

**WATERWAYS  
OF  
INDIA**

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**THEIR PROBLEMS AND THE ADMINISTRATIVE  
MACHINERY REQUIRED FOR OBTAINING  
MAXIMUM BENEFITS**

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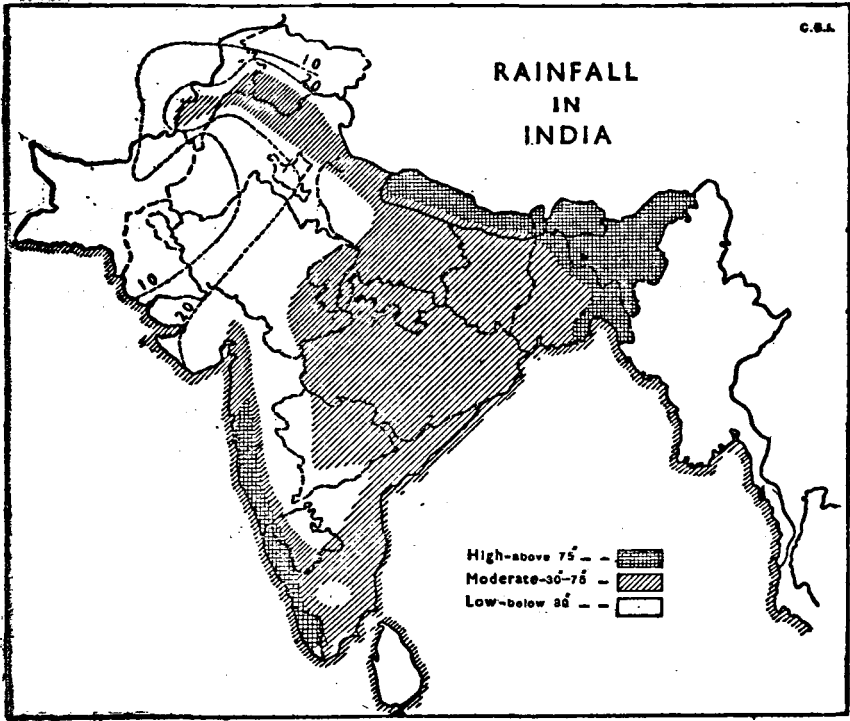
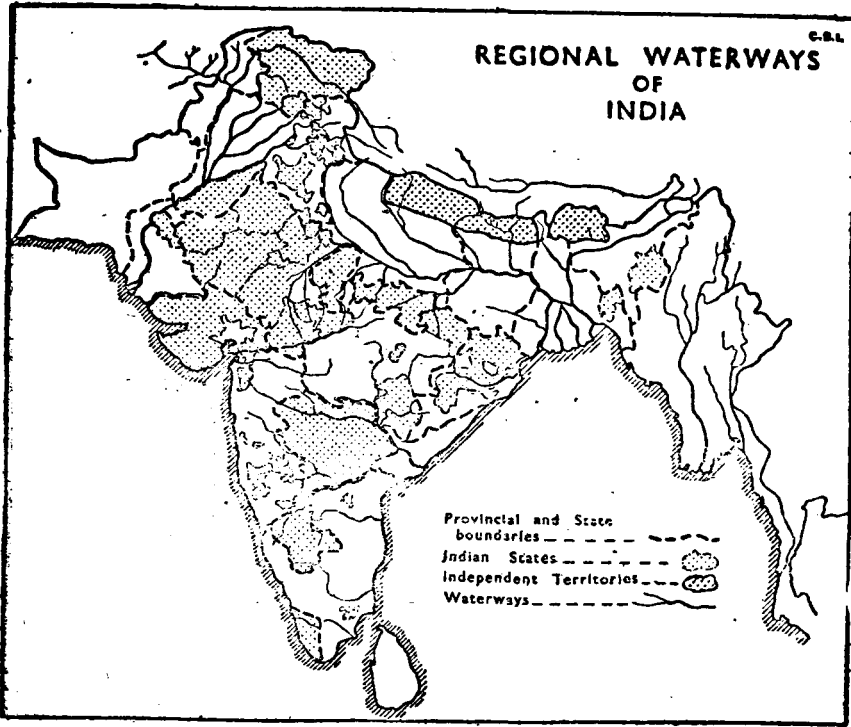
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**CENTRAL BOARD OF IRRIGATION**

Popular Series

Leaflet No. 4

**WATERWAYS  
OF  
INDIA**



## FOREWORD

Great constitutional changes are imminent. The New Order that will emerge will obviously effect all, but the *ultimate* interest of the common man in the new Constitution will lie mostly in the manner in which it will ensure the full economic development of each unit and of the country as a whole. In this respect, the development of the natural water wealth of the country will play a most important part.

The changes introduced in the administration of the waterways of the country by the Government of India Act, 1935, gave a definite set back to the development of these resources. To guard against a similar occurrence now, an attempt has been made in this leaflet to explain, as clearly as possible, in non-technical terms the problems that arise in the development of the water resources of the country. A description has been given of the present position, why it is unsatisfactory, how the unsatisfactory state of affairs came into being, what are the essentials of efficiency and some suggestions have been made for incorporation in the new Constitution to be framed for our country. Some information on foreign experience regarding the administration of waterways and the law of water rights has been added and if this endeavour succeeds in creating interest amongst the constitution makers, legislators, engineers and others in these problems the object of issuing this leaflet will have been amply served.

(ii)

Although the views expressed herein are to be regarded as those of the writer only and not necessarily those of the Central Board of Irrigation, the writer has had the benefit of discussions held both at the Board meetings and with individual members thereof. The information contained in the leaflet has been obtained from various notes and publications to the authors of which the undersigned is indebted.

The Secretary of the Board will be glad to receive comments, criticism and constructive suggestions regarding the proposals made herein.

N. D. GULHATI,

*Secretary.*

KENNEDY HOUSE,

SIMLA, S.W.

6th May 1947.

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## NATIONAL WEALTH

1.1 The natural resources of a country comprise mainly land, water and man-power and the extent of balanced and integrated utilization of these three determine the national wealth and prosperity of her people. The effective output of the man-power of a country is a function of the health of the people, their education, technical training, social structure, labour laws, agricultural and industrial development, *etc.* The last two depend on the utilization of land resources which fall under various heads, agriculture, forests, minerals, industries, *etc.*, and most of these in turn, are dependent largely on the extent to which the water resources of the country can be utilized for purposes of irrigation, power development and navigation.

1.2 It is well known that some of the forces of nature, left to themselves, are destructive in their action, for example, weathering and erosion by wind and rain. Floods in rivers, left to themselves can and do cause extensive damage to life and property. In steep country uncontrolled flow of rain water is responsible for damage to land itself. The erosion caused by the fast surface flow of water on normal soils has laid waste large areas of otherwise useful land. It has, however, been established by now that if rain water is properly controlled and conserved in rivers and lakes, it can be made to turn deserts into pastures and smiling fields for food and raw materials, to provide means for cheap transport and to generate cheap hydro-electric power to reduce very largely the toil of mankind. Thus, the proper utilization of the water resources of the country not only provides food and amenities for the people but also indirectly assists in the mitigation of human sufferings and loss.

