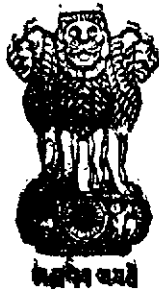


**COMMITTEE ON PLAN PROJECTS
(IRRIGATION & POWER TEAM)**



**REPORT
ON
CHAMBAL PROJECT**

(Appendices ~~and statements of Finance Commission~~
~~and statements of Finance Commission~~
~~and statements of Finance Commission~~)

MARCH 1958

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CHAMBAL VALLEY DEVELOPMENT
SALIENT FEATURES

I - STORAGE RESERVOIRS

A - GANDHI SAGAR

1. Site of Dam: On the River Chambal, 19 miles N.W. of Bhanpura and 5 miles downstream of the mouth of gorge on the boundary of Madhya Pradesh and Rajasthan.

Nearest Railway Station - Jhalawar Road on Broad Guage-Bombay-Delhi line (Western Rly.) 32 miles by road from the Dam site.
2. Catchment area: 3,700 square miles.
3. Rainfall: (a) Maximum rainfall 52 inches (1944)

(b) Average annual rainfall 34 inches.
47 years period.
4. Run-off: (a) Maximum (in 1944) 9.522 Million acre ft.
(b) Minimum (in 1918) 0.823 Million acre ft.
(c) Average of 47 years 3.630 Million acre ft.
5. Flood Flow: (a) Maximum observed - 6,41,000 cusecs.
(b) Maximum design flood - 7,50,000 cusecs.
(c) Moderated flood adopted for design of dam - 4,50,000 cusecs.
6. Dam. (i) Type: Straight Gravity.

	Non-over flow section <u>1</u>	Over- flow section <u>2</u>	Power Sec- tion <u>3</u>	Sluice Section <u>4</u>
(i) Maximum width at top:	21 ft.	--	30 ft	38.5 ft.
(ii) Maximum width at bottom	164.2 ft.	175.8ft.	164.2ft	175.8 ft.
(iii) Maximum height above foundations	202 ft.	169 ft.	202 ft	207 ft.

(iv) Length of the dam

(a) at top R.L.1322 between the 1680 feet.
banks.

(b) at bed R.L.1120 1250 feet

(v) Area submerged

(a) at F.R.L. & M.W.L. R.L.1312 223 sq. miles
or 1,42,720 acres.

(b) at Minimum Draw off
level R.L.1250 50 sq. miles

Contents of Dam. 27 Million cubic feet of
Stone Masonry in red cement
mortar and cement concrete
around openings.

7. Flood disposal:-

(a) Over the dam Spillway controlled by 10 crest
gates 60' x 28' each.
Crest level 1284.00

(b) Through the dam 9 high level sluices
10' x 25' each, Sill
level 1193.50

8. Reservoir levels:

(i) Average bed level of river El. 1120.0

(ii) Road on top El. 1322.0

(iii) Top of parapet El. 1326.0

(iv) Crest of Weir. El. 1284.0

(v) Full Reservoir Level El. 1312.0

(vi) Maximum water level El. 1312.0

(vii) Dead storage level El. 1250.0

9. Storage capacity:

(a) Gross storage 6.7 Million Acre ft.

(b) Live storage 6.04 Million Acre ft.

(c) Dead storage 0.66 M.A.ft.

B-1- RANA PRATAP SAGAR DAM (AT BANARBHATA)

1. Site of Dam On the river Chambal 20 miles below Gandhi Sagar & 32 miles South of Kotah City. The nearest Railway Station is Kotah Junction on the Bombay Delhi Broad Gauge Line of the Western Railway.
2. Catchment Area: 9,600 square miles. Below the Gandhi Sagar Dam - 900 square miles.
3. Rainfall (a) Maximum Rainfall 52 inches (observed in 1944)
(b) average of 47 years 32 inches.
4. Run-off from the total catchment of 9,600 sq. miles.
(a) Maximum in 1944 10.47 million acre ft.
(b) Minimum in 1918 0.911 acre ft.
(c) Average of 47 years 4.015 " "
5. Flood flow:
(a) Maximum observed--8,30,000 cusecs.
(b) Maximum design flood--7,20,000 cusecs
(c) Moderated flood adopted for design--6,60,000 cusecs.
6. Dams:
 - (i) Type Open spillway (with crest gates) Gravity type.
 - (ii) Profile:

	Non-over flow section.	Overflow Section.	Power	Sluices.
(iii) Maximum height above(Foundations)	127 ft.	90 ft.	127.5 ft	127.5 ft.
(iv) Maximum height above bed	122.5 ft	85 ft.	122.5 ft	122.5 ft.
(v) Length of the dam:				
(a) at top	3,620 feet. including			
(b) at bed	2,000 feet. Earthen dam.			
width at top	18 ft.		30ft.	29 ft.
width at bottom	85 ft.	94.5 ft	76.5 ft.	97 ft.

Area submerged:

at F.R.L. cum 76.5 sq. miles
M.W.L. (El.1157.50) or 48960 acres.

7. Contents of the Dam:

(a) Quantity of Masonry 19.00 million cubic ft.
Stone masonry in red cement mortar.

(b) Quantity of Earth work - 0.82 million cubic feet.

8. Flood disposal:

Over the dam : Spillway 27 vents controlled by
crest gates 50' x 30' each.

9. Reservoir levels:-

(i) Average bed level	E.L. 1042.50
(ii) Road on top	E.L. 1162.50
(iii) Top of parapet	E.L. 1165.00

(iv) Crest of weir	E.L.	1127.50
(v) Full reservoir level	E.L.	1157.50
(vi) Maximum water level	E.L.	1157.50
(vii) Dead storage level	E.L.	1102.50

10. Storage capacity:

(a) Gross capacity	2.35 million acre ft.
(b) Live capacity	1.73 million acre ft.
(c) Dead capacity	0.62 million acre ft.

1. SADDLE DAM

(a) Type Composite Dam - Masonry facing, with earth backing.

(b) Profile Non-over flow.

(i) Front fact. 1 : 10

(ii) Rear face Face wall 4 : 10
Earth backing 2 : 1

(c) Width at top 13 ft.

(d) Width at bottom 29 feet (masonry wall)
130 feet (earth backing)

(e) Maximum height natural ground level. 65 feet (excluding parapet)

(f) Maximum height above foundations. 80 feet (masonry wall)

(g) Length of Dam:

(i) At top 1050 ft.

(ii) At F.R.L. & M.W.L. 1000 ft.

(iii) At bed 300 ft.

2. Materials used for Construction: Uncoursed stone masonry in lime Surkhi Mortar (1 : 3) with 1'-6" thick course (1:4) in the up-stream face, flush pointed.

3. Contents of the dam: 0.70 million cubic ft. masonry.
1.81 million cubic feet earth.

4. Levels:

(a) average bed level	E.L.	1097.50
(b) Top of parapet	E.L.	1165.00
(c) Earth backing (TSL)	E.L.	1162.50

- (d) Full reservoir level. E.L. 1157.50
- (c) Maximum water level E.L. 1157.50

D- KOTAH BARRAGE

- 1. Site of Barrage: On the River Chambal in Lat. $\frac{1}{2}$ mile upstream of Kota City. The nearest Railway Station is Kota Junction on the Bombay Delhi Berad Gauge line of the Western Railway.
- 2. Catchment Area: 10,500 square miles - 900 square miles below Rana Pratap Sagar Dam and 1800 sq. miles below Gandhi Sagar.
- 3. Rain Fall:
 - (a) Maximum observed (in 1944) 52 inches.
 - (b) Average of 47 years. 32 inches.
- 4. Run-off:
 - (a) Maximum in 1944. 11,500 M.A. ft.
 - (b) Minimum in 1918. 1,002 M.A. ft.
 - (c) Average of 47 years. 4,417 M.A. ft.
- 5. Flood Flow:
 - (a) Maximum observed 8,80,000 cusecs.
 - (b) Moderated 7,50,000 " (Due to Gandhi Sagar and Rana Pratap Sagar Dams)
- 6. Barrage:
 - (i) Type Earthen in the pool portion and Masonry with 16 gates 50' x 40' on the left flant with suitable retaining wall in between.
 - (ii) Profile for earthen Section.
 - (a) Front 3:1
 - (b) Rear 2.5:1
 - (iii) Width at top 26 feet (at crest)
 - (iv) Minimum width at bottom. 711 feet at El. 740.00
 - (v) Maximum height above left flnt at rocky bed 50 feet upto crest and 100 feet. upto operating platform and road.
 - (vi) Maximum height above foundations. 120 feet.
 - (vii) Length of Dam. (a) at top 1,970 feet. (b) at bed in pool portion 500 ft.

(viii) Material used for construction. Rock for toes from sand stone on left flank. Body of earthen section from silt bank of left side.

		<u>Cu. Yds.</u>		
(ix) Contents of Dam.	(a) Masonry	72,222	}	18.5 lacs Cft.
	(b) Concrete	25,000		23.0 lacs Cft.
	(c) Earth	10,00,000		270.0 lacs Cft.
	(d) Rock Cutting	3,50,000		95.0 lacs Cft.

(As per Project Report)

7. Flood Disposal: (a) Over the dam: 16 vents of 50'x40' for accelerated discharge of 7.5 lacs cusecs.

8. Barrage levels

- (a) Average bed level of river El. 746.00 in pool portion.
- (b) Road on top El., 862.50
- (c) Top of platform El. 872.00
- (d) Crest of weir El. 812.00
- (e) Full lake level El. 852.00
- (f) Maximum water level El. 856.00

II-IRRIGATION

- 1. (a) Gross commanded area acres 28.84 lacs.
- (b) Culturable commanded area Acres. 19.45 lacs.
- (c) Annual irrigation-acres 14.0 lacs.
- (d) Duty of water at Head Works 6 cusecs per 1000 acres annual irrigation.

2. Length of the Canals

- (a) Right Main Canal 232 miles.
- (b) Left Main Canal 2 miles.

3. Discharges at head of the canal

- (a) Right Main Canal at head. 6840 Cusecs.
- (b) Parbati Crossing (M.B. State) 3900 Cusecs.
- (c) Left Main Canal. 1560 Cusecs.

III- POWER

A-GANDHI SAGAR

1. Levels:

- 1. Full reservoir level. El. 1312.0
- 2. Lowest draw-off level El. 1250.0
- 3. Normal tail water level El. 1125.0
- 4. Highest tail water level El. 1160.0
- 5. Power Station floor level El. 1175.0
- 6. Penstock inlet centres El. 1205.0

2. Penstocks:

- (a) Diameter 15' - 6"
- (b) Material Steel.

3. Head:

- 1. Maximum 197 feet.
- 2. Minimum 128 "

4. Power Station:

- 1. Installed capacity 3 units of 23,00 kw with provision for two more units at a later stage.
- 2. Power generated.
 - (a) at 100% load factor. 45,000 K.W.
 - (b) at 60% load factor. 75,000 K.W.
- 3. Number of machines 3 of 23,000 K.W.
- 4. Transmission line. 132 K.V. Double circuit.

B- R-14 PRATAP SAGAR

1. Levels:

- 1. Full Reservoir level. El. 1157.5
- 2. Lowest draw-off level El. 1060.0
- 3. Normal tail water level El. 959.5
- 4. Highest tail water level El. 1012.5
- 5. Power Station floor level El. 1025.0
- 6. Penstock inlet centres El. 1070.5

2. Penstocks:

(i) Diameter:

- (a) Conduit pipes 16'-0"
- (b) Penstocks 11'-0"

(ii) Material

- (a) Conduit pipes R.C.C.
- (b) Penstocks Steel.

3. Head:

- (i) Maximum 198 feet.
- (ii) Minimum 100 feet.

4. Power Station:

- 1. Installed capacity 6 units of 23,000 K.W. each.
- 2. Power Generated
 - (a) at 100% load factor 54,000 K.W.
 - (b) at 60% load factor 90,000 K.W.

3. Number of Machines.

(a) Working 6 of 23,000 H.P.
 (c) Standby 1 of 23,000 H.P.

4. Generated voltage 11,000 Volt.

5. Transmission line 139 K.V. Double circuit.

C- KOTA DAM

Not yet finalised. Will be taken in 1st stage.

IV - FINANCIAL ASPECT (COSTS & REVENUE)

I - STAGE OF DEVELOPMENT (As per Project Report).

A. Costs Rs. in lakhs.

1. Gandhi Sagar Dam	890
2. Rana Pratap Sagar Dam	366
3. Kota Barrage	307
4. Canals	2252
5. Gandhi Sagar Power Station	500
6. Transmission System.	854

5139

7. Total sum-at-charge including interest at 4% in the 12th year. 5650.11

B. Revenue (Gross)

1. Irrigation 1.4 million acres Rs. 9/9/- per acre	133.88
2. Power 75,000 H.P. @ Rs. 235/- per H.P.	176.25
Total:	<u>310.13</u>

Charges:

1. Irrigation (Maintenance and Collection) (Rs.2/- per acre per year for 1.4 million acres)	28.00
2. Headworks (Maintenance Charges @ 1%)	15.42
3. Power (Operation, maintenance & depreciation @ 3-3 /4%)	46.69

Total charges: 90.11

Revenue (Net)

C. Net return on sum-at-charge in the 5th year after completion of the 1st year 1st stage 4.28%

D. Final Stage Development:

The net return on the sum-at-charge when the scheme is completed is 7.55% expected to be nearly.

10

APPENDIX NO. 1

Abstract of Estimated Costs

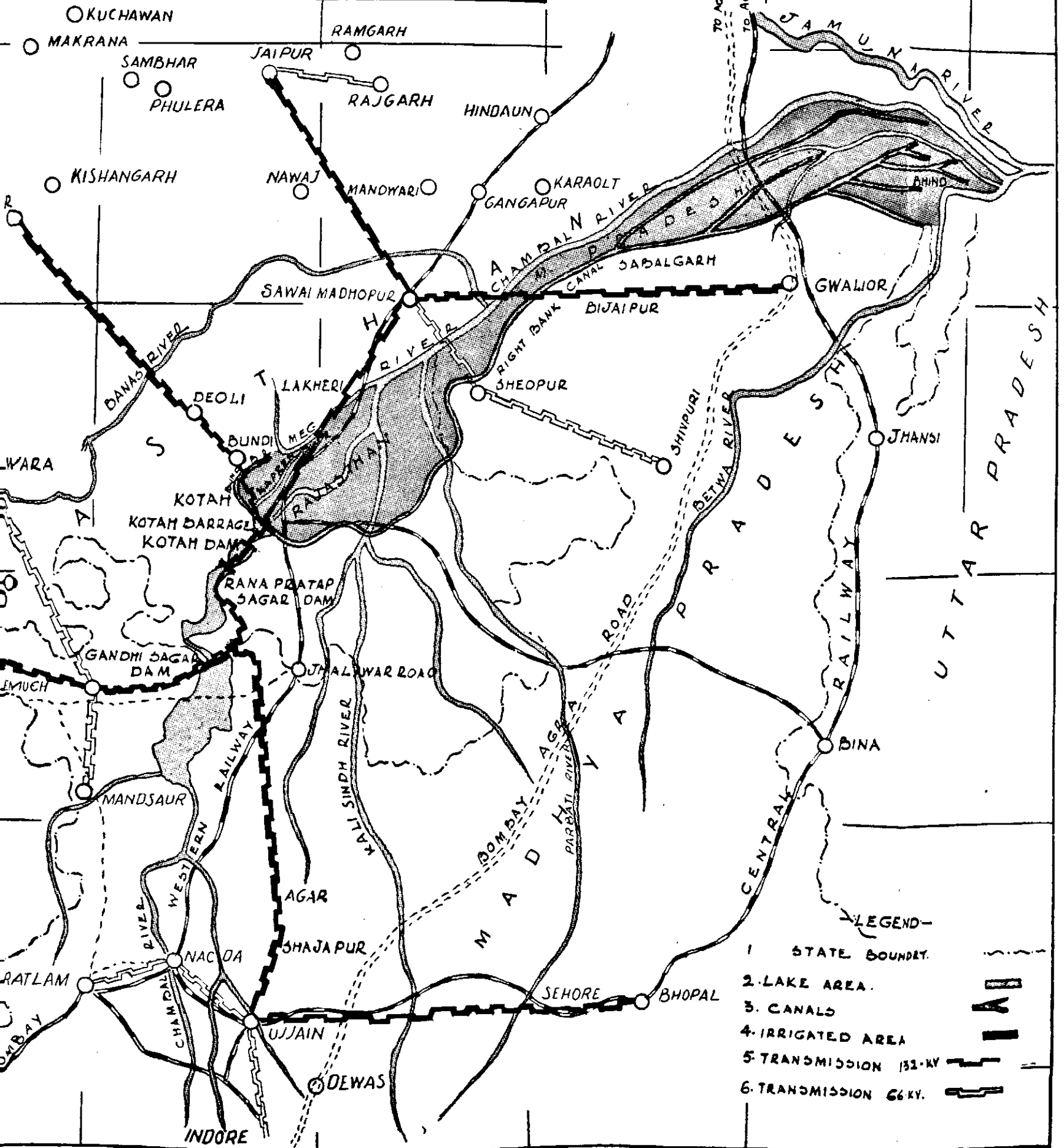
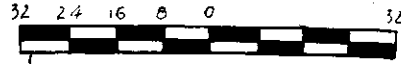
<u>Sl. No.</u>	<u>Name of work</u>	<u>Amount</u>	<u>Remarks</u>
1.	Gandhi Sagar Dam Dam & appurtenant works	390 Lacs	
2.	Gandhi Sagar Power Station.	500 "	Figures are taken from Chambal Report;
3.	Transmission System		Volume 3.
	a) Madhya Pradesh	449 "	
	b) Rajasthan	405 "	
4.	Ranapratapsagar Dam Dam and appurtenant works	584.15"	Figures are taken from Report on Chambal Valley Development
5.	Hydro-Electric Installation	764.50"	Scheme Stage II;
6.	Transmission	417.53	Ranapratapsagar Irri- gation & Power Projects.
7.	Kotah Barrage	307 "	
8.	Left Main Canal (Rajasthan)	186 "	From Chief Engineer's (Rajasthan & Madhya Pradesh) Report to Chambal Control Board
9.	Right Main Canal (Rajasthan)	762 "	on expenditure figures for the month of June, 1957.
10.	Right Main Canal (Madhya Pradesh)	1304 "	
	Total:-	6568.18 Lacs	

