all activity under such a policy as indicated above should be the promotion of public safety, public health, the public convenience and comfort, the economic welfare of the public, the establishment or maintenance of a high standard of living. In short, water conservation should be concerned in the last analysis with *people*, not with *water per se*.

(3) In *most* cases, a given drainage area should be treated as a unit with respect to its water problems; only so can its waters be developed and controlled in an orderly, balanced manner, for the common good of the people of the entire area. (The problem or complex of problems itself defines the most effective regional unit, which is normally a drainage area.)

(4) The adoption of a water plan for any river basin without a thorough study of adequate data bearing on all phases of the interlocking cultural and physical problems involved would be illogical, would result in economic waste, would invite controversy, and might preclude the formulation of a well-balanced plan later.

(5) No long-term plan for any unit area, no 20-year or even 10-year plan, can be formulated which will not need modification because of unforeseeable events and developments.

(6) Fundamental data are lacking in greater or less degree on both the surface and underground waters of most drainage areas throughout the country, and the collection of such data

(systematically through the indefinite future in many cases) accordingly should be promoted by all feasible means.

(7) In general, the cost of executing plans for the use and control of water in any area should be distributed among the beneficiaries in accordance with the base of benefits. Those who will profit from a given undertaking normally should pay in proportion to the advantage they will reap.

(8) A suitable technique is needed most urgently for the allocation of joint costs in multiple-purpose projects.

(9) Appropriate procedures are likewise greatly needed with which to evaluate indirect and intangible factors when comparing the estimated costs and anticipated benefits of any marginal project of magnitude for the use or control of water.

(10) A closer coordination of the activities of Federal agencies dealing directly or indirectly with water problems is eminently desirable.

(11) Closer cooperation between Federal, regional, State, and local agencies with respect to water problems is imperative.

(12) A permanent national water-planning unit is needed which shall serve, among other ways, as a coordinating agency; which shall provide, in cooperation with appropriate Federal departments and bureaus, scientific and technical advice and guidance to interstate, State, and local agencies desiring such assistance, to the end that they shall be enabled in appropriate measure to solve their own water problems. (The ultimate success of a new national water policy and that of a related series of regional plans embodying it will depend very largely on the public sentiment behind them. Because of the lack of an enlightened public opinion in such matters, the Nation has failed again and again to learn useful lessons from past experience and repeatedly has acted on wishful conjectures rather than upon established facts.)

(13) A national water policy, however admirable in theory, will be utterly useless in a practical sense until embodied in plans which are put into action.

#### **b. Specific Progress**

With these principles in mind, the Water Resources Committee has undertaken the following activities during the past 10 months:

(1) The role of water-resources construction in the national and Federal emergency and normal public works programs has been analyzed as an aid in drawing up future programs of public works.

(2) A comprehensive study of drainage basin water problems looking toward the preparation of a preliminary national program on December 1, 1936, has been undertaken.

(3) More intensive investigations of water problems have been initiated and carried a long distance toward completion in the Upper Rio Grande and the Red River of the North Basins where the problems are exceptionally pressing.

(4) A mechanism for reconciling conflicts over and reducing unwise action with respect to land drainage and water storage activities of the Federal Government has been developed and is in operation.

(5) A mechanism for clearing-house review of future investigations of floods and flood control by Federal agencies so as to provide proper consideration of related problems of water and land use, has been instituted.

(6) The first appraisal of the problem of control of water pollution from all relevant points of view has been completed.

(7) The first comprehensive analysis of the adequacy and inadequacy of hydrologic data available for planning water-conservation measures has been made. A program for correction of outstanding deficiencies has been formulated.

(8) Investigation of data and procedures for design and construction of water-storage works of the small unit type has been undertaken.

These activities are all functioning on a cooperative basis. The interested Federal, State, and national organizations have pooled their efforts in the solution of common problems. The Committee has acted through and is a clearing house for these organizations. A regular staff of two technicians has satisfied the needs for Committee staff for all activities except the drainage basin study (no. 2 above). The performance of the Committee has rested on the participation of Federal and local agencies and on experts drafted from outside the Federal service.

### **3. Federal Interest in Use and Control of Water**

More than 35 individual agencies of the Federal Government are concerned with water

resources work of one kind or another. The interests of the Federal Government in the use and control of water are complex and highly diversified. In the Department of Agriculture, some seven agencies; in the Department of Commerce, four agencies; in the Department of the Interior, eight; in the State Department, two; in the Treasury Department, two; in the War Department, two; and in various independent and financing departments, nine agencies have direct and important interests in the control and use of water.

Federal expenditures for the use and control of water resources have expanded greatly in amount and in scope during the past 16 years. During the last 5 years the rate of expenditures has multiplied tremendously.

During the period of 1920 to 1929, annual Federal expenditures for construction involving water use and control ranged from 30 to 63 million dollars. In the fiscal year 1929, the expenditures increased to a new high of 78 million. By 1932 they had risen to 108, and by 1935, to 374 million dollars. Construction during 1935 reached a volume, therefore, more than 12 times as great as that of 1922. The figure for 1935 is substantially lower than the actual expenditure because water improvements under the Federal Emergency Relief Administration and the Civil Works Administration are not included. No detailed breakdown of construction expenditures under the supervision of these organizations was available for the purposes of this paper.

The relation of water use and control expenditures to Federal construction expenditures as a whole remained roughly the same throughout the period. Water projects accounted for 36 percent of Federal construction in 1924, and for only 19 percent in 1922, but for the most part they ranged from 20 to 30 percent of the total, and that proportion held true even during the recent years of public-works expansion. Under both normal and emergency conditions during the last 16 years water projects accounted for an average of one-quarter of Federal construction.

Although the ratio of water construction to all Federal construction did not change under the stimulus of the emergency program, the ratio of water construction to the total United States construction altered notably. From 1925 to 1929 Federal water projects constituted a bare one-half percent of all construction in

the country. After 1929, with the steady decline in private construction, and with the sharp rise in Federal construction following 1932, water projects assumed greater national significance. By 1933 they comprised 4.6 percent of all construction, and had risen to approximately 9 percent by 1935.

The increase in amounts expended after 1932 may be ascribed wholly to the addition of funds for emergency purposes. Allotments under the regular departmental budgets fell to less than 20 million dollars in 1935, at the same time that the allotments under emergency acts rose to 354 million. Thus, although the source of funds changed, and the total expenditures mounted under emergency conditions, the relative importance of water projects in the Federal budget remained the same.

Two agencies, the Corps of Engineers and the Bureau of Reclamation, supervised the greater portion of all water projects undertaken by the Federal Government in normal times. In the 13-year period preceding 1935, more than 95 percent of the annual expenditures were allotted to those two organizations. Except in 1928, when allotments to the office of Indian Affairs exceeded 4 million dollars, the irrigation work of the Bureau of Reclamation and the flood control and river and harbor improvements of the Corps of Engineers accounted for at least 93 percent of all such Federal expenditures each year.

The Indian Office, the Forest Service, the Bureau of Fisheries, and the Geological Survey each received allotments quite small in comparison with the two aforementioned agencies.

In the years following 1932, the expenditures for rivers and harbors and for the Bureau of Reclamation mounted through the use of Public Works Administration funds. The amount of work supervised, however, by other established Federal agencies was not changed markedly. The great increase in expenditures was made under the supervision of new agencies—the Tennessee Valley Authority, the Emergency Conservation Work, the non-Federal projects of the Public Works Administration and the Reconstruction Finance Corporation. By 1935, more than one-quarter of Federal expenditures for water projects was being supervised by States, counties, municipalities, or private corporations. No estimate for the expenditure made under the emergency relief appropriations by state and county relief organizations is available, although it is known

that at least 6 million dollars were spent by these agencies for water conservation projects in the drought States alone during 1934.

During the 16-year period under discussion, progressive diversification of Federal water resources work has occurred. In 1920 rivers and harbor improvements constituted approximately three-quarters of all Federal expenditures. Irrigation and flood-control work accounted for the greater part of the remainder. A relatively slight amount was spent for fish ponds and hatcheries, for new stream-gaging stations, and for stock water development on the public domain.

In 1935 an entirely different picture of relative allocations appears which may be of considerable national significance. Navigation and flood-control work had grown to far greater dimensions. Irrigation had increased to a lesser degree, but the dominance of these activities in the Federal construction field had been lost. Wildlife and recreational projects had gained in importance. The most significant changes were the additions of municipal water supply, sewerage and sewage treatment, and multiple purpose projects. The last group represented Federal undertakings designed to serve more than one use with the development of hydroelectric power as perhaps the most common of the multiple uses and exemplified in such projects as Boulder Dam, Bonneville, Grande Coulee, Norris Dam, and Madden Dam.

These changes in nature and amount of Federal expenditures are of great national significance and raise new problems of water resources allocation and financing. Many new supervisory agencies entered a field previously dominated by two established units and for the first time in the history of this country, a substantial part of work undertaken by municipalities or other local agencies was carried out with the financial assistance of the Federal Government and with varying degrees of Federal supervision.

Many people interested in the problems of water resources of the Nation have been perhaps unaware of these profound changes in the engineering, administrative, and financial structures of the water-resources field. Even in the rush of emergency enterprises due to the depression, the importance of these changes, however, are apparent to some. The reports of the Mississippi Valley Committee and of the Water Planning Committee of the National Resources

Board were indices of an awakened national interest in the tremendous problems of the use and control of water resources. A rational and orderly development and use of these resources has become more and more of a necessity as extension of operations in this field has occurred. The emphasis on the drainage basin of a river as the unit for study of water problems has increased. The search for a coordinated unified water policy was initiated and is still the subject of much discussion. The promotion of public health, of public safety, of convenience and comfort, of the economic welfare, and of reconciliation of water use with land and mineral conservation offer new fields for thought and criticism whose importance can no longer be submerged.

Even the adoption of a water plan for the river basin resting solely upon hydrological studies is no longer considered to be completely adequate without a corresponding study of the interrelated cultural and physical problems of the basin.

Opportunity to provide for continuing modifications and adjustments of long-range programs for any drainage basin area, so as to avoid haphazard and even excessive expenditures, presents a field for thought for those interested in water resources.

When we pass from these activities to the problem of determining the cost of executing the plan and the distribution thereof among the various agencies concerned, in accordance with the distribution of benefits, the complexities of the situation are immediately apparent. The evaluation of indirect and intangible factors and advantages, in comparison with estimated costs and tangible benefits, presents issues which cannot be decided on the spur of the moment and in the heat of public discussion.

The axioms that the most beneficial use of water resources of any valley should be related to the development of other physical resources, that development or any one phase of water resources should be considered in relation to all other phases, and that physical factors are of importance only in relation to cultural and economic conditions must lead to the conclusion that competent administrative coordination of water use and control is necessary for the most equitable allocation of uses and for putting into effect the results of such studies.

The creation of the Water Resources Committee of the National Resources Committee

is therefore the natural result of a series of events of the last 5 or 6 years. Under the pressure of emergency expenditure, important activities in the field of water use and control gave rise to the Mississippi Valley Committee and to the Water Planning Committee. The report of the Mississippi Valley Committee presented a broad policy of water development in one of the largest areas of the United States and that of the Water Planning Committee a rapid inventory of the present resources and data. The creation of the Water Resources Committee was intended to carry forward the activities of the previous committees in the field of coordination of Federal and Federal-local activities in water planning and development, the collection of basic hydrological data, the reconciliation of conflicts of interest or purpose, the extension of basic information, the development of drainage basin programs and, as a natural result thereof, the preparation of works priority lists which would fit into the gradually crystallizing pattern of drainage basin economy.

#### 4. Origin and Personnel of the Water Resources Committee

The Water Resources Committee was organized on July 24, 1935, as the successor of the former Water Planning Committee of the National Resources Board.

The Water Resources Committee consists of 12 members, 3 from the former organization, and 9 new members. Eight Federal agencies and two State agencies are represented. The eight representatives of Federal agencies were selected upon the basis of the specialized knowledge and official responsibility in the field of water resources of the agencies represented. The State representatives were selected partly upon the basis of the importance of the water resources problems in their States and partly upon the qualifications of the individuals whose services in this capacity could be secured. The two remaining members were individuals whose connection with the former committee had established their special qualifications and given them familiarity with the prospective work of the present committee. The membership of the committee is therefore well suited to the work which it is to do. It has the following personnel:

H. H. Barrows, chairman, department of geography, University of Chicago.

H. H. Bennett, Chief, Soil Conservation Service, Department of Agriculture.

Ira N. Gabrielson, Chief, Biological Survey, Department of Agriculture.

N. C. Grover, chief hydraulic engineer, United States Geological Survey, Department of Interior.

Edward Hyatt, State engineer of California.

Edward M. Markham, major general and Chief of Engineers, United States Army.

John C. Page, Acting Commissioner, Bureau of Reclamation, Department of Interior.

Thorndike Saville, dean, College of Engineering, New York University.

R. E. Tarbett, sanitary engineer, United States Public Health Service.

Thomas R. Tate, Director, National Power Survey, Federal Power Commission.

Sherman M. Woodward, chief water planning engineer, Tennessee Valley Authority.

Abel Wolman, chief engineer of Maryland State Department of Health, chairman.

An executive committee of four, two Federal and two non-Federal representatives, acts as a steering committee to shift such burdens of detail as it can from the whole committee by advance consideration of complicated questions, to dispose of minor matters not regarded as worthy of consideration in advance by the whole committee, and to act in any emergency when time may not permit the entire committee to assemble.

It also has been aided by advisory committees on national water policy from the American Water Works Association, the American Society of Civil Engineers, and the Conference of State Sanitary Engineers.<sup>1</sup>

Inasmuch as the primary duties of the committee are those of cooperation and steering, the committee's object can generally be achieved through the cooperating Federal agencies and does not require the creation of a large and expensive headquarters staff. Temporary consultants and other assistants are utilized in special situations without adding new permanent employees. The work of the committee itself, which will be described in greater detail below, has been directed primarily toward the development and application of the best opportunities of water planning, even when dealing with special or local problems in that field.

<sup>1</sup> The membership of these cooperating committees from national organizations is as follows: American Water Works Association—Howard S. Morse, Indiana; L. R. Howson, Illinois; Abel Wolman, Maryland; T. Z. Lelsen, Nebraska; Samuel B. Morris, California. American Society of Civil Engineers—Leroy K. Sherman, Illinois; Lawrence M. Lawson, Texas; M. C. Hinderlider, Colorado; A. D. Weston, Massachusetts; Donald M. Baker, California. Conference of State Sanitary Engineers—Earnest Boyce, Kansas; Chester G. Gillespie, California; C. A. Holmquist, New York; William L. Stevenson, Pennsylvania; Frederick H. Waring, Ohio; L. F. Warrick, Wisconsin.

## 5. Collection of Basic Information

A nation lacking basic information on its water resources cannot hope to make the most effective use of them. Sound practice in the design and construction and operation of water use and control works is determined in large measure upon reliable hydrologic data. Because of lack of them, large amounts of Federal and private funds have been wasted repeatedly in the past. Some irrigation and hydroelectric power projects have been carelessly planned. Damages to private property from floods and droughts have been unnecessarily great. Drainage projects, highways, railways, and other structures have been damaged or destroyed by flood flows the prediction of which was impossible in the absence of long-term records.

On the other hand, some projects have been overbuilt in order to provide a factor of safety which might have been scaled down if a reasonable amount of information recording maximum and minimum conditions in the past and the probability of their recurrence in the future had been at hand. Losses of similar character will recur as long as the deficiencies in our knowledge of water resources remain uncorrected.

The Water Resources Committee has attacked this problem of obtaining adequate data from two standpoints. First, it has sponsored the formulation of standards for collecting needed hydrologic data. Second, it has made an appraisal of current data-collecting activities and has specified requisite improvements.

Both activities have been carried on chiefly by a Special Advisory Committee on Standards and Specifications for Hydrologic Data, composed of representatives of Federal agencies which collect such data and representative engineers who use them in private practice. The members of this Special Advisory Committee are:

Donald M. Baker, consulting engineer, Los Angeles, Calif.

H. K. Barrows, consulting engineer, Boston, Mass.

J. P. Dean, captain, United States Corps of Engineers.

Willis R. Gregg, Chief, United States Weather Bureau.

N. C. Grover, chief hydraulic engineer, United States Geological Survey.

W. W. Horner, consulting engineer, St. Louis, Mo.

Joseph Jacobs, consulting engineer, Seattle, Wash.

Royce J. Tipton, consulting engineer, Denver, Colo.

Thorndike Saville, dean, College of Engineering, New York University, New York, N. Y., chairman.

This group was concerned initially with the establishment of standards for the collection of hydrologic data through Works Progress Administration projects under the relief program, but it established standards which are of broad application and permanent value. The personnel requirements established for projects under the relief program have not permitted the adoption of data collection projects as extensively as had been hoped. Such projects were, however, approved and put under way in the States of Vermont and Massachusetts, in the Connecticut River Basin, and this activity is attributable in part to the support of the Water Resources Committee. The statement of standards issued last November is now having wide use.

The Special Advisory Committee also inventoried all hydrologic data collecting work now carried on by Federal agencies, independently or in cooperation with State and local interests. It reviewed that work from the standpoint of engineers, farmers, waterworks and power-plant operations, and others who use such material. In its previous report on hydrological standards it had pointed out certain immediate deficiencies. In the light of this previous investigation and of its later experience, it proposed a number of extensions and modifications in the present hydrological data collecting activities of Federal agencies as essential prior bases for the efficient development of the Nation's water resources.

Among other things it recommends:

1. The rehabilitation and improved inspection of existing precipitation stations. The publication of hitherto unpublished precipitation records. The establishment of over 1,200 new cooperative rainfall stations in localities where rainfall is not now measured. The establishment of six new first-order meteorological stations in high altitudes. The establishment of 400 recording rain gages to collect data on intensity of rainfall.

2. The establishment of at least 500 snow survey courses in mountain areas to improve the forecasting of stream flows above major Federal water conservation projects and privately irrigated lands.

3. The establishment of 500 Federal base stream gaging stations and of 600 cooperative



secondary stations, and the rehabilitation of 1,000 old stations.

4. In order to expand the information on the extent and fluctuation of ground water through the United States, the installation of 4,000 Federal wells as base stations, of 6,000 cooperative secondary wells and of corrolary geological and hydrological investigations.

5. Evaporation data should be made available by the establishment of 30 first-class stations and 250 second-class stations, by the compilation of all unpublished data, and by research on the solar energy method of evaporation, and on evaporation from snow and ice surfaces.

6. Data on the quality of surface waters should be collected systematically at 200 Federal base observation stations and 400 cooperative secondary stations.

The Committee has drawn a clear distinction between work which should be carried on by the Federal Government alone in order to secure continuous records at a few strategically located base stations and that which should be contingent upon 50-50 cooperation by local and State agencies.

The total cost of the program recommended for the correction of important deficiencies in our knowledge of water resources would be insignificant in comparison with the savings made and the potential damages averted.

## 6. Resolution of Conflicts of Interest or Purpose

Regardless of controversies as to the relative spheres of action of Federal and State agencies, one of the first problems confronting any group interested in adequate water-resources control and use is that of coordinating the conflicting purposes and methods of both Federal and State agencies. No one believes that the Federal Government will or can ever withdraw completely from water-supply activities. With this definite prospect in mind, attention necessarily must be directed to eliminating as far as possible such conflicts of interest or purpose which may arise within or between Federal agencies. When the study of such conflicts is undertaken it is soon apparent that the effects thereof are not restricted by any means to the Federal agencies. The repercussions and results of conflicts in interest and in purpose of Federal agencies are transmitted almost instantly to the lower levels of Government, whether State, municipal, or county.

### a. Drainage and Water Storage

Because of the intensification of some of these conflicts in recent years, due primarily to vast expenditures by emergency agencies, the Secretary of Agriculture on August 9, 1935, requested the National Resources Committee to review the operations of some 12 to 14 Federal agencies with a view to determining the character of their land-drainage programs and methods, with particular reference to their wildlife, pest control, malaria control, and reclamation aspects. This request was made by the Secretary of Agriculture largely because of the fact that serious difficulties had arisen through the failure of certain agencies to reconcile in advance some of their differences with other agencies in this major field of operation.

The Water Resources Committee, therefore, on October 29, 1935, appointed a special subcommittee on drainage policy and projects to report on the question. The members of this subcommittee are:

W. B. Bell, Bureau of Biological Survey, Department of Agriculture.

Glen E. Edgerton, lieutenant colonel, Corps of Engineers, United States Army.

Perry Fellows, Works Progress Administration.

Elmer Higgins, Bureau of Fisheries, Department of Commerce.

S. H. McCrory, Bureau of Agricultural Engineering, Department of Agriculture.

S. A. Rohwer, Bureau of Entomology and Plant Quarantine, Department of Agriculture.

P. I. Taylor, Bureau of Reclamation, Department of Interior.

L. L. Williams, United States Public Health Service, Treasury Department.

Abel Wolman, chairman, Water Resources Committee.

To this subcommittee comprising representatives of nine interested Federal agencies was delegated the task of considering the nature of drainage work in which the Federal Government is now engaged, the conflicts of activity which have arisen among both Federal and State agencies with respect to drainage, and the formulation of a plan whereby the program of work of the various agencies might be currently reconciled in order to eliminate conflicts and to increase the general advantage of each program.

The subcommittee made its report on January 14, 1936, finding that conflicts of Federal activities in drainage and storage work, resulting in unnecessary waste and delay, have occurred; that the number of such conflicts may

be expected to increase as a result of recent extensions of Federal authority over drainage work; and that all but a few of the conflicts might have been prevented had there been an opportunity for reconciliation of policies during the planning of the various programs. The subcommittee recommended an administrative mechanism for promotion of balanced consideration of proposed Federal projects and for reducing friction and delay in their execution. Similar findings and recommendations were made as to projects for impounding water, since the study of these projects disclosed similar opportunities for smoother administration.

