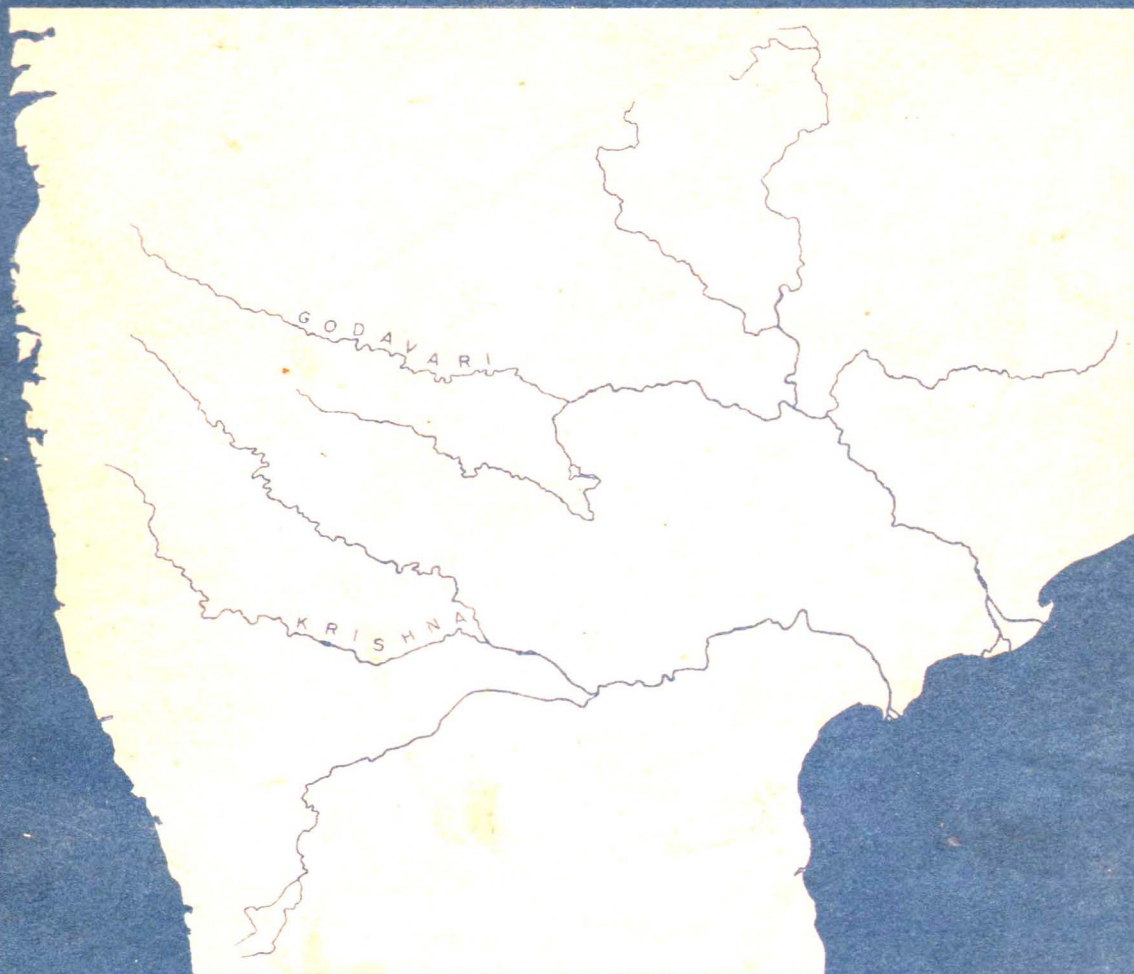


REPORT OF THE KRISHNA GODAVARI COMMISSION



JULY 1962

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MINISTRY OF IRRIGATION AND POWER



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REPORT
OF
THE KRISHNA GODAVARI COMMISSION

JULY 1962

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Government of India

MINISTRY OF IRRIGATION AND POWER

New Delhi, the 21st August, 1962.

To

The Secretary to the Government of India,
Ministry of Irrigation and Power,
New Delhi.

Sir,

We have pleasure in forwarding the report of the Commission appointed by the Government of India *vide* Resolution No. F. (17)/61-Adm. II dated the 1st May, 1961.

2. In dealing with our terms of reference, we felt that it was necessary also to study some other important aspects connected with the water resources development of the Krishna and Godavari basins. The report includes the result of this study.