Note:-

Madhya Pradesh Portion:	3143 Lacs
Rajasthan Portion:	3426.18 "

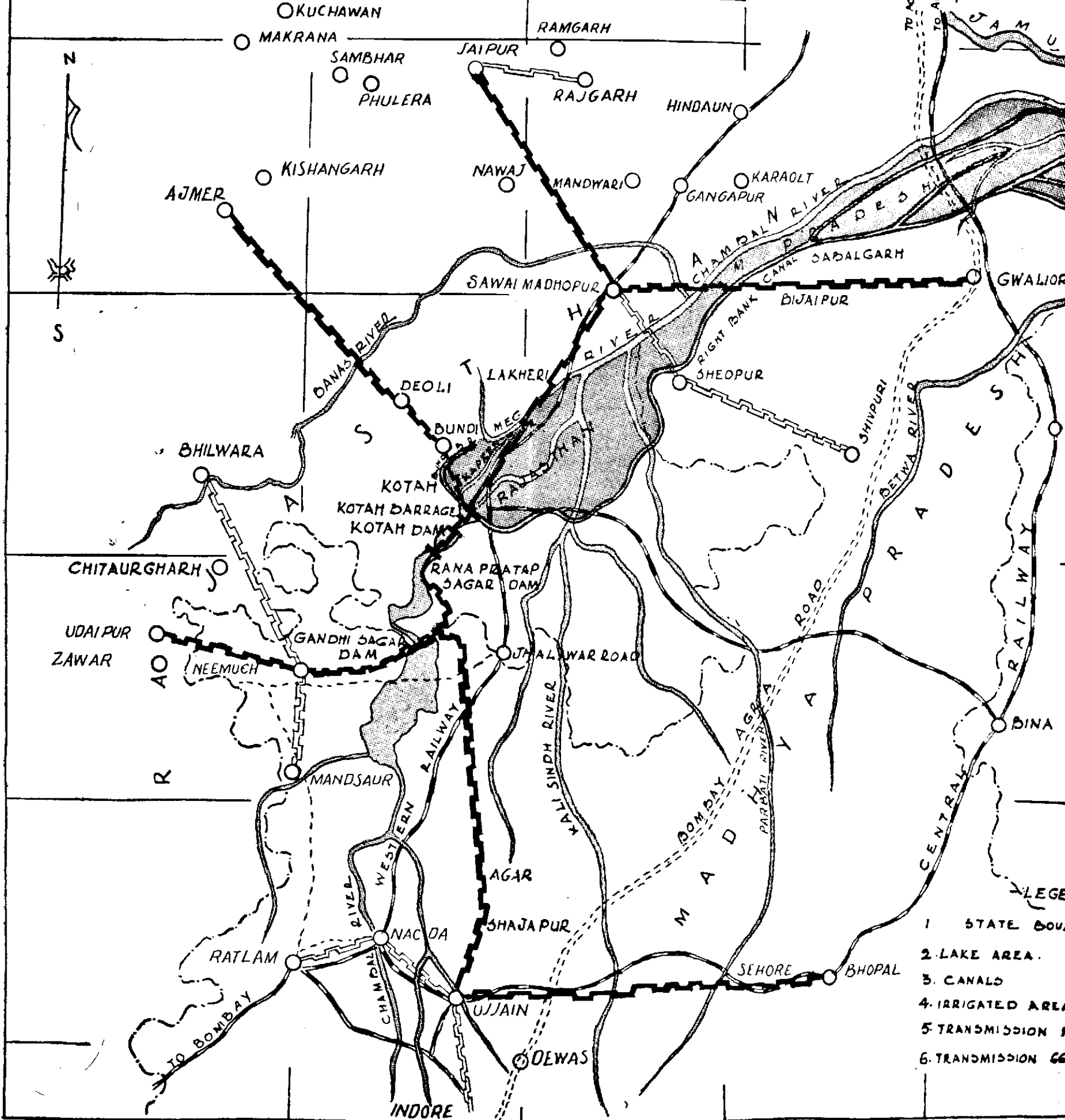
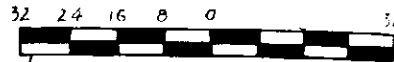
INDEX MAP OF CHAMBAL VALLEY SHOWING DEVELOPMENT OF IRRIGATION & POWER

APPENDIX - 1



INDEX MAP OF CHAMBAL VALLEY SHOWING DEVELOPMENT OF IRRIGATION & POWER

APPENDIX - 2



- LEGEND
- 1 STATE BOUNDARY
 - 2 LAKE AREA
 - 3 CANALS
 - 4 IRRIGATED AREA
 - 5 TRANSMISSION LINE
 - 6 TRANSMISSION 66 kV

L SECTION SHOWING PROPOSED
RESERVOIRS ON THE CHAMBAL RIVER

GANDHI SAGAR DAM

FULL RESERVOIR L 1312.00 OR MAXI WATER R.L 1312.00

CAPACITY 685 M.A.FT

MIN DRAW LEVEL E.L 1250.00

R.L 1320.00

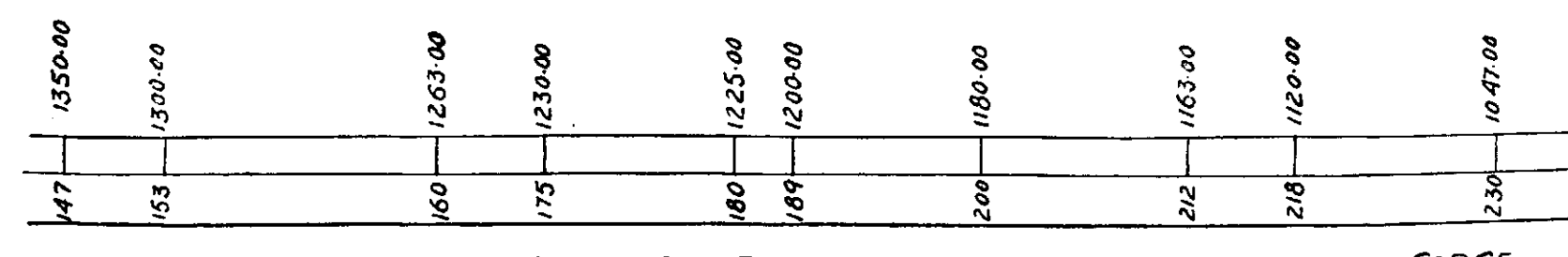
POWER
75000 KW @ 60%

M.W.L.F. R.L 1157.00

MIN TAIL WATER L 1250.00

MIN DOWN OF
OR DEAD W.

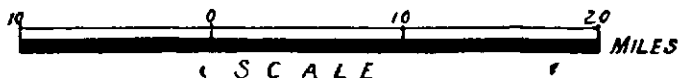
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LINE
600

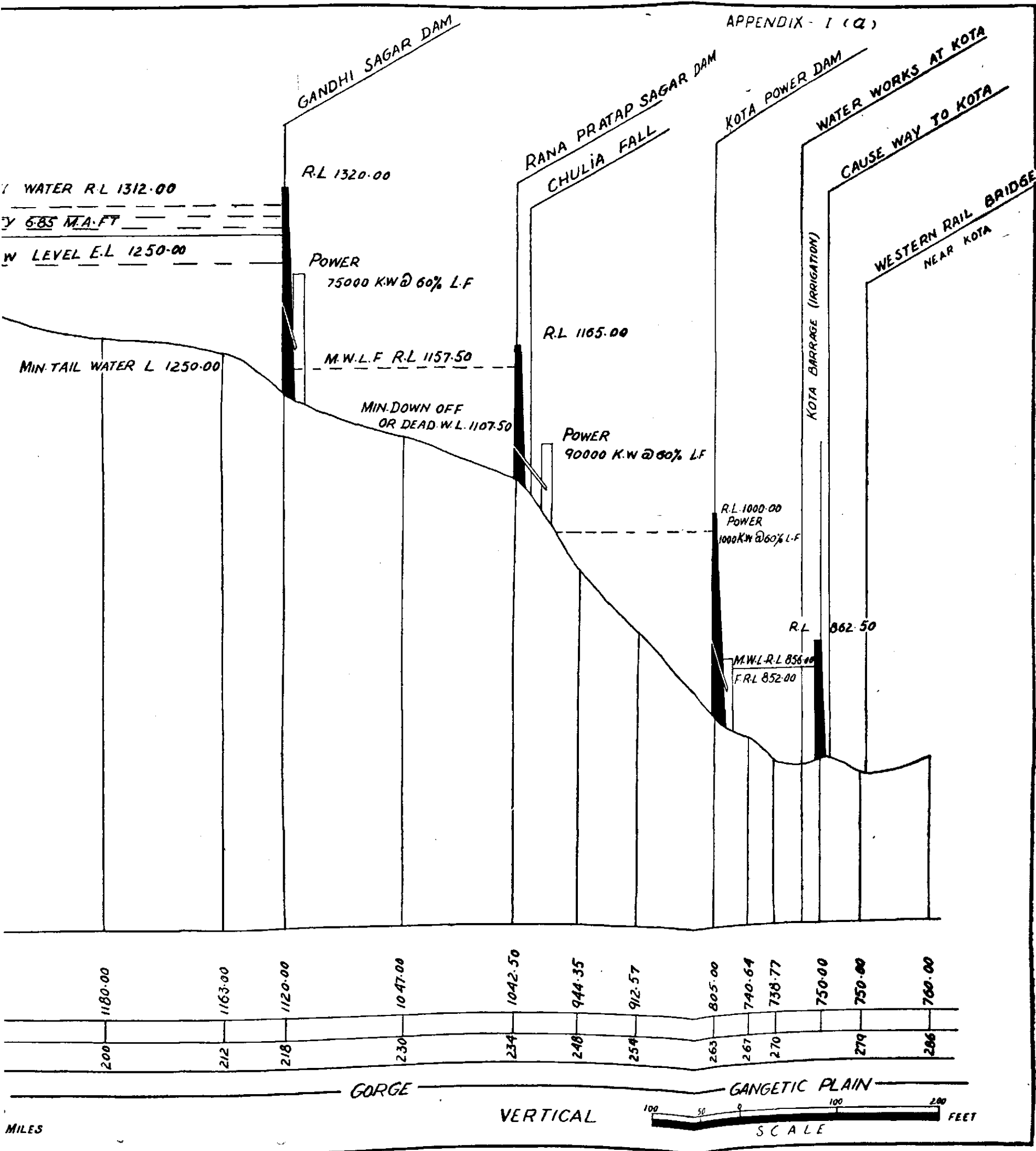


MALWA PLATEAU

GORGE

HORIZONTAL





Decision regarding site for Gandhi Sagar Dam

1. Old site and its subsequent abandonment after excavation for foundations had proceeded to some extent.

The papers that were made available in this regard are :

- (i) Report of Technical Committee of Engineers, Messrs. N.N.Iyengar, G.P.Bhandarkar, C.R.Iyengar and M.R.Varadarajan, constituted by Holkar State in November, 1946.
- (ii) Geological Report by J.B.Auden.
- (iii) Geological Report by K.Balu, Assistant Geologist, Government of India, 25-4-47.
- (iv) Geological Report by Dr.Baxter, American Geologist Consultant appointed by Holkar Govt.
- (v) (a) Note by C.R.Iyengar Consulting Engineer on the Report of Dr.Baxter.
(b) Preliminary Report 16-7-43.
- (vi) Geological Report by H.R.Sahni, December, 1950.
- (vii) Report of Inspection by Shri A.N.Khosla, Chairman, Central Water Irrigation and Navigation Commission, May, 1951.
- (viii) Report by P.C.Hazra 8-6-51.

In their Report (i) The Technical Committee recommended regional development to obtain the maximum benefit out of the Chambal Waters.

Mr. Auden's inspection was to the particular reference to the construction of dam near Kotah across the river.

Dr.Baxter (iv) was engaged on the study from 26-1-47 till the end of August, 1947. Mr. Balu inspected the site in April, 1947 and made his Report. It is not clear from the Reports whether Dr.Baxter and Mr.Balu had met.

Dr. Baxter in his Report recommended a particular site, as could be inferred from his note "At site No.5

the length of the dam is so little that the disposal of the flash floods is made difficult. The depth of river for flow at such times is about 50 feet above shear surface level. This makes the position of the Power plant difficult. Because of those two difficulties it is recommended that a site upstream for the contemplated site No.5 be used for about one mile downstream from Chaurasigarh Fort where the length of the dam will be 1200 ft. This site was visited with Mr. Roy and Mr. Joglekar and the advantage of the change of site discussed with them".

Mr. Balu's report (ii) was distinctively clear about the unsatisfactory geological features and he recommended the shifting of the site $1\frac{1}{2}$ miles lower down. He said "location at the present site would mean that the structure would stand on strata composed of glauconitic quartzites and flag stone whose principal strength and other load withstanding properties must be thoroughly investigated and said "One should not forget that there is no hard foundation below the flagstone zone except Suket shales and the shales however compact they may be have yet the property of being fissile". "Chances of siting the dam actually on the middle quartzites would mean the shifting of the site downstream about a mile and a half or more".

This expression of a definite opinion does not appear to have been taken note of.

On the preliminary Report of the Consultant Engineer in July 1948, the Holkar Government seems to have sanctioned the project. The work was actually started, colony built and excavation of foundations proceeded with.

At this stage the details of the dam were not evidently finalised as they were to be based upon the

results of investigations that were to be continued.

At the request of the authorities carrying out the work who were probably not quite satisfied with the nature of rock, Mr. Sahni inspected in December, 1950.

(vi) He said, "it is obvious that in the case of the present site not only will the dam have to be founded upon Suk. 6 shales but that about a 100' of abutment will have to be keyed with them". "From discussions with Shri Joglokar I understood that the dam is being designed after taking into consideration all the above factors".

Shri L.N. Khosla inspected the whole area including the site on which the Gandhisagar dam is now being built, on 8th, 9th and 10th May, 1951. After a study of all the relevant data available he said "Investigations on the whole are inadequate - No systematic geological investigations have been carried out. No alternative economic studies made. Investigations for the Canal system are in a preliminary stage." He recommended further work to be stopped pending further investigations.

Shri P.C. Hazra inspected the area and examined the site on which work had been started and the present site and recommended that the former work should be abandoned.

In January, 1952 the present site was decided on:

It is clear that the Holkar State Government was too anxious to make a start of having a Reservoir in their own territory, the other two States Kotah and Udaipur also having been in the field. This evidently overlooked all considerations of technical correctness economy, optimum benefits etc.

Copy of letter No. F4(73)51 dated 5th August 1953, from the Secretary to the Government of Rajasthan, Public Works Dept. Jaipur, to the Secretary to the Government of India, Planning Commission, New Delhi.

Subject:- Chambal Valley Project.

I am directed to refer to your letter No.PG(P)9/53 dated the 31st March, 1953, and to state that the following action has been taken by this government in regard to the points discussed in the Planning Commission on 2nd March 1953.

Selection of Site for Kotah Barrage.