The mechanism suggested for coordination and reconciliation required authority for the National Resources Committee to serve as a clearing house of information and opinion concerning proposed Federal drainage and water storage programs. On February 1, 1936, the President issued a memorandum to Federal agencies concerned with projects or allotments for land drainage or water storage, in which he instructed the appropriate officials of every Federal agency concerned with such projects or allotments to submit a statement of impending programs of such work to the National Resources Committee at regular intervals in order that other agencies having an interest in the work may be informed by the Committee of the programs well in advance of their initiation.

As a result of this Presidential memorandum, monthly reports on impending programs of land drainage and water storage are prepared with the cooperation of the various Federal agencies by the Water Resources Committee and are circulated among all of the interested agencies.

Some impression of the extent of such impending programs and of the complexities involved in adequate interchange of information among Federal agencies may be gained from the fact that the second monthly report issued on April 1, 1936, by the Water Resources Committee on this particular subject, included over 2,000 land-drainage and water-storage projects sponsored for ultimate execution by Federal agencies. In the first monthly report of March 1, 1936, even a greater number was listed.

It is apparent after only a few months operation of the machinery, that this effort at coordination is proving highly successful. Very

few conflicts should ultimately reach the Water Resources Committee for arbitration. As was anticipated by the subcommittee on drainage policy and projects, by far the greater number of conflicts are settled by representatives of the individual agencies as soon as they are made aware, by circulation of the monthly lists, of the possibilities of interference.

This particular enterprise illustrates the vast problem in Federal operations of reconciliation and coordination of policy, activities, and procedures. At the moment, no staff organization is or has been available to the President or to Congress whose sole purpose it is to review, sieve, and reconcile the purposes of Federal agencies. In theory, perhaps, meetings of the Cabinet were intended to provide this functional review. For obvious reasons busy cabinet officers cannot subject the individual undertakings to careful technical review and for even more obvious reasons it is doubtful whether reconciliation of purpose can be accomplished through independent cabinet officers representing specific Federal agencies. Some kind of continuing staff organization apparently is essential to provide the President and Congress with recurring reviews and recommendations regarding the operations of individual agencies. Such continuing staff review is wholly independent of the question of reorganization of existing Federal agencies and need have nothing whatever to do with policies of expansion or contraction of agencies. With the knowledge that whatever the agencies, conflicts in water use and control are likely to occur in the great undertakings of the Federal Government and their relation to state interests, it is clear that some permanent mechanism must be established which can subject the policies and procedures to recurring and continuous review by groups somewhat independent of the current administrative restrictions.

#### b. Balanced River Regulation

Recent dramatic emphasis on droughts and floods has concentrated attention once more on the all-embracing problem of river regulation. As is always the case, also, the first effort of the layman is to correct the immediate difficulty, as it occurs, without reference to the general problem. When floods occur and damages are great, the public rushes to Congress for flood-protection works. Their character and adaptability to the remaining program of stream

regulation are lost sight of in the desire for immediate correction of serious difficulties.

In view of this tendency to ignore the necessities of balanced development of any drainage basin, the Water Resources Committee has considered the relation of various proposed investigations concerning floods and flood control. In the light of its recommendations the Bureau of the Budget on May 14, 1936, ordered all Federal agencies to report proposed flood or flood-control investigations to the National Resources Committee in order that the Committee might review and act as a clearing house of information for the studies.

The Water Resources Committee also suggested that additional funds be allocated to the National Resources Committee for further flood investigations, utilizing appropriate bureaus of the Federal or State government for the purpose.

In this latter connection, it felt that data on past flood stages and discharges, not already incorporated in recent studies, should be analyzed and compiled by the United States Geological Survey. It proposed furthermore that the less precise data concerning past flood heights and flows as recorded in private, newspaper and unpublished Government files, should be explored, compiled, reviewed, appraised, and published.

A special inventory and study of cloudburst floods was proposed. These floods are of restricted extent, cause heavy damages within relatively small areas as at Pueblo and Cheyenne and can rarely be forecast by analysis of past storm records. By investigating the character of these recorded cloudburst floods, it might be possible to determine those parts of the United States which some day might be similarly affected.

Inasmuch as a number of Federal agencies are now collecting data concerning the 1936 floods the proposal was made that the pertinent material in these reports should be analyzed and summarized in lay terms to be issued in a single report for the education and use of official and lay boards throughout the United States.

The highly important problem of estimating whether or not the benefits from a given flood-control project warrant the cost thereof was proposed as the topic for a special and detailed study by competent local and engineering experts. The economics of flood control needs

clarification through intensive investigation of conditions and techniques in consolidated areas in the United States. This proposal for the study of the economics of flood control is not of course new, but has been proposed vigorously and with intelligent basis particularly by a committee of the American Society of Civil Engineers.

Until the complete effects which destruction of timber and grass cover and loss of soil through erosion have had on flood peaks in any drainage basin can be determined fully it will be difficult to give due weight to appropriate forestation and erosion-control measures in planning flood-control works. The water Resources Committee believed that the investigations now under way by the Soil Conservation Service and the Forest Service should be extended and supplemented by special studies of the relations of man's occupancy to flood peaks.

#### c. Coordinated Water Works Statistics

An effort is likewise underway on the part of the Committee to simplify the collection of water works statistics throughout the United States. For some years in the past, data on various aspects of water use have been collected by a variety of official and unofficial national agencies. Duplication of material and of use, irritation of local groups and conflict in purpose, all indicate that some effort at coordination would be helpful. In order to accomplish this purpose, the Water Resources Committee, acting upon a request from one of the national organizations, has invited the American Water Works Association, the American Society of Civil Engineers, the New England Water Works Association, the Conference of State Sanitary Engineers, and other allied official and unofficial groups to meet in Washington to agree on a standard statistical collection sheet which might be circularized for the collection of pertinent material. When such collection has been made the material will be made available to any national agency of recognized standing which might desire to issue it for its own purpose and under its own imprint.

It should be made clear that the National Resources Committee is not proposing to collect and distribute the material under its own auspices. Its primary desire is to avoid duplications in the collection of the material by whatever technique may be considered practicable.

## 7. A National Policy for Control of Water Pollution

The increasing importance of water pollution by domestic and industrial waste led the National Resources Board in December 1934, to request a review of the legal, public health, biological, industrial, and financial aspects of this difficulty. As in several decades ago navigation was perhaps the most important consideration in the public eye with respect to rivers, so in recent years water pollution is gaining more and more importance in public discussions and in efforts towards regulatory control. The Special Advisory Committee on Water Pollution, which was appointed in December, completed its deliberations and submitted a report on May 3, 1935, which was released in September.

The members of this Special Advisory Committee are:

W. B. Bell, Bureau of Biological Survey, United States Department of Agriculture.

Glen E. Edgerton, lieutenant colonel, Corps of Engineers, United States Army.

A. C. Fieldner, Bureau of Mines, United States Department of Interior.

Elmer Higgins, Bureau of Fisheries, United States Department of Commerce.

Thorndike Saville, dean, College of Engineering, New York University.

R. E. Tarbett, sanitary engineer, United States Public Health Service.

Abel Wolman, chairman, Water Resources Committee, National Resources Committee.

Through the Surgeon General of the United States Public Health Service, Sanitary Engineer H. R. Crohurst, of the Cincinnati station, was assigned to the Committee to assist in the collection and analysis of pertinent data on the subject. State health, conservation, and fish and game agencies supplied additional material. The joint committee of the American Society of Civil Engineers and of the American Institute of Chemical Engineers presented important material with respect to the treatment of industrial wastes. The status of standards as applied to water pollution was carefully reviewed for the Committee by Mr. H. W. Streeter, of the United States Public Health Service, while Dr. M. M. Ellis, of the United States Bureau of Fisheries, gathered information on water purity standards for the maintenance of aquatic life.

The consolidated recommendations of the subcommittee are reproduced herewith:

Any program of water-pollution control should include agencies of the Federal and State Governments that are concerned with the matter and the branches of industry that are responsible in part for pollution or are seriously affected by it. An important detail of such a program involves the inclusion, in the control organization, of regional authorities, metropolitan districts, or local abatement districts, for the comprehensive coordination of control work. To date agencies of this nature have entered into such control only to a limited extent.

The Committee recommended the following in relation to water-pollution control:

(1) That where drainage area authorities exist for the comprehensive development and control of water, their scope be made sufficiently broad to include control of pollution.

(2) That no basic changes in existing Federal law with reference to water-pollution control be made until the experimental program presented later herein shall have indicated whether or not such changes are desirable and feasible.

(3) That simplification and coordination of State laws be effected to provide for the following minimum requirements:

(a) Adequate administrative control.

(b) Delegation to the administrative agency of power to determine the nature and extent of pollution prohibited by the statutes, and to establish limitations of pollution.

(c) Appropriate mandatory powers, particularly the power to compel the installation of essential remedial works and force other necessary action.

(d) No limitation on the taxing or bonding power of municipalities, when applied to remedial works ordered by the administrative agency.

(e) Power to require facilities through sewerage districts, sanitary districts, or otherwise, that will enable municipalities and industries to comply with the law.

(4) That broader authorization for research be granted to those agencies of the Federal government which are already concerned with various phases of the problem, and that adequate funds be provided for properly coordinated water-pollution investigations.

(5) That powers and funds be granted to an appropriate Federal agency to institute a cooperative program of investigation with legally constituted State agencies for such special studies as appear desirable, and particularly for the development of appropriate standards for water use and control.

(6) That in order to stimulate the construction of pollution-abatement works, funds for the purpose be made available by the Federal Government to local public and private agencies on a grant-in-aid or loan basis. Lacking any precedent for the designation of appropriate bases for such allocations, the Committee recommends the creation of a demonstration unit on a river system selected for that purpose.

Such a demonstration unit on an interstate river system of some magnitude, involving several States and the Federal Government, would be best suited for a demonstration of the possibilities of (a) better coordinated water-pollution control legislation in the several

States, and between the States and the Federal Government, (b) more adequate administration procedure by State agencies, (c) the development of the legal and administrative procedures for regional or metropolitan pollution-abatement authorities, (d) the coordination of municipal sewage-disposal projects with statewide or interstate projects, (e) clearing up unsolved problems of treating industrial waste, (f) the extension of cooperation with industry, and (g) the stimulation of public demand for adequate control of water pollution. Such a unit would not only aid in the solution of many perplexing problems of water-pollution control, but also would serve as a training field for the development of personnel, scientific and administrative, which would be competently trained for duty with other States or for absorption into an organization for a national program.

The opportunities for accelerating the installation of sewage and industrial waste treatment plants by the Federal grants-in-aid method were emphasized by the special committee. Although there is, of course, considerable opposition to the extension of Federal grants in aid, the history of sewage treatment installation in the last 4 years, in contrast with that of the previous 50 years, makes it apparent that such financial stimulation from a central agency, with proper safeguards, probably will do more to increase the number of necessary installations than any single measure so far discussed. Prior to 1933 there were several thousand sewage treatment plants in the United States, but since 1933 between 25 and 30 percent additional plants have been installed. In less than 3 years, with the assistance of Federal grants in aid, the rate of installation has been multiplied tenfold. In this field, as in almost every other, we must weigh practical expediencies and advantages against certain philosophical prejudices in order to decide on our future approach.

#### 8. Data and Standard Practice for Small Water Projects

Another enterprise in which the Water Resources Committee has recently been requested to act is concerned with the reconciliation of the design and collection of data for small water storage projects. Small unit projects for stock water supply, erosion control, supplemental irrigation, recreation, and wildlife conservation have found wide popularity as Federal work relief during the past 3 years. No less than six Federal agencies are now building small projects on a large scale. Many more

agencies have prepared designs or collected data essential for the design of such projects.

Because of the paucity of needed data for design of storage and spillway capacities, and because of the existence of a number of manuals on design, a group of representatives of the chief agencies concerned voted on March 28, 1936, to request the Water Resources Committee to sponsor (1) the review and publication of hitherto unpublished hydrologic data for small areas especially, and (2) the preparation of a joint manual for small dam design and construction. At present there are half a dozen manuals which differ in principles and facts and no one of which is complete. In undertaking these activities the Water Resources Committee appointed a subcommittee to guide the work. It consists of the following members:

N. C. Grover, United States Geological Survey.  
 Perry Fellows, Works Progress Administration.  
 C. S. Jarvis, Senior Engineer, Soil Conservation Service.  
 L. A. Jones, Bureau of Agricultural Engineering.  
 T. W. Norcross, Forest Service.  
 E. F. Preece, National Park Service.  
 P. I. Taylor, Bureau of Reclamation.  
 E. C. Fortier, Office of Indian Affairs.  
 Thorndike Saville, New York University, chairman.

The work now in progress should result in a highly useful joint manual of practice for construction of small water storage units. At the same time a review and index of unpublished data will be made as an aid to designing works for specific sections of the United States. In this latter case, as in all others, the Water Resources Committee itself will not attempt to publish basic data.

#### 9. Problems of Selected Drainage Basins

Most of the above discussion has been restricted to the operations of the Committee on general problems confronting the country as a whole. In addition, however, it has undertaken specific studies where conflicts of interest or purpose have become so great that requests for external review or advice by the National Resources Committee have appeared. Some of these instances are briefly presented below, as types of problems with which the country will be continually confronted until some mechanism may be developed in the next few decades to prevent their occurrence.

#### a. Upper Rio Grande Basin

Perhaps the most dramatic of these examples for the necessity of coordination is in the problems of the Upper Rio Grande basin above Fort Quitman, Tex. In view of the fact that Federal appropriations have been made for a number of years in this particular drainage basin, the National Resources Committee in the fall of 1935 was requested to consider the various projects and problems relating to the use and control of waters in that portion of the Rio Grande basin.

To accomplish this review the Water Resources Committee appointed a board of review consisting of Messrs. H. J. S. Devries, W. W. McLaughlin, and Harlan H. Barrows. So critical a situation was found by this board of review that immediate action was requested by the Water Resources Committee for remedy of the situation. The board disclosed the following facts:

(1) The water resources of the upper Rio Grande basin are already fully appropriated.

(2) The social security of many citizens whose living depends on water use encouraged by Federal investments is imperiled.

(3) The security of financial investments made by various Federal agencies in this region is imperiled by any further appropriation of these waters.

(4) A Federally authorized compact which expires in 1937 exists between the three States controlling these waters. Projects now seeking Federal allotment violate the agreement under this compact.

(5) Progress toward equitable and permanent agreements under the existing compact may be achieved by immediate Federal aid and stimulation.

As a result of the recommendations of the Water Resources Committee, the President on September 23, 1935, instructed appropriate Federal agencies concerned with approval of allotments for water use in this drainage basin not to approve any application for a project involving the use of Rio Grande waters, without securing from the National Resources Committee a prompt opinion on it from all relevant points of view.

As a result of the further recommendation of the Committee that provision of cooperative funds and personnel be made by or through the National Resources Committee, a joint investigation program is now in operation in coopera-

tion with the existing Interstate Compact Commission to prepare an inventory of existing water uses and water supply within the area. The study is intended to disclose the quantitative possibilities of increasing the supply through transmountain diversion and the like. Out of the study should come the factual foundation upon which equitable interstate agreement on water use may be brought to fruition within the lifetime of the present interstate compact agreement.

For the purpose of this study, \$300,000 have been made available from Federal and State sources to be expended under the general direction of Professors Adams and Barrows and through the various Federal and State agencies equipped and concerned with pertinent aspects thereof. The States of Colorado, New Mexico, and Texas, and the Bureau of Agricultural Engineering, United States Geological Survey, Bureau of Reclamation, Soil Conservation Service, and Resettlement Administration are in cooperation.

Mr. Harlow C. Stafford, formerly water commissioner for the Sacramento and San Joaquin Valleys of California, is in local charge of the joint investigation and it is his task to collect and coordinate the information necessary for the purposes proposed by the Water Resources Committee.

#### b. Red River of the North

In the Red River of the North the Committee has under operation a similar study requested by the State planning boards of Minnesota, North Dakota, and South Dakota. Problems of augmenting municipal water supply and of reducing water pollution are now exceptionally acute.

The State agencies have established a joint committee on a permanent water plan for the Red River Basin. The chairman of that committee is Mr. W. W. Horner, of St. Louis, Mo., designated and employed by the National Resources Committee for this particular purpose. The joint committee has furthermore on its membership Prof. H. H. Barrows of the University of Chicago, a member of the Water Resources Committee. The other members of the Committee represent the various State planning boards concerned with the problems of flood control, water supply, and stream pollution.

Under Mr. Horner's direction, studies are now under way for the development of data relating to the consumptive use of water, on the accumulation of water resources data with particular reference to quality and quantity, on the analysis of these data, and the development of a long term plan for the Red River of the North. Great progress has been made in this undertaking through the complete cooperation of the various planning boards and of the other state and Federal agencies. The enterprise indicates how comprehensive a study can be undertaken under effective leadership by existing state and Federal agencies rather than by the creation of new structural machinery. The report on the Red River of the North should be available within a few months.

#### c. Kansas City Flood Protection

A similar study of the entire flood-protection program in the drainage area of the Kansas and middle Missouri Rivers at Kansas City has been underway for several years under the direction of Frederick H. Fowler. This study is being made in cooperation with the United States Army Engineer Corps and with State and local cooperation. The predecessors of the Water Resources Committee had contributed from time to time to the operation of this study and the local groups have matched these funds for the purpose of developing an adequate engineering and financial solution to this difficult problem. In order to accomplish this purpose to the best advantage, Public Works funds were made available during 1935 for the construction of models to develop technical answers to certain highly complicated hydraulic problems. In this instance, as in those already discussed, the effort of the Committee is to enlist not only the financial but the technical participation of all interested Federal and local agencies. The report on this enterprise should be made available by the end of 1936.

#### d. Other Basins

Detailed attention is being given to other critical water problems in the arid and semiarid Western States. Through the cooperation of State engineers and State planning officials an important mass of information concerning potential requirements of water resources for the future for purposes of navigation, power, irrigation, flood control, sewage disposal, and

municipal water supply in those States has been collected. It is now being analyzed by the Bureau of Agricultural Engineering and the Bureau of Reclamation with the view of determining critical areas and problems.

### 10. The National Drainage Basin Study

The most important program which the Water Resources Committee now has underway is a national drainage basin study.

#### a. Objectives

Problems in the use and control of water resources of the Nation are not new. Their importance, however, becomes clearer and clearer as competition for and conflict in their uses become more frequent and intense. The geographical distribution of such conflicts varies from time to time and it is only in recent years that the controversial aspects of western water resources have penetrated into the East. Increases in population, more varied uses for water supply, competition between municipalities and industries for relatively limited quantities of water all tend to focus attention of the public upon a problem as old as civilization itself.

Periods of drought succeeded by periods of flood flow in the past 6 years have emphasized once more, with but greater dramatic effect, the fact that water is a menace to life and property as well as a necessity for the continuance of our existence.

The study of water resources is likewise not a novel enterprise, for many millions of dollars and many years have been spent in their detailed study. In few instances, however, have our agencies been so constituted as to make it possible to review the national water problem as a whole and in particular relation to the economic and social situation of the country, as exemplified in land use, industrial development, population trends, and the requirements of health and recreation. In this field as in all others, the detailed immediate problem, specific in nature and local in implication, has naturally held the attention in the past. This is by no means surprising in a country of rapid growth and, until recently, except in limited geographical areas, undisturbed by the specter of resources decreasing in proportion to need. The pressure of immediate solution of specific problems of water use and control so often

may preclude the balancing of all uses or even of their prior review.

In recent years, however, even in the eastern part of the United States, nature has reminded us that conservation of water resources and balanced development for their use and control cannot be ignored in successions of droughts and floods. With these lessons in mind, the Committee is undertaking a national study of water use and control in the major drainage basins of the United States. The Committee hopes to obtain a reasonably clear picture of the long-range pattern for each important drainage basin and at least a preliminary list of projects which may be properly constructed in keeping with that pattern. This preliminary plan or reconnaissance it is hoped will be submitted to the President on December 1, 1936. This can only be accomplished through the complete cooperation of State and regional planning boards, of interested Federal, State, and local agencies and of private industry.

By this effort the Committee is attempting to provide a sound and Nation-wide outline for securing the greatest beneficial use of the water resources of each major drainage basin in the United States. Obviously, with the limited time and financial resources available for the study, only a skeleton plan largely of preliminary character is feasible. Such a bird's-eye view, however, of the national problem and of the available data shedding light thereon should be the beginning of recurring and continuing adjustments in each major basin.

By this study the Committee should be able to furnish various Federal, State, and local agencies with a clear statement of the dominant physical and economic considerations affecting the use and control of water resources in each basin, even though such a reasonably integrated pattern of development can be prepared only in broad outline. Out of this study a series of specific construction projects should also appear which might properly be executed as time goes on, in accordance with the integrated plan of ultimate development.

It should be clear that uneven programs of development will necessarily result from this study. Some areas of the country have been intensively studied for years while others have had little or no detailed review by either State or Federal agencies. In the latter areas, the elements of an investigative program for further study and revision of the general program

which may be outlined during 1936 are to be presented.

The three major objectives, therefore, of the Committee in this proposed study of drainage basin water resources are:

- (1) To indicate the outstanding problems of water use and control in the different parts of the country.
- (2) To outline in broad terms a reasonable and integrated pattern of development, and
- (3) To present specific construction and study projects which, in the light of available information, are consistent with the broad plan.

Questions of administration and financing of programs and projects developed in the study will not be reported upon in any detail, since they offer problems of national policy which can be determined only after long discussion in the public forum.

Specific recommendations will vary greatly in detail from one basin to another. In one basin further surveys and investigations may be recommended before any construction work is proposed. In another, it is probable that a number of projects ready for construction or requiring a short period of detailed design, may be recommended. The Committee, of course, will not attempt to prepare detailed plans and specifications for construction projects, although it will enumerate projects for which plans and specifications are already available.

In order to provide working arrangements with State planning and other boards, and to make the greatest possible use of State and Federal authorities, the Committee has assigned 40 water consultants to work with the State and regional boards. These consultants will be responsible for the conduct of the field work necessary for the preparation of the water plans. They have been selected according to major areas and convenience of operation. They will be responsible for the review of existing information and reports, for the crystallization of long-range plans and for the preparation of a final document embodying the answers to the three major objectives already pointed out above.