## THE CONTROL AND UTILIZATION OF WATER

2.1 The control of water and the utilization of water resources of a country fall under the following heads:

- (a) Irrigation
- (b) Hydro-electric development
- (c) Flood control (including control of soil erosion)
- (d) Navigation
- (e) Fish culture
- (f) Recreation facilities.

During the last many years, considerable advances have been made, in India, in the utilization of water for the development of irrigation and a very large measure of success has been achieved in this respect. To a lesser extent, hydro-electric development has been carried out with success, particularly in the South. Flood control measures have also been undertaken at various places. It has, however, to be admitted that most water projects of the past were undertaken for single benefits and little attention was paid to their integrated development for multipurpose benefits.

2.2 The total sum spent to-date on the construction of irrigation works in India (excluding Indian States) is Rs. 156 *crores* and the annual value of crops raised by these works must be at least twice this sum. It has been estimated, however, that so far only about six per cent. of the available water wealth in the rivers of our country has been utilized. The balance runs to waste. If the utilisable, but so far unused, water potential is no more than one third of the total it will amount to five times the total quantity of water which is being used at present, for irrigation, throughout the country. The existing water power development in India is only about half million kw. against a possible water power potential



of 30—40 millions kw. These figures, though approximate and partly guess work, give an indication of the magnitude of the possibilities of future development likely in our country.

2.3 That there is urgent need and keen demand in the country for new works of water utilization, will no doubt, be accepted without argument. A perusal of the map on the inside of the front cover of this leaflet showing the rainfall in India, reveals large areas where rainfall is low, less than 30 inches per year, and irrigation facilities must be provided for cultivation to subsist. There are other large areas where the rainfall is moderate (30 to 75 inches) but is either not well distributed or is so variable from year to year that irrigation facilities have to be provided to ensure successful cultivation at all times. Also a perusal of the irrigation map of India on the inside of the back cover of this leaflet will show that the total area irrigated, seventy million acres, though large in itself, is only about 12 per cent. of the culturable area in the country. It is also well known that large areas are at present affected by floods every year with considerable damage to life and property, soil erosion is a menace in many parts of the country, navigation facilities hardly exist, in any case little has been done to develop them. Fish culture is known only by name. Recreation facilities have seldom been thought of except in a few notable instances. Already a large number of new projects are in hand or under investigation and it is a matter of gratification, that these include in their scope more than one, sometimes all of the different aspects of waterway development mentioned above.

### PRESENT ADMINISTRATIVE POSITION *fil*

3.1 The development of the waterways of the country as described above presents many problems in administration, in the execution of works, in the relation between administrative units and between these units and the Central Government. Before describing these

problems as found in the past, new problems that will arise in future and suggesting suitable machinery for the purpose, it is proposed to state here the existing position regarding the administration of the waterways of the country:

- (a) "Shipping and navigation on tidal waters" is under the control of the Central Government (Item 21 of list I of the Seventh Schedule of the Government of India Act, 1935).
- (b) "Shipping and navigation on inland waterways as regards mechanically propelled vessels, and the rule of the road on such waterways; carriage of passengers and goods on inland waterways" are subject to concurrent legislation of the Central and Provincial Governments (Item 32 of List III of the Seventh Schedule).
- (c) "Communications, that is to say, roads, bridges, ferries, and other means of communication not specified in List I; minor railways subject to the provisions of List I with respect to such railways; municipal tramways; ropeways; *inland waterways and traffic thereon subject to the provisions of List III with regard to such waterways*; ports, subject to the provisions in List I with regard to major ports; vehicles other than mechanically propelled vehicles. (Item 18 of List II of the Seventh Schedule).
- (d) "Water, that is to say, water supplies, irrigation and canals, drainage and embankments, water storage and water power" are under the exclusive control of provincial administrations (Item 10 of list II of the Seventh Schedule).
- (e) It may be recorded that 'Electricity' is on the concurrent legislative list (Item 31 of the List III of the Seventh Schedule).

✓3.2 It will be noticed that whereas navigation on inland waterways is partly a central subject, partly provincial and in some respects under the concurrent legislative control of both the Central and Local Governments, Irrigation, Flood Control and Water Power Development are purely provincial subjects. Further while hydro-electric development is under the control of provincial governments, the law relating to electricity is subject to concurrent legislation.

✓3.3 As stated above, irrigation, flood control and hydro-electric development are under the complete control of provincial and state governments. Every administrative unit in the country is competent to do what it likes, in this respect, with the water which runs through its territories. As, however, the political boundaries of the country have no relation whatever with catchment areas of different rivers, it is not unusual that the development of a river undertaken by one administrative unit jeopardises the schemes of water utilization on the same river in another administrative unit through which the river runs. Such occurrences, in fact, are more often the rule than the exception. Rivers do not recognize any political boundary, a fact which is clearly manifest from the map showing the *regional* waterways of India printed on the inside of the front cover of this leaflet. There is hardly any important river in the country whose course does not lie in more than one administrative unit.

✓3.4 There is no statutory law in the country on water rights. In fact, before the introduction of provincial autonomy on 1st April, 1937, the Government of India had to be consulted with regard to every major irrigation project and whenever questions of water rights between contending parties arose that government was always guided by two principles which had been laid down authoritatively:

- ✓(1) That the waters of a river should be utilized to the best possible advantage (for the maxi-

mum good of the maximum number) in the tracts commanded irrespective of territorial boundaries.

✓(2) That it is both just and expedient that each case of dispute between provinces or between provinces or between a province and a state should be dealt with on the merits of the individual case. The principles on which a decision was based in one case are not necessarily applicable to another.

✓ It will be apparent that the decisions of the Government of India on disputes which arose in the past were given more in an executive capacity than in a judicial manner. This does not imply that these decisions were not in the best interests of the country as a whole. It has, however, to be remembered that the development of waterways in the past was mostly for purposes of irrigation and, therefore, the two principles mentioned above were evolved mainly in relation to the development for irrigation purposes only.

✓3.5 In the Government of India Act 1935, provision has been made *vide* Sections 130 and 131 for the settlement of disputes relating to water rights by the Governor General in his discretion after investigation, in each case, by an *ad-hoc* Commission. At the request of one of the contending parties, the dispute has to be referred to His Majesty's Government. The nature of this arrangement and its efficiency or otherwise will be described in a subsequent paragraph.

✓3.6 There is hardly any law on navigation for whatever navigation exists in the country is mostly local. There are no principles or precedents to guide navigation activities in rivers which pass through more than one administrative unit.

✓3.7 For flood protection works there are no laws. In fact one province can construct embankments along its rivers irrespective and unmindful of the effects such embankments may have on the behaviour of the

river in a lower province or state. Deforestation can be carried out in the upper catchment of a river irrespective of the effect of such deforestation on the supplies in, or behaviour of, the river lower down. There are no laws to enforce special provisions for grazing or forestation policies for the sake of river conservation lower down in a different administrative unit. The schemes of river development that have been carried out in the past have not always kept in view the necessity of fish culture; in fact on many rivers the entire flow at different points is diverted into canals for purposes of agriculture and no water is let down for fish culture.