2. The original site for the barrage to divert for irrigation the waters of the Chambal stored at the proposed Gandhi Sagar and Rawathhatta dams was selected by Shri Y.A. Aiyer, Chief Development Engineer, Kotah , at a place about was 6 miles below Kotah town. The height of the barrage was to be about 65ft. and the full supply level of the pond above was kept at R.L.850. A higher level at this site was not possible as it would have involved raising of the railway bridge on the main Bombay - Delhi line and would also have resulted in damage to Kotah city. Even with this level the Causeway of the Jaipur - Kotah national highway would have been submerged and a high level reinforced concrete bridge would have been necessary. Most of the ghats of Kotah town would have been drowned and made unusable and some low lying houses would also have been affected. It would have also led to the permanent raising of water level in the vicinity of the city by about 60 feet or more, resulting in making the buildings and houses in the neighbourhood very damp. The general health of the city would have been adversely affected and interference might have been caused to local drainage also. The estimate of the Barrage allowed 12 lacs of difficulties mentioned above. These would have amounted to a considerable sum of money.

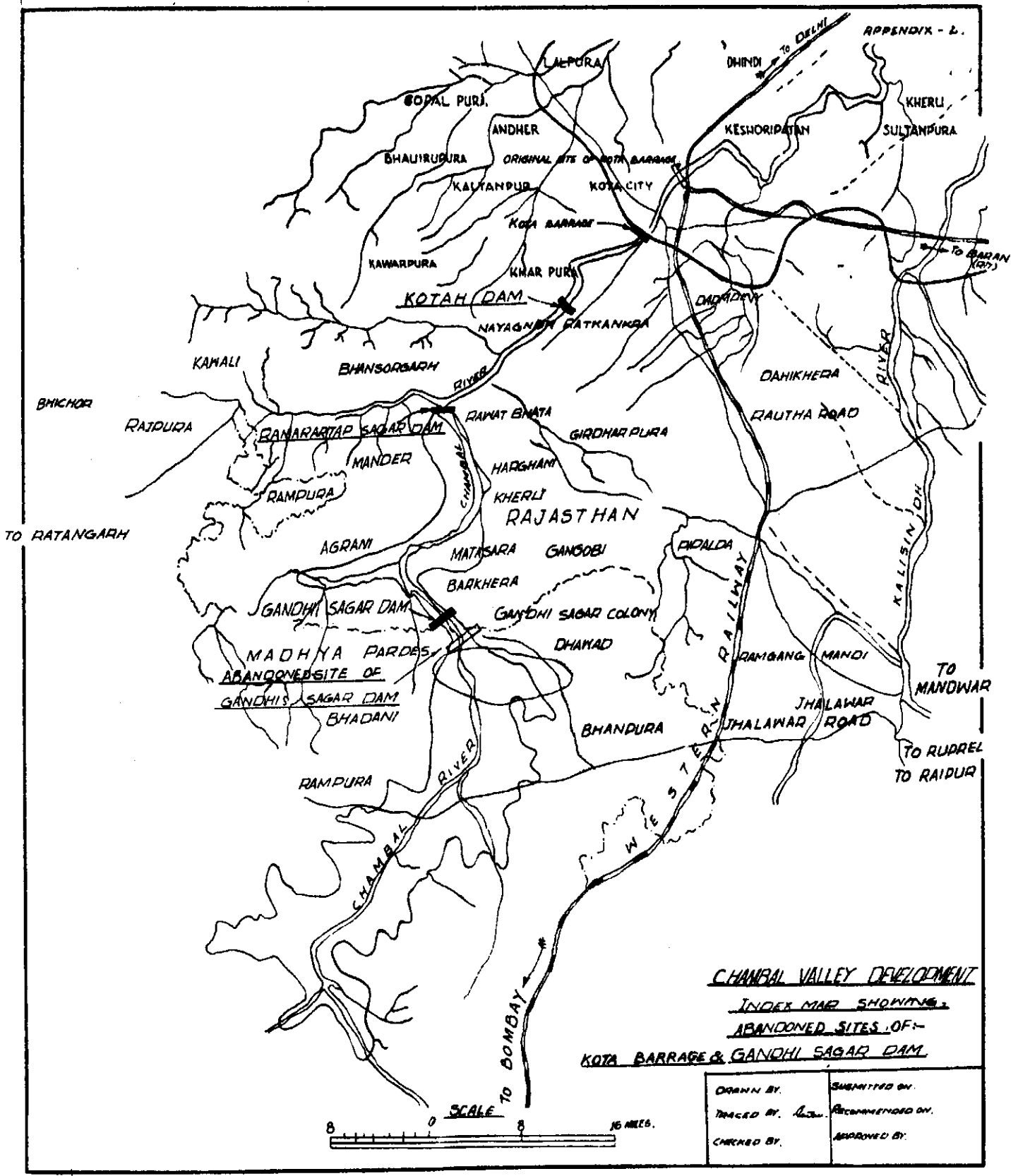
3. The canals taking off from this barrage would run at a very low level and large areas of Rajasthan situated at higher levels would have been unirrigable except by lift. The capital and running cost of pumping installation would have been high and cultivators irrigating by lift would have been required to pay Rs. 5/- per acre or more extra to meet the cost of lift irrigation. A considerable amount of electrical energy would also have been necessary for the pumping. All this direct and indirect extra expenditure would have amounted to no less than a couple of crores of rupees.

4. Shri M.D. Mithal, the then Chief Engineer, Irrigation, Rajasthan suggested another site for a barrage about 3 miles above Kotah at a place near the lower end of a long gorge. He tentatively proposed a pond level at R.L. 900 and canal full supply level at R.L. 870. These proposals were not acceptable to Shri Aiyer, who stated that it would cost Rs. 4 to 5 crores more, as it would involve very heavy pumping for the foundation and long and deep rock cutting for the canals. Shri Mithal's levels would have brought an additional area of about 2.5 lacs of acres in Rajasthan within the sphere of gravity irrigation.

5. After a detailed examination of both the proposals, it was found that almost all the conditions as regards greater area under flow irrigation could be secured and the cost greatly reduced by lowering the pond level to about R.L. 852 and the canal full supply level to about R.L. 850. It was also

found that a place about 1,000 feet below that suggested by the original site would be more convenient from the construction point of view. Necessary investigations have been carried out and it has been found that at this site there is a considerable amount of earth, sand and shingle filling above the bed rock varying from 5' to 60 ft., and having a depth of water upto about 20ft. almost in the entire width. A masonry dam is, therefore, not practicable, as it would cost a large amount and would take a long time to complete. It is however, possible to close the river portion with an earth dam and to provide facilities for the escape of surplus water, on the left flank where good rock exists in an unlimited length. There is also ample quantity of good earth available on the left bank for the proposed earth dam. Necessary estimates for the barrage have been prepared accordingly and the proposals have been generally approved by Dr. K.L. Rao, Director (Designs), Central Water and Power Commission, who visited the area on the 30th and 31st May, 1953. Dr. F.L. Rao however, suggested that it might be advantageous to shift the site by another few hundred feet downstream, where the escaping facilities are better and width of the river pool less. The place pointed out by Dr. F.L. Rao is opposite to the Garh Palace belonging to His Highness the Maharao Sahib of Kotah, which is situated on the right bank of the river. It is hoped that His Highness the Maharao Sahib would kindly agree to the site recommended by Dr. Rao. Action would be taken to see that the work does not interfere in any way with the approach to or with the privacy of the palace. Conditions at this site are expected to be even better and cost of construction somewhat less. Detailed drawings of this alternative site are under preparation.

6. The barrage at the site now selected would be definitely preferable, as it would command by flow an additional area of over 2 lacs of acres and would not interfere in any way with communications and other river facilities at present enjoyed by the residents of Kotah town. The additional cost is not likely to exceed 1½ crores of rupees. A barrage at the upper site would however make a high level bridge at the present Chambal Causeway unnecessary. No compensation would have to be paid for houses and ghats which would be submerged by the Barrage at the lower site. There would be no interference with the drainage of Kotah Town and no other inconvenience would be caused to the inhabitants of the city. The large capital expenditure required for pumping installation, transmission lines, and channels to irrigate high areas would also be avoided. The resultant savings would probably exceed the additional expenditure involved in the construction of Barrage and canals at the Upper Site finally selected. The electrical energy required for avoidable pumping would become available for industrial and domestic purposes.



APPENDIX 3(A)

Sl. No.	Name of works.	Value of estimates	Irregularity when committed.
<u>(1) Tenders invited before preparation of estimates:</u>			
1	Rock cut excavations in miles 46 to 55 on Right Main Canal M.P.	-	20-6-53
2.	Carting material from Jhalwar Road Rly. Station.	1272,500	15-5-55
3.	Constructing Bassai Bridge across River Chambal at Bassai.	8,60,000	20-8-56
4.	Constructing an Aqueduct over seep river at R.D. 1977 R.M.C.	19,00,000	
5.	Construction of drainage Syphon at chain 1043 RMC	3,14,650	
6.	-do- 576.80 R.M.C.	2,44,950	
7.	-do- 1296 R.M.C.	2,49,720	
8.	-do- 1492 R.M.C.	2,06,270	1-6-56
9.	-do- 665 R.M.C.	4,03,525	
10.	Constructing an Aqueduct across Matdi River at chain 366.65	5,61,900	
11.	-do- Kheli River at ch. 30670	13,00,000	
12.	Constructing syphon aqueduct at chain 701.87 R.M.C., M.P.	2,92,765	
13.	Excavation of draft channel and formation of switch yard platform	6,47,600	1/53
14.	Quarrying and supplying of rubble stone for construction of G.S. Dam.	About Rs. 20 lakhs.	16-6-57
<u>(2) Works started without preparation of Estimates.</u>			
1.	Excavation of draft channel and formation switch yard platform.	6,47,500	6-2-55
2.	Murram paving & filling in trenches around the buildings at Ujjain.	1485.00	6/57
3.	Excavation of earth work in miles 53	2,11,340	8/56
4.	Excavation of earth work in mile 62	2,08,850	7/56
5.	Construction of bridge across river Chambal at Bassai.	8,60,000	26-8-55
6.	Earthwork excavation in mile 53	2,27,335	7/56
7.	Earth work excavation in mile 69	3,41,830	12/56
8.	Earth work excavation in mile 33	2,63,100	1/57
9.	Estimate for rock cut excavation in mile 85.	3,75,200	6/56
10.	Earth work excavation in mile 104	9,08,130	1/57
11.	Constructing of Aheli Aqueduct at chain 4306.70	13,00,000	11/56
<u>(3) Estimate submitted to Financial Adviser after completion of the work.</u>			
1.	Excavation of draft channel and formation of Switch yard platform.	6,47,600	31-1-56
<u>(4) Inconsistent rates provided in the estimates.</u>			
1.	Providing masonry for trash rock structure. (reduced to)	3,47,200 3,22,200	3-3-56
2.	Providing Stone masonry for the Gandhi Sagar Dam.	3,05,60,000	24-9-55
3.	Construction of Wing walls for Gandhi Sagar Dam on Bhanpura flank.	4,79,000	
4.	Harmer dressed, chisel dressed and Ashlar face stones 12" high as per specification.	6,72,300 reduced to 6,69,500	3-8-56

Copy of D.O. letter from Secy. Chambal Control Board to Shri M. Narasimhaiya.

Statement showing time-lag between the issue of drafts by the Chambal Control Board and issue of sanctions by the State Governments (M.P. and Rajasthan). (Overall Statement).

Statement showing time-lag between the issue of drafts by the Chambal Control Board and issue of sanctions by the State Governments (M.P. and Rajasthan) (Categorized Statement).

Rajasthan Government

- Category A - Establishment cases - creation of posts, appointments, conditions of service etc.
- Category B - Stores equipment, tools, plants etc.
- Category C - Estimates, specifications, designs, sanctions etc.
- Category D - Tenders, award of work, rates etc.
- Category E - Accommodation, Building programme, Staff Quarters, management of colonies etc.
- Category F - Delegation of Power
- Category N - Miscellaneous - Publicity etc.

Madhya Pradesh (Madhya Bharat)

- Category A - Establishment cases, creation of posts, appointments, conditions of service etc.
- Category B - Stores, equipment, tools, plants etc.
- Category C - Estimates, specifications, designs etc.
- Category D - Tenders, award of work, rates etc.
- Category E - Accommodation, building programme, Staff Quarters, management of colonies, publicity etc.
- Category F - Delegation of Power.

Case study No. XIII (Transmission Line Towers)

Case Study No. XIII A (Transmission Tower for Chambal Hydelin Madhya Pradesh).

Copy of general review note attached to the agenda for the 25th meeting of the Chambal Control Board to be held on 7-9-57 (Pages 71-78).

PREM NATH BHALLA,
OFFICER ON SPL. DUTY (CHAMBAL)
EX-OFFICIO SECRETARY,
CHAMBAL CONTROL BOARD,

(phone: 40740
Tele: (gram : 'CHAMBALARD'
D.O.No: CCB/G-29/57-4399
GOVERNMENT OF INDIA,
MINISTRY OF IRRIGATION &
POWER, BIKINER HOUSE,
SHAHJAHAN ROAD, NEW DELHI,
the 10th June, 1957.
Tith

Dear Shri Narasimhaiya,

As desired on the telephone, enclosed please find up-to-date statements (up to 21st meeting) showing time lag between the issue of drafts by the Chambal Control Board and issue of sanctions by the State Governments of Rajasthan and Madhya Pradesh.

Yours sincerely,

(Sd) PREM NATH BHALLA.

Shri M. Narasimhaiya,
Member,
Committee on Plan Projects
of the Planning Commission,
NEW DELHI.

Encls: 24 sheets.

Statement showing time lag between the issue of drafts by the Chambal Control Board and issue of sanctions by the State Government. (Madhya Pradesh)

S. No.	Item No.	SUBJECT	Date of issue of drafts order.	Date of implementation by State Govt.	Time taken
1.	2.	3.	4.	5.	6.
1.	8(b)/3rd Meeting	Appointment of non-technical Administrative Officer to C.M.P.	29-5-56	24-7-56	One month and 25 days.
2.	8(c)/3rd Meeting	Creation of three new divisions in addition to the two existing divisions under 'C Circle' in M.E.	-do-	11-10-56	Four months and 12 days.
3.	15/3rd Meeting	Purchase of motor vehicles for officers of Chambal Project Madhya Bharat for inspection purposes.	-do-	3/10/56	Four months and 4 days.
4.	16/3rd Meeting	Improvement of Water Supply of Colonies at Gandhi Sagar Dam.	-do-	-do-	-do-
5.	17/3rd Meeting	Provision of Labour hutments for labourers working on the Project.	-do-	-do-	-do-
6.	20/3rd Meeting	Appointment of Superintending Engineer, Electrical.	-do-	March '56	
7.	22/3rd Meeting	Furniture for the Rest House at G.S. Dam.	-do-	2-10-56	4 months and 4 days.
8.	12/4th Meeting	Delegation of powers both technical and financial to Chief Engineer, Superintending Engineers, Executive Engineers engaged in the execution of the Project.	-do-	11-10-56	4 months & 12 days.
9.	12/4th Meeting	Corrigendum to sanction No. 12 dated 1-9-55.	-do-		
10.	12/13th Meeting	Delegation of Power	31-2-56		
11.	12/13th Meeting	Corrigendum to sanction No. 12 Schedule of Powers delegated by Chambal Control Board to Chief Engineer, Superintending Engineers and Executive Engineers.	9-8-56		
12.	15(b)/5th Meeting	Supply of overalls Goggles, Driving Gloves and Berrets for operators employed on Chambal Project for earth moving machinery.	29-5-56	3-10-56	4 months & 4 days.