#### b. Organization

The field and office operations leading to the preparation of the report proposed will be under the direction of Frederick H. Fowler, of San



Francisco, Calif., a consulting engineer of wide experience in water resources problems.

The assistant director is Morton L. Emerson, of Boston, Mass.

The Water Resources Committee will outline and supervise the study through the special organization established under the director. The drainage basin districts so far organized and the water consultants assigned to them are listed below and their location is shown in figure X. All of the studies are now under way and the detail of accomplishment must wait upon the receipt of the preliminary reports of these consultants.

*Drainage Basin District No. 1.*—Prof. H. K. Barrows, 6 Beacon Street, Boston, Mass.

*Drainage Basin District 2.*—James F. Sanborn, Room 1725, 30 Church Street, New York, N. Y.

*Drainage Basin District 3.*—William McKinney Piatt, 401 Depositors National Bank Building, Durham, N. C.

*Drainage Basin District 4.*—Dean Blake Van Leer, University of Florida, Gainesville, Fla.

*Drainage Basin District 5.*—Fred H. Weed, 1123 Carew Tower, Cincinnati, Ohio.

*Drainage Basin District 6 (a).*—Royce J. Tipton, 2083 Clermont Street, Denver, Colo.

*Drainage Basin District 6 (b).*—Gerard H. Matthes, Mississippi River Commission, Vicksburg, Miss. (By detail from Corps of Engineers, Mississippi River Commission.)

*Drainage Basin District 3 (c) and 6 (d).*—Wesley W. Horner, 1325 International Building, St. Louis, Mo.

*Drainage Basin District 7 (a).*—Wesley W. Horner, 1325 International Building, St. Louis, Mo.

*Drainage Basin District 7 (b).*—LeRoy K. Sherman, 53 West Jackson Boulevard, Chicago, Ill.

*Drainage Basin District 8.*—Prof. S. T. Harding, University of California, Berkeley, Calif.

*Drainage Basin District 9.*—Frederick H. Fowler, 4308 Interior Building, Washington, D. C.

*Drainage Basin District 10 (a).*—J. C. Stevens, Spalding Building, Portland, Oreg.

*Drainage Basin District 10 (b).*—Walter L. Huber, 1325 Crocker First National Bank Building, San Francisco, Calif.

*Drainage Basin District 10 (c).*—Ralph I. Meeker, 303 Flat Iron Building, Denver, Colo.

*Drainage Basin District 11.*—Prof. Samuel B. Morris, Leland Stanford University, Palo Alto, Calif.

To facilitate the work of these consultants and to maintain a continuous and completely coordinated contact with state and regional planning boards, with Federal agencies and with other cooperating agencies, two regional coordinators will operate in the field. The eastern coordinator is Howard Critchlow, of Trenton, N. J. The compilation of existing lists of rated water projects under new and improved rating methods will be under the supervision of an office coordinator, who will act further as liaison officer with all Federal agencies concerned with the economic problems affecting or affected by the plans of the drainage basins. Mr. Brent S. Drane, formerly with the Water Planning Committee, is office coordinator.

From time to time special consulting service will be available to both field and office organizations in the solution of complex technical problems involved in comprehensive basin planning.

It should be emphasized that, when these preliminary inventories and crystallizations have been completed, no mere compilation of projects now on file in various State and Federal agencies should be the result. For the first time in the history of this country the various Federal, State, and local interests in a drainage basin are to be brought together in the field for the development of broad programs. Aside from the important result of developing a preliminary long-range plan, the study should go far toward initiating cooperative planning activities in the field of water resources which it is hoped will continue long after this first national study has been completed. Progressive modification, refinement, and adjustment of program should be the continuing ultimate aim of this first effort. The broad picture here proposed for the water conservation in the United States will be the framework within which more detailed study and evolution should take place in the future.

## C. REPORT ON THE INDUSTRIAL COMMITTEE

### 1. Introduction

On July 11, 1934, the National Resources Board authorized the creation of an industrial committee heading an industrial section to give to the industrial resources of the nation con-

sideration parallel to that given to other national resources. The industrial committee was appointed consisting of the following members:

Jacob Baker, Assistant Federal Emergency Relief Administrator, chairman.

Hon. John Dickinson, (later replaced by Hon. E. G. Draper), Assistant Secretary of Commerce.

Dr. Isador Lubin, Commissioner of Labor Statistics.

Leon Henderson, Director, Research and Planning Division, N. R. A.

Edwin G. Nourse, Brookings Institution.

Col. G. T. Harris, Jr., Director, Planning Branch, Office of Assistant Secretary of War.

Charles W. Eliot 2d, executive officer.

Subsequently added to the committee:

Gardiner C. Means, Office of Secretary of Agriculture.

Thomas C. Blaisdell, Jr., economic advisor, Office of the Administrator, Resettlement Administration.

Plans were developed and an initial exploratory study into industrial capacity was undertaken in November 1934 under the direction of Dr. Gardiner C. Means whose services were loaned for a period of 2 months by the Department of Agriculture. A parallel study into consumption requirements was instituted in May 1935 under the immediate supervision of Dr. Hildegard Kneeland. On the basis of the exploratory studies a more extensive program of research was developed and in September 1935, Dr. Means was appointed to direct the technical work of the section subject to recommendation and review by the industrial committee and to approval by the advisory committee.

The primary work of the industrial section in considering industrial resources is to plan and foster studies of productive capacities and consumption requirements to be made directly or by other agencies of the Federal Government. The need for such studies has been increasingly apparent as the discrepancy between the country's producing power and its actual consumption has widened during the depression. The Brookings studies on "America's capacity to produce" and "America's capacity to consume" are along this line and clearly point to gaps in information and the need for a more adequate picture of industrial capacity and consumption requirements. The Industrial section has undertaken to plan more exact studies of this character and to assist in coordinating the work of the different agencies active in this field.

The uses for which such data are needed are many and important. Great economic losses accrue to individual producers and to the community as a whole from mistaken estimates of consumer demand or from mistaken ideas as to existing capacity. The inability

to plan new facilities and output in accordance with existing capacity and consumer demand results not only in financial losses to individuals but also to enormous waste of human and material resources. Accurate information on industrial capacities and on consumption requirements would reduce this waste. Data on consumption requirements can constitute a direct aid to business in the laying out of sales campaigns and sale territories. Data on industrial capacity can constitute a direct aid to business in planning new industrial facilities. Such data can constitute a direct aid to labor and consumer groups in protecting their interests. Finally, such data constitute a direct aid to local governments in the development of particular regions and to the Federal Government in seeking to bring about better economic balance.

In carrying out its functions of planning and coordinating studies, it is the intention of the industrial section to approach the various facts concerning industry from two different points of view. First, it will examine the industrial process from the point of view of the producer—looking down the stream of goods as they flow toward the consumer. Second, it will examine the industrial process from the point of view of the consumer—looking up the stream of goods as they flow down from the producer. Only as both of these points of view are adopted can a well rounded picture of industry be obtained.

## 2. Consumption Requirements

The work of the section up to the present time has made the most progress in the field of consumption requirements. This has been due in part to the pioneer work already done by other Government agencies.

Two bureaus of Government, the Bureau of Home Economics and the Bureau of Labor Statistics are particularly concerned with the subject of consumption though each has approached the problem with a slightly different emphasis. The Bureau of Home Economics has made several small studies of family expenditure, placing special emphasis on the adequacy of the living obtained. In making these studies it has taken important steps in developing effective technique for the collection of family consumption data. The Bureau of Labor Statistics has made similar studies with

respect to the expenditures of families of wage earners and low salaried workers, placing particular emphasis on the money outlays necessary to maintain a constant real income. This Bureau has expanded its work in the last 2 years and has devoted considerable sums to collecting data on family expenditures, to be used in revising cost of living indices. In this work it has further improved the techniques for collecting family consumption data. However, in spite of the work of these two bureaus and of other agencies which have made small studies in this field, the techniques developed for making such studies have required further elaboration and the existing information on family consumption is entirely inadequate for the many purposes for which it is needed and particularly it is insufficient for drafting an adequate picture of the consumption patterns of the population.

Because of this inadequacy of information on family consumption the industrial section was directed to undertake as one of its functions, the development of more adequate techniques for studying family consumption and the planning of a national investigation of the consumption of goods and services by American families. This it has done in close collaboration with the Central Statistical Board, the Bureau of Labor Statistics, and the Bureau of Home Economics. As a result of 6 months' work on the part of a technical staff, working in cooperation with the two bureaus concerned, a coordinated plan has been developed with two projects to be administered respectively by the Bureau of Home Economics and by the Bureau of Labor Statistics. It carries out the recommendations for such an investigation made by the Social Science Research Council and calls for study of urban and rural families of various income classes and occupational groups in 50 cities and 22 rural sections. The funds to be devoted to this project are provided by the Works Progress Administration, and the whole project will be under the general supervision of that agency.

The families covered in the study are distributed according to six major classifications: (1) By geographical area, (2) by size of community, (3) by income, (4) by occupation, (5) color, and (6) by family composition. The geographical distribution has been provided for through the adoption of six areas and two metropolitan districts. In each area

large, middle-sized, and small cities as well as villages and farm sections are covered so as to reflect differences in the degree of urbanization. Several rural sections are also covered in other areas, representing the important types of farming not found in the six main areas. Twenty income classes, eight occupational groups and seven family types are covered.

Most of the information is being obtained by the schedule method through personal interviews voluntarily given. Data are being secured on income, occupation and family composition from approximately 336,000 families selected through random sampling. From approximately 53,000 families detailed information is being obtained on current expenditures and savings, ownership of durable goods, housing facilities and other indices of levels of living. This sample has been selected according to a prearranged plan assuring an equal number of families at all income levels for each occupational group. From a small part of this sample, dietary records, health records, and household accounts are also being obtained.

It is expected that the statistical results of the project in each community studied will be published by the two bureaus making the field studies. These bureaus are likewise expected to publish the analytical reports on the expenditures of particular occupational groups.

### 3. Reports Growing Out of Consumption Project

The reports of the industrial section in connection with this project are—

(1) A report presenting the detailed plans for the project outlined above. This report will cover not only the concrete plans but also the statistical or analytical basis for making the more important decisions involved in drawing up the plan and the methods proposed for tabulating and organizing the data when collected.

(2) A report reviewing the plans for the project and evaluating the procedures and techniques in the light of the results of the study, with suggestions for revisions for use in future consumption research projects. This report cannot be completed until the project comes to a close.

(3) Interim reports on special subjects of particular interest to the National Resources Committee, such as the presentation of family

composition in relation to income, occupation, and other factors. These analyses are of special interest to the Committee on urbanism. They will be prepared as the data become available.

(4) Reports applying the data to the estimation of the potential consumption requirements and demands of the population, i. e., the available markets, under various economic and social conditions, and of the relation of these requirements to industrial capacities and to human and material resources. These reports cannot be prepared before the statistical results of the consumption project are available though reports analyzing the problems involved in organizing the data to indicate consumption requirements may be possible at an earlier date.

(5) The summary report, prepared jointly with the Bureau of Labor Statistics, the Bureau of Home Economics, and the Central Statistical Board. This report will follow the completion of the statistical project and the publication of special reports.

In addition to the work on family expenditures, the industrial section is planning to undertake exploratory work with regard to non-family expenditures, i. e. government, hospitals, endowed institutions, etc., in order to supplement the information on family expenditure and give a picture of the total consumption requirements of the country. It is too early to indicate the character of the product of such study or the type of report likely to result.

It is also intended to explore the possibilities of analyzing the available business data to throw light on consumption requirements. Such data might operate as a cross check on the data derived from study of family expenditure and might be effective in estimating changes in consumption requirements through time. The character of report and time of publication cannot be foreseen until work in this field has progressed further.

#### 4. Industrial Capacity Studies

The work on industrial capacity is not yet so far advanced as is that on consumption requirements. This has resulted from the fact that though much more information is available about industry than about consumption much less of the pioneer work has been done in organizing the data to show industrial capacities. The Bureau of the Census has collected most valuable information on industrial activities,

on factory output, etc.; the Bureau of Labor Statistics has likewise collected valuable information on employment and wages; the Bureau of Mines has collected extensive and valuable information on mining output, employment, reserves, etc.; the Bureau of Foreign and Domestic Commerce has available information on industrial activities with the particular aim of aiding business groups; other agencies of the Government have been concerned in collecting data on industrial activities. At the same time, though all this mass of information has been flowing into the hands of Government, relatively little of it has been collected with the specific aim of throwing light on industrial capacities, and almost no effective analysis of the material had developed in this regard. In preceding administrations and in the present one certain studies bordering on the subject of industrial capacity have been made by the Bureau of Labor Statistics and others by the Bureau of the Census and by the Bureau of Mines. At the same time little fundamental work directly related to industrial capacity has been done. This has meant that while more data were available in the fields of industrial capacity, techniques for handling the data were in a less advanced stage than was the case in the field of consumption.

To make up this lack, the industrial section has undertaken studies to develop techniques for estimating industrial capacities. The problem was found to be vastly more complex than is usually supposed, and as a result the techniques of analysis developed tend to be quite different from those previously employed and to call for a redevelopment of data with respect to industry.

The most important differences in approach developed in connection with the question of what industrial capacity involves. In general discussions of capacity, the problem is usually considered as one of the capacity to produce. The same attitude is reflected in discussing certain industries. Thus, the capacity of a blast furnace is spoken of as the capacity to produce so many tons of pig iron per day. However, for many industries capacity is rated as capacity to consume. Thus the capacity of a coke oven is rated as the capacity to consume so many tons of coal a day. (In the technical language of the industry a coke oven has a throughput of so many tons of coal per 24 hours). Similarly the

capacities of ore milling plants, packing houses, refineries, etc., are spoken of in terms relating to capacity to consume. In other cases neither the capacity to produce nor the capacity to consume gives an adequate clue to the capacity of an industry. For instance, some blast furnaces have been built in connection with city gas plants in part to consume coke and in part to produce flue gas for mixture with coal gas while pig iron is a byproduct. Here neither capacity to produce nor capacity to consume would give an adequate picture. Just what then does industrial capacity involve?

In meeting this problem, the industrial section reached the following conclusion: The industrial capacity with which the National Resources Committee is concerned is neither the capacity to produce items of output nor to consume items of input but rather the capacity to convert items of input into items of output. Stated in the broadest terms the questions to be put in studying the capacity of a plant or industry is the question—How much of what items can be converted into how much of what items in a given period of time? Under given price conditions, how many tons of ore of a given quality, how many tons of coke, how many tons of limestone, how many man-hours, and how much power can be converted in a blast furnace into how much pig iron, how much flue gas, and how much slag per 24 hours? The problem of industrial capacity thus becomes one of conversion capacity.

Such a shift in emphasis greatly complicates the problem of estimating industrial capacity but it does more correctly state the problem. Only as adequate estimates of the conversion capacities of industries are developed will a clear picture of industrial capacity be obtained.

With conversion capacities established as the objective, the next step in studying industrial capacities has been to develop technique for estimating conversion capacities. This work has been under way and has resulted in a generalized technique which should be available for publication in the near future. The concrete application of the general technique to specific industries is also under way.

In making these studies, striking inadequacies in the existing data on industry became immediately apparent. Little or none of the data on industry has been collected with a view to estimating conversion capacities. Much of

the available data will be useful for this purpose, but many serious gaps must be filled before the data can be effectively used. This is not a matter of getting more refined data but of getting data which is of primary importance to the problem of industrial capacity yet has not been important to the particular purposes for which data has been collected by the different agencies in the past.

This inadequacy of existing data makes necessary the laying of plans for filling the gaps at the same time that plans for organizing the data are developed. The latter is an essential step in disclosing the gaps while the former is essential to an adequate picture of industrial capacity.

As in the case of consumption requirements, it is regarded as the function of the industrial section of the National Resources Committee in collaboration with other Government agencies to develop plans for studying the conversion capacities of particular industries and to assist in coordinating the activity of Government agencies carrying out such studies.

As a background for such activity the industrial section is making a series of studies in particular industries which will in large part form the basis for developing plans for the organizing of existing data and the collection of any new data necessary to throw a clear light on industrial capacity.

The initial exploratory studies to develop techniques were undertaken in the blast furnace industries and in that of cotton spinning. Studies are now under way covering iron ore, coal, coke, and cement. Plans have been laid for carrying the exploratory studies into the remainder of the iron and steel industry, into the lumber industry and the cotton textile industry. The work is being carried on by a small staff of engineers and economists and will result primarily in laying a foundation for the development, with other agencies of Government, of plans for more comprehensive studies into particular industries so as to estimate their conversion capacities. It is presumed that these plans will be comparable in nature to the plan for the study of family consumption developed by the industrial section in collaboration with the Bureau of Home Economics, the Bureau of Labor Statistics, and the Central Statistical Board.

### 5. Reports Deriving from Industrial Capacity Studies

The work on industrial capacity should result in the following reports:

(1) A report covering the general approach and the techniques of analysis and statement developed. This report should be available for publication early in 1936.

(2) A series of technical reports on particular industries presenting the plans for organizing data and for collecting any additional data required. The first of these reports should be available early in 1936 and subsequent reports should be available as rapidly as the exploratory studies can be made and plans developed in collaboration with other Government agencies for carrying out the more comprehensive studies.

(3) Reports covering the results of the comprehensive studies will presumably be published either as routine or special reports by the agencies concerned, or as special reports made jointly by the agencies concerned and the National Resources Committee.

(4) Reports covering groups of interlinked industries may be feasible though it is too soon to be clear on this point.

(5) A summary report bringing together the results of the separate industrial studies to present a picture of the country's industrial capacity. Such a report cannot be prepared until the bulk of the separate industry studies is complete.

(6) Prior to the summary report it may be possible to present a preliminary picture of industrial capacity based on a more superficial approach where more comprehensive studies have not been completed.

### 6. Uses of Industrial Capacity Data

The ultimate product of the studies of industrial capacity should be a great aid to business, Government, and other groups in the making of policies. Thus adequate information on the capacity of a particular industry to convert raw materials, etc., into products should greatly facilitate the economic location of new plants, the elimination of obsolete plants from operation, etc. The same information should aid the Government in dealing with the unemployed, indicating the areas in which lack of employment is likely to persist and the areas in which unemployment is likely to be a temporary depression problem, etc. The information should also aid the Government in developing its policy with respect to other matters such as tariffs, transportation, taxes, etc. Further, the information should be an aid to state and local planning agencies in charting the development of their particular regions and how they relate to other areas in the economy.

### 7. Drafting Production—Consumption Patterns

From the point of view of the National Resources Committee, the most important use of both the material on consumption requirements and that on industrial capacities is to draft production-consumption patterns for the American economy. The aim of such patterns would be to indicate the condition of production and consumption which would constitute economic balance with the optimum use of human and material resources. They should throw a clear light on what would constitute the optimum possible American standard of living and should suggest ways in which it could be brought about.

# APPENDIX

## LIST OF PUBLICATIONS<sup>1</sup>

### Principal Reports

NATIONAL PLANNING BOARD, FINAL REPORT, 1933-34, dated August 1, 1934, and issued November 16, 1934. Final report of the National Planning Board, appointed by Secretary of the Interior Harold L. Ickes on July 20, 1933, and succeeded by the National Resources Board by Executive order of the President on July 30, 1934. Printed, 123 pages, paper cover, 5 illustrations, Superintendent of Documents, 25 cents.

The report is divided into four sections and an appendix. Section I, Planning Activities, includes a description of the Board, its functions and duties, its staff and organization, financial statement, and its accomplishments in stimulating State, city, and regional planning; in advising on the progress of public works; in coordinating Federal planning activities; and its research program.

The following chapters make up section II, A Plan for Planning: Historical Development of Planning in the United States; Present Types of Planning in the United States; Other Types of Planning; What is Involved in Planning; The Goal of Planning; Organization and Functions of a Planning Board.

Section III, Science of Planning, includes the chapters The Role of Science in National Planning and The Aid of Social Science.

A digest of a special research report, National Planning Experience, by Lewis L. Lorwin and A. Ford Hinrichs, makes up section IV, while the appendix is entitled "Planning Considerations—Geographic Distribution of Projects."

NATIONAL RESOURCES BOARD REPORT, published December 1, 1934, issued December 18, 1934, and submitted to the President in accordance with Executive Order No. 6777, June 30, 1934. A report on national planning and public works in relation to natural resources and including land use and water resources, with findings and recommendations. This report is the first attempt in our national history to make an inventory of our national assets and of the problems related thereto. For the first time, it draws together the foresight of the various planning agencies of the Federal Government and suggests a method for future cooperation.

Printed, paper covered. Divided into five parts, obtainable separately or together (bound in cloth, \$3.25), at the office of the Superintendent of Documents.

Part I. Report of the Board, includes Findings and Recommendations, Planning our Natural Resources, Public Works Planning, State or Regional Planning, Basic Data for Planning, and A Plan for Planning. Contains 88 pages, 7 illustrations. Price, 25 cents.

Part II. Report of the Land Planning Committee, includes Conditions and Tendencies Influencing Major Land Requirements; Land Requirements in Relation to Land Resources for the Nation as a Whole; and Maladjustments in Land Use and in the Relation of our Population to Land, and Proposed Lines of Action—162 pages, 68 illustrations, and 4 folded maps. Price, 35 cents.

Part III. Report of the Water Planning Committee, includes Principles and Policies of Use and Control of Water Resources, Inventory and Use of Water Resources, and Special

<sup>1</sup> Publications of the National Resources Committee and its predecessors—the National Planning Board, Mississippi Valley Committee, and National Resources Board.

Aspects of Water problems—135 pages, 5 color illustrations, 27 folded maps, and 32 illustrations. Superintendent of Documents, \$1.

Part IV. Report of the Planning Committee for Mineral Policy, includes need of a National Policy, Policy in the Domestic Field, International Aspects of Mineral Policy—58 pages, 1 illustration. Superintendent of Documents, 15 cents.

Part V. Report of the Board of Surveys and Maps, recommends a 10-year program to complete the standard topographic mapping of the United States, including priorities, methods, scales, and type of reproduction and estimates of cost—5 pages, 2 colored folded maps. Superintendent of Documents, 20 cents.