3.8 It will be appreciated from the description given above that the present position regarding the administration of the water resources of the country, taken as a whole, is far from satisfactory. There is no co-ordination, no unified policy. It is so difficult to obtain mutual agreement when local interests are in the forefront, *e.g.*, the Tungabhadra dispute has been going on for the last fifty years. At times, and often, there is complete frustration for comprehensive planning on a regional basis. It was not always so and before remedies are suggested, it appears necessary to describe briefly how the present unsatisfactory state of affairs came into being.

## DEVELOPMENTS LEADING TO THE PRESENT POSITION

4.1 Prior to the Montagu Chelmsford Reforms of 1919, no large irrigation work could be undertaken without the sanction of the Secretary of State who was advised in this respect by the Government of India which had an Inspector General of Irrigation and a Public Works Secretariat with an engineer of experience as its Secretary. The projects that were thus sanctioned were generally for the benefit of as large a part of the area commanded as possible, irrespective

of territorial boundaries. All matters of dispute between provinces or between provinces and states were resolved either by mutual agreement or by the orders of the Secretary of State.

✓4.2 After 1921, Irrigation became a Provincial but Reserved subject; Hydro-electric development, on the other hand, became a provincial but transferred subject. All irrigation projects which affected more than one province or the cost of which exceeded Rs. 50 lakhs had to be submitted through the Government of India for the sanction of the Secretary of State. The Public Works Secretariat of the Government of India was reduced as the Government of India was to have no direct responsibility for irrigation works. They had, however, as Inspector General of Irrigation which post was later converted to that of a consulting engineer. Even the post of consulting engineer was abolished in 1932 as a measure of economy. It was left to the Central Board of Irrigation to advise on such matters as the Government of India thought fit to refer to it. During this period whatever disputes arose between contending units, for the utilization of water supplies, were referred to the Government of India and decisions were given in an executive capacity.

✓4.3 With the introduction of Provincial Autonomy, from 1st April, 1937, Irrigation became a purely provincial subject and every administrative unit in the country was henceforth competent to undertake whatever legislative or administrative measures it liked with respect to the waterways passing through its territory. The present position with respect to different aspects of waterway development arising therefrom have already been described in paragraphs 3.1—3.8.

✓4.4 Before the Government of India Act 1935 was passed and when the White Paper proposals were under examination, the Central Board of Irrigation drew the attention of the Government of India to the difficulties that would arise by treating irrigation as a

purely provincial subject and in a letter addressed to the Government of India in July, 1933, it was stated *inter alia* that the Board was of the unanimous opinion that 'Water Rights' should be defined as below and should be included in list III i.e. subject to concurrent legislation both of the federal and provincial legislature.

"The right to use natural waters for navigation, storage, power, irrigation or any other purpose involving the interference with the natural course, flow, discharge, quality or quantity of such waters".

This proposal of the Central Board of Irrigation, it is understood, was first considered favourably by the Government of India, but was dropped later as it was considered that the law of water was a branch of civil law and, therefore, within the competence of the Federal Legislature. There was unfortunately at that time no engineer officer in the Government of India who could have explained the full significance of the Board's proposal nor were the views of the Board invited on the proposed recommendations of the Government of India to the Secretary of State.

4.5 The Joint Committee on the Indian Constitutional Reforms examined the matter carefully and the following extract from their report will be read with interest.

"There is, however, one subject with respect to which we are of opinion that specific provision ought to be made. The Government of India has always possessed what may be called a common law right to use and control in the public interest the water supplies of the country, and a similar right has been asserted by the legislature of more than one Province. "Water Supplies" is now\* a

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\*Prior to 1937.

provincial subject for legislation and administration, but the Central Legislature may also legislate upon it "with regard to matters of inter-provincial concern or affecting the relations of a Province with any other territory". Its administration in a Province is reserved to the Governor in Council, and is, therefore, under the ultimate control of the Secretary of State, with whom the final decision rests when the claims or disputes arise between one Provincial Government and another, or between a Province and a State. This control of the Secretary of State obviously could not continue under the new Constitution, *but it seems to us impossible to dispense altogether with a central authority of some kind. (Italics by the author).*

"The White Paper proposes to give the Provinces exclusive legislative power in relation to "water supplies, irrigation and canals, drainage and embankments, water storage and water power", and reserves no power of any kind to the Federal Government or Legislature. The effect of this is to give each province complete powers over water supplies within the Province without any regard whatever to the interests of neighbouring Provinces. The Federal Court would indeed have jurisdiction to decide any dispute between two Provinces in connection with water supplies, if legal rights or interests were concerned; but the experience of most countries has shown that rules of law based upon the analogy of private proprietary interests in water do not afford a satisfactory basis for settling disputes between Provinces or States where the interests of the public at large in the proper use of water



supplies are involved. It is unnecessary to emphasise the importance from the public point of view of the distribution of water in India, upon which not only the prosperity, but the economic existence, of large tracts depends.

“ We dont think that it would be desirable, or indeed feasible, to make the control of water supplies a wholly Federal subject; but, for the reasons which we have given, it seems to us that complete provincialization might on occasion involve most unfortunate consequences.....”

4.6 In view of the above the Joint-Committee made certain proposals which were incorporated as sections 130 and 131 of the Government of India Act which run as follows:—

#### ✓ “ INTERFERENCE WITH WATER SUPPLIES

“ 130. *Complaints as to interference with water supplies* :—If it appears to the Government of any Governor’s Province or to the Ruler of any Federated State that the interests of that Province or State, or of any of the inhabitants thereof, in the water from any natural source of supply in any Governor’s or Chief Commissioner’s Province or Federated State, have been or are likely to be affected prejudicially by—

- (a) any executive action or legislation taken or passed, or proposed to be taken or passed; or
- (b) the failure of any authority to exercise any of their powers.

with respect to the use, distribution or control of water from that source the Government or Ruler may complain to the Governor General.

“ 131. *Decision of complaints* :—(1) If the Governor General receives such a complaint as aforesaid, he shall, unless he is of opinion that the issues involved are not of sufficient importance to warrant such action, appoint a Commission consisting of such persons having special knowledge and experience in irrigation, engineering, administration, finance or law; as he thinks fit, and request that Commission to investigate in accordance with such instructions as he may give to them, and to report to him on, the matters to which the complaint relates or, such of those matters as he may refer to them.

“ (2) A Commission so appointed shall investigate the matters referred to them and present to the Governor General a report setting out the facts as found by them and making such recommendations as they think proper.

“ (3) If it appears to the Governor General upon consideration of the Commission's report that anything therein contained requires explanation, or that he needs guidance upon any point not originally referred by him to the Commission he may again refer the matter to the Commission for further investigation and a further report.

“ (4) For the purpose of assisting a Commission appointed under this section in investigating any matter referred to them, the Federal Court, if requested by the Commission so to do, shall make such orders and issue such letters of request for the purpose of the proceedings of the Commission as they may make or issue in the exercise of the jurisdiction of the court.

“ (5) After considering any report made to him by the Commission, the Governor-General shall give such decision and make such order, if any, in the matter of the complaint as he may deem proper:

“ Provided that if, before the Governor-General has given any decision, the Government of any Province or

Ruler of any State affected request him to do so, he shall refer the matter to His Majesty in Council and His Majesty in Council may give such decision and make such order, if any, in the matter as he deems proper.