1.	2.	3.	4.	5.	6.
13.	15(a)/5th Meeting	Adoption of Rules of Hirakud Dam Project for regulating and maintenance of Govt. Vehicles in the Chambal Project.	29-5-56		
14.	27/5th Meeting	Grant of Cycle Loan to the personnel of Chambal Project Madhya Bharat.	-do-		
15.	26/5th Meeting	Applicability of medical attendant Rules of Madhya Bharat Govt. to the temporary employees of Chambal Project.	-do-		
16.	10(b)/6th Meeting	Scale of Glass-ware, cutlery and furniture etc. for Inspection Houses in Chambal Project.	-do-	3-10-56	4 months & 4 days
17.	12(a)/6th Meeting	Further delegation of powers to Chief Engineer to appoint retired personnel on the Chambal Project.	-do-		
18.	12(a)/6th Meeting	Addendum to above sanction	-do-		
19.	15/6th Meeting	Approval to purchase Olsen Nardielle Copper from U.S.A.	-do-	3-10-56	4 months & 4 days
20.	31/6th Meeting	Tenders for Rock-cutting in the Chambal Project - Right Main Canal, M.B.	-do-	16-9-56	3 months & 17 days.
21.	38/6th Meeting	Sanction to the estimate for excavation of foundation of Gandhi Sagar Dam.	-do-	3-10-56	4 months & 4 days.
22.	52/6th Meeting	Free supply of drinking water to the residents of Project area in M.B.	-do-	-do-	-do-
23.	33/6th Meeting	Preparing designs and specifications for 132 KV and 66 KV Transmission Lines in M.B.	-do-	-do-	-do-
24.	35/6th Meeting	Purchase of furniture required for Superintending Engineer (Electrical) M.B.	-do-	-do-	-do-
25.	39/6th Meeting	Procurement of Steel required for Chambal Project in M.B.	-do-	-do-	-do-
26.	34/6th Meeting	Restoration of communication in areas which will be submerged in Gandhi Sagar Dam Reservoir.	-do-	-do-	-do-

1.	2.	3.	4.	5.	6.
27.	8(A)/5th Meeting	Organisational set up in M.B. portion of the Chambal Project - sanction to personnel programme for the execution of work during the years 1955-56 to 62-63.	29-5-56	11-10-56	4 months & 12 days
28.	46/7th Meeting	Approval to entrust the work of scrutiny of tenders for Gandhi Sagar Power Station to C.W. & P.C.	-do-	3-10-56	4 months & 4 days.
29.	43/7th Meeting	Accommodation for Rajasthan Police at Construction Camp.	-do-	-do-	-do-
30.	38(b)/7th Meeting	Approval to award work of construction of masonry of Gandhi Sagar Dam above R.L. 1155.00	-do-	11-10-56	4 months & 12 days.
31.	38(b)/9th Meeting	Approval to award work of construction of masonry of the G.S. Dam above R.L. 1155.00	-do-	-do-	-do-
32.	15(V)/7th Meeting	Sanction to the estimate for purchase of machinery required for Gandhi Sagar Dam which is to be received under Technical Co-operation Mission Aid Programme.	-do-	3-10-56	4 months & 4 days.
33.	47/7th Meeting	Approval to fix reserve limit of stock in Stores and Miscellaneous Division in the Canal Circle in Madhya Bharat.	-do-	-do-	-do-
34.	12(C)/7th Meeting	Publicity of the Project - Exhibition of Models of the Project at various places.	-do-	-do-	-do-
35.	34(D)/7th Meeting	Examination of tenders received for the construction of a Bridge across Chambal at Bassai.	-do-	-do-	-do-
36.	8(D)/7th Meeting	Sanction for creation of a post of Addl. Divisional Accountant for Canal Dn. No. 1 Sheopur Kalan, M.B.	-do-	-do-	-do-
37.	8(D)/7th Meeting	Corrigendum	-do-	-do-	-do-
38.	8(E)/7th Meeting	Approval to reserve posts of Junior Engineers to be filled up by promotion from amongst Overseers.	-do-	4-10-56	4 months & 5 days.

1.	2.	3.	4.	5.	6.
39.	23(A)/7th Meeting	Approval to estimate amounting to Rs. 50 lakhs for providing and erecting Crest and Sluice Gates in G.S. Dam.	29-5-56	3-10-56	4 months & 4 days.
40.	39/7th Meeting	Procurement of Steel required for Chambal Project in M.B.	-do-	-do-	-do-
41.	38(D)/7th Meeting	Erection of 3 Nos. of 500 K.W. Deutz Diesel Generating Sets.	-do-	-do-	-do-
42.	38(D)/7th Meeting	Addendum to above sanction.	-do-	-do-	-do-
43.	49/7th Meeting	Approval to open a new post office at Construction Camp of G.S. Dam.	-do-		
44.	48/7th meeting	Approval to allot earth-work in chainage 484 - 493 on Right Main Canal in MB. on piece work beyond the limit of Rs. 25,000	-do-	-do-	-do-
45.	45/7th Meeting	Approval to the scale of Type-writers to be provided for various offices in Chambal Project in M.B. and to the immediate purchase of 4 English Type-Writers.	-do-	-do-	-do-
46.	8(F)/7th Meeting	Approval to establish field material testing laboratory.	-do-	-do-	-do-
47.	12(D)/7th Meeting	Approval to procedure to purchase stores and articles of T. & P. machinery etc. in Chambal Project.	-do-	3-10-56 & 10-10-56	-do-
48.	12(D)/8th meeting	-do-	-do-	3-10-56	-do-
49.	15(D)/8th Meeting	Approval to purchase one Camera for taking photograph of Canal Works M.B.	-do-	-do-	-do-
50.	45(D)/8th Meeting	Approval to purchase Gestatner Rotary, Duplicator for Office of the Superintending Engineer, Canal Circle, M.B.	-do-	-do-	-do-
51.	12(B)/8th Meeting	Proposed delegation of power to the Land Acquisition Officer, G.S. Dam, M.B.	-do-	-do-	-do-

1.	2.	3.	4.	5.	6.
39.	23(A)/7th Meeting	Approval to estimate amounting to Rs. 50 lakhs for providing and erecting Crest and Sluice Gates in G.S. Dam.	29-5-56	3-10-56	4 months & 4 days.
40.	39/7th Meeting	Procurement of Steel required for Chambal Project in M.B.	-do-	-do-	-do-
41.	38(D)/7th Meeting	Erection of 3 Nos. of 500 K.W. Deutz Diesel Generating Sets.	-do-	-do-	-do-
42.	38(D)/7th Meeting	Addendum to above sanction.	-do-	-do-	-do-
43.	49/7th Meeting	Approval to open a new post office at Construction Camp of G.S. Dam.	-do-		
44.	48/7th meeting	Approval to allot earth-work in chainage 484 - 493 on Right Main Canal in MB. on piece work beyond the limit of Rs. 25,000	-do-	-do-	-do-
45.	45/7th Meeting	Approval to the scale of Type-writers to be provided for various offices in Chambal Project in M.B. and to the immediate purchase of 4 English Type-Writers.	-do-	-do-	-do-
46.	8(F)/7th Meeting	Approval to establish field material testing laboratory.	-do-	-do-	-do-
47.	12(D)/7th Meeting	Approval to procedure to purchase stores and articles of T. & P. machinery etc. in Chambal Project.	-do-	3-10-56 & 10-10-56	-do-
48.	12(D)/8th meeting	-do-	-do-	3-10-56	-do-
49.	15(D)/8th Meeting	Approval to purchase one Camera for taking photograph of Canal Works M.B.	-do-	-do-	-do-
50.	45(A)/8th Meeting	Approval to purchase Gestatner Rotary, Duplicator for Office of the Superintending Engineer, Canal Circle, M.B.	-do-	-do-	-do-
51.	12(B)/8th Meeting	Proposed delegation of power to the Land Acquisition Officer, G.S. Dam, M.B.	-do-	-do-	-do-

1.	2.	3.	4.	5.	6.
52.	8/8th Meeting	Provision of probationary Engineers in Chambal Project, Madhya Bharat.	29-5-56	3-10-56	4 months & 4 days.
53.	54/8th Meeting	Provision of full medical facilities to workers injured at work-sites.	-do-	11-10-56	4 months & 12 days.
54.	15(C)/8th Meeting	Provision of precautionary measures at works against fire accidents.	-do-	3-10-56	4 months & 4 days.
55.	62/9th Meeting	Allotment of Govt. Quarters to contractors at Gandhi Sagar Dam.	-do-	-do-	-do-
56.	60/9th Meeting	Extension of construction Camp hospital building and equipment for it.	-do-	-do-	-do-
57.	8(J)/9th Meeting	Organisational set up for land acquisition and allotment of land in connection with Gandhi Sagar Dam, M.B.	-do-	26-7-56	One month & 27 days.
58.	8(K)/9th Meeting	Organisational set up for land acquisition, survey and allotment of land on Canal side in Morana District under Chambal Project.	-do-	-do-	-do-
59.	50/9th Meeting	Purchase of Surveying and Mathematical Instruments required for Canals in M.B.	-do-	3-10-56	4 months & 4 days
60.	57/9th Meeting	Publicity of the Project in Madhya Bharat & Rajasthan.	-do-	-do- & 11-10-56.	-do-
61.	64/9th Meeting	Extension of 3 months to the present contractors of carting at Gandhi Sagar Dam, M.B.	-do-	11-10-56	4 months & 12 days.
62.	8(D)/10th Meeting.	Approval to the creation of the post of Divisional Accountant to serve as a leave reserve in Chambal Organisation, M.B.	-do-	-do-	-do-
63.	8(H)/10th Meeting.	Approval to create 18 posts of Sub-overseers by reducing 9 posts of Junior Engineers in Chambal Project, M.B.	-do-	4-10-56	4 months & 5 days.
64.	70/10th Meeting.	Approval to the creation of two Divisions under Superintending Engineer, Electrical Chambal Project, MB.	-do-	9-6-56	10 days.

1.	2.	3.	4.	5.	6.
65.	68/10th meeting.	Approval to install two additional Diesel Generating sets of 500 K.W. at G.S. Dam site.	14-5-56	11-10-56	4 months & 27 days
66.	15(i)/11th Meeting	Requirements of Vehicles for officers of Electrical Circle of the Chambal Project in Madhya Bharat.	-do-	-do-	-do-
67.	70/11th Meeting	Personnel Programme for the Electrical Circle Chambal Project, M.B.	18-5-56	-do-	4 months & 23 days.
68.	15/12th Meeting	Estimate for purchase of Vehicle at Gandhi Sagar Dam site M.B.	27-6-56	18-9-56	2 months & 20 days.
69.	34/12th Meeting	Restoration of communication.	-do-	23-10-56	3 months & 25 days.
70.	57/12th Meeting	Publicity of Chambal Project in Madhya Bharat.	-do-	19-10-56	3 months & 21 days.
71.	64(A)/12th Meeting	Tenders for clearing and transporting of materials from Jhalawar Road to G.S. Dam site.	-do-	14-9-56	2 months & 16 days.
72.	87/12th Meeting	Tenders for earth-work on the basis of piece work system in the Chambal Right Bank Canal.	-do-	11-10-56	3 months & 13 days.
73.	15(i)/13 Meeting	Special T. & P. - Motor Vehicles for the officers of the Project.	6-8-56	18-9-56	One month & 12 days.
74.	98/13th Meeting	Purchase of Shuttle Dumpers required for use on G.S. Dam.	-do-	-do-	-do-
75.	57/13th Meeting	Estimate for Rs. 2,860/- for publicity work in the Chambal Project, M.B.	-do-		
76.	8(o)/13th Meeting	Additional personnel required for expeditious construction of G.S. Dam.	-do-	26-9-56	One month & 20 days.
77.	15(F)/14th Meeting	Special T. & P. for the Chambal Project M.B. - Addl. machinery required for Canal Works.	11-9-56	11-10-56	One month.
78.	42(c)/14th Meeting	Construction of a field Hostel for Foreign Elector or construction camp site G.S. Dam, Madhya Bharat.	-do-	-do-	-do-
79.	15(c)/14th Meeting	Approval to purchase fire fighting equipment for G.S. Dam.	-do-	-do-	-do-
80.	42/14th Meeting	Building Programme for Chambal Project in M.B.	-do-	-do-	-do-

23

1.	2.	3.	4.	5.	6.
81.	8(P)/14th Meeting	Addl. Staff required for the construction of Camp Hospital at Chambal Hydel Works.	11-9-56	11-10-56	One month.
82.	8(MB)/14th Meeting	Organisational set up in M.B. shifting Head-quarters of Chief Engineer, Chambal Hydel Works to Gwalior - creation of addl. posts.	-do-		
83.	99/14th Meeting	Scarcity of labour on earth-work Canals payment of incentive bonus.	-do-	-do-	-do-
84.	8(MB)/15th Meeting	Creation of post of an Estate Officer for G.S. Dam - M.B.	19-10-56		
85.	8(MB)/15th Meeting	Approval to the creation of post of stock verifier for Chambal Project, M.B.	-do-	-do-	-
86.	15(H)/15th Meeting	Estimate amounting to Rs.4,76,000/- for purchase of two Diesel Driven Tractors. With necessary equipment for Dam Circle Chambal Hydel Works - M.B.	-do-	4-10-56	-
87.	15(J)/15th Meeting	Sanction to the estimate for the purchase of T.C.M. for Chambal Canal Circle amounting to Rs. 7,43,200/-	-do-	-do-	-
88.	69/15th Meeting	Approval to deputation of Engineering Graduates for factory Training Abroad with the firms supplying Hydraulic & Electrical Plant and equipment for Gandhi Sagar Power Station.	-do-	23-10-56	3 days.
89.	100/16th Meeting	Tenders for providing Store Masonry in Blocks 1 & 2 at Gandhi Sagar Dam.	29-10-56	23-10-56	-
90.	100(B)/16th Meeting	Sanction to estimate for masonry and concrete works for Gandhi Sagar Dam.	31-10-56	23-10-56	-
91.	8(MB)/17th Meeting	Continuance of the post of Administrative Officer in the Chief Engineers' Office Chambal Hydel Works	-do-		
92.	15(C)/17th Meeting	Estimate for 1,22,600/- for the purchase of fire fighting equipment for Gandhi Sagar Dam.	-do-	11-2-57	3 months & 10 days.
93.	15(F)/17th Meeting	Special T.&P. Sanction to revised estimate amounting to Rs. 70,98,900/- for the purchase of earth moving machinery for Right Main Canal - Madhya Bharat.	-do-	21-5-57	six months & 21 days.

1.	2.	3.	4.	5.	6.
94.	47/17th Meeting	Refixation of limit of stock in Stores and Misc. in the Canal Circle - Madhya Bharat.	31-10-56	5-1-57	2 months & 4 days.
95.	69/17th Meeting	Creation of 4 posts of Asstt. Engineers in Chambal Project - M.B. in list of Asstt. Engineers being sent for Factory Training Abroad.	-do-	2-2-57	3 months & one day.
96.	78/17th Meeting	Installation of fourth generating unit at G.S. Dam.	-do-	11-2-57	3 months & 10 days.
97.	108/17th Meeting	Provision of Radio Telephone Stations in Chambal Project - M.B.	-do-	5-3-57	4 months & 4 days.
98.	38(D)/18th Meeting	Erection of 3 Nos. of 500 K.W. Deutz Generating Sets.	31-12-56	30-1-57	One month.
99.	43/18th Meeting	Accommodation for Rajasthan Police at Construction Camp.	-do-	-do-	-do-
100.	98/18th Meeting	Revised estimate for the purchase of four shuttle dumpers required for use on Chambal Project - M.B.	-do-	11-2-57	1 month & 10 days.
101.	100(C)/18th Meeting	Allotment of Masonry work in Block No. 17 and 18 of G.S. Dam to M/s Canara Construction Co.	-do-	12-2-57	1 month & 11 days.
102.	107/18th Meeting	Tenders for quarrying and supply of Rubble Stone for construction of Masonry of G.S. Dam.	-do-	28-1-57	27 days.
103.	119/18th Meeting	Purchase of two Ambulance Vans for field Dispensaries in Canal Circle.	-do-	22-5-57	4 months & 22 days.
104.	120/18th Meeting	Diesel Driven truck tractors 40 Tons capacity with low bed semi-trailors and its accessories.	-do-		
105.	31(D)/19th Meeting	Approval to allot 1.50 crore Cft. of earth-work on Right Main Canal in Madhya Pradesh to M/s Inderjit Singh Avtar - Singh Contractors.	8-1-57	28-1-57	19 days.
106.	18th Meeting.	Approval to limit for earth-work on Chambal Project.	-do-		

1.	2.	3.	4.	5.	6.
107.	8(MP)/19th Meeting	Additional Staff required for the Dam Mechanical Division for maintenance and running of construction Plant - Organisational set up for Chambal Project, Madhya Pradesh.	13-2-57		
108.	8(J)/19th Meeting	Additional Staff for Rehabilitation Sub-division - Gandhi Sagar Dam, M.P.	-do-		
109.	15(I)/19th Meeting	Additional vehicles for the M.P. portion of the Chambal Project.	-do-	14-5-57	3 months.
110.	31(B)/19th Meeting	Estimate amounting to-Rs. 17,73,588/- for earth-work excavation in Right Main Canal (Chainage 51 to Chainage 200 - miles - miles 2,3, and 4) Madhya Pradesh portion.	-do-	19-4-57	2 months & 5 days.
111.	39/19th Meeting	Estimate amounting to Rs. 33,13,000/- for the purchase of imported steel for Canals, Dam and Electrical Circle, M.P.	-do-		
112.	70/19th Meeting	Additional Staff for Electrical Circle, Chambal Project, M.P. portion.	-do-		
113.	125/19th Meeting	Payment of Compensation for dismantling Rampura Garoth Telegraph Alignment and erection of Rampura Mansa Line.	-do-		
114.	126/19th Meeting	Invitation of tenders for erection of Transmission Lines in M.P. portion of the Chambal Project.	-do-		
115.	128/19th Meeting	Approval to purchase additional furniture for the office of the Chief Engineer, Chambal Project, M.P.	-do-		
116.	129/19th Meeting	Purchase of four Diesel Driven Pumps for Right Main Canal in M.P.	-do-		
117.	56(A)/20th Meeting	Tenders for cross-drainage works, bridges etc. from Parvati to Seep on Right Main Canal, M.P.	20-4-57		
118.	132/20th Meeting	Purchase of 20 NOs. Tata Mercedes Benz Diesel 4 wheel drive 5 tonner trucks with 3 way tipping equipment.	-do-		

1.	2.	3.	4.	5.	6.
119.	137/20th Meeting	Purchase of furniture for the increased staff of the Land Acquisition Officer Bhanpura.	20-4-57	22-5-57	One month & 2 days
120.	141/20th Meeting	Purchase of 50 Ton Hand Operated Overhead Travelling Gantry Crane for Chambal Project, M.P.	-do-	-do-	-do-
121.	15(.) / 21st Meeting	Additional Equipment required for Right Main Canal in M.P.	16-5-57		
122.	105/21st Meeting	Allocation of power required for Bhopal from Gandhi Sagar Power Station.	-do-		
123.	132/21st Meeting	Approval to estimate amounting to Rs. 8 lakhs for the purchase of 20 Nos. of Tata Mercedes Benz Trucks for Chambal Canal Circle, M.P.	-do-		
124.	145/21st Meeting	Authorising the Chief Engineer, Chambal Hydel works to incur expenditure at his discretion in the interest of works.	-do-		
125.	148/21st Meeting	Additional staff required for Chambal Project, Madhya Pradesh.	-do-		
126.	149/21st Meeting	Rate for excavation of Ambah Branch of Main Canal, Chambal Project, M.P. portion.	-do-		

Statement showing time lag between the issue of drafts by the Chambal Control Board and issue of sanctions by the State Govt., Rajasthan.