REPORT OF THE MISSISSIPPI VALLEY COMMITTEE, dated October 1, 1934, and issued December 23, 1934, in compliance with instructions to make a plan for the use and control of water within the Mississippi drainage basin. The relation is shown of the great wealth of water resources in the basin to the problem of bettering the condition of the people.

Printed, 234 pages, cloth covered, 15 colored illustrations, 54 illustrations, and 9 folded maps. Available at the office of the Superintendent of Documents, \$1.50.

The section devoted to Water Policy includes chapters on Use and Control of Water in Streams; Flood Control; Low Water Control; Navigation; Power; Water Supply and Sanitation; and Erosion Control. The section entitled "Water in Relation to Land Use" is treated from the viewpoint of Water and Farm Practice; Irrigation, Forestry; Wildlife Conservation; and Recreation. The section, "Background", includes chapters on Precipitation and Run-off; Ground Water and the Water Table; and Erosion.

The third part of the report surveys the valley basin by basin; the Upper Mississippi, Ohio, Missouri, Southwest, and Lower Mississippi. The report concludes with an authoritative discussion of planning in general, its application to the valley and a glimpse of the valley of the future, as it would be in accordance with the plan recommended.

SECOND REPORT OF THE BOARD WITH FINDINGS AND RECOMMENDATIONS, June 15, 1935.

Submitted to the President in accordance with Executive Order No. 6777, June 30, 1934. Mimeographed, 83 pages, 1 color illustration. Edition exhausted. Divided into three parts: Part I of which includes functions and duties, organization and staff, and financial statement of the National Resources Board. Part II, Planning Work, includes National, Regional, State, and Urban Organizations for Planning, Public Works Planning, and Planning Research in Land, Minerals, Water, Transportation, and Industry. Part III treats Science and Planning.

STATE PLANNING—A REVIEW OF ACTIVITIES AND PROGRESS, published in June 1935, shows the remarkable growth of State planning and demonstrates the value and importance of State responsibility for planning endeavor. At the same time, the report shows the effective cooperation which has been developed between planning agencies of the States and those of the Federal Government.

Printed, paper cover, 6 colored illustrations, 119 illustrations. Superintendent of Documents, 75 cents.

In addition to Foreword, Findings, and Recommendations, Appendices, and Index, the volume is divided into three parts: Part I, Development of State Planning, deals with the city and county planning background, State-wide planning movements, the definition, scope and objectives of State planning, fields of work, the membership of State planning boards, Federal assistance to State planning, planning consultants, and present status of State planning.

Part II, Progress by States, is a brief digest of the history, organization, duties and functions, funds and appropriations, accomplishments and recommendations of each State planning board, the Pacific Northwest Regional Planning Commission, New England Regional Planning Commission, and the District of Columbia National Capital Park and Planning Commission.

Nine chapters and an introduction make up part III; Activities of State Planning Boards. These chapters include (1) Basic Data: Population studies, mapping and climate; (2) Land Planning: Agriculture, zoning, reclamation, forestry, Indian reservations, recreation, wildlife reservations, and historic, scenic, and scientific reserves; (3) Water Resources Prob-



lems; (4) Electric Power Problems; and (5) The Development of Mineral Resources.

The remaining chapters are (6) Transportation Problems: Highways, railways, waterways, pipelines, communication lines; (7) Public Improvement Programs and Public Buildings; (8) Social and Economic Trends: Location of industry, occupational trends, unemployment, relief and education; and (9) Governmental Relationships: Federal, Interstate, State, Local, and Public Finance.

The first appendix includes the list of names and addresses of district chairmen and State consultants and associates. A bibliography of State Planning Reports in the library of the National Resources Board makes up the second appendix.

**REGIONAL FACTORS IN NATIONAL PLANNING AND DEVELOPMENT**, published in December 1935, deals with important problems of planning and development which overlap State lines or which involve Federal and State or local interests and jurisdictions. Printed, paper cover, 160 illustrations. Superintendent of Documents, 50 cents

In addition to the foreword, findings and principles, recommendations, and an appendix, the volume is divided into five parts as follows: An Introductory Statement of the Problem, Evidences of the Problem, Some Attempts at Solution of the Problem, Geographic Factors and Criteria, and the Integration of Administrative and Geographic Factors in Regional Planning.

Part I. An Introductory Statement of the Problem.

Part II. Evidences of the Problem: The Conflict of Political Boundaries with Natural Areas, Regional Organizations for Planning on an Interstate Basis, State Planning Experience, The Interstate Cooperation Movement, and Federal Departmental Experience.

Part III. Some Attempts at Solution of the Problem: The Interstate Compact, Interstate Compacts; The Colorado River Example, Federal Departmental Procedure, Federal Regional Authorities; The Tennessee Valley Example, Federal Regional Planning Organizations; New England and the Pacific Northwest Planning Projects, are the titles of the chapters.

Part IV. Geographic Factors and Criteria: The Nature and Evolution of the Regional Idea; A Preliminary Exploration of Regional-

ism; The Geographic Region, Forms and Uses of the Region, Regions in a Planned National Program, and Summary Statement.

Part V. The Integration of Administrative and Geographic Factors in Regional Planning: Government and Areas; The Problem Restated, Coordinate Planning for Interstate Regions: and a summary chapter.

The appendix is made up of 108 small maps showing Federal administrative regions.

**REGIONAL PLANNING**, a series of reports on regional planning activities in different parts of the United States, of which only the first two parts have been published.

**PART I. PACIFIC NORTHWEST**, May 1936. Printed, paper cover, 192 pages, 61 illustrations, 1 colored map. Superintendent of Documents, 50 cents.

This report deals with immediate and urgent problems in the Columbia Basin and particularly with the policies and organization which should be provided for planning, construction, and operation of certain public works in that area. Its three divisions are: Foreword or Recommendations of the National Resources Committee, Report of the Pacific Northwest Regional Planning Commission, and the Report of the Special Staff Assigned to the Columbia Basin Study. The latter makes up the bulk of the report and is divided into four sections. Section I, Digest, consists of an introduction and synopsis. Section II, The Region: Its Resources, Problems, and Needs; and its Future, contains chapters on conditions, resources and activities, population and the future of the region, general summary, analyses, and recommendations.

Nine chapters make up section III: Definition and Regionality of the Pacific Northwest. They are concerned with the potential planning problem areas in the Pacific Northwest; homogeneity as a basis for regionality; the Columbia River—a unifying bond and a subject for regional planning; other tests of regional homogeneity in the Pacific Northwest; tests of political homogeneity; cultural history and regional homogeneity; proposed boundaries for regional planning in the Pacific Northwest; and commercial competition as a deferrent to regionalism.

Chapters on organization for planning in the Pacific Northwest, organization for construc-

tion of public works, and organization for operation of public works make up section IV, Plans for Regional Organization.

PART II. ST. LOUIS REGION, June 1936. Printed, paper cover, 68 pages, 30 illustrations. Superintendent of Documents, 25 cents. The recommendations of the National Resources Committee make up the foreword while the report of the St. Louis Regional Planning Commission comprises the body of the report. Chapters dealing with the history and resources of the region; organization of the region—present and future; principal physical improvements of the region, existing and proposed; Federal and interstate problems and planning administration are included, as well as an appendix. Other parts are in preparation.

### Supporting and Supplementary Reports

#### Water Problems

DEVELOPMENT OF THE RIVERS OF THE UNITED STATES (H. Doc. 395, 73d Cong., 2d sess.), a message from the President of the United States transmitting a preliminary report on a comprehensive plan for the improvement and development of the rivers of the United States with a view of giving the Congress information for the guidance of legislation which will provide for the maximum amount of flood control, navigation, irrigation, and development of hydroelectric power.

Printed, 6 by 9 inches, paper cover, 423 pages, 57 maps. Superintendent of Documents, 80 cents.

The committees responsible for the report represented the Departments of War, Agriculture, Interior, and the Federal Power Commission. The National Planning Board acted as a coordinating agency.

Contains 10 parts: Report of the President's Committee on Water Flow; Organization and Policies; The Atlantic Region; The Gulf Region; The Eastern Mississippi Region; The Western Mississippi Region; The Great Lakes Region; The Pacific Region; The Arid and Semiarid Section; General Review of Reports.

•

INVENTORY OF THE WATER RESOURCES OF THE UNITED STATES, JUNE 1935. Multilithed, paper covered, about 9 by 11¼ inches. (Edition exhausted. Reprint contemplated.) A report covering basic data, present develop-

ment, and potential development of the water resources of the United States. The report is divided into eight sections according to drainage areas, and the parts published separately. Prepared by regional water consultants, the following essential points are covered for each region: Physiography, climatology, surface waters, ground water, quality of water, public water supply, power, irrigation, navigation, flood control, drainage, recreation, waste disposal, and conservation by storage.

Multilithed, paper covered, about 9 by 11¼ inches. (Edition exhausted. Reprint contemplated.)

The separate sections follow:

Inventory of the Water Resources of the North Pacific Drainage Basins, prepared by Joseph Jacobs, regional water consultant, embraces all of the State of Washington, nearly all of Oregon and Idaho, and portions of Montana, Wyoming, Utah, and Nevada—117 pages, and includes 5 color maps and 6 plates.

Inventory of the Water Resources of the South Pacific and Great Basin Drainage Areas, prepared by W. L. Huber, embraces portions of California, Oregon, Nevada, Utah, and Idaho—50 pages, and includes 5 colored maps and 7 plates.

Inventory of the Water Resources of the Colorado River Drainage Area, by H. T. Cory, embraces the State of Arizona and portions of California, Nevada, Utah, Wyoming, Colorado, and New Mexico—27 pages, 5 color maps, and 8 plates.

Inventory of the Water Resources of the Southwest and Western Gulf Drainage Area, by O. N. Floyd, embraces portions of Texas, Louisiana, New Mexico, and Colorado—29 pages, 5 color maps, and 11 plates.

Inventory of the Water Resources of the Mississippi River Drainage Area, by C. H. Paul, embraces West Virginia, Tennessee, Kentucky, Illinois, Iowa, Missouri, Arkansas, Oklahoma, Kansas, Nebraska, South Dakota, and portions of North Dakota, Montana, Wyoming, Colorado, New Mexico, Texas, Louisiana, Mississippi, Alabama, Georgia, North Carolina, Virginia, Maryland, Pennsylvania, New York, Ohio, Indiana, Michigan, Wisconsin, and Minnesota—64 pages, 5 colored maps, and 10 plates.

Inventory of the Water Resources of the Great Lakes, St. Lawrence River, and Red River of the North Drainage Area, by L. K.

Sherman, embraces the State of Michigan, and portions of North Dakota, South Dakota, Minnesota, Wisconsin, Illinois, Indiana, Ohio, Pennsylvania, New York, Vermont, and Maine—48 pages, 5 colored maps, and 6 plates.

Inventory of the Water Resources of the North Atlantic Drainage Area, by H. K. Barrows, embraces the States of Maine, Massachusetts, Rhode Island, Connecticut, New Jersey, Delaware, and portions of Vermont, New York, and Pennsylvania—62 pages, 5 colored maps, and 18 plates.

Inventory of the Water Resources of the South Atlantic and Eastern Gulf Drainage Area, by Brent S. Drane, embraces South Carolina, Georgia, Florida, and portions of Pennsylvania, Maryland, Virginia, West Virginia, North Carolina, Alabama, Mississippi, and Louisiana—53 pages, 5 colored maps, and 8 plates.

REPORT ON WATER POLLUTION by the Special Advisory Committee of the Water Resources Committee, appointed in December 1934 to study the conditions of a comprehensive plan of attack on the problem of pollution. Mimeographed, 82 pages, 8 by 10½ inches, paper cover, one illustration. Available in limited numbers. Published in September 1935. The chapters include: The Problem of Stream Pollution, Status of Water Pollution Law, Status of Water Pollution From the Standpoint of Public Health, Status of Water Pollution From Biological Aspects Other Than Public Health, Status of Industrial Waste Treatment, Status of Standards of Water Quality, Recommendations.

REPORT OF THE SPECIAL ADVISORY COMMITTEE ON STANDARDS AND SPECIFICATIONS FOR HYDROLOGIC DATA, December 1935. Multilithed, 45 pages, 8 by 10½ inches, paper cover, no illustrations. Published to insure the obtaining of more dependable hydrologic data for emergency works projects. It combines the viewpoints of the scientists and technicians who produce basic data with the viewpoints of engineering practitioners who design and construct works based upon such data.

Following are the titles of chapters: General Recommendations; Precipitation; Snow Surveys; Surface Waters; Ground Water; Evaporation from Water Surfaces; Evaporation

from Moist Soils and Evapo-transpiration; Quality of Water, Physical and Chemical; Special Projects; Suggested Projects and Procedure Under Works Progress Administration.

DRAINAGE POLICY AND PROJECTS, by the Special Subcommittees of the Water Resources Committee, appointed in October 1935 to review the scope and conflicts of Federal activity related to land drainage, and to recommend a practicable means of developing coordinated programs of future work. Published in February 1936. Mimeographed, illustrated, 26 pages. Available in limited numbers, National Resources Committee.

FEDERAL AGENCIES CONCERNED WITH WATER USE AND CONTROL, by the Water Resources Committee, published in January 1936. A ready reference to Federal work in the field of water resources, including major types of investigation and construction in progress, and the major sources of available data. Mimeographed, 37 pages, 5 maps. Available in limited numbers, National Resources Committee.

#### Land Problems

SUPPLEMENTARY REPORTS OF THE LAND PLANNING COMMITTEE incorporating the basic data and information collected in preparing part II of the National Resources Board report of December 1934. The 11 reports are printed separately, illustrated, 9 by 11½ inches, paper covers.

The following are now available at the office of the Superintendent of Documents:

Part I. General Conditions and Tendencies Influencing the Nation's Land Requirements—47 pages, 37 illustrations; 20 cents.

Part III. Agricultural Land Requirements and Resources—64 pages, 22 illustrations, 2 maps; 60 cents.

Part IV. Land Available for Agriculture Through Reclamation—2 illustrations, 2 maps; 35 cents.

Part V. Soil Erosion, a Critical Problem in American Agriculture—112 pages, 23 illustrations, 6 maps; 75 cents.

Part IX. Planning For Wildlife in the United States—24 pages, 2 illustrations; 10 cents.

Part X. Indian Land Tenure, Economic Status, and Population Trends—73 pages, 11 illustrations; 20 cents.

The following parts are being printed and will soon be available at the office of the Superintendent of Documents:

Part II. Agricultural Exports in Relation to Land Policy.

Part VI. Maladjustments in Land Use.

Part VII. Forest Land Resources, Requirements, Problems and Policy.

Part VIII. Certain Aspects of Land Problems and Government Land Policies.

Part XI. Recreational Use of Land in the United States.

#### Mineral Problems

THE EFFECTS UPON OPERATING EFFICIENCY OF THE BRITISH EXPERIMENT IN PRODUCTION CONTROL IN THE COAL INDUSTRY, by George W. Strasser, published in February 1936, mimeographed, 88 pages, paper cover, 7 charts. Available in limited numbers.

The chapters in this reconnaissance report deal with the British scheme of price and production control, market background of the British coal industry under competition and under control, effects of control upon prices and profits, effects upon costs and output per man, effects upon productive capacity, whether or not technical progress has been retarded by the adoption of production control, and British and American experience compared.

Appendix A, composed of statistical tables; appendix B, a discussion of the stability of coal prices during the control period 1931-33; and a bibliography, complete the report.

•

THE MINERAL RESERVES OF THE UNITED STATES AND ITS CAPACITY FOR PRODUCTION, by Kenneth Leith and Donald M. Liddell, published March 1936. Mimeographed, 247 pages, 25 charts. Available in limited numbers. The report deals with the following mineral resources: Aluminum, antimony, asbestos, barite, china clay, chromite, coal, copper, fluorspar, gold, graphite, gypsum, iron ore, lead, magnesite, manganese, mica, molybdenum, nickel, nitrates, petroleum, phosphate rock, potash, quicksilver, silver, sulphur, tin, titanium, tungsten, vanadium, and zinc.

#### Public Works

PUBLIC WORKS IN PROSPERITY AND DEPRESSION, and their utilization as an agency of economic stabilization, by Arthur D. Gayer, published by the National Bureau of Economic Research, September 23, 1935. Printed in book form, 9¼ by 6¼ inches, cloth binding, 484 pages, 100 tables, 3 charts. Obtainable at the National Bureau of Economic Research, 1819 Broadway, New York City. Price, \$3.

This volume is a revised version of the official report made to the National Planning Board by Dr. Gayer in June 1934. It contains information on the volume of public works undertaken in this country, the fluctuation in volume from year to year, the types of work undertaken, and the numerous factors that bear upon efforts to use public works as an economic balance wheel.

The chapters are: Planned Public Works as an Agency of Economic Stabilization; The Development of the Idea; Public Works in the United States, 1919-34; Their Scope, Volume, Distribution and Fluctuation; Total Public and Private Construction in the United States, 1923-33; Detailed Comparisons of Different Estimates; Federal Construction Expenditures; The Federal Emergency Program Under the P. W. A.; Construction Expenditures of State Governments; Construction Expenditures of City Governments; Construction Expenditures of New York City; Roadbuilding; Financing Public Works in Prosperity and Depression; The National Government; The Financing of Public Works; Local Governments; Seasonal Variation in Public Construction; The Development of a Planned Public Works Policy in the Light of Recent Experience; Controlled Public Works as a Stabilizing Factor: Some Basic Problems of Theory.

The appendix is made up of the following sections: The Course of the Business Depression, the Growth of Unemployment, and the Relief Problem; Supplementary Notes to the Chapter on Construction Expenditures of New York City; Financial Condition of Selected Local Governments During the Depression (Chicago, Milwaukee, Cincinnati, Cleveland, Des Moines, Buffalo, Atlanta, Durham, N. C.).

**ECONOMICS OF PLANNING PUBLIC WORKS**, by John Maurice Clark, Professor of Economics, Columbia University. Printed, 194 pages, 6 by 9 inches, paper cover, 6 charts. Superintendent of Documents, 25 cents. Presents a part of the research work carried on by a staff serving under the National Planning Board to answer the question: How may public works be so handled as to contribute as much as they can to industrial stability? Includes the following divisions: The Background of the American Problem; Harmonies and Conflicts Between the Purposes in View; Relief work; Advantages and Disadvantages as Compared with Doses or Insurance; Varieties of Economic Dislocations; Types of Public Works Projects; Varieties of Timing Policy; Limitations on Altering Natural Timing of Public Works; Preparatory Measures; Cumulative Effects of Public Expenditures; Nullifying Influences; Problems and Methods of Financing; Problems of Labor Policy; The Construction Industries in Relation to a Public Works Program; Special Problems in Particular Fields; The Place of Public Works Planning in a General Policy; Conclusions Bearing on a Public Works Program; Fiscal Aspects of Planned Public Works.

**CRITERIA AND PLANNING FOR PUBLIC WORKS**, a research by Russell V. Black, Research Consultant, June 1934. Mimeographed, 182 pages, paper cover, no illustrations. Available in limited numbers. Prepared at the request of the former National Planning Board as one of a series of researches on different aspects of public works. It is a report upon a research in national physical planning, the magnitude of future public works and criteria applicable to their selection and programming, with tentative conclusions.

Chapters include: Physical Planning—Its Functions and Its Relation to Economic and Social Planning; A Plan for a Physical National Plan; Criteria for the Selection and Programming of Public Works; Criteria and Standards for State Public Works; Criteria and Standards for Municipal Public Works; Estimates of Potentially Needful Public Works; Guidance of Public Works Toward Effective Public Service; Briefed Findings and Suggestions; An Approach to Summarization of Criteria and Standards.

#### Science

**PRELIMINARY SCIENCE PAPERS**, prepared for the use of the science committee of the National Resources Board, June 1935, by outside contributors and members of the staff. Mimeographed, 165 pages, paper cover, no illustrations. Small preliminary edition exhausted.

The report includes three papers: Natural Sciences in a National Planning Program, by Dr. John C. Merriam, designated by the National Academy of Sciences; Social Science and Human Resources, by Dr. Carter Goodrich, designated by the Social Science Research Council; and Human Resources, by Dr. Goodwin Watson, designated by American Council of Education. The paper on Human Resources is divided into the following chapters: Importance of Human Resources; Social Planning; Administration of Planning for the Development of Human Resources; Program and Projects for the Section on Human Genetics; Program and Projects for the Section on Childhood; Program and Projects for the Section on Youth; Program and Projects for the Section on Adult Life; Special Advisory Committees.

#### Social and Economic

**NATIONAL SOCIAL AND ECONOMIC PLANNING, THEORY AND PRACTICE** (with special reference to the United States), by Lewis L. Lorwin and A. F. Hinrichs, 1935. Digest of this report available in the National Planning Board report.

#### Personnel

**THE LOAN OF EXPERT PERSONNEL AMONG FEDERAL AGENCIES**, a report prepared for the land-planning committee by James W. Fesler, September 9, 1935. Mimeographed, 8 by 10½ inches, 53 pages. Small preliminary edition exhausted. The report is the result of a request to the National Resources Committee "to investigate service activities of various governmental agencies which might be available to departments and bureaus operating land of various types; the extent to which such services are now utilized; and the possibilities of different types of organization to facilitate interchange of experts and technical direction of management activities." Chapters are: Cooperation, Desirability and Extent of the Loan of Personnel, Legal Authorization for the

Loan of Personnel, Control of Personnel, and Conclusions.

### Miscellaneous

#### Hearings

H. R. 10303, a bill introduced by Representative Maury Maverick on January 16, 1936, in the House of Representatives providing for the establishment of a National Resources Board and the organization and functions thereof. Referred to Committee on the Public Lands, hearings held, and printed. Includes testimony by members of the National Resources Committee, staff, and supporting organizations.