“(6) Effect shall be given in any Province or State affected to any order made under this section by His Majesty in Council or the Governor General, and any Act of a Provincial Legislature or of State which is repugnant to the order shall, to the extent of the repugnancy, be void.

“(7) Subject as hereinafter provided the Governor General on application made to him by the Government of any Province, or the Ruler of any State affected, may at any time, if after a reference to, and report from, a Commission, appointed as aforesaid he considers it proper so to do, vary any decision or order given or made under this section.

“Provided that, where the application relates to a decision or order of His Majesty in Council and if in any other case if the Government of any Province or the Ruler of any State affected request him so to do, the Governor General shall refer the matter to His Majesty in Council, and His Majesty in Council may, if he considers proper so to do, vary the decision or order.

“(8) An order made by His Majesty in Council or the Governor General under this section may contain directions as to the Government or persons by whom the expenses of the Commission and any costs incurred by any province, state or persons in appearing before the Commission are to be paid, and may fix the amount of any expenses or costs to be so paid, and so far as it relates to expenses or costs, may be enforced as if it were an order made by the Federal Court.

“(9) The functions of the Governor General under this section shall be exercised by him in his discretion.”

By section 133, the jurisdiction of the Federal Court

is excluded from all matters in respect of water rights and by section 134, Rulers of Indian States can exclude the provision of these rules from operation within their states. It may be added, however, that the Government of India Act, 1935 does not apply to Indian States so long as there is no Federation.

✓4.7 The experience since gained of the working of the provisions contained in the above Sections of the Government of India Act only confirms the fears expressed by the Central Board of Irrigation in 1933 when it advised that irrigation and the control of water supply should not be treated as a purely provincial subject and should be subject to concurrent legislation. The Joint Committee on the Indian Constitutional Reforms had also come to the same conclusion, "it seems to us that complete provincialisation might on occasions involve most unfortunate consequences", but the remedy suggested by this body on which the procedure outlined in sections 130 and 131 of the Government of India Act was based, without reference to any body of engineers, has proved to be involved, dilatory and practically ineffective. In fact it would not be wrong to state that the changes introduced with the reforms of 1919 and more so with the introduction of Government of India Act, 1935 in decentralising the control of policy with respect to waterways has been responsible in a large measure for comparatively fewer projects having been initiated after their introduction. It is not a mere coincidence that during the ten years 1937-47 not a single dispute was resolved in accordance with the provisions made in the 1935 Act.

## FOREIGN EXPERIENCE IN WATERWAY ADMINISTRATION

5.1 *United States of America.*—It would not be out of place to examine here the experience gained in other countries regarding the enactment of laws and the creation of suitable machinery for the administration of their

waterways. In this respect it would perhaps be best to illustrate first the experience gained in the U.S.A.—a federation of a large number of autonomous states. The climatic conditions in the U.S.A., the nature of rainfall and water problems are similar to those in India. Also, of all countries of the world, she has taken the biggest strides in the multipurpose development of her waterways.

5.2 From the very beginning on account of its interrelation with Commerce, Federal responsibility for the maintenance of navigation was recognized, and though Congress was reluctant to commit itself to works other than navigation, certain flood control measures were also undertaken by the Federal Government as incidental to the control of the stream in the interest of navigation. By force of circumstances, however, the Congress was led to larger and larger commitments and the culminating step in the development of Federal Flood Policy was taken in 1936 when the Congress adopted an Act in which it declared a National Flood Control policy, in pursuance of which, construction of flood works on all navigable streams or their tributaries might thereafter be authorised. The Congress has recognized: "that destructive floods upon the rivers of the United States, upsetting orderly processes and causing loss of life and property, including the erosion of lands, and impairing and obstructing navigation, highways, railroads, and other channels of commerce between the States, constitute a menace to national welfare; that it is the sense of Congress that flood control on navigable waters or their tributaries is a proper activity of the Federal Government in cooperation with States, their political sub-divisions, and localities thereof; that investigations and improvements of rivers and other waterways, including watersheds thereof, for flood-control purposes are in the interest of the general welfare; that the Federal Government should improve or participate in the improvement of navigable waters or their tributaries, including watersheds thereof, for flood-control purposes if the benefits to whomsoever they may accrue are in

excess of the estimated costs, and if the lives and social security of people are otherwise adversely affected."

In authorizing the investigation of proposed projects these were described as "Investigations and improvements of rivers and other waterways for flood control and allied purpose". Thus it will be seen that control for purposes of navigation led to authority for flood control and later a recognition was made of the fundamental unity of various coordinate objectives of stream control.

With regard to Irrigation, activities were originally confined to private or co-operative undertakings. At the close of the last century, however, the demand for federal activity in irrigation joined with the rising movement for public conservation of the country's natural resources and it was urged that multipurpose use of reservoirs, serving irrigation among other purposes, should be constructed by the Federal Government in the Western States. Originally Congress resisted this pressure but gradually just as flood control at an earlier date proved itself a natural incident to the construction of navigational levees so the generation of electric power soon proved an economical incident to the storage of water for irrigation. It also appeared soon after that the disposition of surplus water supplies to neighbouring communities suffering acute water deficiencies was also an appropriate function of a public irrigation improvement. Thus it was that in the U.S.A. the Federal Government had by force of circumstances to assume responsibility for the construction of multipurpose projects for the optimum development of the country's water resources.

5.3 *Australia*.—It would be useful, also, to refer here to the difficulties experienced in Australia where it is understood that the different states comprising the Commonwealth are autonomous in this respect. In a recent address Mr. Lewis R. East, Chairman, State Rivers and Water Supply Commission, Victoria says:

"Our own history has shown how very difficult it

is, to obtain agreement and ratify legislation between several States—a recent example being the protracted delays in obtaining agreement among all parties on the question of the completion of the Hume Reservoir to store 2 million acre feet. This essential project cannot be regarded as approved until the River Murray Agreement has been amended by identical legislation in the Parliaments of the Commonwealth and the three States of New South Wales, Victoria and South Australia.

“ Agreement between all the parties has not yet been reached and the legislation has not yet been drafted although Victoria has, right from the start, given its strongest support to the project which is vital to the safeguarding of the irrigation settlements along the Murray in the three States.”

5.4 It is not proposed to describe the practice adopted in other countries of the World. Naturally conditions and practices differ but one principle is clearly deducible from International practice. Every river system is naturally “ an indivisible physical unit, and that as such it should be so developed as to render the greatest possible service to the whole human community, which it serves, whether or not that community is divided into two or more political jurisdictions\* ”. This principle, as already stated has been recognized in India from 1867 onwards and in the design of practically all the major irrigation projects in the country it was kept in view. “ Judicial\* decisions and treaty provisions among various nations are uniformly inconsistent with the theory *that the territorial sovereign can do as he pleases with the water upon his own territory* ”.

5.5 According to the Barcelona convention (1921) of the League of Nations “ a convention and statute on the

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\*K. R. R. Sastry—International Law.

Regime of Navigable Waterways of International Concern and Additional Protocol" which India ratified prior to 1930, all nations are to have equal rights in international waterways. These waterways are to be administered by riparian states in their jurisdiction but no dues, except for services rendered in maintaining the navigability of water, can be charged. Also such charges are to be uniform among all nations that may use a particular waterway.