S. No.	Item No.	Subject	Date of issue of draft order.	Date of implementation by State Govt.	Time taken.
1.	8(A)/3rd Meeting	Creation of additional posts of three more divisions in Rajasthan.	29-5-56	25-9-56	3 months & 26 days.
2.	10(A)/3rd Meeting	Purchase of office furniture and drawing equipment for Kotah Barrage Divisions Rajasthan.	-do-	2-8-56	2 months & 3 days.
3.	11(A)/3rd Meeting	Purchase of a Rolliflex Camera including necessary accessories for taking photographs of departmental work done in progress at the Kotah Barrage and Canal sites.	-do-	16-7-56	One month & 17 days.
4.	12/4th Meeting	Delegation of powers both technical and financial to the Chief Engineer, Superintending Engineer's and Executive Engineers engaged in the execution of the Chambal Project.	-do-		Not yet issued.
5.	8(B)/5th Meeting	Staff for the execution of the Electrical Works of the Chambal Project in Rajasthan.	-do-	19-11-56	5 months & 20 days.
6.	15(B)/5th Meeting	Supply of Overalls, Goggles, driving glasses and berrats for operators employed on earth moving machinery used in the Chambal Project.	-do-	28-9-56	3 months & 29 days.
7.	24/5th Meeting	Telephone for the Rest House at Kotah.	-do-	11-9-56	3 months & 12 days.
8.	30/5th Meeting	Share of the cost of the utility Car sanctioned by the Bhakra Control Board for the use of Chief Engineer, Irrigation, to be borne by the Chambal Project.	29-5-56	10-9-56	3 months & 11 days.
9.	15(A)/5th Meeting.	Rules for regulating maintenance and use of Govt. Vehicles in Chambal Project.	-do-	25-9-56	3 months & 26 days.
10.	10(B)/6th Meeting	Scale of glass ware, cutlery, crockery, enamelled ware and furniture etc. for inspection houses in Chambal Project.	-do-	26-9-56	3 months & 27 days.

1.	2.	3.	4.	5.	6.
11.	12(A)/6th Meeting	Further delegation of powers to the Chief Engineer to appoint retired personnel on the Chambal Project.	29-5-56		
12.	37/6th Meeting	Addendum -do- Sanctioning a non-practising allowance of Rs. 50/- p.m. for the Doctor to be appointed for the Chambal Control Board.	-do-		Not yet issued.
13.	41/6th Meeting	Approval to tenders for work in Rajasthan.	-do-		
14.	12(D)/7th Meeting	Approval to procedure to purchase Stores and articles of T. & P. machinery etc. in Chambal Project.	-do-	9-11-56	5 months & 10 days.
15.	37/8th Meeting	Appointment of a Doctor at Chambal Project at Rajasthan.	-do-	2-1-57	7 months & 13 days.
16.	39/8th Meeting	Steel sheet piles placing orders on D.V.C.	-do-	26-9-56	3 months & 27 days.
17.	8(B)/8th Meeting	Creation of the post of a Personal Assistant to the Chief Engineer, Rajasthan	-do-		Not yet issued.
18.	58/9th Meeting	Earth-work by labour co-operative under auspices of Bharat Sewak Samaj, Rajasthan.	-do-	26-7-56	One month & 27 days.
19.	61/9th Meeting	Estimate for starting a club under the auspices of labour welfare centres on the Chambal Project in Rajasthan.	-do-	16-7-56	1 month & 17 days.
20.	59/9th Meeting	Renting office accommodation for the new Canal Dns. at Kotah in Rajasthan.	-do-	27-9-56	3 months & 28 days.
21.	8(B)/9th Meeting	Corrigendum - creation of the post of a Personal Asstt. to the Chief Engr., Rajasthan.	-do-		
22.	57/9th Meeting	Publicity of the Project in M.B. and Rajasthan.	-do-		
23.	8/9th Meeting	Organisation set up in Rajasthan portion of Chambal Project both for Irrigation and Electrical works - personnel programme for the entire period of construction,	-do-		Not yet issued.

1.	2.	3.	4.	5.	6.
24.	71/10th Meeting	Approval to payment of full price against Railway Receipt by Superintending Engineer, Chambal.	23-5-56	26-9-56	3 months & 27 days
25.	8(C)/10th Meeting	Re-employment of Retired Personnel on the Chambal Project in Rajasthan.	14-5-56		Not yet issued.
26.	15(d)/11th Meeting.	Sanction to estimate for the purchase of Special T. & P. from T.C.M. during the year 1955-56 on the Rajasthan part of the Chambal Project.	-do-	23-5-56	13 days.
27.	8(C)/11th Meeting	Re-employment of Retired Personnel on the Chambal Project in Rajasthan.	-do-	26-5-56	11 days.
28.	8(Raj)/11th Meeting	Running of a Laboratory at the Kotah Barrage site from 1956-57.	-do-	28-5-56	13 days.
29.	75/11th Meeting	Constructing of impervious blanket for dewatering of pool at Barrage site at Kotah to execute the work through departmental agency.	-do-	-do-	-do-
30.	81/11th Meeting	Rent free accommodation to work-charged staff of the Project employed at Sakatpura Colony, Rajasthan.	-do-	23-5-56	8 days.
31.	8(N)/11th Meeting	Introduction of cost Accounting System in Chambal Project, Rajasthan.	-do-	28-5-56	13 days.
32.	8(D)/11th Meeting	Organisational set up: Personnel Programme for Electrical works in Chambal Project, Rajasthan.	-do-	22-12-56	7 months & 7 days.
33.	15(E)/11th Meeting	Estimate for the purchase of eight Euclid Rear Dump Trucks for the Chambal Project Kotah (Rajasthan)	-do-	29-5-56	14 days.
34.	40/11th Meeting	Sanction to the detailed estimate - constructing Spill-way upto Crest Level E.L. 812.00 at Kotah Barrage amounting to Rs.25,68,400/-	17-8-56	26-9-56	One month & 8 days.
35.	82/12th Meeting	Compensation for property coming under submergence due to the formation of Kotah Barrage.	19-6-56	22-10-56	4 months & 2 days.

1.	2.	3.	4.	5.	6.
36.	94/12th Meeting	Approval to do Pile Driving work at the Kotah Barrage costing Rs. 3,65,000/- departmentally.	27-6-56	19-10-56	3 months & 21 days
37.	8(D)/12th Meeting	Sharing the post of an Accounts Officer in the Organisational set up for Electrical Works in Chambal Project Rajasthan.	-do-	20-11-56	4 months & 22 days
38.	8(C)/13th Meeting	Organisational set up in Rajasthan portion of the Chambal Project - sanction to Personnel Programme for execution of works during the year 1955-56 to 1961-62.	22-8-56	19-9-56	27 days.
39.	88/12 & 14 Meeting	Requirement of Vehicles for officers of Electrical Circle of the Chambal Project in Rajasthan. (Spl. Tools & Plant).	11-9-56	2-2-57	5 months & 26 days
40.	81/14th Meeting	Rent free accommodation to work-charged staff of the Chambal Project (Rajasthan portion)	30-8-56	26-11-56	2 months & 26 days
41.	99/14th Meeting & 15th	Scarcity of labour on Earth-work Canals - payment of incentive bonus etc.	30-8-56 31-10-56	1-12-56 10-12-56	3 months & 10 days.
42.	106/15th Meeting	Approval to the tender of Tungbhadra Workshop for the work of Spill-way gates for Kotah Barrage amounting to Rs. 40,39,750/-.	17-10-56	5-12-56	One month & 19 days.
43.	42(A)/15th Meeting	Accommodation at Jaipur for the office of the Chief Engineer, Irrigation, Rajasthan.	-do-	21-11-56	One month & 3 days.
44.	71/15th Meeting	Sanction for advance payment of Rs. 22,725/- to suppliers for Steel at Control Valve in Rajasthan portion of the Chambal Project.	-do-	3-12-56	1 month & 15 days.
45.	8(Raj)/17th Meeting	Conversion of Store Sub-division at Kotah into an independent store sub-division.	31-10-56	1-12-56	2 months
46.	101(A)/17th Meeting	Sanction for taking up the work of excavation of Right Main Canal in Rajasthan departmentally.	-do-	27-11-56	26 days.

1.	2.	3.	4.	5.	6.
47.	117/18th Meeting	Revised estimate for constructing Rest House, Telegraph Office with Signallers Quarters, Motor Garages, Out houses & Compound Wall on the Right side of Chambal at Barrage site Kotah.	29-12-56	26-3-57	2 months & 27 day
48.	113/18th Meeting	Tenders for the aqueduct on the Banganga River, Right Main Canal.	-do-	26-3-57	-do-
49.	31(D)/18th Meeting	Approval to limit for earth-work on Chambal Project.	8-1-57	30-3-57	2 months & 22 days
50.	58/19th Meeting	Earth-work by Labour Co-operative under auspices of Bharat Sewak Samaj.	28-1-57	11-2-57	13 days.
51.	127/19th Meeting	Hiring of Vehicles by Police Department in Rajasthan.	14-2-57	10-4-57	One month & 24 days
52.	122 & 123/19th Meeting.	Construction of two aqueducts over Kalisindh and Parwan River in Chambal, Rajasthan.	-do-	-do-	-do-
53.	114/19th Meeting	Tenders for 15 crores Cft. of earth-work Right Main Canal.	-do-	-do-	-do-
54.	8(Raj)/19th Meeting	Sanction to personnel programme for execution of works on Irrigation side of Rajasthan portion of Chambal Project during the year 1955-56 to 1961-62.	-do-	-do-	-do-
55.	8(Raj)/19th Meeting	Corrigendum to sanction No.464/F.7(12)/Irg./56 dated 19-9-1956 relating to personnel programme Irrigation side, Rajasthan portion of the Chambal Project.	-do-	-do-	-do-
56.	10(B)/19th Meeting	Estimate amounting to Rs. 8,800/- for glass-ware cutlery, crockery, enamelled ware and furniture for special Rest House at Kotah Barrage.	14-2-57	13-4-57	2 months.
57.	8(Raj)/20th Meeting	Additional staff for irrigation works - Chambal Project Rajasthan Portion.	23-4-57	-	1 month & 17 days
58.	8(Raj)/20th Meeting	Addition to personnel programme - creation of two posts of accountants in Rajasthan portion of the Chambal Project.	-do-	-	-do-
59.	42(A)/20th Meeting	Building Programme for Chambal Project Rajasthan portion.	-do-	-	-do-

1.	2.	3.	4.	5.	6.
60.	89/20th Meeting	Training in Factories abroad and deputation of engineering graduates from Rajasthan portion Chambal Project.	23-4-57	-	One month & 17 days
61.	106/20th Meeting	(i) Approval to the revised quotation of Tungabhadra Workshop for the work of Spill-way Gates for Kotah Barrage amounting to Rs. 49.44 lakhs.	-do-	-	-do-
		(ii) Creation of posts for Liaison Work in connection with manufacture of Gates for Kotah Barrage.	-do-	-	-do-
62.	133/20th Meeting	Blasting Rock on the Left Flank of Chambal River at Kotah Barrage - Drilling Holes by means of departmental machinery Rajasthan portion.	-do-	-	-do-
63.	138/20th Meeting	Purchase of Additional Vehicles for use of Officers in Chambal-Project Rajasthan portion	-do-	-	-do-
64.	140/20th Meeting	Drawing and Surveying Instruments for Rajasthan portion of Chambal Project	-do-	-	-do-
65.	142/20th Meeting	Tenders for constructing an Aqueduct over Bamulia Nalla at R-D. 234400.	-do-	-	-do-
66.	79/21st Meeting	Revised Special Tools & Plant programme for Rajasthan part of the Chambal Project - purchase of additional machinery for the work on Right Main Canal.	16-5-1957	-	25 days.
67.	124/21st Meeting	Invitation of tenders for erection of transmission lines in the Rajasthan portion of the Chambal Project.	-do-	-	-do-
68.	146/21st Meeting	Tenders for construction of a Syphon Aqueduct at R.D. 66310 on Right Main Canal, Chambal-Project, Rajasthan portion	-do-	-	-do-
69.	147/21st Meeting	Grouting foundation of earthen Dam, Kotah Barrage, Rajasthan.	-do-	-	-do-
70.	150/21st Meeting	Work order for the work of constructing the Kapren Branch No.K-2 from Ch-700 to Ch-050 for Rs. 34,593/- awarded to the Bharat Sewak Samaj, Rajasthan.	-do-	-	-do-

1	2	3	4	5	6
10.	3(D)/12th meeting	Creating the post of an Account Officer in the Organisational set up for Electrical Works in Chambal Project, Rajasthan.	27-8-56	20-11-56	142 days
11.	8(C)/13th meeting.	Organisational set up in Rajasthan portion of the Chambal-sanction to personnel programme for execution of works during the year 1955-56 to 1961-62.	22-3-56	19-9-56	27 "
12.	8(Raj)17th meeting	Conversion of Store sub-division of Kotah into an independent Store sub-division.	31-10-56	1-12-56	60 "
13.	8(Raj)/19th meeting	Sanction to personnel programme for execution of works on irrigation side of Rajasthan portion of Chambal Project during the year 1955-56 to 1961-62	14-2-57	10-4-57	54"

Average time taken per case
in issuing sanction order
by the State.

185 days

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Statement showing time lag between the issue of drafts by the Chambal Control Board and issue of sanctions by the State Government Rajasthan.

Sr No.	Item No.	Subject	Date of issue of draft order.	Date of implementation by State Govt.	Time taken in days.
1.	10A/3rd meeting	Purchase of office furniture and drawing equipment for Kotah Barrage Divisions Rajasthan.	29-5-56	25-9-56	116 days
2.	11A/3rd meeting	Purchase of a Rolliflex Camera including necessary accessories for taking photographs of departmental work done in progress at the Kotah Barrage and Canal Sites.	29-5-56	16-7-56	47 "
3.	15B/5th meeting	Supply of Overalls, goggles, driving glasses and berrets for operators employed on earth moving machinery used in the Chambal Project.	29-5-56	28-9-56	119 days
4.	15A/5th meeting	Rules for regulating maintenance and use of Govt. Vehicles in Chambal Project.	29-5-56	25-9-56	116 "
5.	10B/6th meeting	Scale of glassware, cutlery, Crockery, enamelled-ware and furniture etc. for inspection houses in Chambal Project.	29-5-56	26-9-56	117 "
6.	12D/7th meeting	Approval to procedure to purchase stores and articles of T & P machinery etc. in Chambal Project.	29-5-56	9-11-56	160 "
7.	88/12&14th meeting	Requirement of Vehicles for officers of Electrical Circle of the Chambal Project in Rajasthan. (3pl. Tools & Plant).	11-9-56	2-2-57	170 "
8.	71/15th meeting	Sanction for advance payment of Rs.32,725/- to suppliers for Steel at Control Price in Rajasthan portion of the Chambal Project.	17-10-56	3-12-56	45 "
9.	127/19th meeting	Hiring of Vehicles by Police Department in Rajasthan.	14-2-57	10-4-57	54 "

Average time taken per case in issuing sanction order by the State.

99 days.

Statement showing time lag between the issue of drafts by the Chambal Control Board and issue of sanctions by the State Government, Rajasthan.

Category C : Estimates, specifications, designs, sanctions etc.