3. The report is accompanied by 37 Plates and 18 Annexures.

4. The report is unanimous.

Yours faithfully,

N. D. Gulhati

D. D. Jaini

R. C. Hoon

THE KRISHNA GODAVARI COMMISSION

1st May 1961 to 31st July 1962

Chairman N. D. Gulhati

Members D. D. Jaini

Secretary R. C. Hood

Secretary Bhim Sen

Officers of the Commission:

A. N. Malhotra (*Consultant*) (7th July to 6th October 1961)

B. S. Johri (*Superintending Engineer*) (4th August to 30th December 1961)

U. C. Arora (*Executive Engineer*) (3rd July to 30th December-1961)

K. S. S. Murthy (*Deputy Director*) (13th September 1961 to 31st July 1962)

S. R. Bhala (*Executive Engineer*) (15th July 1961 to 31st July 1962)

A. K. Sengupta (*Assistant Director*) (15th May 1961 to 31st July 1962)

A. S. Ramamoorthy (*Assistant Director*) (10th May 1961 to 31st July 1962)

K. D. Thite (*Extra Assistant Director*) (15th July 1961 to 31st July 1962)

T. S. Sohal (*Senior Draftsman*) (12th May 1961 to 31st July 1962)

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DEFINITIONS

Unless otherwise stated, the following terms, as used in this report, have the following meaning

Abi : *Kharif* crop comprising paddy only, term used in Andhra Pradesh.

Acre-foot : Volume of water required to cover an area of one acre to a depth of one foot.

Anicut : A weir; usually applied to weirs across rivers, sometimes also to tank surplus weirs.

Area cropped : This is the area under all crops, that is, net area sown plus area sown more than once.

Area irrigated : This represents the actual geographical area under irrigated crops in a year; areas bearing two irrigated crops in a year are counted only once.

Area not available for cultivation: This includes all lands occupied by buildings, roads and railways or under water, rivers, canals, *etc.*, and all barren and unculturable lands like mountains and deserts. Land which cannot be brought under cultivation except at a high cost is classed as unculturable whether such land is in isolated blocks or within cultivated holdings.

Authorised capacity : Maximum discharge of a canal, as permitted to be run by competent authority.

Ayacut : Area eligible for irrigation and which is normally intended to be irrigated at least once a year, authorised irrigable area. This term is equivalent to C.C.A. if the intensity of irrigation during *Kharif* is 100 per cent.

Bandhara : A weir across a stream to divert water into a channel for irrigation.

Basin : Short for drainage basin, used in its ordinary geographic sense.

Capacity factor : The ratio of the mean supply run in a canal to its authorised full supply or capacity.

Carry-over : That part of the live storage in a reservoir which is reserved, or is proposed to be left over, for utilisation after the 31st of May following the storage season.

Category of projects

A: schemes in operation as on 31st March 1951;

B: schemes which came into operation after March 1951;

C. 1: schemes under construction;

C. 2: schemes referred to in III Plan but not yet approved for execution in III Plan;

C. 3: schemes not referred to in III Plan.

Consumptive use : Consumptive use represents that volume of water which is used by vegetative growth over an area in transpiration and building of plant tissue and that evaporated from adjacent soil or intercepted precipitation. It is the amount of water that is changed from a liquid to a gaseous state within an area because of evaporation and or transpiration.

Crop season : Period of a year from the beginning of sowing to the harvesting of a crop *e.g.*; *kharif* and *rabi*; or *abi* and *tabi*; or *mungari* and *hingarri*; or *kharif*, *rabi* and hot weather, or two-seasonal and perennial.

Culturable area: Gross area as per village papers less the sum total of area under forests and the area not available for cultivation.

Culturable commanded area: Gross area commanded less area of unculturable land included in the gross area, such as area under villages, roads, rivers, tanks, etc.

This term, when used for projects in Maharashtra and Madhya Pradesh implies the area for which distributary system is provided; irrigation water is applied annually to the whole or part of this area. When applied to projects in Andhra Pradesh, Madras, Mysore and Orissa, it implies the area available, on the supposition of unlimited waters being available.

Cusec: Rate of flow of one cubic foot per second.

Delta: Depth of water that would result over the irrigated area from a given water supply *e.g.*, from the supply diverted to grow a particular crop or the supply diverted to grow all the crops in a crop season. Delta may be as at the outlet, or at distributary head or at canal head.

Overall delta: Depth of water that would result from the total volume of water delivered to a canal in a year, spread over the total area of crops raised in that year.

Dry crop: A crop which does not require large quantities of irrigation water. It is used to distinguish crops like wheat, cotton, *jowar*, etc. from *wet crops* like paddy, sugarcane and gardens.

Duty: When applied to a channel it is the area irrigated during a base period divided by the mean supply utilised in cusecs.

Duty may be as at distributary head or as at canal head.

When applied to tank irrigation, it is the number of acres of irrigation per million cubic feet of water.

First crop: A term used in Madras and Andhra region of Andhra Pradesh for the first crop grown on a field during the agricultural year commencing 1st July or 1st June, no matter when the crop is sown whether in August or in January.