### THE LAW OF WATER RIGHTS

6.1 As already stated, there has been no legislation in India on this subject except what is contained in the preamble to the Northern India Canal and Drainage Act VIII of 1873 which runs :

“Whereas, throughout the territories to which this Act extends, the Government is entitled to use and control for public purposes the water of all rivers and streams flowing in natural channels, and of all lakes and other natural collections of still water ; and whereas it is expedient to amend the law relating to irrigation, navigation and drainage in the said territories.”

6.2 The law of water rights as practiced abroad embraces two diametrically opposite principles, the common-law doctrine of riparian rights and the statutory doctrine of prior appropriation. Under the riparian doctrine, the owner of land contiguous to a stream, by virtue of such land ownership, “has a proprietary right to have the water flow to him in its natural state, of flow, quantity and quality, neither increased nor diminished, whether he has yet made use of it or not”. On the other hand under the appropriation doctrine, the first user of the water acquires the priority right to continue to use, and contiguity of land to a stream is not a factor.

The riparian doctrine is recognized in England, and in some of the Western States of U.S.A.; it has been abrogated in whole or in part in others. The appropriation doctrine is in effect concurrently with the riparian



doctrine, in some Western States, and to the exclusion of the riparian doctrine in others.

In addition to these two doctrines, there is another which largely influences decisions in interstate and international disputes and that is the principle of equitable distribution of benefits.

6.3 In India the law of riparian rights has seldom been upheld in practice, for if it were so, no water could be diverted from rivers for purposes of irrigation as is the established practice in the country. The appropriation doctrine and the equitable distribution of benefits are the two principles on which existing practice stands. An appropriate example is the allotment of waters of the Sutlej in the Punjab to Bikaner, a non-riparian state. Prior to the preparation of the Sutlej Valley Project, there was a lengthy dispute with the Bahawalpur Durbar in regard to the utilization of the waters of the Sutlej ; the main bone of contention was the inclusion in the Project of certain areas in Bikaner, a non-riparian state. The principle to be adopted was eventually settled at a conference of representatives of the Government of India, the Government of the Punjab, and the Bahawalpur and Bikaner Durbars, at which it was *emphasised* that the paramount power was the sole judge. This decision was eventually accepted by Bahawalpur, and the following formula was agreed to :

“ That in considering the method of disposing of the waters made available for irrigation by the Sutlej Valley Project, the general principle is recognized that those waters should be distributed in the best interests of the public at large, irrespective of provincial or state boundaries, subject always to the *proviso* that established rights are fully safeguarded or compensated for and that full and prior recognition is given to the claim of riparian owners, and that their rights in existing supplies or in any supplies which may hereafter be made available in the

Sutlej River below the junction of the Beas and Upper Sutlej are fully investigated and are limited only by the economic factor ”.

6.4 With regard to priority of different aspects of water development, in the Boundary Waters Treaty\* of 1909 between Great Britain and U.S.A., the various uses of water rank as hereunder :

- (a) Use for domestic and sanitary purposes.
- (b) Use for navigation, including the service of canals for the purposes of navigation.
- (c) Uses for power and for irrigation purposes.

On the other hand, in the development of the Murray river in Australia, the interests of irrigation are regarded as more important than those of navigation.

6.5 Here in India, the use of water for irrigation has been regarded as of the highest priority and navigation has either been ignored in the past or given a very secondary importance. It is, however, hoped that in the multi-purpose projects of tomorrow, due regard will be paid to the benefits that accrue from this cheap mode of transport and its potentialities both in peace and war. Naturally, the various aspects of waterway development will have different priorities in different countries in accordance with their special needs. For arid lands, particularly in the tropics, irrigation is a far greater necessity than the other uses of water.

6.6 “ In general,† the court decisions as well as legislation seek to deal with this involved problem of riparian rights ”, and priority of use, “ upon the basis of equitable distribution of benefits and with a view to the principle of maximum utilization of stream resources. Public benefits are superior to private use, established uses have precedence over novel uses, and private use may not curtail similar use by others ”.

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\*K. R. R. Sastry—International Law.

†E. B. Phelps—Stream Sanitation.

## THE PROBLEM IN DETAIL

7.1 Before formulating proposals, it appears desirable to consider in some detail the nature of the problems, that arise from time to time with respect to the utilization of water resources and for the solution of which it is necessary to devise suitable legislative or administrative machinery such that amicable and equitable distribution of available benefits can be obtained without delay and in the most economical manner.

7.2 In preparing the following list, note has been taken of the experience of past problems in India, of the knowledge of the situation in other countries and the possible and probable future problems have been anticipated as best as can be foreseen :

- (1) A stream passes through the territory of more than one administrative unit and two or more units on it desire to utilize the water of the *regional* waterway for irrigation or power development. The water available is often not sufficient to meet the claims put forward by all the parties.
- (2) A unit on such a regional waterway desires to impound flood water for one or more purposes. Another unit lower down on the stream may thus be deprived of the benefits of existing inundation irrigation because of the consequent lowering of flood levels.
- (3) A non-riparian state may desire to utilise the water surplus to the requirement of riparian states on a distant stream.
- (4) A growing city may desire to secure an adequate water supply and the only possible site for storage or diversion of flow lies in the territory of a second unit.
- (5) A unit may construct a dam for storage, another unit lower down through whose territory the natural stream passes will have to be satisfied that the structure being built is safe or

at least all possible measures for safety have been incorporated in its design. The bursting of a large dam can be disastrous not only to the area in which it is constructed but to all areas on both sides of the whole length of the stream below it.

- (6) The development of irrigation in one unit may cause water-logging in another.
- (7) Conversely extensive pumping of subsoil water in one unit may lower the subsoil water table in another unit and throw out of use the wells in that territory.
- (8) Works, for the utilization of and the diversion of water from a stream, in one unit may interfere with the navigational facilities of the stream in which another unit or the Union is interested.
- (9) The discharge of sewage, or industrial waste water into a river, in an upper unit may render the water in the stream less useful for a lower unit and may interfere with its development.
- (10) A unit whose territory is subject to devastation by floods from a regional waterway desires to undertake works to control or limit the flood. The necessary works can only be constructed in the territory of another unit, who may, or may not, be able to benefit from the project.
- (11) Land treatment in one unit may cause increase of floods or decrease of flow in another unit. Also un-controlled erosion in the upper part of a catchment may cause silting in the river lower down, causing increased floods, reduction in navigational facilities or even change of river course.
- (12) Land treatment (deforestation and indiscriminate grazing) in an upper unit may cause

reduction in the quantity of water that soaks into the ground and this may decrease the yield from wells or the regeneration in a river in another unit lower down.

- (13) Developments undertaken by one or more units on a regional waterway may jeopardize the interests of another unit on that waterway who at the time does not possess suitable machinery to watch its interests effectively.
- (14) A unit desires to develop its waterways for any particular purpose and it finds that the work is beyond its capacity but if other units could join in a comprehensive project, regional in nature, and, or multipurpose in scope, it would be to the benefit of all. This problem can be very difficult when the number of units on a particular stream is large. If some of the units are not interested at the time, some means must be found for those who want to proceed with their development to do so.

**7.3** The above list though long cannot be exhaustive. Attention is now invited to the two maps on the inside of the front cover showing the waterways of the country and the rainfall. It will be seen that all important rivers of the country pass through more than one, in fact, many administrative units.