S. 2825, a bill introduced by Senator Royal S. Copeland on May 13, 1935, in the Senate, providing for the establishment of a National Planning Board and the organization and functions thereof. Referred to Committee on Commerce, hearings held and printed. Came before Senate as Title II of the Omnibus Flood Control bill, H. R. 8455, and referred to Committee on Public Lands.

#### Outlines of Procedure

A series of suggested outlines of procedure for State Planning Board research are being prepared on the following subjects:

SYMBOLS FOR PLANS, MAPS, AND CHARTS (A preliminary edition has been published; it will be revised).

WATER STUDIES BY STATE PLANNING BOARDS (Preliminary Edition).

FORMAT AND ORGANIZATION OF REPORTS (Preliminary edition).

PUBLIC WORKS PROGRAMMING (Preliminary edition).

LAND PLANNING (In preparation).

#### Circulars and Bulletins

CIRCULAR I, ORGANIZATION AND FUNCTIONS, August 15, 1934. Describing the membership of the new National Resources Board, its organization into six sections, and its general functions. Mimeographed, 5 pages, 1 chart showing planning districts.

CIRCULAR II, STATUS OF ORGANIZATION OF PLANNING DISTRICTS AND STATE PLANNING BOARDS. Listing each State and Regional Planning Board, membership of each, currently revised, latest revision, May 15, 1936, and the names and assignments of

planning consultants. Periodically revised, this circular replaces the National Planning Board's sixth circular letter.

CIRCULAR III, DIGEST OF EXPERIENCE OF STATE PLANNING CONSULTANTS, February 11, 1935. A summary of the consultants' views and experience relative to the basic problems and procedures of State planning. Mimeographed, 8 pages.

CIRCULAR IV, WHAT THE GOVERNORS THINK OF STATE PLANNING, February 12, 1935. A series of excerpts from public addresses made by various Governors relative to the value of State planning. Mimeographed, 7 pages.

CIRCULAR V, STATE PLANNING ACTS, February 20, 1935. Transmitting copies of the nine State planning laws enacted between July 1933 and February 1935. This circular replaced and superseded the National Planning Board's eighth circular letter. Mimeographed, 37 pages.

CIRCULAR VI, PRELIMINARY BIBLIOGRAPHY OF STATE PLANNING REPORTS IN THE LIBRARY OF THE NATIONAL RESOURCES BOARD, May 19, 1935. Mimeographed, 25 pages.

CIRCULAR VII, CLASSIFICATION OF PLANNING MATERIAL IN STATE PLANNING BOARD LIBRARIES, April 8, 1935. A suggested system for the filing of data, prepared in collaboration with Harvard School of City Planning. Mimeographed, 6 pages.

CIRCULAR VIII, PRESS ATTENTION RECEIVED BY "STATE PLANNING, A REPORT OF ACTIVITIES AND PROGRESS", dated December 2, 1935.

CIRCULAR IX, CURRENT PROGRAMS AND PROGRESS OF WORK OF STATE PLANNING BOARDS, February 29, 1936. Mimeographed, 52 pages. A compilation of reference data as to current activities of State Planning Boards showing (a) current projects and continuing work; (b) major objectives which the boards expect to achieve between February and July 1, 1936; (c) further work scheduled to extend beyond July 1, 1936. Mimeographed, 52 pages.

#### Memoranda

STUDY AND REPORT ON LAND USE PROBLEMS AND POLICY, July 19, 1934. Preliminary instructions for preparing material for land use report with an outline of procedure for determining the extent and character of desirable adjustment in rural land-use and the most

effective means of obtaining such adjustment. Mimeographed, 7 pages.

**NATIONAL LAND PLANNING ACTIVITIES: FEDERAL AGENCIES, THEIR ORGANIZATION AND RESEARCH ACCOMPLISHMENTS IN THE FIELD OF LAND PLANNING.** Published in July 1934. Includes (1) a list of Federal agencies working on a land planning program, with a statement of the purpose or interest of each agency prepared under the direction of its responsible chief; (2) a record of scientific reports, maps, documents, and projects completed or in process dealing with land planning by each agency; (3) a brief statement of the relation of the various agencies to each other so as to give a more complete picture of the whole field of land planning activity. Mimeographed, 35 pages.

**STATE PLANNING LEGISLATION.** Contains a colored map and a revised chart giving the legal references to laws and resolutions as well as the status of bills referring to state planning. Mimeographed, 4 pages.

**MEMORANDUM TO STATE PLANNING BOARDS** regarding the Works Progress Administration's

assignment of Statistical Coordinators to its State organizations and suggesting that each board organize a sub-committee on statistical, research, and survey projects with the coordinator as a member. Two Works Progress Administration publications are transmitted: Circular No. 3—"Statement of Information for Sponsors of Federal Statistical Projects" and Bulletin 17—"Statistical, Survey, and Research Projects" 2 pages.

**FEDERAL ASSISTANCE FOR STATE PLANNING.** Lists conditions precedent to the assignment of consultants or the providing of other assistance to state planning boards. 1 page.

**OUTLINE OF DESIRED INFORMATION ON Collection of Data Relating to Water Resources and Water Use,** 4 pages.

**MEMORANDUM TO STATE PLANNING BOARDS AND CONSULTANTS** requesting them to submit comments and suggestions on proposed public works projects to the state P. W. A. directors, 2 pages.

PROGRESS REPORT

200

~~248~~  
269

NATIONAL  
RESOURCES  
COMMITTEE

OCTOBER 1937



# PROGRESS REPORT

## 1937

STATEMENT OF THE ADVISORY COMMITTEE

NATIONAL RESOURCES COMMITTEE

UNITED STATES GOVERNMENT PRINTING OFFICE . . . . WASHINGTON - 1937

---

For sale by the Superintendent of Documents, Washington, D. C. . . . . Price 10 cents

# NATIONAL RESOURCES COMMITTEE

HAROLD L. ICKES, *Chairman*  
*Secretary of the Interior*

FREDERIC A. DELANO  
*Vice Chairman*

HARRY H. WOODRING  
*Secretary of War*

HENRY A. WALLACE  
*Secretary of Agriculture*

DANIEL C. ROPER  
*Secretary of Commerce*

HARRY L. HOPKINS  
*Works Progress Administrator*

FRANCES PERKINS  
*Secretary of Labor*

CHARLES E. MERRIAM

---

## ADVISORY COMMITTEE

FREDERIC A. DELANO, *Chairman*

CHARLES E. MERRIAM

HENRY S. DENNISON

BEARDSLEY RUMEL

---

## STAFF

CHARLES W. ELIOT, 2d  
*Executive Officer*

HAROLD MERRILL  
*Assistant Executive Officer*

ROBERT H. RANDALL, *Consultant, State Section*

---

## COMMITTEES ACTIVE DURING YEAR 1936-37

<i>Land</i>	<i>Water</i>	<i>Industrial</i>	<i>Urbanism</i>
M. L. WILSON, Ch.	ABEL WOLMAN, Ch.	F. A. DELANO, Ch.	C. A. DYKSTRA, Ch.
L. C. GRAY	THORNDIKE SAVILLE	C. R. CHAMBERS	M. L. WILSON
MORDECAI EZEKIEL	N. C. GROVER	ISADOR LUBIN	ARTHUR COMEY
OSCAR L. CHAPMAN	R. E. TARBETT	LEON HENDERSON	H. D. SMITH
W. C. MENDENHALL	J. C. PAGE	T. C. BLAISDELL, Jr.	LOUIS WIRTH
F. R. CARPENTER	Maj. Gen. E. M.	C. W. ELIOT, 2d	LOUIS BROWNLOW
C. W. ELIOT, 2d	MARKHAM	G. C. MEANS	C. W. ELIOT, 2d
F. A. SILCOX	H. H. BARROWS	LAUCHLIN CURRIE	L. SEGOE, Dir.
	I. N. GABRIELSON	HERBERT FEIS	
	H. H. BENNETT	MORDECAI EZEKIEL	
	EDWARD HYATT	HARRY D. WHITE	
	SHERMAN WOODWARD		
	R. B. McWHORTER		

*Population*  
E. B. WILSON, Ch.  
W. F. OGBURN  
C. E. JUDD  
D. L. EDSALL  
WARREN THOMPSON

*Science*  
FRANK LILLIE  
E. B. WILSON  
J. C. MERRIAM  
E. C. ELLIOTT  
C. E. JUDD  
W. D. COCKING  
W. F. OGBURN  
H. A. MILLIS

*Research*  
C. E. JUDD, Ch.  
W. F. OGBURN  
E. B. WILSON

NATIONAL RESOURCES COMMITTEE  
INTERIOR BUILDING  
WASHINGTON

*October 18, 1937.*

The PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT:

We have the honor to transmit herewith a progress report by our Advisory Committee, which summarizes the organization and work of the National Resources Committee and its coordinating committees during the last year and suggests further activity for the future.

The members of the Committee desire to indicate to you their belief in the value and importance of the work which is being carried forward through this planning agency.

Sincerely yours,

HAROLD L. ICKES

*Secretary of the Interior, Chairman*

HARRY H. WOODRING,  
*Secretary of War.*

HENRY A. WALLACE,  
*Secretary of Agriculture.*

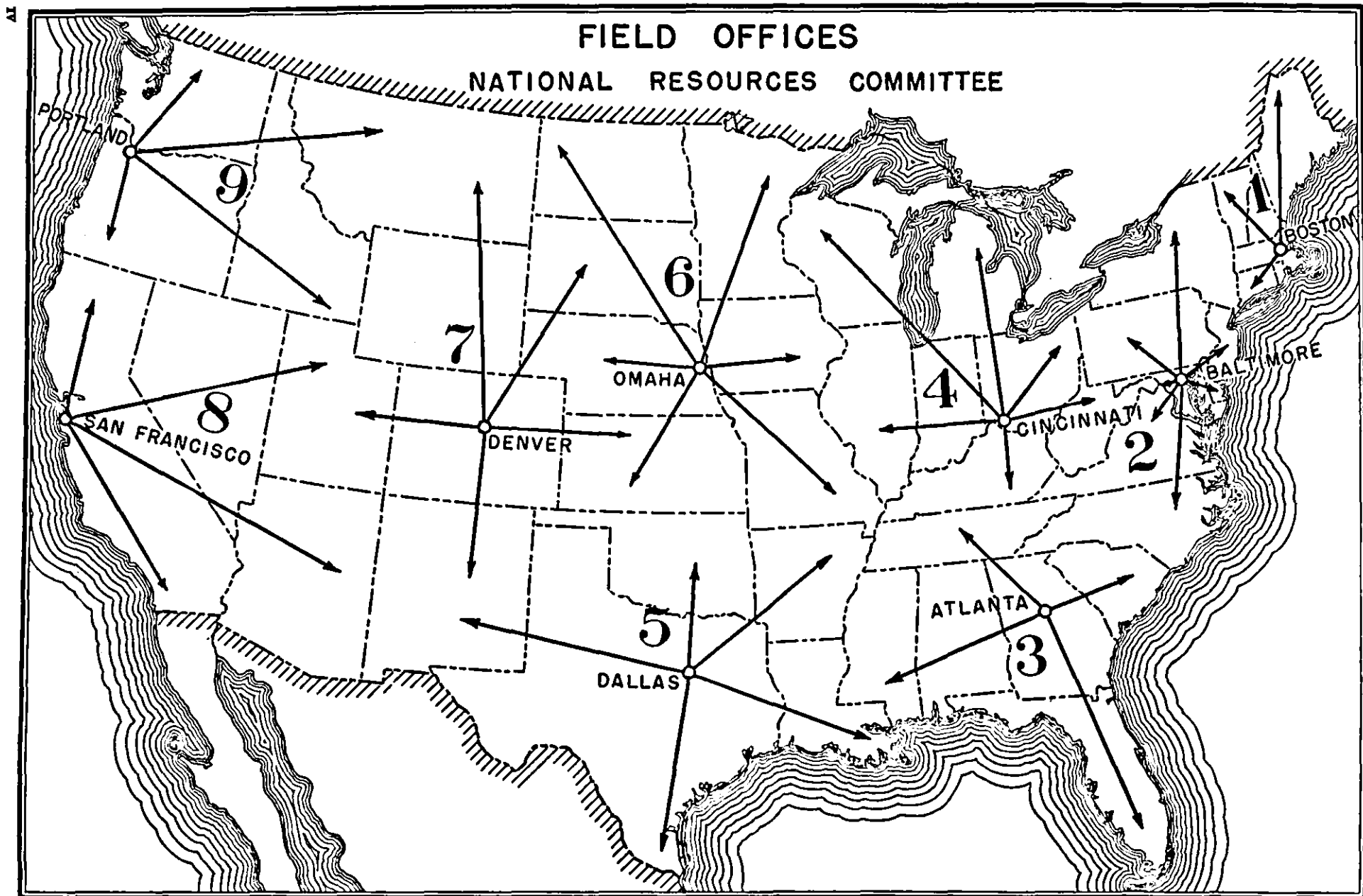
DANIEL C. ROPER,  
*Secretary of Commerce.*

FRANCES PERKINS,  
*Secretary of Labor.*

HARRY L. HOPKINS,  
*Works Progress Administrator.*

FREDERIC A. DELANO.  
CHARLES E. MERRIAM.

•  
HENRY S. DENNISON.  
BEARDSLEY RUML.



# I. INTRODUCTION

Continuous planning is needed for the conservation and wise development of our national resources—both natural and human. With new inventions, new ideals, and new discoveries, no fixed plan or policy will suffice; for any rigid mold or blueprint plan, if strictly adhered to, may restrict our freedom rather than enlarge it. If we adopt as our constant objective to hand down to our children an unimpaired physical inheritance in the natural wealth of this continent, then we must constantly make new plans to meet new conditions.

The National Resources Committee is carrying on this work of continuous planning as the successor of the National Resources Board and the National Planning Board of the Public Works Administration<sup>1</sup> (which, in turn, continued some of the membership of President Hoover's Committee on Social Trends).

The functions and duties of the National Resources Committee are described in Executive Order No. 7065 of June 7, 1935:

(a) To collect, prepare and make available to the President, with recommendations, such plans, data, and information as may be helpful to a planned development and use of land, water, and other national resources, and such related subjects as may be referred to it by the President.

(b) To consult and cooperate with agencies of the Federal Government, with the States and municipalities or agencies thereof, and with any public or private planning or research agencies or institutions, in carrying out any of its duties and functions.

<sup>1</sup> The National Resources Committee succeeded to the functions and duties of the National Planning Board of the Federal Emergency Administration of Public Works and the National Resources Board.

The National Planning Board was appointed by the Administrator of Public Works on July 20, 1933, consisting of Frederic A. Delano, Charles E. Merriam, and Wesley C. Mitchell, "to advise and assist the Administrator . . . through the preparation, development, and maintenance of comprehensive plans . . . through surveys and research . . . and through the analysis of projects for coordination and correlation of effort among the agencies of the Federal, State, and local Governments." Dr. Mitchell and Dr. Merriam were chairman and vice chairman, respectively, of President Hoover's Committee on Social Trends.

The report of the National Planning Board was submitted to the President on June 24, 1934, and led directly to the reorganization of the Board as the National Resources Board.

The National Resources Board was established by Executive order of the President on June 30, 1934, "to prepare and present to the President a program and plan of procedure dealing with the physical, social, governmental, and economic aspects of public policies for the development and use of land, water, and other national resources and such related subjects as may from time to time be referred to the Board by the President." The new Board included the three former members of the Na-

(c) To receive and record all proposed Federal projects involving the acquisition of land (including transfer of land jurisdiction) and land research projects, and in an advisory capacity to provide the agencies concerned with such information or data as may be pertinent to the projects. All executive agencies shall notify the National Resources Committee of such projects as they develop before major field activities are undertaken.

The National Resources Committee consists of eight members, of whom six are administrative officials of the Government and who are former members of the National Planning Board. The Secretary of the Interior was designated as chairman to serve with the Secretary of War, the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Labor, the Administrator of Emergency Relief, Mr. Frederic A. Delano, and Dr. Charles E. Merriam. At the first meeting of the Committee, authority for approval of budgets and appointments was delegated to the chairman and to the Advisory Committee named in the Executive order, so that subsequent meetings have been devoted entirely to discussion and action upon reports and recommendations. Authority was also granted at the first meeting for the organization of a series of technical committees.

The Advisory Committee, consisting of Frederic A. Delano, chairman, Charles E. Merriam, and Wesley C. Mitchell,<sup>2</sup> and since early in 1936 Henry S. Dennison and Beardsley Ruml, has acted from the outset as a steering or executive committee, working in close cooperation with the chairman and developing reports and recom-

national Planning Board and the Committee on National Land Problems, so that the resulting membership consisted of the Secretary of the Interior, chairman; the Secretary of War, the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Labor, the Federal Emergency Relief Administrator, Frederic A. Delano, Charles E. Merriam, and Wesley C. Mitchell who resigned Dec. 1, 1935.

The National Resources Board prepared a series of reports to the President as required by the Executive order, the most comprehensive being the document dated Dec. 1, 1934, transmitted to Congress with a special message from the President on Jan. 24, 1935. This report dealt with problems of land, water, and minerals, the organization and timing of public-works programs, basic data for planning, and State and regional planning. A second report was submitted on June 14, 1935, the day the Board was succeeded by the National Resources Committee.

The National Resources Committee, with the same membership as the National Resources Board, and with virtually identical powers and duties, was established, effective June 15, 1935, by Executive order of the President (No. 7065), dated June 7, 1935, and under authority of the Emergency Relief Appropriation Act of 1935, in order to continue the work of the previous agencies which drew their authority from the National Industrial Recovery Act.

<sup>2</sup> Resigned Dec. 1, 1935.

mendations for action by the Resources Committee. The Advisory Committee has held 17 meetings in different parts of the country during the fiscal year ending June 30, 1937.

The executive officer of the Committee, Charles W. Eliot 2d, and the assistant executive officer, Harold Merrill, have acted as coordinating officers, secretaries, or administrators for the work of the technical committees, field organization, and administrative staff in Washington.

**WHAT IS PLANNING?**

It has been customary for the last 10 years to start all discussion of planning in the negative fashion, explaining what planning is not, to distinguish between planning and "regimentation", to denounce autocratic planning as contrasted with democratic planning. The National Resources Committee is concerned with a kind of planning which is a peculiarly American custom,<sup>1</sup> based on an enthusiastic belief in the ability of a democracy to utilize intelligence.

We all plan—we try to look ahead, to think of eventualities for ourselves, our families, our business, and for our common welfare. We get an "estimate of

<sup>1</sup> Cf. Report of National Planning Board—"A Plan for Planning" (1934).

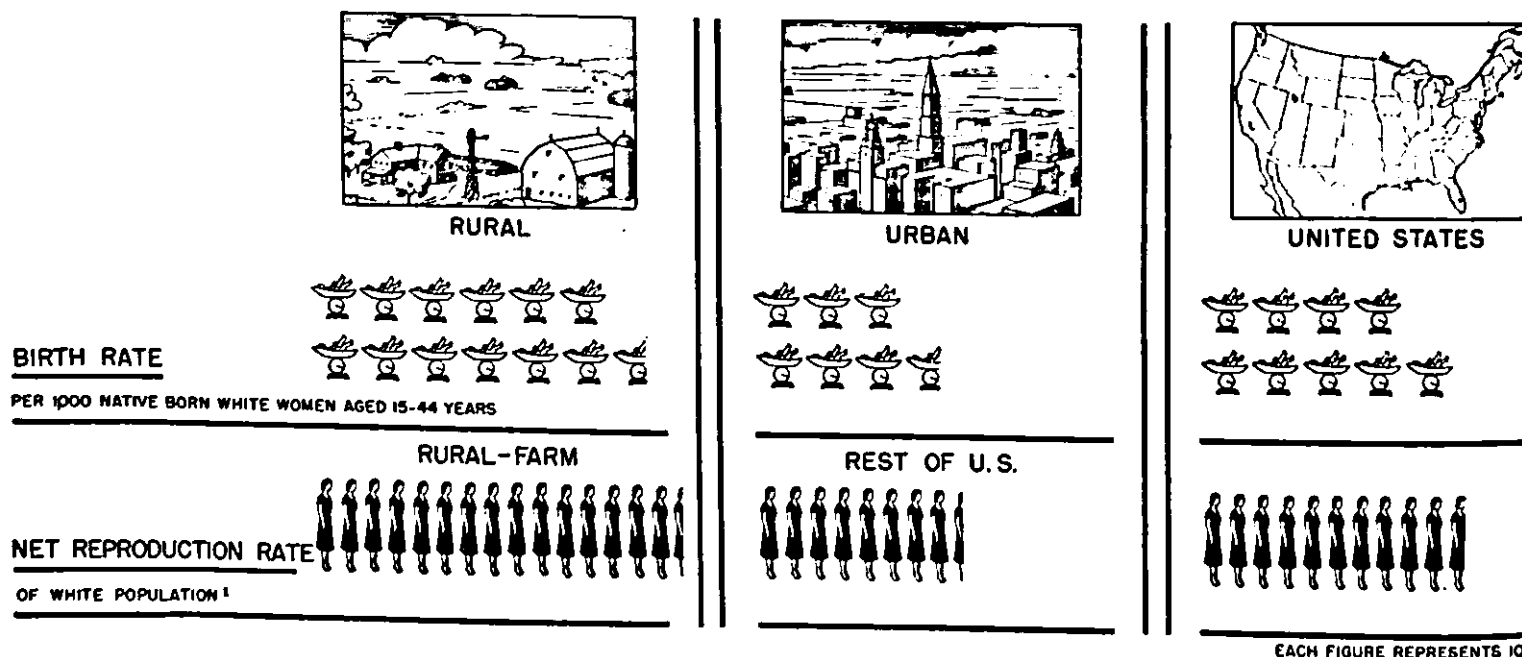
the situation", as our military friends put it, involving more or less conscious research and appraisal of the facts. We think we might do this, or we think we might do that to meet a given situation. That is rudimentary planning. We develop a plan or alternative plans. If we are wise, we look before we leap.

The National Resources Committee advocates advisory planning—getting ready for the next job. We can distinguish in big enterprises of business or of government between planning and execution, and between planning and decision. We can plan or suggest what we think the situation requires and leave it to higher authority to decide what shall be done. Like an architect bringing to his client plans for a house, we can lay our plans before our elected representatives in city, State, or Federal Government for decision, for modification, and for execution if our proposals can win the needed support.