Forests: All actually forested areas or lands classed or administered as forests under any legal enactment dealing with forests whether State-owned or private. If any proportion of such land is not actually wooded but put to some agricultural use, that portion is included under the appropriate heading of cultivated or uncultivated land.

Gross commanded area: Area commanded by the whole project; in Andhra Pradesh, Madras, Mysore and Orissa this area is worked out on the supposition that unlimited water is available.

Hot weather: Summer crop season in Maharashtra, lasting from middle of February to middle of June.

Index number of projects: Indicates the State in which the project is situated, the sub-basin of the river Krishna or Godavari from which water is taken and the category of project.

Illustration : 15C. 1-G. 3-M. 10 indicates 15th project in the list of C. 1 category; G. 3 sub-basin i.e., Purna sub-basin of Godavari river and 10th Project in that category in Maharashtra State.

Irrigated cropped area: The gross irrigated area under all crops in any year and is the sum total of area irrigated plus area irrigated more than once.

Kharif: Summer crops harvested in autumn, extending from 15th June to 14th October in Maharashtra and generally from 1st June to 31st December in Andhra Pradesh, Mysore, Madhya Pradesh and Orissa.

Major scheme: One intended for annual irrigation of 50,000 acres or more and all power projects.

Medium scheme: One intended for annual irrigation of less than 50,000 acres but having a C.C.A. or Ayacut of not less than 5,000 acres.

Minor scheme: One having a C.C.A. or Ayacut of less than 5,000 acres but not less than 500 acres.

Net area sown: This represents the actual geographical area under the crops, orchards and fodder; areas cropped more than once in a year are counted only once.

One seasonal: Applies to a canal which delivers water during only one crop-season.

Perennial: Applies to a canal which delivers water all the year round, or most of the year, for crops like sugar-cane, gardens, *etc.*, also applies to such crops.

Rabi: Winter crop harvested in spring, extending from 15th October to 14th February in Maharashtra and Madhya Pradesh and generally from 1st January to 31st May in other States.

Second crop: A term used in Madras and Andhra region of Andhra Pradesh for the second crop grown on any area in an agricultural year after the first crop has been harvested.

Small tank or diversion: A scheme having a C.C.A. or Ayacut of less than 500 acres.

Tabi: *Rabi* crop comprising paddy only—term used in Andhra Pradesh.

Two-seasonal: Applies to a canal which delivers water for two crop-seasons; also applies to crops which extend from one crop season to the other.

Wet crop: Crops like paddy, sugarcane and gardens, requiring large supplies of irrigation water.

ABBREVIATIONS

In the Index Number

A.	stands for Andhra Pradesh
Ma.	stands for Madhya Pradesh
Md.	stands for Madras
M.	stands for Maharashtra
My.	stands for Mysore
O.	stands for Orissa
C.C.A.	Culturable commanded area
G.C.A.	Gross commanded area
G. 1 to G. 12	sub-basins of the Godavari basin
K. 1 to K. 12	sub-basins of the Krishna basin
kW.	kiloWatt
L.S. Cotton	Long staple cotton
M.A.F.	Million acre feet
M. Cft.	Million cubic feet
N.A.	Not available
pH.	A measure of the hydrogen ion concentration in water or soil (acidity or alkalinity)
R.L.	Reduced level, referred to mean sea level
T.M.C.	Thousand million cubic feet

3. Volume (continued)

1 cusec-month (30 days)
=59.30 acre-feet
=2.59 M.Cft.

1 cubic metre per second for one month (30 days)
=2.59 million cubic metres
=2,101.36 acre-feet
=91.54 M. Cft.

1 cusec-year (365 days)
=723.97 acre-feet
=31.54 M. Cft.

1 cubic metre per second for one year (365 days)
=31.54 million cubic metres
=25,569.79 acre feet
=1.11 T.M.C.

1 million gallons
=160,544 cubic feet
=4,546.09 cubic metres

4. Rates of Flow

1 cubic feet per second
=1.98 acre-feet per day
=0.03 cubic metre per second
=28.32 litres per second
=6.23 gallons per second
=22.424 gallons per hour
=0.54 million gallons per day

1 cubic metre per second
=35.31 cusecs
=70.05 acre-feet per day
=219.97 gallons per second

1 milliard cubic metres per day
=0.41 million cusecs
=0.81 million acre-feet per day

1 acre-foot per day
=0.50 cusecs
=0.015 cubic metre per second
=14.16 litres per second

1 litre per second
=0.04 cusecs
=791.91 gallons per hour

10,000 gallons per hour
=0.45 cusecs
=0.88 acre-feet per day

1 million gallons per day
=1.86 cusecs
=3.69 acre-feet per day

Gallon is imperial gallon = 1.20 U.S. gallons

Milliard = 1,000 million = 1,000,000,000.