The distribution of rainfall in India is very uneven and it is essential for the sake of life in arid areas to convey water to them from the areas of heavy rainfall where this is not done by Nature herself *via* the rivers. A perusal of the map of the Sources of Power will also show that in the interest of proper economy, man must assist in distributing the gifts of nature and artificial boundaries should not be obstacles in this endeavour.

**7.4** It is necessary at this stage to point out that the

will be many times more than those which had to be tackled in the past. One of the reasons for this is the decentralization of control. Also as development proceeds, there is more and more likelihood of clash of different interests. In the early stages of development when most of the resources are unused and undeveloped such disputes must naturally be fewer. The developments of the future will be many times that of the past, and the multiplicity of multipurpose projects will grow with growing developments.

### SOME ESSENTIAL FACTORS

✓ 8.1 The development of irrigation and hydro-electric projects though subject to varying control by the Government of India and the Secretary of State upto 1937 and after that date, for all practical purposes, subject to the orders of the Governor General (or His Majesty's Government) has been under the administrative control of the provincial governments, since the introduction of the Montagu-Chemsford Reforms in 1921. This authority is so intimately connected with provincial revenues, the day to day administration, and the general welfare of the people that to transfer it entirely to the Union or Central Government would not be in harmony with the spirit of provincial autonomy. On the other hand the control of navigation in rivers on account of its importance is Defence and Communications, must be wholly a Central or Union concern though the Union may entrust some works in this connection to a local unit. It will be conceded, however, and this is a very important phase of the problem, that waterways cannot any longer be treated differently for different aspects of water development. There has to be a co-ordination, and an essential unity in all projects of water development.

8.2 From what has been said so far, it will be noticed that the problem of the control of waterways is not very simple and must be considered carefully in all its impli-

made here of the manner in which, in the over-all interests of the country, responsibility with respect to various aspects of water utilization should be exercised by the governments of the Units and the Union.

**(a) Irrigation**

- (i) administration must be local and legislation required for this purpose should also be local.

**For Regional waterways**

- (ii) there should be an effective agency for co-ordination of activities of different units with respect to planning on and distribution of the supplies of such waterways.
- (iii) there should be an agency for settling inter-provincial and inter-state disputes and for this purpose federal legislation is needed.
- (iv) there should be an agency for co-ordination of activities regarding research and improvements in technique.

**(b) Hydro-electric development**

- (i) administration must be local and legislation required for this purpose should also be local.
- (ii) for developments of hydro-electric power on regional waterways, the agencies referred to in (ii) and (iii) of (a) above will operate.
- (iii) Hydro-electric developments in any region will have to be co-ordinated with the development of thermal power in that area. For this purpose federal legislation may be of assistance.

**(c) Flood Control**

- (i) administration and legislation local, but for regional waterways inter-unit co-ordination of a very high order is required. The

agencies referred to in (ii) and (iii) of (a) above will operate and federal legislation will be needed.

**(d) Navigation**

(i) to be administered by the Union with the co-operation of units.

(ii) Legislation federal.

(iii) for local navigation, administration will be local but it will have to be adapted to federal laws.

**(e) River Pollution**

Administration local but legislation may be both local and federal, the latter with regard to inter-state rivers.

**(f) Fisheries**

Administration local but legislation may be both local and federal.

**(g) Recreation**

Local.

**(h) Soil erosion and land treatment**

Local administration but there may be necessity of federal legislation for inter-state rivers.

**(i) Subsoil waters**

Local.

The agency referred to in (a) (iii) above for settlement of inter-provincial and inter-state disputes relating to irrigation, hydro-electric development, and flood control will also have to deal with disputes regarding (d) navigation, (e) river pollution, (h) soil erosion and land treatment and infrequently with those relating to (f) fisheries and (i) subsoil waters.

8.3 From the above analysis it will be clear that the provisions in respect to waterways made in the Government of India Act, 1935 and detailed in paragraph 4.6



above were not conducive to the integrated development of the water resources of the country. Their working has proved that the arrangement created chaos and the orderly progress obtained before 1937 was not possible after that date. The mistakes of the Government of India Act, 1935 must not be repeated and have to be rectified.

8.4 The simplest solution may appear to be to revert to the arrangement that existed prior to 1937 according to which all large irrigation projects (as well as those dealing with other aspects of waterways development) required the sanction of the Secretary of State—the only difference will be that instead of referring them to the Secretary of State, the Union Government will be competent to accord the necessary sanction. All questions of water rights in their various aspects—irrigation, flood control, navigation, hydro-electric development and fish culture, *etc.*, would be examined automatically through an appropriate agency, before such sanction is accorded. In fact some members of the Central Board of Irrigation are of the definite opinion that this arrangement would be much better than the existing state of affairs. Although local administrations are now competent to legislate for or administer the waterways in their territory, immediately an objection is raised by an adjoining unit (and such objections are raised for all conceivable and inconceivable reasons) the local government's actions and schemes are subject to the decision to be given in the matter by the Governor General in his discretion or by His Majesty's Government. As already stated the procedure is so involved that for many years schemes of development are held in abeyance to the detriment of the best interests of the people.

8.5 It may be asked why the Federal Court which would otherwise deal with all inter-provincial or inter-state disputes, *etc.*, should not also deal with disputes about water. It has already been stated and has also been pointed out in the extract in paragraph 4.5 above from the report of the Select-Committee on Indian Constitutional Reforms, that disputes regarding the use

of water cannot be decided by civil courts. This view is based on the experience in many countries and is fully borne out by the manner in which water disputes that arose in our country had to be tackled and the course they took. There are a number of reasons for this, one of which is the absence of any comprehensive legislation applicable to all the units of the disputes. From the list of problems given in paragraph 7.2 and the discussion on the law of water rights in paragraph 6, it will be recognized that the relevant legislation is not a simple affair. In fact, it is understood that at one time the position was examined in detail by the Government of India, but it was found that it was very difficult, almost impossible, to legislate for all the varying conditions that arise from time to time with regard to the distribution of natural waters. In the absence of such legislation there have come into existence a large number of agreements between provinces and between provinces and states regulating joint use of the natural waters to which the parties have common claim. The powers of a court are necessarily confined to the interpretation of the law, agreements, etc. In case of disputes between two or more units, it is usual that the technical evidence put forward by the advisers of contending governments is also in disagreement. Faced with such disagreements any civil court will find its task very difficult indeed, and it is for these reasons that in the 1935 Act the jurisdiction of the Federal Court was excluded for these matters and Sections 130 and 131 were introduced, though, as already stated, the provisions made therein have not proved satisfactory.

### **NEED OF AN ALL INDIA TECHNICAL ORGANIZATION**

9.1 From what has been stated above it will have been noticed that it is very important to have accurate information regarding the quantity of waters available in rivers, how they are being utilized, in accordance with agreement or otherwise, what is available for further utilization, and other information of a similar nature.

The Central Board of Irrigation recognized the necessity of an organization for collecting and recording such information, as soon as it was proposed that the control of the Government of India over the activities of local administrations with respect to the administration of waterways was to be removed. In the letter addressed to the Government of India in July, 1933, already referred to in paragraph 4.4, the Board pointed out the necessity of creating a central institution which could provide impartial and expert technical opinion, which should be capable of advising the central and local administrations with respect to technical matters, and which should have at its disposal all information regarding the possibilities of development, the behaviour of rivers, etc.