Sr. No.	Item No.	Subject	Date of issue of draft order.	Date of implementation to State Govt.	Time taken (in days)
1.	61/9th meeting	Estimate for starting a club under the auspices of labour welfare centres on the Chambal Project in Rajasthan.	29-5-56	16-7-56	47 days
2.	15(d)/11th meeting	Sanction to estimate for the purchase of special T&P from T.C.M. during the year 1955-56 on the Rajasthan part of the Chambal Project.	14-5-56	28-5-56	13 "
3.	15(E)/11th meeting	Estimate for the purchase of eight Euclid Rear Dump Trucks for the Chambal Project Kotah (Rajasthan)	14-5-56	29-5-56	14 "
4.	40/11th meeting	Sanction to the detailed estimate - constructing Spill-way upto Crest Level E.L. 812.00 at Kotah Barrage amounting to Rs. 25,68,400/-	17-8-56	26-9-56	38 "
5.	117/18th meeting	Revised estimate for constructing Rest House, Telegraph Office with Signallers Quarters, Motor Garages, out houses and Compound Wall on the Right side of Chambal at Barrage site Kotah.	29-12-56	outstanding	160 "
6.	122/123/19th meeting	Construction of two aqueducts over Kalisindh and Parwan River in Chambal, Rajasthan.	14-2-57	10-4-57	54 "
7.	8 Raj/19th meeting	Sanction to personnel programme for execution of works on Irrigation side of Rajasthan portion of Chambal Project during the year 1955-56 to 1961-62.	14-2-57	10-4-57	54 "
8.	10 B/19th meeting	Estimate amounting to Rs. 8,300/- for glass-ware, cutlery, crockery, enamelled ware and furniture for special Rest House at Kotah Barrage.	14-2-57	13-4-57	60 "

Average Time taken per case in issuing sanction orders by the State.

55 days

Statement showing time lag between the issue of drafts by the Chambal Control Board and issue of sanctions by the State Government, Rajasthan.

Category: D, Tenders, award of work, rates etc.

Sr. No.	Item No.	Subject	Date of issue of draft order.	Date of implementation by State Govt.	Time taken (in days)
1.	41/6th meeting	Approval to tenders for work in Rajasthan.	29-5-56	Out-standing	345 days
2.	39/8th meeting	Steel sheet piles placing order on D.V.C.	29-5-56	26-9-56	117 days
3.	58/9th meeting	Earth-work by labour co-operative under auspices of Bharat Sewak Samaj, Rajasthan.	29-5-56	26-7-56	57 days
4.	75/11th meeting	Constructing of impervious blanket for dewatering of pool at Barrage site at Kotah to execute the work through departmental.	14-5-56	Out-standing	13 days
5.	94/12th meeting	Approval to do pile driving work at the Kotah Barrage costing Rs.3,65,000/- departmentally.	28-6-57	1-10-56	111 days
6.	99/14th meeting	Scarcity of labour on Earth-work canals payment of incentive bonus etc.	30-8-56	1-12-56	100 days
7.	106/15th meeting	Approval to the tender of Tunghabadra workshop for the work of Spill-way gates for Kotah Barrage amounting to Rs. 40,39,780/-	17-10-56	5-12-56	40 days
8.	101A/17th meeting	Sanction for taking up the work of excavation of Right Main Canal in Rajasthan departmentally.	31-10-56	27-11-56	26 days
9.	113/18th meeting	Tenders for the Aqueduct on the Benganga River, Right Main Canal.	29-12-56	26-3-57	87 days
10.	/18th meeting	Approval to limit for earth-work on Chambal Project.	8-1-57	30-3-57	82 days
11.	58/19th meeting	Earth-work by Labour Co-operative under auspices of Bharat Sewak Samaj.	28-1-57	11-2-57	13 days
12.	114/19th meeting	Tenders for 15 crores Cft. of earth work Right Main Canal.	14-2-57	10-4-57	54 days

Average time taken per case in issuing sanction orders by the State.

87.08 days.

Statement showing time lag between the issue of drafts by the Chambal Control Board and issue of sanctions by the State Government, Rajasthan.

Category B: Accommodation, Building programme, Staff quarters, management of colonies etc.

Sr. No.	Item No.	Subject	Date of issue of draft order.	Date of implementation by State Govt.	Time taken (in days)
1.	24/5th meeting	Telephone for the Rest House at Kotah.	29-5-56	11-9-56	102 days
2.	59/9th meeting	Renting office accommodation for the new Canal Division at Kotah in Rajasthan.	29-5-56	27-9-56	57 "
3.	81/11th meeting	Rent free accommodation to work-charged staff of the Project employed at Sakatapura Colony, Rajasthan.	14-5-56	23-5-56	8 "
4.	81/14th meeting	Rent free accommodation to work-charged staff of the Chambal Project (Rajasthan portion)	30-8-56	26-11-56	86 "
5.	42A/15th meeting	Accommodation at Jaipur for the office of the Chief Engineer, Irrigation, Rajasthan.	17-10-56	21-11-56	33 "

Average time taken per case in issuing sanction orders by the State. 57.20 days

Statement showing time lag between the use of drafts by the Chambal Control Board and issue of sanctions by the State Government, Rajasthan.

Category : F Delegation of Power

Sr. Item No.	Subject	Date of issue of draft order	Date of implementation by State Govt.	Time taken (in days)
1. 12/4th meeting	Delegation of powers both technical and financial to the Chief Engineer, Superintending Engineers and Executive Engineers engaged on the execution of the Chambal Project.	29-5-56	out-standing	340 days
2. 12A/6th meeting	Further delegation of powers to the Chief Engineer to appoint retired personnel on the Chambal Project.	29-5-56	out-standing	340 days

Average time taken per case in issuing sanction orders by the State. 340 days

Statement showing time lag between the issue of drafts by the Chambal Control Board and issue of sanctions by the State Government, Rajasthan.

Category N: Miscellaneous - Publicity etc.

Sr. Item No.	Subject	Date of issue of draft order.	Date of implementation by State Govt.	Time taken (in days)
1.	57/9th meeting Publicity of the Project in Madhya Bharat and Rajasthan,	29-5-56	out-standing	340 days
2.	8 Raj/11th meeting Running of a Laboratory at the Kotah Barrage site from 1956-57.	14-5-55	28-5-56	13 "
3.	8N/11th meeting Introduction of cost accounting system in Chambal Project, Rajasthan.	14-5-55	28-5-56	13 "
4.	82/11th meeting Compensation for property coming under submergence due to the formation of Kotah Barrage.	19-3-56	1-10-56	217 "

Average time taken per case in issuing sanction orders by the State.

145.75 days

Statement showing time lag between the issue of drafts by the Chambal Control Board and issue of sanctions by the State Govt. Madhya Pradesh.

Category A Establishment Cases: Creation of post, appointment condition of service etc.

Sr. No.	Item No.	Subject	Date of issue of draft order.	Date of implementation by State Govt.	Time taken (in days)
1	2	3	4	5	6
1.	8b/3rd meeting	Appointment of non-technical Administrative Officer to C.M.P	29-5-56	24-7-56	55 days
2.	8c/3rd meeting	Creation of three new divisions in addition to the two existing divisions under 'c' Circle in M.B.	-do-	11-10-56	122 "
3.	20/3rd/ meeting	Appointment of Superintending Engineer, Electrical.	-do-	March, 56	Nil.(N.G)
4.	27/5th meeting	Grant of Cycle Loan to the personnel of Chambal Project, Madhya Bharat.	-do-	out-standing	340 " (N.G)
5.	26/5th meeting	Applicability of medical attendance rules of Madhya Bharat Government to the temporary employees of Chambal Project.	-do-	-do-	340 " (N.G)
6.	8A/5th meeting	Organisational set up in Madhya Bharat portion of the Chambal Project-sanction to personnel programme for the execution of work during the years 1955-56 to 62-63.	-do-	11-10-56	132 "
7.	8D/7th meeting	Sanction for creation of a post of Adl. Divisional Accountant for Canal Division No. 1, Sheopur Kalan, Madhya Bharat.	-do-	3-10-56	124 "
8.	8D/7th meeting	Corrigendum	-do-	-do-	124 "
9.	8E/7th meeting	Approval to reserve posts of Junior Engineers to be filled up by promotion from amongst overseers.	-do-	4-10-56	125 "
10.	8/8th meeting	Provision of probationary Engineers in Chambal Project Madhya Bharat.	-do-	3-10-56	124 "
11.	54/8th meeting	Provision of full medical facilities to workers injured at work-sites.	-do-	11-10-56	132 "

1	2	3	4	5	6
12.	8I/9th meeting	Organisational set up for land acquisition and construction of Gandhi Sagar Dam, Madhya Bharat.	29-5-56	26-7-56	57 days
13.	8K/9th meeting	Organisational set up for land acquisition, survey and allotment of land in connection with Gandhisagar Dam, Madhya Bharat.	-do-	-do-	-do-
14.	8L/10th meeting	Approval to the creation of the post of Divisional Accountant to serve as a leave reserve in Chambal Organisation, Madhya Bharat.	-do-	11-10-56	132 days
15.	8M/10th meeting	Approval to create 18 posts of Sub-overseers by reducing 9 posts of Junior Engineers in Chambal Project, Madhya Bharat.	-do-	4-10-56	125 "
16.	70/10th meeting	Approval to the creation of two Divisions under Superintending Engineer, Electrical, Chambal Project, Madhya Bharat.	29-5-56	9-10-56	143 "
17.	70/11th meeting	Personnel programme for the Electrical Circle Chambal Project, Madhya Bharat.	18-5-56	11-10-56	143 "
18.	8(O)/13th meeting	Additional personnel required for expeditious construction of Gandhi Sagar Dam.	6-8-56	26-9-56	50 "
19	8P/14th meeting	Adml. Staff required for the construction of Camp Hospital at Chambal Hydrel Werks.	11-9-56	11-10-56	30 "
20.	8MB/14th meeting	Organisational set up in Madhya Bharat shifting Headquarters of Chief Engineer, Chambal Hydrel Werks to Gwalior creation of additional posts.	11-9-56	out-standing	240 " (N.G)
21	8MB/15th meeting	Creation of post of an Estate Officer for Gandhisagar Dam.	19-10-56	out-standing	210 " (N.G)
22.	8MB/15th meeting	Approval to the creation of post of stock verifier for Chambal Project, Madhya Bharat.	-do-	11-10-56	30 "
23	69/15th meeting	Approval to deputation of Engineering Graduates for factory Training abroad with the firms supplying Hydraulic & Electrical Plant and equipment for Gandhi Sagar Power Station.	19-10-56	23-10-56	3 "

-2-

1	2	3	4	5	6
24.	61B/17th meeting	Continuance of the post of Administrative Officer in the Chief Engineer's Office, Chambal Hydel Works.	31-10-56	Out-standing	190 days
25.	69/17th meeting	Creation of 4 posts of Asstt. Engineers in Chambal Project, Madhya Bharat in lieu of Asstt. Engineer, being sent for factor training abroad.	31-10-56	2-2-57	91 "
26.	81P/19th meeting	Additional staff required for the dam mechanical Dvn. for maintenance and running of construction plant organization set up for Chambal Project, Madhya Bharat.	13-2-57	out-standing	60 " (N.G)
27.	85/19th meeting	Additional staff for rehabilitation sub-division Gandhi Sagar Dam, Madhya Pradesh.	13-2-57	out-standing	60 " (N.G)
28.	70/19th meeting	Additional staff for Electrical Circle, Chambal Project, Madhya Pradesh portion.	13-2-57	out-standing	60 " (N.G)

Average time taken per case in issuing sanction order by the State.

110 days

Statement showing the length of the issue of drafts by the Chambal Govt. and the date of sanctions by the State Govt. Madhya Pradesh.

Category B: Stores, equipment, Tools, Plants etc.

Sr. Item No.	Subject	Date of issue of draft order.	Date of implemen- tation by State Govt.	Time taken (in days)
1	2	3	4	5
1.	15/3rd meeting. Purchase of Motor Vehicles for officers of Chambal Project, Madhya Bharat, for inspection purposes.	29-8-56	3-10-56	124 days
2.	15B/5th meeting Supply of overall goggles, driving gloves and berets for operators employed in Chambal Project for earth moving machinery.	29-5-56	3-10-56	124
3.	16/3th meeting Approval to purchase cyanamide, copper from U.S.A.	-do-	-do-	-do-
4.	22/6th meeting Purchase of furniture required for audit. Engineer (Electrical) Madhya Bharat.	-do-	-do-	-do-
5.	28/6th meeting Procurement of steel required for Chambal Project in Madhya Bharat.	-do-	-do-	-do-
6.	17/7th meeting Approval to fix reserve limit of stock in stores and miscellaneous divisions in the Canal Circle in Madhya Bharat.	-do-	-do-	-do-
7.	39/7th meeting Procurement of steel required for Chambal Project in Madhya Bharat.	-do-	-do-	-do-
8.	12(D)/7th meeting Approval to procedure to purchase stores and articles of T&P machinery etc. in Chambal Project.	-do-	-do-	-do-
9.	12(D)/8th meeting Approval to procedure to purchase stores and articles of T&P machinery etc. in Chambal Project.	-do-	-do-	-do-
10.	13(D)/8th meeting Approval to purchase one Camera for taking photograph of Canal Works, Madhya Bharat.	-do-	-do-	-do-
11.	45/8th meeting Approval to purchase Gestatener rotary duplicator for office of the Supdtg. Engineer, Canal Circle, Madhya Bharat.	-do-	-do-	-do-

12.	50/9th meeting	Purchase of surveying and mathematical instruments required for work in Madhya Bharat.	23-5-56	9-10-56	124 "
13.	68/10th meeting	Approval to install two additional diesel generating sets of 500 k.W at G.S.Dam site circle.	14-5-56	11-10-56	147 "
14.	(1) 15/11th meeting	Requirement of Vehicles for officers of Electrical of the Chambal Project in Madhya Bharat.	-do-	-do-	-do-
15.	15/12th meeting	Estimate for purchase of Vehicles at G.S.Dam site, Madhya Bharat.	27-6-56	18-9-56	86 "
16.	15(1)/13th meeting	Special R&P notes vehicles for the officers of the Project.	8-8-56	-do-	32 "
17.	98/13th meeting	Purchase of shuttle dumpers required for use on Gandhisagar Dam.	-do-	-do-	-do-
18.	18F/14th meeting	Special R&P of the Chambal Project Madhya Bharat additional machinery required for canal works.	11-9-56	11-10-56	30 "
19.	150/14th meeting	Approval to purchase fire fighting equipment for Gandhisagar Dam.	-do-	-do-	-do-
20.	47/17th meeting	Creation of 4 posts of Asstt. Engineers in Chambal Project, Madhya Bharat in lieu of Asstt. Engineer being sent for factory training abroad.	31-10-56	5-1-57	6 "
21.	73/17th meeting	Installation of fourth generating unit at G.S.Dam	-do-	11-2-57	100 "
22.	108/17th meeting	Provision of Radio Telephone Station in Chambal Project, Madhya Bharat.	-do-	5-3-57	124 "
23.	119/18th meeting	Purchase of two Ambulance Vans for field dispensaries in Canal Circle.	-do-	out- standing	135 "
24.	120/18th meeting	Diesel driven truck tractors- 40 ton capacity with low semitrailers and its accessories.	-do-	-do-	135 "
25.	151/19th meeting	Additional vehicles for the Madhya Pradesh portion of the Chambal Project.	13-2-57	-do-	90 "

1	2	3	4	5	6
26.	128/19th meeting	Approval to purchase additional furniture for the office of the Chief Engineer, Chambal Project, Madhya Pradesh.	13-2-57	out-standing	90 days
27.	129/19th meeting	Purchase of four Diesol Driven pumps for Right Main Canal at Madhya Pradesh.	-do-	-do-	-do-

Average time taken per case in issuing sanction order by the State.

105 days.

Proceedings of the meeting of the
 Board of Directors of the State
 Water Development Corporation
 Madhya Pradesh, Bhopal.

Category C. Estimate, Specifications, Design

Sr. Item No.	Subject	Date of issue of draft order.	Date of implemen- tation by State Govt.	Time taken (in days)
1.	38/6th meeting Sanction to the estimate for excavation of foundations of Gandhi Sagar Dam.	29-5-56	3-10-56	124 days
2.	38/6th meeting Preparing designs and specifications for 132 kV and 66 kV transmission lines in Madhya Bharat.	-do-	-do-	-do-
3.	15V/7th meeting Sanction to the estimate for purchase of Machinery required for Gandhi Sagar Dam which is to be received under technical cooperation mission aid programme.	-do-	-do-	-do-
4.	23A/7th meeting approval to estimate amounting to Rs. 50 lacs for providing & erecting crest and sluice gates in Gandhi Sagar Dam.	-do-	-do-	-do-
5.	15H/15th meeting Estimate amounting to Rs. 476000/- for purchase of two diesel driven tractors, with necessary equipment for Kan circle Chambal Hydrel Works-Madhya Bharat.	19-10-56	4-10-56	Nil
6.	15J/15th meeting Sanction to the estimate for the purchase of T.C.I. for Chambal Canal Circle amounting to Rs. 7,43,200/-	-do-	-do-	-do-
7.	100B/16th meeting Sanction to the estimate for masonry and concrete works for Gandhi Sagar Dam.	31-10-56	23-10-56	-do-
8.	15C/17th meeting Estimate for 1,2,2600/- for the purchase of fire fighting equipment for Gandhi Sagar Dam.	31-10-56	11-2-56	100 days
9.	15F/17th meeting Special T & P sanction to revised estimate amounting to Rs. 7093900/- for the purchase of earthmoving machinery for Right Main Canal, Madhya Bharat.	-do-	out-standing	190 "
10.	98/18th meeting Revised estimate for the purchase of four shuttle dumpers required for use on Chambal Project Madhya Bharat.	-do-	11-2-57	40 "

1	2	3	5	6
11. 31B/19th meeting	Estimate amounting to Rs. 1773585/- for earth-work excavation in Right Main Canal (Chainage 51 to Chainage 200-Miles-2,3&4)Madhya Pradesh portion.	13-2-57	Out-standing	30 days
12. 39/19th meeting	Estimate amounting to Rs. 3213000/- for the purchase of imported steel for Canal, Dam and Electrical Circle, Madhya Pradesh.	-do-	-do-	-do-

Average time taken per case in issuing sanction order by the States.