The work of the National Resources Committee and its predecessors has been of two major types:

- (1) To assist and stimulate local, State and Regional planning boards to develop plans and policies within their jurisdiction, and
- (2) to correlate and encourage planning activities of Federal agencies for research and development of plans in a strictly advisory capacity.

**ILLUSTRATION FROM REPORT "OUR CITIES"—NATIONAL RESOURCES COMMITTEE, 1937**



<sup>1</sup> THE NET REPRODUCTION RATE IS A MEASURE OF FERTILITY FREE FROM THE DISTURBING AGE FACTORS OF THE POPULATION. A NET REPRODUCTION RATE OF 200, FOR INSTANCE, MEANS THAT A POPULATION OF SUCH FERTILITY WOULD DOUBLE ITS NUMBERS IN A GENERATION, IN APPROXIMATELY 30 YEARS. A NET REPRODUCTION RATE OF 100 SIGNIFIES A STATIONARY POPULATION. NET REPRODUCTION RATES BELOW 100 DENOTE DECLINING POPULATIONS.

## II. PLANNING: LOCAL, STATE, AND REGIONAL

To use a homely illustration, the National Resources Committee is concerned with the same kind of planning which a housewife does when arranging meals or planning the table decorations. The idea of planning has grown from "housekeeping" through our experience in our own backyards so that people have become accustomed to the idea of arranging what we have for our better use and greater pleasure.

We have found that our best use of our own "backyard" depended on what our neighbors did with theirs, and so we got into planning of groups of houses, subdivisions, or neighborhoods. We found our neighborhoods were not the only ones in the city—we must have city planning. We found that the developments in one city affected its neighbor, and so we have gone from linking the relationship between city and city, to county and county, from State to State, region to region, and so to National Planning. There is nothing very startling or fearsome in that development. It has been a natural process with constantly larger groups of people seeing the relationship of one problem to the next.

### URBAN PLANNING

A recent check by the National Resources Committee shows that over 1,700 towns and cities have developed some form of planning or zoning to promote the "good neighbor" policy within our cities and to protect investments in homes and business. Some 1,200 cities and towns have continuing planning boards for necessary adjustments in their zoning ordinances and to develop major thoroughfare plans, proposals for playgrounds and parks, to keep pushing for decent housing conditions, and to develop civic consciousness concerning all the problems of our physical environment. The growth of these local planning agencies has practically all come in the last 25 or 30 years; but city planning is not new—it is just a renewed consciousness of the problems which we must solve if life in our cities is to be a true expression of our ideals for American civilization.

Some years ago, the city planning movement spread beyond the political boundaries of the city into the metropolitan area. Metropolitan or, as it was then

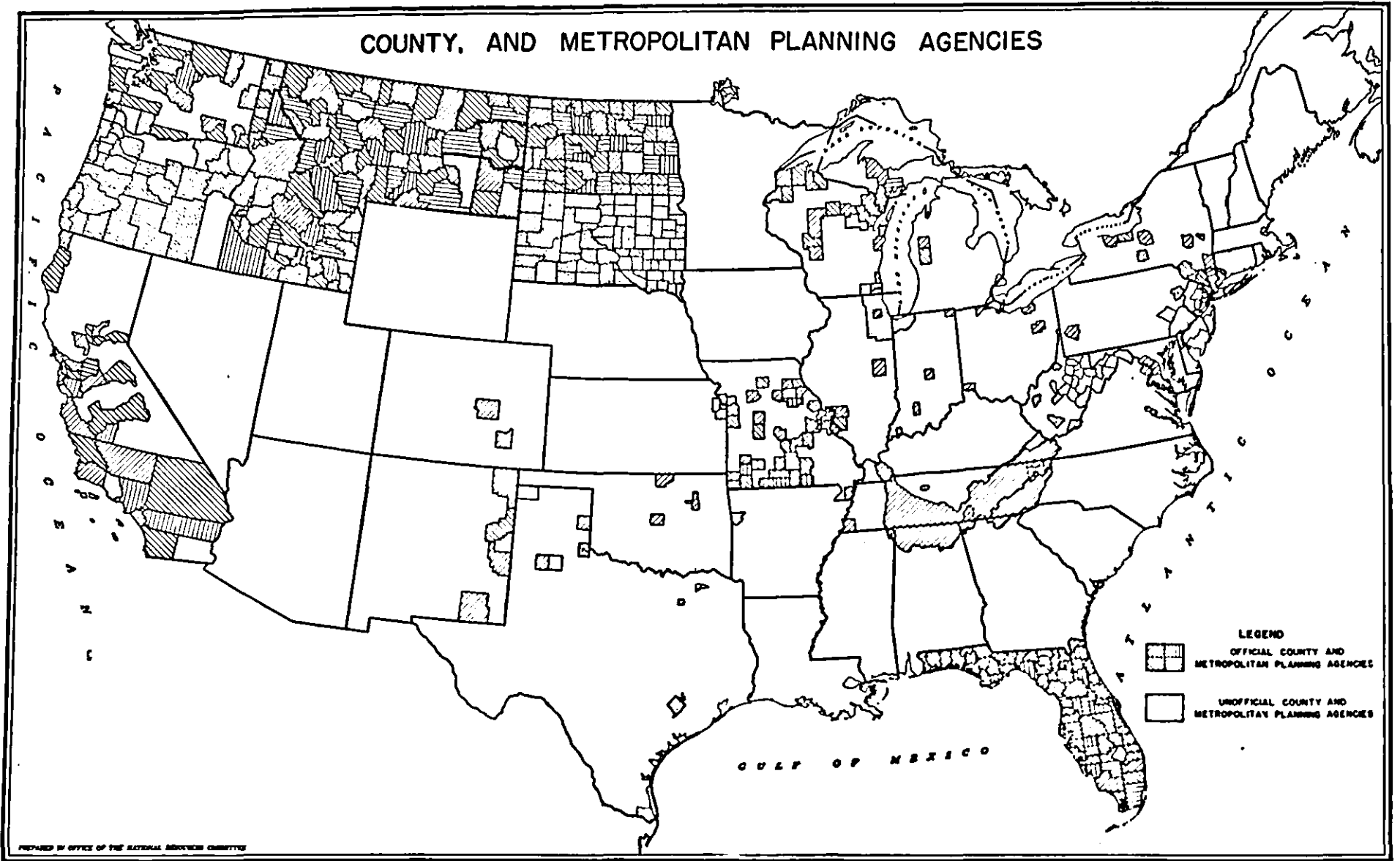
called, regional planning supplemented the efforts of individual cities, counties, and towns around Buffalo, Boston, New York, Philadelphia, Cleveland, Cincinnati, Chicago, San Francisco, Denver, and many other urban centers. The idea of metropolitan planning recognized the unity of the urban community with its market area. The work in this wider field has an economic and social significance as well as physical. It has been concerned with such questions as: What is to become of our great cities? Is "suburbanitis" a kind of disease with everyone rushing to the fringes of the urban area, or is it a healthy growth? What is to become of property values downtown? Are our great cities going to continue to attract population from rural areas? The urban birth rate is not high enough to reproduce the present city population. With the tendency toward a stabilized population in this country as a whole, should our cities be looking forward to a change in the curve of population growth? Have we Americans reached a stage in our development where we can separate "bigger" from "better" and concentrate on the quality of urban life instead of the quantity of inhabitants, factories, or stores?

These are questions which the National Resources Committee asked a special group to examine under the able leadership of Clarence Dykstra, city manager of Cincinnati, now president of the University of Wisconsin. A far-flung<sup>4</sup> study of urban problems has been completed. It should lead to new and even more vigorous action on the part of local planning agencies to squarely face their special situations, and, through planning, to command their own destiny.

### COUNTY AND DISTRICT PLANNING

In recent years, partly through the interest in soil conservation and often with the help of State planning agencies, large numbers of county planning boards have come into existence, particularly in the Northwestern States. The growth of these boards to some 400 in number, is an encouraging sign of the awareness of the rural population to planning problems.

<sup>4</sup> *Our Cities: Their Role in the National Economy*, National Resources Committee, June 1937, and supported by a series of studies in course of publication.





An especially significant aspect of this rural planning movement is the effort in a few States to group together county planning boards into what have been called "district" planning agencies. In eastern Georgia, in eastern Tennessee, in Idaho, Massachusetts, Montana, and New Hampshire, movements of this sort are under way. These 27 district organizations have great possibilities, not only for planning the better use of the physical resources of the areas in which they are working but also for the reorganization or consolidation of our county governments. They recognize that with the automobile, the limitation on the size of a county to 1 day's driving distance with a horse and buggy is no longer a valid excuse for the duplication of governmental costs. We have come to a period of consolidation of school districts with the use of automobile busses. Suffice to say, that by far the biggest element in the much criticized cost of government in this country is due to the fact that we have some 175,000 separate governments in these United States.

During the last year, the Committee has cooperated with the Maryland State Planning Board and local planning agencies in a special study of the intercity area involving Baltimore, Annapolis, and the National Capital. The problems of this area are in many ways similar to those encountered between Boston and Providence, Dallas, and Fort Worth, and other centers. The plans developed with the aid of consultants from the National Resources Committee provide a demonstration of possibilities in the spaces between cities. This report<sup>5</sup> (issued by the Maryland board) concerns another aspect of the intercounty or metropolitan problem previously brought out in the Regional Planning study for the metropolitan area about St. Louis.<sup>6</sup>

#### STATE PLANNING

The National Resources Committee and its predecessors have always urged decentralization of planning—returning to the people back home the major responsibility for the suggestion and sponsorship of plans for the best use of the resources of the local area. In this spirit, Chairman Harold L. Ickes, in the autumn of 1933, suggested to the Governors of the several States the desirability of following the example of New York, Wisconsin, and a few other Commonwealths, in the establishment of State planning agencies. There were few examples to point to. Perhaps the best was Governor Smith's Housing Commission Report of 1926 in New York, which outlined the resources and State-wide problems of land use along the Hudson and the Mohawk Valleys.

<sup>5</sup> Regional Planning, Pt. IV. The Washington-Baltimore-Annapolis Area. August 1937.

<sup>6</sup> Regional Planning, Pt. II. St. Louis Region, June 1936, National Resources Committee.

Chairman Ickes' suggestion was received with enthusiasm—much greater enthusiasm than had been expected. Within a year and a half, 32 State legislatures passed acts establishing planning agencies on a continuing basis, and during the last few months, Louisiana, Georgia, Nevada, Nebraska, Iowa, Michigan, Pennsylvania, have joined the procession. Today, there are 45 State planning boards with whom the National Resources Committee keeps in touch through consultants and regional chairmen who are available for advice and assistance, to help the State agencies carry out their plans. Through the liberal and hearty support of the Works Progress Administration, work-relief help has been available to State planning agencies, and during the last fiscal year some million and three-quarters dollars was expended on planning staff projects employing relief workers in various State capitals.

The State planning boards have tackled a very great variety of problems. Naturally, the problems in Florida are different from those in New York or Massachusetts, and they in turn are radically different from those in Colorado or Oregon. Most of the States have concentrated their efforts on the same problems of physical environment which have so long motivated city and regional planning work. This primary interest in physical planning is due, perhaps, partly to the original relation of the National Planning Board to the Public Works Administration in Washington, and partly to the fact that planning consultants had to be drawn in the first instance almost entirely from the professional group previously concerned with city planning. At any rate, the result has been marked progress in the understanding and interest of States in their problems of public works, land use, water resources, transportation facilities, housing and living conditions, etc.

The Resources Committee has published summary reports outlining the organization and work of the State planning boards.<sup>7</sup> Concerning the latest of these reports, issued February 13, 1937, the President said:

We need official staff agencies for planning in cities, counties, districts, States, interstate regions, and the Federal Government. It is encouraging to find in the report<sup>8</sup> on State Planning—Programs and Accomplishments, issued by the National Resources Committee, that State and regional planning agencies are doing effective work in collaboration with the Federal Government, with each other, and with local planning boards.

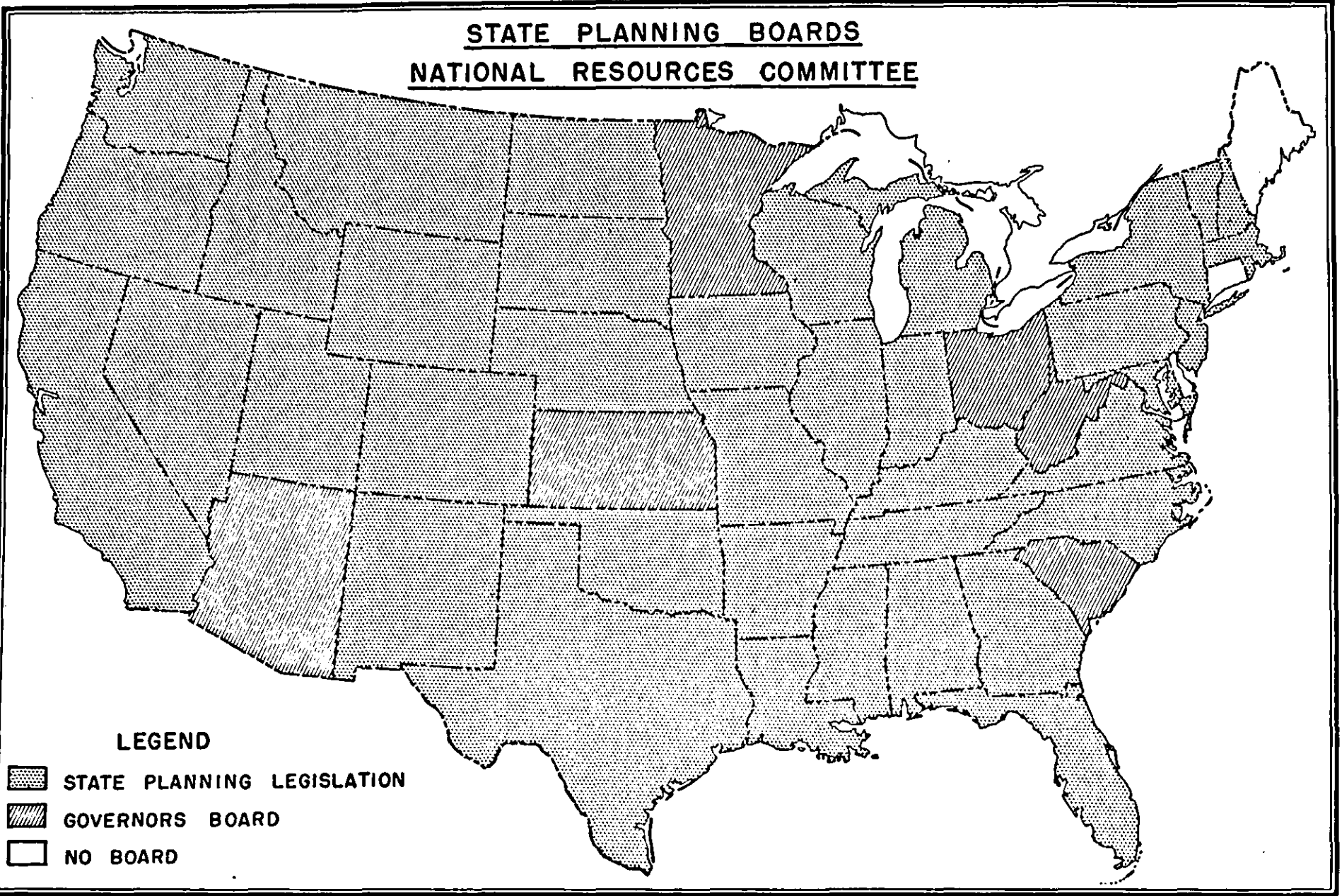
I have recommended to Congress that a continuing National Resources Board should be established to serve as a central planning agency under the President, and hope that by that means cooperative planning, forethought, and policy can be developed among all the governments in the United States.

Through informal circulars, the committee has supplemented these reports from time to time and has pre-

<sup>7</sup> State Planning—A Review of Activities and Progress, June 1935, National Resources Committee.

<sup>8</sup> State Planning—Programs and Accomplishments, December 1936, National Resources Committee.

STATE PLANNING BOARDS  
NATIONAL RESOURCES COMMITTEE



pared suggested outlines of procedure for studies by State planning boards on various subjects of common interest. Visits to the State boards by the executive officer and members of the Washington staff during the last fiscal year have been helpful. In the library of the committee a constantly growing collection of reports and plans by State planning boards attests the vitality of the State planning movement.

During the last fiscal year the assistance given to State planning boards by the committee was substantially increased for a short period to provide adequate supervision of relief workers under the Federal W. P. A. Project No. 3 for Staffing State Planning Boards. With the return of sponsorship for these projects to the several States, this extra assistance was terminated on June 30, 1937, but not until many projects and studies previously started by the States were brought to conclusion or to the stage of a formal report.

To continue the work, the State legislatures meeting this last winter and spring, have greatly increased the appropriations available for planning from State sources. Through cooperation with other State agencies, State and private educational institutions, and Federal bureaus, the State planning boards will increase both their resources and their usefulness.

#### REGIONAL PLANNING

There have always been interstate problems, and we have always had to use some kind of negotiation or planning to meet the critical situations as they arise. It is, therefore, nothing new to have interstate compact commissions and planning agencies studying alternative methods of solution for pressing problems which involve more than one State. The Resources Committee has endeavored to aid these interstate planning movements. The interest of the committee in these problems has prompted a variety of approaches. From the outset the committee has encouraged experimentation. Later, in 1936, it reviewed the broad aspects of the problem in its report on Regional Factors in National Planning and Development and commented on the methods so far evolved to meet interstate planning needs. A series of "demonstration projects" were encouraged. In the Pacific Northwest,<sup>9</sup> New England,<sup>10</sup> in the Ohio Valley, and in the Central Northwest, regional planning commissions, with representatives of

<sup>9</sup> Regional Planning, Pt. I—Pacific Northwest, May 1936—National Resources Committee. During the fiscal year 1936-37 the Pacific Northwest Regional Planning Commission has completed reports on the Preservation of the Scenery of the Columbia Gorge, Forest Problems of the Northwest, and issued Proceedings of the Third and Fourth Annual Planning Conferences, held in Spokane and Boise.

<sup>10</sup> Regional Planning, Pt. III—New England, August 1936—National Resources Committee. During the fiscal year 1936-37 the New England Regional Planning Commission has completed reports on New England Airways, Water Resources Data for the Connecticut, Merrimack, and Blackstone Valleys, Planning Laws, Rural Zoning, and a pamphlet entitled "Six for One and One for Six." A preliminary plan—in map form—is ready for public release.

the several State planning boards, have been organized and have worked for some time. They are making real progress on such problems as flood control, reclamation policy, power policy, etc.

In the last year, the committee has provided consultants to the Inter-State Commission on the Delaware River, set up through the Council of State Governments, with commissions on cooperation from New York, Pennsylvania, and New Jersey, and representatives from Delaware.

In the Red River of the North,<sup>11</sup> which forms the boundary line between North and South Dakota and Minnesota, problems of water shortage and flood control required immediate attention, and the committee has aided through the loan of expert services of consultants. Recently a compact and a plan have been adopted by the three State legislatures, not, to be sure, as originally proposed, but in a form which it is hoped will aid in carrying out the major purposes of the program.

In the Upper Rio Grande Valley, involving the States of Colorado, New Mexico, and Texas, a major joint investigation, conducted through the Resources Committee, has just been completed. This Rio Grande investigation was undertaken at the request of the States with the Resources Committee serving as a channel for organization of surveys and studies by appropriate Federal and State bureaus. It is a notable example of cooperative endeavor, financed partly through an allotment from the Public Works Administration but with substantial contributions from the three States and some four or five Federal agencies.<sup>12</sup> The report of the joint investigation is now being printed and there seem to be excellent prospects for an agreement on the division of the waters of the river among the three States.

<sup>11</sup> Regional Planning, Pt. V—Red River of the North, 1937—National Resources Committee.

<sup>12</sup> Financial support for the joint investigation was provided in the first instance through an allotment from the Public Works Administration to the National Resources Committee, which the Committee, in turn, has passed on to Federal bureaus doing field work. The States and bureaus have also contributed as shown by the approximate figures below:

Agency	Contributions	Expenditures and obligations	
Public Works Administration to National Resources Committee.....	205,000	-----	To other agencies.
National Resources Committee.....	-----	53,256	Printing, engineer and staff.
Bureau of Reclamation.....	90,000	150,000	All in services. Do.
U. S. Geological Survey.....	28,700	120,354	
Bureau of Agricultural Engineering.....	6,000	59,000	
Bureau of Indian Affairs.....	3,000	-----	
Bureau of Plant Industry.....	2,000	2,000	
Resettlement Administration.....	3,000	3,000	
Soil Conservation Service.....	4,000	4,000	
State of Colorado.....	18,333	1,200	
State of New Mexico.....	18,333	1,200	
State of Texas.....	18,333	356	
Reverted to Treasury July 1, 1937.....	-----	2,333	
Balance unobligated July 1, 1937.....	-----	-----	
	396,699	396,699	

These and many other interstate planning activities have been encouraged through the Nation-wide drainage-basin study conducted last summer by the Resources Committee with the cooperation of the State planning boards and Federal agencies. They have been further assisted by the regional advisers of the Public Works Administration, the district chairmen and regional consultants of the committee. The State planning boards of the Great Plains area, for instance, prepared joint recommendations for the President's Great Plains Drought Area Committee<sup>13</sup> last summer and autumn. Annual conferences in the southeast and northwest and special meetings arranged by the district chairmen in California, St. Paul, and many other regional centers, have fostered regional as contrasted to local planning.

#### CONTINUOUS RELATIONS WITH REGIONAL AND STATE PLANNING

Anticipating a much reduced budget for the consulting service supplied by the committee to State and regional planning agencies in the next fiscal year, Chairman Ickes announced a reorganization of the service under date of May 13, 1937, as follows:

The National Resources Committee proposes to continue assistance to State and regional planning agencies in a somewhat different form after July 1, 1937.