9.2 In its Report, the Indus Water Committee a sub-committee of the Central Board of Irrigation appointed by the Government of India to advise on the distribution of the waters of the Indus and its tributaries—recommended in 1935, “that it was highly desirable that there should be some central coordination of both provincial and Indian state activities in connection with the gauging and recording of water flow in rivers affecting several units, and that the compilation and study of voluminous records involved should generally be the duty of a special officer and staff in each province concerned and *all the work should be supervised and controlled by some central authority.*”

9.3 In a resolution passed by the Central Board of Irrigation in December, 1940, it was stated *inter alia* “The Board considers that the sources of natural supplies of water in the river affecting more than one province should be under the control of a Central Authority in the Government of India and this alone will facilitate the settlement of most of the disputes over water rights which are likely to arise between provinces and states in the future. The Board considers that the Governor-General can only decide how to deal with

such disputes if he has at hand a technical adviser who can give him the best advice”.

In another resolution passed at the 1943 meeting of the Board, it was stated *inter alia* “the subject of waterways comprises irrigation, river control, conservation and control of flood water, hydro-electric development, soil conservation, tidal problems, and navigation. In many cases these subjects, in reference to any particular waterway concern more than one province or state. Unilateral action by a province or state concerning its portion of waterway may have an adverse effect on neighbouring provinces or states. To make the fullest and most economical use of waterways, the Board considers that one central technical authority should exist who would assemble and collate the necessary data for the information and use of the Government of India and of the several provinces and states concerned”.

9.4 As a result of repeated recommendations, the post of the Consulting Engineer to the Government of India which was abolished in 1932 was revived early in 1945, and the Government of India also set up a body called the Central Waterways, Irrigation and Navigation Commission. Its main functions were

- “(a) to advise the Central, Provincial, and State Governments in regard to water, waterways, irrigation and navigation problems throughout the country ;
- (b) to carry out the necessary surveys and investigations with a view to securing planned utilisation of the water resources of the country as a whole, in consultation with Provincial and State Governments ;
- (c) to prepare, co-ordinate, press forward and execute, if so required, schemes for the control, conservation and utilization of water and waterways ; and

- (d) to initiate and carry out schemes for the training of Indian Engineers in specialised branches of engineering dealing with the control, conservation and utilization of water.

The intention is not to encroach on the provincial field of activities nor to use the central agency to carry out such investigations or other works as the provinces are normally called upon and competent to do”.

✓ 9.5 This commission has now been functioning for the last two years, giving technical advice to the Central Government and the Governments of various provinces and states. It has taken in hand the formulation and preparation of a number of projects of regional nature for which the individual units concerned did not possess suitable machinery for investigations *etc.* or regarding which the investigations lay outside the territorial jurisdiction of the unit most interested in the project. Several important projects of considerable value in the development of the country have thus emerged. This commission has also taken in hand the collection of river data for all the rivers of the country. The extent to which it is able to carry out this task will depend under present condition, largely on the co-operation which various provinces and states decide to afford to this commission, as no statutory right exists that information required must be supplied to it.

✓ As a part of the Commission mentioned above, but for the present under the Agriculture Department of the Government of India, a Ground Water Section has been functioning for the last few years which has been assisting in schemes of tubewell development *etc.* as emergency minor irrigation works for growing more food.

Along with the Central Waterways, Irrigation and Navigation Commission, the Government of India has also set up a Central Technical Power Board which includes among its functions investigations, *etc.* of a regional and multipurpose nature with particular reference to hydro-electric development.

## PROPOSALS

10.1 Political considerations apart, the objectives summarised in paragraph 8.2 can be recured in any one of the following three ways :

### A

✓ By giving the Central or Union Government powers of control, direction, and superintendence over the working of the units in respect of irrigation and allied matters. (Pre-1921 conditions) or,

### B

- (i) By providing in the new Constitution that no unit will construct or modify any works on a natural stream without the prior concurrence of the Union Government, which before according its approval will satisfy itself that the work proposed will not interfere with the rights of anyone else nor with navigation facilities nor any other aspects of water utilisation and by giving the Union Government the powers to resolve or decide finally and enforce its decisions in all inter-provincial or interstate water disputes (this would imply more or less the conditions prevailing in the period 1920—37), and
- (ii) By making provisions in the new Constitution whereby it would be possible for the Union Government to create for specified areas autonomous River Commissions or Corporations charged with the development of *regional* waterways in one or more aspects of water utilisation. These Corporations will exercise in any specified area the relevant powers of a local government.
- (iii) By the creation of a Statutory body of the nature of the present Central Waterways, Irrigation and Navigation Commission with powers to call for and obtain information relating to waterways and water utilisation

from all the units and, if necessary, to itself observe and collect information in that province or state which does not feel interested.

- (iv) By the continuance of the Central Board of Irrigation as an independent body, financed on a co-operative basis, for the co-ordination of research and improvement in technique relating to waterway development.

### C

If it is desired not to entrust the Union Government with powers referred to in B (i) and (ii), it will be necessary to create independent Statutory Organisations charged with the duties outlined therein. Such organisations will be independent of party politics. The organisation referred to in B (iii) and (iv) will be required in any case.

✓10.2 The Central Board of Irrigation has had this matter under its close examination at various times since 1933 and at its last meeting came to certain conclusions which were subsequently examined in detail by a sub-committee of the Board. Based on the resolution passed by a large majority of the Board, the following suggestions are put up for the consideration of the members of the Constituent Assembly and all those legislators, engineers and others who are interested in the problem.

10.3 The new constitution should ensure that all provinces and states shall be free to develop, administer, and legislate in respect of the generation and distribution of hydro-electric power and the distribution of water from natural streams within their respective territorial jurisdictions and to develop freely the resources of waterways which are entirely within their territorial boundaries. / With respect to *regional* waterways, i.e., those which pass through more than one unit, the provinces and states will exercise full powers with

such purposes by mutual agreement between the parties concerned or by the decision of the Statutory Arbitration Board referred to here-after.

With respect to navigation, the authority to be exercised by the provincial governments, will be subject to such direction and control as the Union Government may like to exercise. The units will be free, in case of dispute to seek a decision by the Arbitration Board referred to below.

With respect to flood control and subsoil waters the provincial and state governments will exercise full powers but if the action of one unit is likely to interfere with another unit, the latter unit, in the absence of mutual agreement, will be at liberty to refer the matter to the Arbitration Board and the decision of that Board will be final.

10.32 A Statutory All India Water Arbitration Board should be set up to decide all issues concerning water both surface and underground that are referred to it for decision.

The Arbitration Board should be a permanent Statutory body and should comprise three members as follows :

- (1) A judge of the federal court—permanent member and chairman.
- (2) Chairman of the Union Water and Power Commission referred to hereafter (permanent member).
- (3) A third member to be selected for each individual case from a panel of five to be elected annually by the Central Board of Irrigation from amongst its existing or ex-members or from a panel of water and power engineers to be appointed by the Union Government. This member should be one from the panel who is acceptable to all the parties to the dispute. If the parties concerned cannot come to an agreement regarding the selection of the third member from



the panel, the Chief Justice of the Federal court will nominate one from the panel who has not been connected in the past with the matter of the dispute.