32 days.

Statement showing time-lag between the issue of drafts by the Chambal Control Board and issue of sanction by the State Govt., Madhya Bharat.

Category D Tenders, award of work, rates etc.

Sr. No.	Item No.	Subject	Date of issue of draft order.	Date of implemen- tation by State Govt.	Time taken in(Days)
1	2	3	4	5	6
1.	31/6th meeting	Tenders for rock-cutting in the Chambal Project Right Main Canal, Madhya Bharat.	29-8-56	16-9-56	107 days
2.	40/7th meeting	Approval to entrust the work of scrutiny of tenders for Gandhisagar Power Station to C.W & P.C.	-do-	3-10-56	124 "
3.	38B/8th meeting	Approval to award work of construction of masonry of Gandhisagar Dam above R.L. 1155.00	-do-	11-10-56	132 "
4.	33B/8th meeting	Approval to award work of construction of masonry of the G.S. Dam above R.L. 1155.00	-do-	-do-	-do-
5.	34D/7th meeting	Examination of tenders received for the construction of a bridge across Chambal at Basai.	-do-	3-10-56	12
6.	38/7th meeting	Approval to allot earth-work in Chainage 484-493 on Right Main Canal in Madhya Bharat on piece work system and the limit of Rs. 25,000/-	-do-	-do-	-do-
7.	64/9th meeting	Extension of three months to the present contractors of cutting at Gandhisagar Dam, Madhya Bharat.	-do-	11-10-56	132 "
8.	64/12th meeting	Tenders for clearing and transporting of materials from Jhalwar road to Gandhisagar Dam site.	27-5-56	14-9-56	75 "
9.	87/12th meeting	Tenders for earth work on the basis of piece work system in the Chambal R.B. Canal.	-do-	11-10-56	103 "
10.	99/14th meeting	Scarcity of labour on earth-work canals payment of incentive bonus.	11-9-56	-do-	30 "
11.	100/16th meeting	Tenders for providing stone masonry in Blocks 1 & 2 at Gandhisagar Dam.	29-10-56	23-10-56	? days

-2-

1.		2.	3.	4.
13.	106/17th Disbursement of machinery work in Book No. 17 and 18 of Gandhisagar Dam to M/S Gwara Construction Co.	31-12-56	12-2-57	41 days
13.	107/18th Tenders for quarrying and supply of Rubble stone for construction of machinery of Gandhisagar Dam.	-do-	28-1-57	27 "
14.	126/19th Invitation of tenders for creation of transmission lines in R.P. portion of the Chambal Project.	13-2-57	Oct- standing	90 "

Average time taken per case in issuing sanction order by the State.

89 days.

Statement showing time-lag between the issue of drafts by the Chambal Control Board and issue of sanctions by the State Govt., Madhya Pradesh.

Category E. Accommodation, building programme, staff quarters, management of colonies, publicity etc.

Sr. No.	Item No.	Subject	Date of issue of draft order	Date of implementation by State Govt.	Time taken in days.
1	2	3	4	5	6
1.	16/3rd meeting	Improvement of Water supply of colonies at Gandhi Sagar Dam.	29-5-56	3-10-56	124 days
2.	17/3rd meeting	Provision of labour hutments for labourers working on the Project.	-do-	-do-	-do-
3.	22/3rd meeting	Furniture for the Rest House at Gandhisagar Dam.	-do-	-do-	-do-
4.	10b/6th meeting	Scale of Glassware, cutlery and furniture etc. for Inspection House in Chambal Project.	-do-	-do-	-do-
5.	52/6th meeting	Free supply of drinking water to residents of project area in Madhya Pradesh.	-do-	-do-	-do-
6.	40/7th meeting	Accommodation for Rajasthan Police at Construction Camp,	-do-	-do-	-do-
7.	62/9th meeting	Allotment of Govt. quarters to contractors at G.S. Dam.	-do-	-do-	-do-
8.	60/9th meeting	Extension of construction Camp hospital building and equipment for it.	-do-	-do-	-do-
9.	423/14th meeting	Construction of a Field Hospital for foreign Elector or construction camp site at Gandhisagar Dam.	11-9-56	11-10-56	30 days
10.	42/14th meeting	Building Programme for Chambal Project in Madhya Bharat.	-do-	-do-	-do-
11.	43/18th meeting	Accommodation for Rajasthan Police at Construction Camp.	31-12-56	30-1-57	30 days.

Average time taken per case in issuing sanction order by the State.

92 days.

Statement showing time-lag between the issue of drafts by the Central Control Board and issue of sanctions by the State Govt., Mehya Pradesh.

Category F. Delegation of Power.

Sr. No.	Item No.	Subject	Date of issue of draft order.	Date of implementation by State Govt.	Time taken in days.
1	2	3	4	5	6
1.	12/4th meeting	Corrigandum to sanction No.12 dated 1-9-1955	29-5-56	11-10-56	132 days
2.	12/13th meeting	Delegation of power	31-2-56	Out-standing	430 "
3.	12a/6th meeting	Addendum to above sanction.	29-5-56	-do-	-do-
4.	12b/3th meeting	Proposed delegation of power to the land acquisition officer, G.S. Dan, M.D.	-do-	3-10-56	124 days

Average time taken per case in issuing sanction order by the State:

257 days.

Case Study No.XIII

File No. CCB/46(D)/56

Subject:- Supply of 132 kV and 66 kV
Transmission Line Towers.

Sr. No.	Date	Event	Interval	Remarks
1	2	3	4	5
1.	16.4.56	C.E.sends note explaining the necessity to call for tenders for the transmission lines through D.G.S&D.		
2.	23.4.56	Ld.approves proposal.		
3.	27.4.56	C.E.sends indent and specifications to D.G.S&D. i) G.S.Dm to Ujjain double circuit 132 K.V. - 120 m ii) Ujjain to Bhopal single circuit 132 K.V.-117 m. iii)Ujjain to Indore double circuit 66 K.V. - 82 m. iv) Ujjain to Ratlam single circuit 66 K.V.- 68 m.		
4.	26.8.56	Tenders opened by DG&D only following 4 firms quoted:- i)Messrs S.A.E.Milano,Itlay.(Rs.52,01,214/-) Delivery to start within 6 months of order & completed in another six months by the end of May,1959. ii) M/s Kamani Engineer Corporation, Bombay Rs.(59,65,970/-) iii)M/s Indian Cable Company, Bombay,(Rs.65,16,951/-) iv) M/s B.Pana Lal Ltd.,New Delhi.(Rs. 79,12,200/-)		
5.	9.9.56	C.E.sends note recommending acceptance of tender of M/s S.A.E. Milano as being lowest. He suggests following programme :- Placing of orders- Nov.1956 Commencement of supply- May,1957 Completion of supply - Nov.1957 Completion of erection- Aug.1958 Commencement of supply of power - March.1959.		
6.	19.9.56.	Shri M.Hayath, Member CW&PC sends note reviewing the tenders and recommending acceptance of the tender by M/s S.A.E.Milano,Itlay, being the cheapest and also technically satisfactory.		

1	2	3	4	5
7.	4.10.56	F.A. draws notice to the possibility of the transmission lines between Ujjain and Bhopal being left out for the time being and the necessity of incorporating this condition in giving out the contract. Subject to this, he recommends acceptance of offer by M/s S.A.E.Milano.		
8.	10.10.56	D.G. approves the acceptance of the lowest tender of M/s S.A.E.Milano for Rs. 52.81 lakhs subject to the comments of the F.A.		
9.	18.9.56 26.9.56 15.10.56 20.10.56	M/s Kamani Engineering Corporation makes representation for acceptance of the tender on grounds of encouragement to indigenous industries and saving of foreign exchange.		
10.	29.9.56	M/s S.A.E.Milano requested by DGSD to keep the offer open upto 30.11.56.		
11.	19.11.56	DGS&D writes to M/s Kamani Engrg. Corpn. and M/s S.A.E.Milano suggesting certain modifications in their terms.		
12.	26.11.56	C.E. writes to D.G.S&D about the difficulty of procuring steel if order is placed with Indian firm and advises to place order with Italy.		
13.	14.1.57	DGS&D informs CCB that they propose to place order for the Towers with M/s Kamani whose offer at Rs. 63.47 lakhs is higher by 9% than M/s S.A.E. Milano's offer at Rs. 62.7 lakhs.		
14.	1.2.57	C.E. informs CCD of difficulties of providing sufficient quota certificates for steel to M/s Kamani. Total steel required is 5600 tons, out of which quota certificate for 3300 tons is required immediately. But only 1100 tons can be provided.		
15.	8.2.57	DGS&D informs CCB that it has been decided to place order on M/s Kamani in consultation with the Ministry in line with the policy of the Govt. of India to patronise and encourage indigenous industries and keeping in view the difficulties of foreign exchange.		
16.	12.2.57 7.3.57	A number of correspondence made between to M/s Kamani, DGS&D, CCB and C.E. regarding issue of quota certificates to Kamani.		
17.	6.3.57	DGS&D places order with Kamani.		
18.	13.3.57	Quota certificate for 1100 tons made over to Kamani by C.E.		

1	2	3	4	5
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- 19. 17.3.57 C.E.writes to CCB protesting against the action of D.G.S.D in not placing prompt orders for the towers on S.A.E. Milano & thereby increasing the cost of towers by 15.66 lakhs (68.47 - 52.81). The cost is likely to go higher if imported steel has to be used by Kamani to manufacture the towers.
- 20. 28.3.57 Bd.notes position namely placing orders with Kamani for some special reasons. C.E.explained difficulties about steel. Bd. decides that in future, question of acceptance of tender will be decided by DGS&D in consultation with C.E.without reference to Bd.
- 21. 5.4.57 Attempts to issue further quota to certificates.
23.4.57
- 22. 25.4.57 Arrangements made to issue to quota certificate for the balance amount of 2200 tons as provided in the contract.

Case Study No. XIII A

File No. MP/38/57.

Re:- Transmission Towers for Chambal
Hydel in H.P.

Sr. No.	Date	Event	Interval	Remarks
1	2	3	4	5
1.	24.12.56	C.E. sends indent to D.G.S.D for transmission towers for power line.		
		a) G.S.Dam to Neemuch, 50 miles 132 KV Single Circuit.		
		b) Sawai Madhopur to Gwalior- 120 miles 132 K.V. Double Circuit.		
		c) Neemuch - Handsaur - 30 miles 66 K.V.		
2.	17.4.57	D.G.S.D. informs C.C.B. suggests placing of orders for the additional transmission lines with S.A.E. Milano for Rs. 38.6 lakhs. No idle engineering capacity in India & no indigenous steel. Original offer of I.S.A.E., Milano still open. Arrangements for foreign exchange have to be made.		
3.	23.4.56	C.W.P.C. moved by C.C.B. re . foreign exchange.		
4.	29.4.56	C.W.P.C. moves Ministry of Finance.		
5.	30.4.56	Finance agrees but protests against hastline.		
6.	30.4.56	D.G.S.D informed over the phone to proceed in the matter.		

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CHAMBAL CONTROL BOARD

GENERAL REVIEW NOTE

The up-to-date position with regard to the pending Agenda Items and other important matters of the Control Board is given below for information of all concerned:-

- 1) 4: Regularisation of appointment of Shri Prem Nath Bhalla as Officer on Special Duty (Chambal), Ministry of Irrigation & Power and Ex-Officio Secretary, Chambal Control Board.

The appointment order of Shri Bhalla has not as yet been issued by the Ministry of Irrigation & Power. He has neither received the salary with effect from 1.2.1957 nor the transfer T.A. as per orders of the Board.

2. 8(N): Cost Accounting Unit:

As per decision of the Board the Chief Engineers were requested to supply half-yearly progress reports to under intimation to this office. The the C.W. & P.C./whereas Chief Engineer, Irrigation, Chief Engineer, Chambal Hydel Works has since forwarded it to the Rajasthan has not so far supplied the same. He is being regularly expedited.

3. 13: Enhancing Schedule of Deliveries by Manufacturers:

The D.G.S. & D has addressed the firms on the subject but their reactions have not yet been finally intimated.

4. 18: Control of Working Area at Gandhi Sagar Dam

The decision to transfer a piece of land to Madhya Pradesh Government is pending implementation by the Rajasthan Government.

5. 21: Cost of Common Works:

The subject is pending with the Rajasthan Government since 22.9.1956. They have been requested to expedite their views so that a final decision be taken in the matter.

6. 23: Extra Cost involved in sea freight for the Gates to be supplied by M/S M.A.N. Germany:

Information is awaited from the representative of the firm in Delhi.

7. 25: Rehabilitation of Displaced Persons from Gandhi Sagar Reservoir Area:

The Rajasthan Government has requested the Sub-Committee to re-examine the matter in the light of the note sent by Dr. K.L.Rao, Member, C.W. & P.C. The matter will be brought up before the Board on receipt of Sub-Committee's recommendations and the views of the Rajasthan Government in the matter.

8. 25(B): A bill to provide for the acquisition of land in the Chambal Project:

Views of the two State Governments are awaited.

9. 28: Consolidation of Accounts:

Accounts statements for the period ending March, 1957 have not as yet been received daily verified by the Accountant Generals of the two States. Authorities concerned are being regularly expedited.

10. 28(A): Unified Accounting Organisation for Rajasthan portion of Chambal Project:

As already reported the State Government has agreed to set up a separate accounting organisation for Rajasthan portion of the Chambal Project on the same lines as existing in Madhya Pradesh portion. Detailed proposals from the State Government are awaited.

11. 44: Travelling Allowance to work-charged establishment:

The issue of orders in this behalf is pending action with the Rajasthan Government. The Madhya Pradesh Government have not as yet fixed the pay scales.

12. 52: Registration of Contractors in Rajasthan:

As per decision of the Board, the Rajasthan Government has been addressed on the subject of raising the amount of earnest money.

13. 57:Publicity of the Project:

The subject is pending for the considered views of the two state Governments.

14. 69:Schedule of Rates:

The Schedule of Rates as received from Rajasthan portion of the Chambal Project are being examined.

The Schedule of Rates for Madhya Pradesh portion of the Chambal Project have not as yet been received back from the Chief Engineer, Chambal, Madhya Pradesh.

15. 90:Store Purchase Unit for Chambal Organisation:

The report of the Sub-Committee, of which Shri A.K.Char, Chief Engineer, Chambal Hydrel Works is the Convonor, is still awaited.

16. 92:Classification of expenditure on Spares of Special Tools & Plant:

As per decision of the Board, the Chairman, C.W. & P.C. has been addressed for his considered views on the subject.

17. 139:Allotment of Canal Lining and Masonry work in Right Main Canal-Madhya Pradesh to Messrs. National Projects Construction Corporation (Private) Ltd.

The report of the Sub-Committee is awaited.

18. 147:Grouting foundation of Earthen Dam, Kota Barrage

Complete Report by Dr.K.L.Rao, Member, C.W.&P.C. in the light of discussions held at the last meeting of the Board held on 10-8-1957 is awaited.

19. 165:Claims of Shri Harbilas Mital, Contractor for Supply of sand from Chaurasigarh Fort to Gandhi Sagar Dam, Madhya Pradesh:

Further note of the Chief Engineer is awaited.

20. Misc.-14:Progress on Designs Work entrusted to C.W.&P.C.--position as reviewed on 15-8-1957.

Out of the 119 structures (3 from Rajasthan) data for which has been received by the C.W.&P.C. from the Chambal Project authorities, designs have been completed for 88. Designs for 31 structures have yet to

be undertaken by them, out of which 24 are in hand of the Commission.

21. G-30: Uniformity in various matters in Chambal Project both in Rajasthan and Madhya Pradesh:

No reply has so far been received from the Chief Engineers to the enquiries addressed by the Financial Adviser to the Board. They are being expedited regularly.