1. *Field offices.*—Instead of individual assignment of consultants and technicians to State planning boards, the Committee proposes to establish a series of 9 or 10 field offices under part-time district chairmen, a full-time technician or planning counselor, and a small staff in each office. It will be the responsibility of this counselor to keep in touch with State planning

<sup>13</sup> Mr. Frederick H. Fowler, Director of the Drainage Basin Study was a member of the preliminary Great Plains Drought-Area Committee.

activities and to assist State planning boards with advice and counsel in much the same manner as heretofore provided through the State planning consultants. The committee wishes to stress the development of high standards of work and accomplishment in those States where the opportunity is greatest.

2. *Consulting services.*—The committee will retain on its pay rolls a list of consultants who will be available for assignment upon recommendation of the field counselors to assist State and regional planning agencies in their attack on special problems. Assignment will be made by the Washington office, and all appointments of consultants will be on a per-diem basis, with a limited number of days per month.

3. *Full-time assistants.*—Under the above policy, the committee will discontinue assignment of full-time technical assistants to State planning boards on June 30, 1937, in accordance with the terms of their present appointments.

The field service of the National Resources Committee is now organized, with a central contact office in Washington under the executive officer and with Robert H. Randall in charge of a unit known as the State section:

Field office	Regional chairman	Planning counselor
Boston.....	Victor M. Cutter.....	Joseph T. Woodruff.
Baltimore.....	Morton L. Wallerstein.....	Harold Merrill (acting).
Atlanta.....	Henry T. McIntosh.....	Earle B. Draper.
Cincinnati.....	Alfred Bettman.....	Lawrence V. Sheridan.
Dallas.....	.....	Earle O. Mills.
Omaha.....	.....	Phillip H. Elwood.
Denver <sup>1</sup> .....	.....	.....
San Francisco.....	Baldwin M. Woods.....	L. Deming Tilton.
Portland, Oreg.....	George F. Yantis.....	Roy F. Boney.

<sup>1</sup> Temporarily served by former State planning consultants.

Planning consultants to the number of over 35 are assigned from time to time to assist State or regional planning agencies, and nucleus staffs for regional planning work are established in Boston, Atlanta, Cincinnati, Omaha, San Francisco, and Portland.

### III. NATIONAL PLANNING

For its work in correlating and encouraging planning activities of the Federal Government, the National Resources Committee has developed technical committees and special investigating staffs. In order to understand public policies, it brings together the men in different departments of the Government and in the world of science and engineering, to collect into one place the facts that underlie each kind of public activity. For instance, the Geological Survey has many of the facts about stream flow and flood control, the Department of Agriculture has certain kinds of facts about soils, and the Reclamation Bureau has still other facts that relate to the same problems. All these different lines of information need to be laid out on the table, together with information about rainfall, forests, wild-life, recreation needs, transportation, mineral resources, and so on, to see where they fit into the picture and affect one another.

Each Government office is not only provided with its own line of factual material; it is also entrusted by congressional authority with an administrative program. Some departments are directed to do scientific work, others carry out engineering operations, such as building dams or controlling soil erosion. The operations of one department often develop those of another to some extent; sometimes their policies are in apparent conflict. Only by bringing the different programs into a single picture is it possible to find out where the duplications and conflicts are.

Large masses of scientific data are now available, but the arrangement and judgment of the known facts must necessarily be a slow process, never fully completed. The Committee does not expect to be able to burst forth at any time with a perfected program for all governmental services, even for the Federal Government alone. It hopes only to be able to provide a background of coordinated knowledge that will make it easier for the President and Congress to judge the various proposed programs of action with which they have to deal.

Moreover, public policies are not made up entirely of scientific facts. Facts are only the background; they determine what lines of action are possible. The

policies that will actually be adopted depend upon the desires of the people, modified by their understanding of the facts. The function of a National Resources Committee is therefore purely advisory. The Resources Committee is not an administrative agency; it is a channel. It is not an administrative agency, but strictly an advisory group set up to present alternative lines of procedure from which the elected authorities of State or Nation can select the course they wish to follow.

#### PUBLIC WORKS PLANNING

From the beginning of its work as the National Planning Board of the Public Works Administration, a major activity of the Committee has been to urge the advance planning of public works, and to outline a public-works policy which would fit the public construction program to cycles of business depression and boom, and which would secure the wisest use of the huge funds which our cities, States, and Federal Government spend annually on public works. The opening statement in the latest report of the Committee on Public Works Planning, which the President transmitted to Congress on February 3, 1937, states the problem:

Judging by past experience, it is plausible to assume that some 30-odd billions of dollars will be expended \* \* \* during the next 10 years through public construction enterprises. How can we safeguard the wise investment of this large sum? How can we be sure that projects \* \* \* fit together into a comprehensive picture or program?

The experience of the Public Works Administration in 1933 showed that national and local governments had generally neglected the advance preparation of engineering plans for their public work and that long-term capital budgets were practically unknown in public affairs.

Through a series of investigations<sup>14</sup> the National Planning Board set about the formulation of a policy to attack these omissions and the report of the National Resources Board in December 1934<sup>15</sup> recommended a

<sup>14</sup> Russell V. N. Black, *Criteria and Planning for Public Works*; Arthur D. Gayer, *Public Works Planning in Prosperity and Depression*; John Maurice Clark, *Economics of Planning Public Works*.

<sup>15</sup> P. 8 and pp. 41-68, National Resources Board, Dec. 1, 1934.

new effort along the lines of the Federal Employment Stabilization Act to arrange programs of public works 6 to 10 years in advance, so as not to be caught again unprepared. The Board recommended that in future programs all projects should be cleared through a central agency in order to avoid overlapping and misunderstandings, and also that the State planning boards should be invited to assist in coordinating the works in each of the several States. At the same time the Board proceeded with the work of compiling lists of proposed public works showing those which should be given priority.

During the last fiscal year the National Resources Committee has brought to completion further studies on public works requested by the President.

1. The report on Public Works Planning reviewed and enlarged the previous recommendations of the Resources Board with special reference to the timing of public works in periods of business boom and depression. It contained a sample of a long-range program of public construction in the field of water projects (see below on Water Resources) and it presented the findings of a study on Division of Costs of Public Works originally undertaken under the direction of the late Robert Whitten and completed by Dr. Simeon Leland.
2. A compilation of Federal projects for a 6-year period was prepared for the Committee by the Projects Division of the Public Works Administration and forwarded to the President on January 5, 1937. This work continued the annual revision of the Six Year Program previously inaugurated by the Federal Employment Stabilization Board and is being continued again this year by the Public Works Administration.
3. State inventories and long-range programs of public works have been encouraged by the Committee with the cooperation of the Public Works Administration and the Works Progress Administration, through supply of forms and suggestions to State planning boards. Thirty-five of these boards have taken advantage of these aids to formulate at least partial programs for 6 years ahead.

The activities and organization for planning public works, repeatedly recommended by the Committee and its predecessors, continue in a partial and largely unorganized state. The work which the Committee can do in this situation is being continued.

#### WATER RESOURCES

The last year has seen a notable advance in water planning recorded in the National Water Plan or report on Drainage Basin Problems and Programs by the Water Resources Committee which was transmitted to the President on December 9, 1936. This report is the latest in a series of major efforts to clarify the problems of water conservation and development.

Beginning with the President's Committee on Water Flow appointed in the winter of 1934 and consisting of the Secretaries of Interior, War, Agriculture, and Labor, the work has gone through several stages with different emphases or purpose. The first report,<sup>16</sup> prepared through eight subcommittees for as many regions and brought together through the offices of the National Planning Board, was a kind of compendium of water projects drawn from the "308" Reports of the Army Engineers and the experience of the Bureau of Reclamation. Although the report dealt primarily with only navigation, flood control, irrigation and hydro-electric power, it opened the door to consideration of all the other multiple-use aspects of water planning and emphasized the regional water problems of the country.

Concurrently, the Mississippi Valley committee of the Public Works Administration was at work on water problems of the two-thirds of the country drained by the "Father of Waters." The report<sup>17</sup> of the committee, transmitted to Congress on January 24, 1935, brought new recognition of the broad problems of social and economic policy inherent in water planning. Through the dramatic and colorful manner in which the material was presented, the administration and the public were interested in multiple-purpose projects for water use.

In June 1934, the National Resources Board was appointed by the President with instructions to prepare a report<sup>18</sup> on water resources in time for consideration at the next session of Congress. The Mississippi Valley committee became the water planning committee of the new Board and its report went forward to the President on December 1, 1934, with other reports of the National Resources Board. It emphasized an inventory of water resources and brought together data on rainfall, run-off, stream flow, underground waters, etc. A series of eight monographs, each covering a region or group of drainage basins, was prepared and issued as supporting data. Following the submission of these reports, the water planning committee attempted a first priority rating of construction projects concerning water use and conservation.

The National Resources Committee, upon its organization in June 1935, reconstituted the Water Resources Committee<sup>19</sup> to provide membership within the group for some of the leaders in water planning from within the Government. The major effort of the Committee

<sup>16</sup> Report of the President's Committee on Water Flow—transmitted to Congress with Presidential Message on June 4, 1934, and printed as Doc. 395, 2d sess., 73d Cong.

<sup>17</sup> Report of Mississippi Valley committee.

<sup>18</sup> Report of the National Resources Board transmitted to Congress, Jan. 24, 1935.  
<sup>19</sup> Now composed of Abel Wolman, chairman; H. H. Barrows, H. H. Bennett, I. N. Gabrielson, N. O. Grover, E. Hyatt, General Markham, R. B. McWhorter, J. C. Page, Thorndike Saville, R. E. Tarbett, and S. M. Woodward, with Gilbert White as secretary.

has been the drainage basin report discussing the major problems of each area and recommending long lists of projects for investigation or construction in order of priority. The report is important not only for its content but also because of the manner of its preparation. The cooperative work of State planning boards and Federal bureaus made the report possible. The employment of eminent engineers as regional water consultants gives assurance of the high technical quality of the work. The report submitted last December is now undergoing revision through the same channels to bring it up to date with accomplishments or new information gained during the last year. This Nationwide study of water problems has been supplemented, as previously noted, by special studies in the upper Rio Grande, Red River of the North, Delaware River, etc. During the year, also, the Committee has been called upon to review proposals for the Ohio-lower Mississippi flood program, and other special projects.

The report on drainage basin problems and programs, not only provides a national water plan and lists of projects, it also outlines the characteristics of a sound water policy as follows:

1. It will be concerned, in the final analysis, not with water per se, but with the promotion of public safety, public health, public convenience and comfort, the economic welfare of the public, and the establishment or maintenance of a high standard of living.

2. It will seek to promote the maximum integrated use and control of water, within the shifting limits imposed by considerations of technical feasibility and of economic and social justification.

3. It normally will treat drainage areas as units with respect to their waters.

4. It will nevertheless scrupulously observe the rights of the several States both in intrastate and interstate streams.

5. It will recognize and abide by the axioms that facts are indispensable prerequisites to sound action, and that conclusions and commitments not based on predetermined facts almost certainly prove indefensible. In keeping with this recognition, it will promote by all feasible means the continuous assembly of the basic data essential for an evolving, unending water plan.

6. It will assign the cost of constructing and operating projects undertaken from time to time as suitable elements in an evolving water plan among the public and private agencies concerned in as close accordance as possible with the distribution of benefits.

7. In determining whether or not water projects are justifiable, and in distributing the cost of meritorious projects among the beneficiaries, it will take properly into account social benefits as well as economic benefits, general benefits as well as special benefits, potential benefits as well as existing benefits, wherever they are involved. Some of these benefits are not capable of exact measurement, but they are

subject to reasonable appraisal, and their intangible nature will not justify their neglect in the future.

The Water Resources Committee has also followed up other aspects of the water planning problem. Special attention has been given to problems of water bookkeeping and a report<sup>20</sup> (humorously but accurately described as "H<sub>2</sub> Omissions") has been issued in an effort to make clear the costs of ignorance of fundamental data. In it a subcommittee shows the additional information needed and outlines both standards for getting it and cooperative methods between State and Federal Governments to secure continuity in the records.

Another subcommittee of the Water Resources Committee has continued work on the vexing pollution problem, and here again a report<sup>21</sup> has been brought together showing both the great advance of the last few years (largely through the assistance of the Public Works Administration) and also the possibilities of further progress under a policy of Federal stimulation and cooperation with State and local governments.

The Water Committee and its small staff carry on a clearing house service for water storage and land drainage projects, for P. W. A. water projects, flood control projects, and investigations. Through special committees, work is under way on a joint Federal manual on design of small dams, on an inventory of unpublished hydrologic data, and on hydrologic research.

It is difficult to appraise the accomplishments due to this water planning activity of the National Resources Committee because the administration of water projects lies with other agencies. Much credit properly belongs with those agencies. It can be said with assurance, however, that the reports which started with the President's Committee on Water Flow and the methods adopted by the Resources Committee for participation by State and Federal agencies in the formulation of those reports have greatly advanced:

1. General public understanding and interest in the importance of wise use and development of water resources.

2. Public acceptance of the multiple-purpose development of water resources and congressional recognition of these principles.

3. Orderly preparation of programs of water construction projects, coordinating all uses and putting proposals in order of priority of need and use; and most important of all

4. Cooperative spirit among the many Federal and State agencies concerned with water planning. The work is being continued and the Water Resources Committee now has under way a review and revision of the Drainage Basin Report working through the regional organizations of the National Resources Committee.

<sup>20</sup> Deficiencies in basic hydrologic data.

<sup>21</sup> Reprint from hearings by Rivers and Harbors Committee on H. R. 2711, H. R. 2300, and H. R. 3416, May 1937.

## LAND PLANNING

We Americans are only just waking up to the fact that we have been destroying our basic capital—our soil, our forests, scenic wonders, and wildlife. Whatever justification there may have been for ruthless destruction in order to get a new civilization established in a wilderness has gone with the passing of the frontier. The challenge of "Conservation" impressed upon the people by President Theodore Roosevelt is still to be met.

Again there is a long history of efforts for land planning and conservation. From the conference of Governors on conservation in 1908 to the present time, public and private agencies have been at work. The National Planning Board, in 1933, organized a land planning committee<sup>22</sup> to bring some of the public agencies in the Interior and Agriculture Departments together in a new effort to coordinate land policies. It was almost immediately recognized as the successor to the land use planning committee set up by the Secretary of Agriculture in 1931 at the request of the land-grant colleges.

Under the mandate of the National Resources Board in 1934, a land section was organized with Dr. L. C. Gray as Director, and through cooperative agreements with Federal bureaus, a committee report was developed for transmittal to the President with the other documents of the Resources Board on December 1, 1934. In this case also, a field staff of land planning consultants was utilized to secure field data in cooperation with State planning boards, agricultural colleges, and experiment stations and field offices of Federal bureaus.

The report<sup>23</sup> of the Committee outlined long-range objectives for land use and conservation which will serve for many years to come. Retirement of sub-marginal areas, resettlement policies, programs for national parks and national forests, policies for drainage and irrigation, an attack on the problem of farm tenancy—these and many more plans for land use are suggested in the report. Vast stores of fact and knowledge about our land problems were disclosed in Federal, State, and private institutions, and they were drawn upon and put together for the formulation of new lines of policy.

With the continued cooperation of the Federal bureaus concerned, supplementary reports have been issued as follows:

1. General land requirements.
2. Agricultural exports in relation to land policy.

<sup>22</sup> During last fiscal year composed of Dr. M. L. Wilson, chairman, Under Secretary of Agriculture; F. A. Silcox, Chief of Forest Service, Agriculture Department; Dr. Mordecai Ezekiel, economic adviser, Agriculture Department; Dr. O. L. Chapman, Assistant Secretary of the Interior; Dr. W. C. Mendenhall, Director of the U. S. Geological Survey, Interior Department; Jacob Baker, Works Progress Administration; F. R. Carpenter, Director of Grazing Division, Interior Department; Dr. L. C. Gray, Resettlement Administration; and Charles W. Elliot 2d, National Resources Committee.

<sup>23</sup> Report of the National Resources Board, Dec. 1, 1934, pp. 2, 7, and 89-262.

3. Agricultural land requirements and resources.
4. Agricultural land available through reclamation
5. Soil erosion.
6. Maladjustments in land use.
7. Forest resources and policy.
8. Land problems and Government land policies.
9. Planning for wildlife in the United States.
10. Indian land problems.
11. Recreational use of land (for publication about Dec. 1).

Follow-up of these reports and recommendations has fallen primarily to the separate agencies concerned. Under the National Resources Committee, the work has involved definitions of recreation areas, cooperation with the Park Service on the national recreation survey authorized by special act of Congress, conduct of a record service of proposed land acquisition to prevent competition among Federal agencies, and participation in special projects on farm tenancy and the drought area.

During the last fiscal year the President organized a special committee on farm tenancy, under the chairmanship of the Secretary of Agriculture, and requested a report to be prepared under the auspices of the National Resources Committee. A technical committee,<sup>24</sup> set up in accordance with the usual procedure of the Resources Board, was responsible for research and drafting of the report. The document<sup>25</sup> resulting from these labors disclosed the speed with which the tillers of the soil have lost the equity given them by the Government and the numerous problems facing the farm laborer, tenant, owner-operator and absentee landlord. Legislation during the last session of Congress has authorized a beginning in a planned attack on these problems.

The National Resources Committee also participated in the work of the Great Plains committee through its representation in that body by Dr. H. H. Barrows, and through special reports prepared by the State planning boards in the drought area. Like the farm tenancy report, the recommendations<sup>26</sup> of the Great Plains committee expanded and developed proposals in the report of the National Resources Board and gave them both reality of background and punch of emphasis.<sup>27</sup>

Other accomplishments and follow-ups of the recommendations for land planning in the work of the National Resources Committee and its predecessors, could easily be enumerated; but, as in the two cases noted above, claims for credit might appear to be at the

<sup>24</sup> The technical committee on farm tenancy was composed of Dr. L. C. Gray, chairman, W. W. Alexander, A. G. Black, John D. Black, Charles S. Johnson, Lowry Nelson, E. G. Nourse, and M. W. Thatcher.

<sup>25</sup> Report of the President's committee on farm tenancy, transmitted to Congress on Feb. 1, 1937.

<sup>26</sup> Report of the Great Plains committee, transmitted to Congress with Presidential message of Feb. 10, 1937.

<sup>27</sup> The Great Plains report also revived the proposal in the report on "Regional factors in national planning" for a center of planning and coordination in Denver, Colo.



expense of other agencies. The Resettlement Administration's record in the retirement of submarginal lands; the development of the grazing division for the operation of the public lands; the progress of the Bureau of Reclamation, Forest Service, and Biological Survey; or the work of the National Park Service—these accomplishments are the work of these administrative agencies. The advisory planning agency wants them to have full credit and only bespeaks their continued cooperation in developing, revising, and coordinating better plans for conservation and wise use of the Nation's land resources.

#### MINERAL POLICY

Minerals—our exhaustible resources—have also been the subject of much research and planning. A planning committee for mineral policy<sup>28</sup> prepared the sections of the National Resources Board report<sup>29</sup> dealing with exploitation and waste, domestic and international problems, and "submarginal" mines and other problems of mineral conservation. Some of the activities of the National Bituminous Coal Commission were foreshadowed in the report, which also dealt with oil, natural gas, copper, zinc, and other minerals.

Through the work of a mineral section of the National Resources Committee research reports on plant capacity and mineral reserves were developed through short-time employment of experts working with the appropriate Government bureaus. A transfer of funds to the Bureau of Mines enabled that agency to prepare a set of 27 world maps showing the flow of strategic minerals into the United States. An analysis has been made of British experience in regulation of the coal industry. The funds of the Resources Board and Resources Committee have thus provided staff and research possibilities for the mineral committee, while the committee has acted as a unit of the Board's technical organization.

During the last year, an exploratory study was undertaken with the assistance of Dr. John W. Frey of the petroleum conservation division on the problem of competing fuels, but funds were not available to inaugurate a major investigation. Much work lies ahead if we are to find the interrelations among our energy resources of coal, oil, gas, water power and the miscellaneous items of wood, shale, peat, and alcohol.

For the technology report of the Committee, further studies in the mineral field were brought to completion during the last year on the mineral industries and progress in metallurgy. Efforts were also made through

<sup>28</sup> Originally set up in connection with the work of the science advisory board and composed of Secretary Ickes, chairman; O. K. Leith, vice chairman; Herbert Fels, J. W. Furness, O. T. Harris, Jr., W. C. Mendenhall, F. A. Silcox, W. O. Taylor, W. L. Thorp, J. W. Finch, and Leon Henderson. The committee was discontinued and its functions turned over to the National Resources Committee by action of the President on Jan. 2, 1936.

<sup>29</sup> National Resources Board, report of Dec. 1, 1934, pp. 5 and 389-400.

the staff to advance studies for conservation of natural gas. The Resources Committee also indicated its continuing interest in the scrap-metal situation and related problems of strategic war minerals.

#### PRODUCTION—CONSUMPTION

An industrial committee was included in the group of technical coordinating committees established at the first meeting of the National Resources Board. The committee<sup>30</sup> and the industrial section, under the direction of Dr. Gardiner C. Means, have continued during the last year the studies previously inaugurated on the consumption habits of the American people and on methods of measuring the productive capacity of various industries. From these materials, Dr. Means has been developing a proposed report on "Using resources effectively" involving production-consumption patterns. These studies were described in some detail in the progress report of the National Resources Committee issued June 15, 1936.

Our consumption habits—how we spend our incomes—are obviously important to producers and distributors of all kinds of goods. Through a work-relief project under the sponsorship of the Bureau of Labor Statistics and Bureau of Home Economics, some 350,000 family budgets are being analyzed as to how people spend their money. More detailed information from some 60,000 families in every possible combination of circumstances—variety of family composition, variety of living conditions, variety of income—is being tabulated in Washington. The industrial section of the Resources Committee is responsible, with a committee from the bureaus concerned, for the procedures followed in this survey and for the interpretation of the material for the Nation as a whole. From that material it is hoped that we can get more exact information as to the one-third of the population which the President has referred to as "ill-housed, ill-clad, ill-nourished." If we can determine what these people need, and what our factories can produce to meet the need, we will at least have the facts concerning our American standard of living.