This Arbitration Board should have a permanent secretariat as a branch of the Union Water and Power Commission and under the control of its chairman who will be a permanent member of the Arbitration Board.

The Arbitration Board of 3 members to be constituted as described above shall have powers to co-opt such other members as it may consider necessary for any particular case or part of a case.

✓The new Constitution should provide for the enforcement effectively of the decisions of the Arbitration Board arrived after due consideration and examination of the claims of the parties concerned.

10.33 A Union Water and Power Commission shall be constituted by statute. This Commission shall be a fact finding and recording body, equipped to give advice to the Union Government and provincial and state Governments who may ask for it and should maintain a permanent secretariat for the Arbitration Board referred to above.

This Commission will collect the records of all discharge and gauge observation of rivers that are maintained by different administrations and shall co-ordinate their work. If necessary it shall be at liberty to establish its own observation stations where local units are not interested. All data collected by this body will be studied by it and published periodically.) Similar information about subsoil water and possibility of hydro-electric development will also be collected, thus including in its scope the relevant functions now entrusted to the Central Technical Power Board and the Ground Water Section referred to previously.

This body will also maintain a record of the quantities of water utilized from different rivers to determine priorities and to watch the implementation of,

various agreements and decisions of the Arbitration Board.

The Union Water and Power Commission will advise the union and unit governments regarding the possibilities and scope of further development. It will undertake the preparation and/or the execution of projects if requested to do so. It will also advise in the formation of catchment or sub-catchment boards referred to below. In brief the functions of this organization will be to seek the most economical and optimum utilization of the water resources of the country in the interest of and in co-operation with the various units.

Funds for the maintenance of the two statutory bodies referred to above must be provided for by the Union government in such manner as will maintain their independent character. The members of the Federal Water Power Commission, who must all be engineers, should also be recruited in such manner as will maintain the independent character of the Commission.

**10.34** The Central Board of Irrigation to continue to be maintained by unit and union contributions as a central technical body for the co-ordination of research and dissemination of knowledge on improved methods and technique relating to irrigation and hydro-electric development.

**10.35** The new Constitution should provide for the formation of Catchment or Sub-catchment Boards in cases where more than one party is concerned in the development of a particular waterway and if the parties concerned do not agree to entrust the necessary works to one amongst them. Such Boards shall be autonomous bodies, formed by mutual agreement between the parties concerned, or otherwise in the manner outlined below.

If the parties concerned in the development of a regional waterway cannot come to mutual agreement for the formation of Catchment or Sub-catchment Boards, any party interested can make reference to the Federal

Water and Power Commission. On receipt of such a reference, the Federal Water and Power Commission will examine the technical aspects of the matter and advise on the possibilities and submit a report to all the parties concerned. The Commission will assist the various units, if required, to meet and come to an agreement but if no mutual agreement is possible it will be open to the Union Government in the wider interests of the country, to form a Catchment Board for the development of the waterway. If, however, any party so desires, it may refer the matter to the Arbitration Board whose decision would be final and binding on all concerned.

These Catchment Boards shall consist ordinarily of three permanent members of which two will be engineers and the third a financier. One of the engineers will be the chairman. It may also have two to four part-time members to represent other interests like agriculture, forests, legal, industries, etc. The Catchment Board will exercise, with respect to the development of a waterway, such functions as are assigned to it by mutual agreement or by an order of the Arbitration Board.

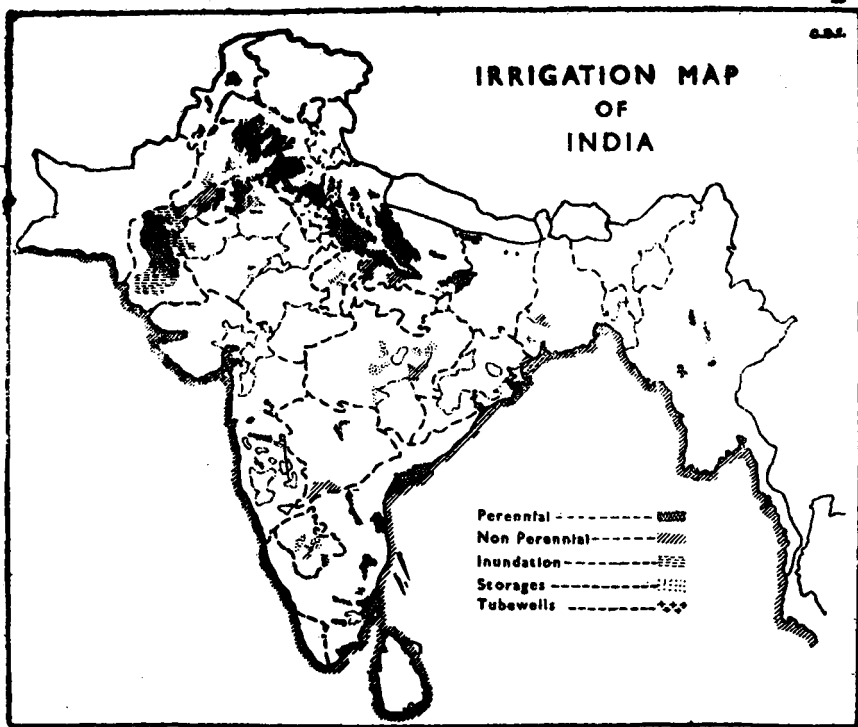
† 10.4 It will have been noticed that the scheme outlined in paras 10.31 to 10.35 is based on proposal **C** of para 10.1. The Board is definitely of the opinion that proposal **A** is not suitable at the stage of development which has been attained by now. Proposal **B** is workable but the Board feels that the various units may not like to cede the powers, referred to therein, to the Union Government. Proposal **C**, therefore, as outlined above in detail, appears to be the only workable solution of the problem such as will ensure steady and progressive development of the water resources of the country. It is hoped that in the scheme as proposed there is ample room for equitable distribution of benefits and it will be possible to undertake comprehensive, regional and multipurpose projects without undue delay and frustration.

## CONCLUSION

11.1 The suggestions put forward in paragraphs 10.31 to 10.35 may have to be modified in some respects when they are examined in the context of the future administrative plan of the Union and the units. It is, however, important to emphasize that whatever be the future of things, the provisions in the new Constitution in respect of waterways, must keep in view the full implications of the various problems that will have to be tackled and which have been outlined in paragraph 7.2. The essential criteria outlined in paragraphs 8.2 to 8.5 above are also important. In general, efficiency can be secured best *by centralizing policy and decentralizing authority*, but in this particular case, this principle is all the more important.

11.2 It is perhaps necessary to state that the scheme outlined in paragraphs 10.31 to 10.35 is based on the Cabinet Mission Plan for the future of India. If, however, India is to have more than one centre, it will become necessary to introduce some new features, depending on the political plan, but the basic structure of administration that may then be devised must keep in view the various problems detailed in paragraph 7.2 not only in their relation between one centre and its units but between more than one centre and the various units; otherwise there will be frequent dead locks and frustration.

### IRRIGATION MAP OF INDIA



### SOURCES OF POWER