The uses for which such data are needed are many and important. Great economic losses have fallen on individual producers and on the community because of mistaken ideas as to consumer demand or the productive capacity of competitors. More accurate data will be valuable as warnings to prevent overbuilding of industrial plants or overproduction of certain types of goods. At the same time a knowledge of the capacity

<sup>30</sup> Now composed of Frederic A. Dalano, chairman, Ernest G. Draper (succeeded by O. R. Chambers), Isador Lubin, Leon Henderson, T. C. Blaisdell, G. C. Means, and O. W. Elliot, 3d, and more recently of Mordecai Ezekiel, Lauchlin Currie, Harry D. White, and Herbert Fels. Mr. Jacob Baker, former chairman, resigned on June 30, 1937.

of industry and of the demands of consumers will be useful to State and Federal Governments in the formulation of economic policy.

The program of work for the industrial committee, undertaken at the direction of the President, includes preparation of charts of economic data, a survey of the agencies developing economic material, and a study of the structure of industry, as well as early completion of the study on production-consumption patterns.

#### SCIENCE RESOURCES

In preparing its preliminary report the National Planning Board was greatly aided by a memorandum submitted, at the request of the Board, by a committee of the National Academy of Sciences on the role of science in national planning, and another memorandum submitted by the Social Science Research Council on the role of the social sciences in national planning.<sup>21</sup> Later the American Council on Education and the Social Science Research Council aided the National Resources Board in the development of a list of "white-collar" work-relief projects which would provide basic data for planning or advance our scientific knowledge.

In the hope of continuing this important relationship with scientific bodies, the National Resources Board set up (with the specific approval of President Roosevelt) an advisory committee on science. This committee consists of nine persons, three appointed by the National Academy of Sciences (President Frank R. Lillie, Dr. E. B. Wilson, of Harvard, and Dr. John C. Merriam, of the Carnegie Institution of Washington); three appointed by the American Council on Education (President Edward C. Elliott, of Purdue University, Dr. Charles E. Judd, of Chicago, Dr. Walter D. Cocking, commissioner of education, Nashville); and three designated by the Social Science Research Council (Dr. William F. Ogburn, University of Chicago, Dr. Harry A. Millis, University of Chicago, and Dr. Carter Goodrich,<sup>22</sup> University of Pennsylvania).

In this committee are brought together for the first time representatives of natural science, social science, and education, hitherto working separately, but now cooperating with the National Government through the advisory committee of the National Resources Committee.

The science committee has already authorized the organization of two studies, one on the impact of new inventions on social organization, the other on population problems, as described in the following paragraphs. The science committee is now engaged on a major study of Federal relations to research under a subcommittee of which Dr. Judd is chairman, with Dr. Ogburn and

Dr. E. B. Wilson as members. A small staff is serving under the direction of Dr. Stuart A. Rice. The relationship of this study to problems of educational policy is fully appreciated and through both the science committee and the industrial committee, the closest cooperation is maintained with the President's Advisory Committee on Education.

#### TECHNOLOGY

A major report of the National Resources Committee entitled "Technological Trends and National Policy" was completed during the last fiscal year. The Committee has not forgotten the stream of inventions which have such a great influence on the way we live and which cause so much change in social organization. The report prepared by a subcommittee<sup>23</sup> of the science committee points out the rapid changes in our ways of life due to the extraordinary ability of the American people to invent new ways of doing things and to adopt mass production methods for putting new inventions into use. Perhaps the major significance of this report is to point out the impossibility of a "blue print" as a national plan. We live in a rapidly changing world where plans must be constantly revised, reworked, reoriented. We can set up social objectives, but we must not cling to outmoded methods of procedure.

The technology report is significant not only for its discussion of the possibilities of preparing the way for new inventions and minimizing difficulties of unemployment or capital obsolescence, but also for the distinction of the contributors in special fields of technology.

#### POPULATION PROBLEMS

Of course, planning is for the benefit of human beings. For whom are we conserving our resources? How many people will this land be called upon to support in 20, 50, or 100 years? What kind of people?

All the reports<sup>24</sup> of the National Resources Committee necessarily deal with these questions in greater or less degree. The science committee has organized a subcommittee<sup>25</sup> to prepare a report on "Problems of a Changing Population." On the other hand, it will deal with problems of economic opportunity for the rapidly growing population in some parts of the country and for stranded coal miners, and on the other hand, it points to the early approach of a stabilized population in this country as a whole. It will discuss problems of numbers, health, education—in brief, the whole gamut of our human resources in much the same

<sup>21</sup> Dr. Ogburn, chairman, with President E. C. Elliott and Dr. John C. Merriam.  
<sup>22</sup> Cf. 76 and 92 to 97, National Resources Board report (Dec. 1, 1934) and circulars issued by the Board.

<sup>23</sup> Dr. E. B. Wilson, chairman, Dr. William F. Ogburn, Dr. Charles E. Judd, Dr. David Linn Edsall, and Dr. Warren S. Thompson. Frank Lorimer served as director for the study.

<sup>24</sup> Appendix, report of National Planning Board.  
<sup>25</sup> Resigned Aug. 29, 1936.

fashion as the 1934 report of the Resources Board discussed natural resources.

Toward this report, materials are being collected giving the supporting statistical data, and suggestions for further population research, particularly by State planning boards.

#### MISCELLANEOUS

As is always the case with any useful organization, much of the activity of the members and staff is devoted to projects and proposals ancillary to the principal work on which it is engaged. The review of reports and committees on the foregoing pages tells only part of the story.

The members of the advisory committee, for instance, provide liaison and contact with other agencies working on similar or parallel lines. Examples are Dr. Charles E. Merriam's service on the President's Committee on Administrative Management—a project originally suggested to the President by the advisory committee in December 1935; Mr. Delano's membership on the Power Policy Committee which followed up the proposals in the Resources Committee's report on the Pacific Northwest dealing with marketing of Bonneville power; and Mr. Dennison's membership

on the advisory council of the Department of Commerce which also has concerned itself with public-works planning and other related problems.

The executive officer and members of the staff are similarly participating in the work of the coordinating committee of the Works Progress Administration and the Central Statistical Board, in the Board of Surveys and Maps to follow up the recommendations of the Committee for early completion of an adequate topographic map, and in the activities of citizen and professional planning organizations and conferences.

These items are but samples of the necessary contacts and activities which are essential to the usefulness and efficiency of a planning board. The tangible accomplishments of books, or reports, or circulars are easy to list; committee organization names and titles can be readily put down, and there is a danger that the observer will take these tangible evidences as the measure of progress. In the long run, however, the personal equation and personal relationships may leave a more enduring mark on national policy than books or documents. These personal activities are hard to specify in a report, but the personal work of the members of the National Resources Committee, the advisory committee, and the staff is no less significant to planning progress.

## IV. CURRENT ACTIVITIES

The preliminary program of work for the current year covers the following activities by various sections or subcommittees:

1. *Central offices.*—The advisory committee, staff, administrative expenses, etc. Progress report. Digests of published reports.
2. *Field offices.*—Assistance to State and regional planning agencies under revised procedures outlined on page 5.  
Reports contemplated include early publication of:
  - (a) Regional Planning—Red River of the North. (Published October 1937.)
  - (b) Upper Rio Grande Joint Investigation, and possible future publication during the current fiscal year.
  - (c) Ohio Valley Regional Planning Report.
  - (d) Pacific Northwest Forest Problem and Other Data.
  - (e) New England Water Report.
  - (f) Southeastern Pine Problems.
  - (g) State Planning—Review of Progress, as well as circulars, bulletins, and outlines of procedure.
3. *Industrial.*—Special studies as directed by the President.
  - (a) Patterns of Production-Consumption.
  - (b) Survey of Economic Agencies and Data.
  - (c) Structure of Industry.
  - (d) Housing and Construction.
  - (e) Federal Aids to Education.

4. *Science.*—Continuation of committee and work on:

- (a) Problems of a Changing Population.
- (b) Federal Relations to Research. This is the major study for the year, undertaken in cooperation with education study above.

5. *Natural resources.*—

*Water.*—Completion of work already under way on—

- (a) Revision of drainage basin report, and continuation of clearing house activities,
- (b) Manual for construction of small dams,
- (c) Unpublished hydrologic data (Geological Survey),
- (d) Deficiencies in hydrologic research.

*Land.*—Continuation of Land Acquisition Record Service.

*Minerals.*—Studies under consideration on competing fuels, scrap metals, and strategic war minerals.

6. *Miscellaneous.*—

*Urbanism.*—Publication of Committee report. Supporting documents being edited for publication during the year.

*Public works.*—Review of 6-year Federal program upon preparation by Public Works Administration and continued contact with State planning boards to encourage development of State Public Works programs.

Other future possible studies under consideration include transportation, energy resources, and further developments from projects already under way.

## V. A CONTINUOUS NATIONAL PLANNING AGENCY

The kinds of problems which a national planning agency must tackle and a variety of methods of planning have been shown in the work of the National Resources Committee and in the work of its many predecessors running back through American history. Of course, there is nothing particularly new in all this. This country has a national plan of government—the Constitution. It has had homestead plans, trust-busting policies, conservation plans, studies of economic changes and recent social trends. What is new, is the public realization and recognition of planning in these policies.

The President's Committee on Administrative Management has recommended many changes in the organization of the administrative branch of the Government, and particularly the establishment of staff agencies immediately under the direction of the President. Along with management activities of budget and of personnel, they have recommended a permanent planning agency. If our executive and legislative bodies are to be armed with the facts and with an appraisal of

significant alternative lines of action, some such planning activity as that carried on by the National Resources Committee is absolutely necessary at every level of government. Planning agencies should not be administrative; they should not be legislative—they should be purely advisory.

The late Elihu Root, in one of his reports as Secretary of War, urged the establishment of a general staff for the Army. He described the functions of a general staff in our War Department. Every one of the arguments that he used applies directly to the need for a general staff in peace times to meet peace-time problems as well as a war staff for war times. The President's Committee on Administrative Management has advocated a general planning staff to prepare plans of campaign to meet the great emergencies and critical problems of a democracy at peace. In these days of fascism, communism, and other threats to the democratic process, we cannot afford to proceed without planning, forethought, and research.

## VI. COMMITTEE PUBLICATIONS

### GENERAL

**NATIONAL PLANNING BOARD REPORT 1933-34**, dated August 1, 1934, and issued November 16, 1934. "A Plan for Planning." Final report of the National Planning Board, which was succeeded by the National Resources Board by Executive order of the President on July 30, 1934.

Printed, 123 pages, paper cover, 5 illustrations, Superintendent of Documents, 25 cents.

**NATIONAL RESOURCES BOARD REPORT**, published December 1, 1934, issued December 18, 1934, and submitted to the President in accordance with Executive Order No. 6777, June 30, 1934. A report on national planning and public works in relation to natural resources and including land use, and water and mineral resources with findings and recommendations.

Printed, paper covered, approximately 9 by 11½ inches. Divided into five parts, obtainable separately, or together (bound in cloth, \$3.25), at the office of the Superintendent of Documents.

Prices for the separate paper covered parts are: Part I, report of the Board, 25 cents; Part II, Land Report, 35 cents; Part III, Water Resources, \$1; Part IV, Mineral Policy, 15 cents; and Part V, Report of the Board of Surveys and Maps, 20 cents.

**PROGRESS REPORT WITH STATEMENTS OF COORDINATING COMMITTEES**, published June 15, 1936. A summary of the organization and work of the National Resources Committee and its coordinating committees during the last year and suggests further activity for the future. Supplementary reports by the Land, Water, and Industrial Committees are included.

Printed, 61 pages, paper cover, 10 maps. Superintendent of Documents, 25 cents.

**TECHNOLOGICAL TRENDS AND NATIONAL POLICY**, published in June 1937, is the first major attempt to show the kinds of new inventions which may affect living and working conditions in America in the next 10 to 25 years. It indicates some of the problems which

the adoption and use of these inventions will inevitably bring in their train. It emphasizes the importance of national efforts to bring about prompt adjustment to these changing situations, with the least possible social suffering and loss, and sketches some of the lines of national policy directed to this end.

Printed, 388 pages, paper cover, quarto, 73 illustrations, Superintendent of Documents, \$1.

**OUR CITIES—THEIR ROLE IN THE NATIONAL ECONOMY**, Published June 1937 and transmitted to President Roosevelt. This report was submitted to the National Resources Committee by its Urbanism Committee. The report consists of a Foreword by the National Resources Committee and three Parts. Part One is composed of three sections under the following headings: The Facts About Urban America; The Process of Urbanisation; The Problems of Rural America. Part Two discusses The Special Studies of the Urbanism Committee. Part Three contains statements of General Policy and Recommendations.

Printed, 87 pages, quarto, illustrated, Superintendent of Documents, 50 cents.

### STATE PLANNING

**STATE PLANNING—A REVIEW OF ACTIVITIES AND PROGRESS**, published in June 1935, shows the growth of State planning and the value and importance of State responsibility for planning endeavor.

Printed, 9¼ by 11½ inches, paper cover, 6 colored illustrations, 119 illustrations. Superintendent of Documents, 75 cents.

**STATE PLANNING, PROGRAMS AND ACCOMPLISHMENTS**, Published December 1, 1936, and transmitted to President Roosevelt on January 26, 1937. A report containing authorized statements of State and regional planning boards concerning their activities during recent months. It supplements the State Planning Report of 1935.

Printed, 128 pages, paper cover, quarto, frontispiece. Superintendent of Documents, 25 cents.

## REGIONAL PLANNING

**REGIONAL FACTORS IN NATIONAL PLANNING AND DEVELOPMENT**, published in December 1935, deals with important problems of planning and development which overlap State lines or which involve Federal and State or local interests and jurisdictions.

Printed, 9½ by 11½ inches, paper cover, 160 illustrations. Superintendent of Documents, 50 cents.

**REGIONAL PLANNING, PART I—PACIFIC NORTHWEST**, published in May 1936. This, the first of a series of reports on regional planning, deals with immediate and urgent problems in the Columbia Basin and particularly with the policies and organization which should be provided for planning, construction, and operation of certain public works in that area, Bonneville and Grand Coulee dams in particular.

Printed, 9 by 11½ inches, paper cover, 56 illustrations, numerous charts, 192 pages. Superintendent of Documents, 50 cents.

**REGIONAL PLANNING, PART II—ST. LOUIS REGION**, published in June 1936. The National Resources Committee has secured the cooperation of the St. Louis Regional Planning Commission in the preparation of this document, Part II of the series on regional planning, and has added a brief foreword with findings and recommendations.

Printed, 9 by 11½ inches, paper cover, 68 pages, 30 illustrations. Superintendent of Documents, 25 cents.

**REGIONAL PLANNING, PART III—NEW ENGLAND**, published in July 1936. This report, prepared by the New England Regional Planning Commission, illustrates the possibilities of cooperation among state planning agencies for joint attack on interstate problems. The National Resources Committee has added its findings and recommendations.

Printed, 101 pages, 102 illustrations, paper cover. Superintendent of Documents, 30 cents.

## PUBLIC WORKS

**PUBLIC WORKS PLANNING**, published December 1, 1936, and transmitted to Congress by President Roosevelt on February 3, 1937. A report recommending a proposed policy for planning, programming, timing, and division of costs of public works, including a report on Drainage Basin Problems and Programs. The report was prepared by the Projects Division of the Federal Emergency Administration of Public Works, a special research staff on division of costs of public works and the Water Resources Committee of the National Resources Committee.

Printed, 221 pages, paper cover, quarto, illustrated. Superintendent of Documents, 60 cents.

**CRITERIA AND PLANNING FOR PUBLIC WORKS**, a research by Russell V. Black, Research Consultant, June 1934. Prepared at the request of the former National Planning Board as one of a series of researches on different aspects of public works. It is a report upon a research in national physical planning, the magnitude of future public works and criteria applicable to their selection and programming, with tentative conclusions.

Mimeographed, 182 pages, 8 by 10½ inches, paper cover, no illustrations. Available in limited numbers, National Resources Committee.

**ECONOMICS OF PLANNING PUBLIC WORKS**, by John Maurice Clark, Professor of Economics, Columbia University. Presents a part of the research work carried on by a staff serving under the National Planning Board to answer the question: How may Public Works be so handled as to contribute as much as they can to industrial stability?

Printed, 194 pages, 6 by 9 inches, paper cover, six charts. Superintendent of Documents, 25 cents.

**PUBLIC WORKS IN PROSPERITY AND DEPRESSION**, and their utilization as an agency of economic stabilization, by Arthur D. Gayer, September 23, 1935. This volume is a revised version of the official report made to the National Planning Board by Dr. Gayer in June 1934.

Printed in book form, 9½ by 6½ inches, cloth binding, 484 pages, 100 tables, 3 charts. Obtainable only at the National Bureau of Economic Research, 1819 Broadway New York City Price, \$3.

(Published by the National Bureau of Economic Research.)

## LAND PLANNING

**SUPPLEMENTARY REPORTS OF THE LAND PLANNING COMMITTEE** incorporating the basic data and information collected in preparing Part II of the National Resources Board report of December 1934. The 11 reports are printed separately, illustrated, 9 by 11½ inches, paper covers, and are or will soon be available at the office of the Superintendent of Documents.

Part I, General Conditions and Tendencies Influencing the Nation's Land Requirements, 47 pages, 20 cents.

Part II, Agricultural Exports in Relation to Land Policy, 114 pages, 30 cents.

Part III, Agricultural Land Requirements and resources, 64 pages, 60 cents.

Part IV, Land Available for Agriculture Through Reclamation, 51 pages, 35 cents.

Part V, Soil Erosion, A Critical Problem in American Agriculture, 112 pages, 75 cents.

Part VI, Maladjustments in Land Use in the United States, 55 pages, 25 cents.

Part VII, Certain Aspects of Land Problems and Government Land Policies, 139 pages, 40 cents.

Part VIII, Forest Land Resources, Requirements, Problems, and Policy, 114 pages, 50 cents.

Part IX, Planning for Wildlife in the United States, 24 pages, 10 cents.

Part X, Indian Land Tenure, Economic Status, and Population Trends, 73 pages, 20 cents, are available at the office of the Superintendent of Documents.

Part XI, Recreational Use of Land in the United States, is being printed and will be available at the office of the Superintendent of Documents.

**FARM TENANCY**, a report of the President's Committee on this subject, prepared under the auspices of the National Resources Committee. The report presents findings of the Committee, recommendations for action, and official documents. It contains a technical supplement tracing the distribution and growth of tenancy and analyzing conditions and problems confronting farm tenant families in the United States.

Printed, 108 pages, paper cover illustrated. Published February 1937. Available from the Superintendent of Documents, 30 cents.

(Published by the President's Committee.)

**FUTURE OF THE GREAT PLAINS**, a report of the Great Plains Drought Committee, with a study of characteristics of the area, a proposed program of readjustment and development, together with supplements and appendices covering "Institutional Readjustment", "Education For Conservation", a report of pertinent existing legislation and a bibliography for the non-professional reader. December 1936.

Printed, 194 pages, paper cover, illustrated. Available at the Superintendent of Documents, 40 cents.

(Published by the Great Plains Committee.)

## WATER PLANNING

**DEVELOPMENT OF THE RIVERS OF THE UNITED STATES** (H. Doc. 395, 73d Cong., 2d Sess.) a message from the President of the United States transmitting a preliminary report on a comprehensive plan for the improvement and development of the rivers of the United States with a view of giving the Congress information for the guidance of legislation which will provide for the maximum amount of flood control, navigation, irrigation, and development of hydroelectric power.

Printed, 6 by 9 inches, paper cover, 123 pages, 57 maps. Available only at the office of the Superintendent of Documents, 80 cents.

(Published by Congress.)

**REPORT OF THE MISSISSIPPI VALLEY COMMITTEE**, dated October 1, 1934, and issued December 23, 1934, a plan for the use and control of water within the Mississippi drainage basin.

Printed, 234 pages, 8½ by 11½ inches, cloth covered, 15 colored illustrations, 54 illustrations, and nine folded maps. Available only at the office of the Superintendent of Documents, \$1.50.

(Published by the Mississippi Valley Committee.)

**INVENTORY OF THE WATER RESOURCES OF THE UNITED STATES, JUNE 1935**. Multilithed, paper covered, about 9 by 11¼ inches. A report covering basic data, present development, and potential development of the water resources of the United States. The report is divided into eight sections according to drainage areas, and the parts published separately.

Multilithed, paper covered, about 9 by 11¼ inches. Available in limited numbers, National Resources Committee.

**DRAINAGE BASIN PROBLEMS AND PROGRAMS**, published December 1, 1936, represents the first attempt through joint efforts of Federal, State, and local agencies, official and nonofficial, to formulate a national water plan. The chief water problems in 118 drainage basins are discussed and detailed project lists are proposed.

Printed, 539 pages, paper cover, quarto, illustrated. Superintendent of Documents, \$1.50.

**DEFICIENCIES IN BASIC HYDROLOGIC DATA**, published in September 1936. A report of the Water Resources Committee which proposes remedies for current deficiencies in hydrologic data essential for sound water conservation. Includes recommendations for standardization of procedures and measures.

Printed, 66 pages, paper cover, 25 illustrations. Superintendent of Documents, 30 cents.

**REPORT ON WATER POLLUTION** by the Special Advisory Committee of the Water Resources Committee, appointed in December 1934 to study the conditions of a comprehensive plan of attack on the problem of pollution. Published in September 1935.

Mimeographed, 82 pages, 8 by 10½ inches, paper cover, one illustration. Available in limited numbers, National Resources Committee.

**SECOND REPORT ON WATER POLLUTION**, by the Special Advisory Committee. Published as a part of the record of hearings on H. R. 2711, H. R. 2300, and H. R. 3419. Published in May 1937.

Printed, 54 pages, paper, octavo. A limited supply of this publication is available. Copies may be had by writing to the National Resources Committee.