22. MP/3/56: Estimate for Kunu Syphon Aqueduct:

The estimate for the prestressed design is still awaited from the Chief Engineer, Chambal Hydrel Works.

23. MP/7/56: Assessment of Water Rates in Chambal Project:

Views of the Madhya Pradesh Government are awaited to enable C.W. & P.C. to offer final comments.

24. MP/22/57 : Exemption from payment of royalty Charges for material:

Views of the Madhya Pradesh Government and Chief Engineer, Chambal Hydrel Works are awaited.

25. MP/30/57: Quarterly Progress Report ending June, 1957:

Quarterly Progress Report is awaited from the Chief Engineer, Chambal Hydrel Works.

26. MP/40/57: Allotment of funds for Chambal Project for the year 1957-58.

Allocation of Rs. 5 crores earmarked by the Government of India between the two State Governments is pending for want of information from the State Governments.

ii) List of cases pending with or referred back to the Chief Engineer, Irrigation, Rajasthan:

1. 15/E/56: Procurement of Eight Euclid Rear Dumpers- completion Report therefor.
2. CCB/Misc/15: Study of the economics of Irrigation & Power Projects.
3. Raj/43/57: Purchase of diamond drills on Kota Barrage.

4. CCB/55/57: Agreement with Western Railway in connection with the construction of Railway Bridge over Right Main Canal at R.D.17730 between Railway culverts Nos.205 & 206.
5. CCB/T&P/57: Stores Purchase Committee Final Report.
6. Misc-6/I&P/57: Excise Duties on Cement, Steel, Petrol Diesel Oil, Lubricants etc. and increase in railway freights repercussion on the cost of Projects.
7. CCB/58/57: Survey conditions of workers employed through contractors.
8. CCB/94/56: Approval to do pile driving work at Kota Barrage costing Rs.3,65,000/- departmentally.

iii) List of cases pending with or referred back to the Engineer, Chambal, Madhya Pradesh:

1. 15(M.P.): Special T & P for Canals in Madhya Pradesh portion of the Chambal Project.
2. 15(v): Sanction to the estimate for the purchase of machinery required for Gandhi Sagar Dam which is to be received under T.C.M.Aid Programme.
3. 47: Refixation of Stock Reserve Limit in Stores and Miscellaneous Division, Canal Circle, Madhya Pradesh.
4. CCB/I&P/57: Stores Purchase Committee-Final Report.
5. 56: Tender documents of Seth Ram Rattan, contractor for Cross Drainage and Cross Communication work (3rd Group) in first 40 miles of Right Main Canal Upper, Madhya Pradesh.
6. MP/69/57: Land Acquisition Estimates.
7. 130. Estimate for purchase of Transformers and Oil Circuit Breakers.
8. 58: Survey of conditions of workers employed through contractors.
9. MP/89/57: Increasing of Stock reserve limit for Central Stores, Chambal Hydel Works.
10. MP/90/57: Tenders for erection of Transmission Lines.
11. CCB/91/57: Entrusting the work of Bhind Canals system of Madhya Bharat State to P.W.D.

iv) List of Cases pending implementation
by Madhya Pradesh Government:

1. Item No.8(MB): Creation of the post of Supervisor in place of Estate Officer.
14th Meeting
2. Item No.132: Purchase of 20 Nos. Tata Mercedes Benz Diesel 4 wheel drive 5 tonner trucks with 3 way tipping equipment, Madhya Pradesh.
20th Meeting.
3. Item No.132: Approval to estimate amounting to Rs.8 lakhs for the purchase of 20 Nos. Tata Mercedes Benz Trucks for Canal Circle, Madhya Pradesh.
21st Meeting.
4. Item No.121: Tenders for Kunu Syphon Acqueduct on the Right Main Canal in Chambal Project, Madhya Pradesh.
22nd Meeting.
5. Item No.8(j): Organisational Set up for Land Acquisition and Rehabilitation work in connection with the Gandhi Sagar Dam Reservoir Area.
23rd Meeting.
6. Item No.87: Approval of rate for Jungle Clearance by departmental machinery, Madhya Pradesh.
23rd Meeting.
7. Item No.156: Railway Crossing at Mile 114/5-6, Right Main Canal, Madhya Pradesh.
23rd Meeting.
8. CCB/8(K)/56: Organisational Set up for Land Acquisition etc. on Canals in Chambal Projects Madhya Pradesh.
24th Meeting.
9. CCB/8(O)/57: Addl. staff required for Concreting & Power House Division at Gandhi Sagar Dam, Madhya Pradesh.
24th Meeting.
10. CCB/31/57: Classification of Rock in Right Main Canal, Madhya Pradesh-percentage checking.
24th Meeting.
11. CCB/136/57: Organisational Set up for Labour Welfare Work in Chambal Project, Madhya Pradesh Portion.
24th Meeting.
12. CCB/139/57: Earnest money and security deposit by the M.P.C.C. for works on Chambal Project.
24th Meeting.
13. CCB/162/57: Estimate for 4.40 lakhs for upstream (one line) curtain grouting for Gandhi Sagar Dam, Madhya Pradesh.
24th Meeting.
14. CCB/168/57: Approval to estimate for Rs. 2280/- for the purchase of office furniture for the office of the Deputy Collector-cum-Land Acquisition Officer, Sheopurkalan, Madhya Pradesh.
24th Meeting.
15. CCB/172/57: Approval to tender for rock-cut excavation in miles 99, 100 & 101 of Right Bank Upper Main Canal, M.P.
24th Meeting.

v) List of cases pending implementation
by the Rajasthan Government:

1. Item No.12: Powers both financial and technical 4th Meeting to were delegated to Engineering Officers 22nd Meeting. at the fourth meeting. From time to time at the various meetings of the Board, additions and alterations have been made, which have not so far been added to the powers by the State Govt.
2. Item No.37: Sanctioning a non-practising allowance of Rs. 50/-P.M, for the doctor in Chambal Project, Rajasthan. 6th Meeting;
3. Item No.57: Publicity of the Project in Madhya Pradesh and Rajasthan. 9th Meeting.
4. Item No.41: Approval to tender for construction of retaining wall, key wall, spillway etc. at Kotah Barrage. 6th Meeting.
5. Item No.31(C): Allotment of earthwork on Right Main Canal, Rajasthan. 15th Meeting.
6. Item No.8(C): Re-employment of retired personnel on Chambal Project in Rajasthan. 10th Meeting.
7. Item No.112: Condonation of irregularity committed in the matter of supply of petrol and H.S.Diesel Oil of Chambal Project in Rajasthan. 17th Meeting.
8. Item No.87 Fixation of earthwork rates in Chambal Project, Rajasthan. 17th Meeting
9. Item No.8(Raj) Additional staff for Irrigation Works-Chambal Project, Rajasthan portion. 20th Meeting
10. Item No.8(Raj) Addition to Personnel Programme - creation of two posts of Accountants in Rajasthan portion of the Chambal Project. 20th Meeting
11. Item No.138: Purchase of additional vehicles for the use of Officers in Chambal Project, Rajasthan portion. 20th Meeting
12. Item No.114: Corrigendum to Rajasthan Government Order No.F7(7)Irg/57 dated 10.4.57 relating to tenders for 15 crores cft. of earthwork, Right Main Canal. 20th Meeting
13. Item No.124: Invitation of tenders for erection of transmission lines in the Rajasthan portion of the Chambal Project. 21st Meeting
14. Item No.122 & 123: Construction of Kalisindh and Parwan Aqueducts on Right Main Canal - Rajasthan portion by the National Projects Construction Corporation. 23rd Meeting
15. Item No.159: Approval to purchase emergency stores for sheet-pile driving work at Kotah Barrage, Rajasthan. 23rd Meeting

- 16. CCB/106/56: Estimate amounting to Rs. 49,70,000/-
24th Meeting for the supply & erection of 19 Nos. Radial Gates for the spillway at Kotah Barrage, Rajasthan.
- 17. CCB/138/57: Purchase of additional vehicles for
24th Meeting use of officers in Chambal Project, Rajasthan portion.
- 18. CCB/160/57: Earnest Money and Security Deposit by
24th Meeting the N.P.C.C. for works on Chambal Project, Rajasthan portion.
- 19. CCB/163/57: Creation of two Nos. Labour Welfare
24th Meeting Units in the Rajasthan portion of the Chambal Project.
- 20. CCB/166/57: Tenders for construction of a drainage
24th Meeting syphon at R.D. 174700 of Right Main Canal, Rajasthan.
- 21. CCB/167/57: Estimate for purchase and overhaul
24th Meeting of road rollers from disposals for Chambal Project, Rajasthan portion.
- 22. CCB/170/57: Construction of an aqueduct over
24th Meeting Chandiyali Nalla on Right Main Canal at R.D. 194550 - approval to tender amounting to Rs. 4,16,264/- by M/s J.R. Tencja.
- 23. CCB/171/57: Scouring Sluice Gates in Kotah Barrage,
24th Meeting Rajasthan.

Date, place and time of the next meeting.

APPENDIX - 10 4

D.O. letter from Chief Engineer, Madhya Pradesh
to Shri Narasimhaiya.

Statement of Staff as sanctioned and as
in position on Chambal Project (Rajasthan).

Statement showing sanctioned Staff and
existing in the Chambal Project from inception
upto date (Madhya Pradesh).

Office of the Chief Engineer,
Chambal Hydel & Irrigation Scheme,
Madhya Pradesh,
P.O. Chambal Hydel Works,
Via Jhalwar Road.

24 - 6 - 1957.

Dear Sir,

Please refer your letter wherein you had requested me to supply information to support 20% short fall in progress due to want of personnel.

The Project report for Chambal Project was revised in the year 1954 and targets for main items of work for Gandhi Sagar Dam, Power Station and Right Main Canal were fixed for achievement in the coming years for the successful completion of the Project. While formulating these targets it was taken into account that the supply position of key materials like steel and cement, construction machinery and other equipments required for the Project and adequate experienced technical staff all these will be upto the mark and as per schedule and that targets fixed can be achieved well in time. But contrary to this expectation there is shortage in all these items and this affected the progress of works adversely. It is soon from the statements enclosed, that there is about 30% short fall in the progress of the Gandhi Sagar Dam and Power Station, whereas in the Canals, the short fall in the progress is more than 60%. The inadequate supply of steel and cement and delay in securing foreign exchange for importing machinery and equipments required for the project, no doubt did affect the progress to a certain extent. Besides this the important item that affected the progress of works, in my opinion, is the shortage in the technical personnel. It is also my opinion that this shortage in the personnel has contributed to about 20% short fall in the progress.

In the initial stages of the Project, the preliminaries such as surveys, preparation of designs, plans and estimates which needed qualified technical personnel, could not be completed in time, for want of this requirement. Thus the starting of execution of works was delayed. Even when the preliminaries were completed the works could not be started in several places for want of personnel for supervision and direction of works. In the case of Gandhi Sagar Dam and Power Station, where the work is concentrated in one place, this aspect might not have affected the progress much, although it has affected to a certain extent. But in the Canals where the works are spread over a vast area, shortage of personnel for supervision and direction of works does tell upon the progress of work. In a project like this where large number of construction and earth moving machineries and equipments, which are new to our country, are being employed, you appreciate the importance of adequate technically skilled operators and other categories of staff required to man efficiently these machineries. Even in the Electrical Circle, the required technical staff is still to be posted and this has evidently affected in the preliminary work of Surveys, designs and preparation of estimates and plans.

In view of the reasons stated above, I feel that I am correct in stating that 20% of short fall in progress is due to want of technical personnel.

With kind regards.

Yours sincerely,

Sd/- A.K.Char.

To
 Shri M.Narasimhaiya,
 Chief Engineer for
 Irrigation and Power Team,
 73-74, Sunder Nagar, New Delhi.

STATEMENT SHOWING SANCTIONED STAFF AND EXISTING IN
THE CHAMBAL PROJECT FROM ITS INCEPTION TO DATE

Appendix 'A'

No.	Description	48-49	49-50	50-51	51-52	52-53	53-54	54-55	55-56	56-57	57-58	Additional requirements during 57-58	Remarks
1.	Superintending Engineer (a) (b)	1	1	1	1	2	2	3	3	3	3	-	(a) As sanctioned (b) As in position.
2.	Executive Engineer (a) (b) Stores Officer (a) (Grade of Executive (b) Engineer)	1	3	4	5	6	6	9	6	13	19	8	1 The present incumbent is on leave since last four months.
3.	Assistant Engineer (a) (b)	2	10	11	18	20	24	39	27	58	82	31	
4.	Junior Engineer & C.S.(S.C)	-	2	3	3	3	3	84	60	90	142	90	
5.	Overseer (a) (b)	10	20	30	44	53	56	68	44	98	100	38	
6.	Draftsman (a) (b) Construction Superintendent (Specialist)	2	4	5	6	7	8	12	9	21	27	13	
7.	Total (a) (b)	16	40	54	77	92	98	215	148	283	385	192	

Sd/- A.K.Char.
Chief Engineer,
Chambal Hydel and Irrigation Scheme,
Madhya Pradesh.

STATEMENT SHOWING THE CHAINAGE AND AMOUNT OF SANCTIONED ESTIMATE FOR ROCKY REACHES IN RIGHT BANK CANAL UPPER (WADIA, P. D. DSH).

Mile No.	Rocky Reach Chainage		Total Chainage	Qty. of earth cut in C.Ft.	Qty. of rock cut in C.Ft.	Total amount of earth work and rock cut.	Cost of lining of canal.	REMARKS
	From	To						
1	2	3	4	5	6	7	8	9
36	1795	1800	6	2,08,300	88,200	21,040	3,77,380	As per sanctioned estimate.
37	1801	1845.4	45.4	3,05,200	13,19,100	2,47,095		U.S.
38	1851	1900	50	6,96,989	9,09,847	4,40,720	5,00,000	
40	2263	2300	38	1,33,600	4,55,300	83,042	4,46,500	
47	2301	2350	50	1,43,100	1,87,300	39,069	7,83,380	
48	2351	2400	50	3,67,700	4,86,600	95,347	6,04,870	As per sanctioned estimate.
49	2401	2450	50	4,02,300	9,37,100	1,71,667	5,04,870	
50	2451	2500	50	3,25,800	10,92,900	1,95,592	4,82,800	
51	2501	2544.3	44.3	2,73,700	11,39,500	2,01,337	4,54,100	
55	2721	2748	28	14,36,200	9,08,500	1,97,700	2,30,000	
58	2895	2900	6	2,66,100	68,884	28,635	60,000	
59	2901	2950	50	3,47,600	5,68,300	1,20,160	5,00,000	
60	2951	3000	50	5,39,200	6,71,200	1,30,070	5,00,000	
61	3001	3021	41	11,65,200	6,72,100	1,46,130	4,10,000	
63	3137	3034	14	18,27,300	7,68,600	1,92,540	1,14,000	For lining, provision has been made taking Rs.5 lakhs per mile of 50Ch.
64	3151	3159	9	3,49,800	5,94,200	1,11,750	90,000	
65	3239	3250	12	5,90,100	4,99,600	1,05,980	1,20,000	
66	3251	3258	11	3,82,500	4,48,800	95,660	1,10,000	
66	3268	3273	11					
70	3471	3485	15	3,67,800	9,19,300	1,82,170	1,50,000	
71	3536	3540	5	1,13,600	84,300	21,620	50,000	
72	3594	3600	7	91,300	1,22,300	24,630	70,000	
73	3601	3650	50	2,93,800	9,52,700	1,69,240	50,000	
74	3651	3654	4	52,800	77,900	20,720	40,000	
76	3760	3800	41	3,33,700	8,30,200	1,51,960	4,10,000	LS, provision for lining has been made taking Rs.5 lakhs per mile of 50 Ch. in account.
77	3801	3832	32	2,49,100	3,75,200	1,55,060	3,20,000	
78	3875	3900	26	1,50,300	6,32,100	1,12,440	2,60,000	
79	3901	3938	38	5,01,200	5,74,300	1,15,650	3,80,000	
82	4060	4066	11	4,90,400	1,34,000	36,530	1,10,000	
82	4073	4076	11					
84	4177	4185.92	9.92	2,10,100	2,38,800	47,620	99,200	
85	4201	4252.89	52.89	19,33,100	45,32,000	8,75,280	5,22,900	

1	2	3	4	5	6	7	8	9
98	4951	4900	50	ch	26,79,000	2,71,800	1,79,390	5,00,000
99	4901	4950	50	ch	4,72,000	9,11,700	1,82,990	5,00,000
100	4951	5000	50	ch	10,11,500	11,15,500	2,37,140	5,00,000
101	5001	5050	50	ch	4,11,000	10,22,900	2,02,270	5,00,000
GRAND TOTAL:					1,096.51 ch	2,06,96,739	2,51,92,431	1,08,06,280/-
					C.Ft.	C.Ft.		

Total cost for earthwork, rockcut and lining = Rs. 1,61,45,000/-

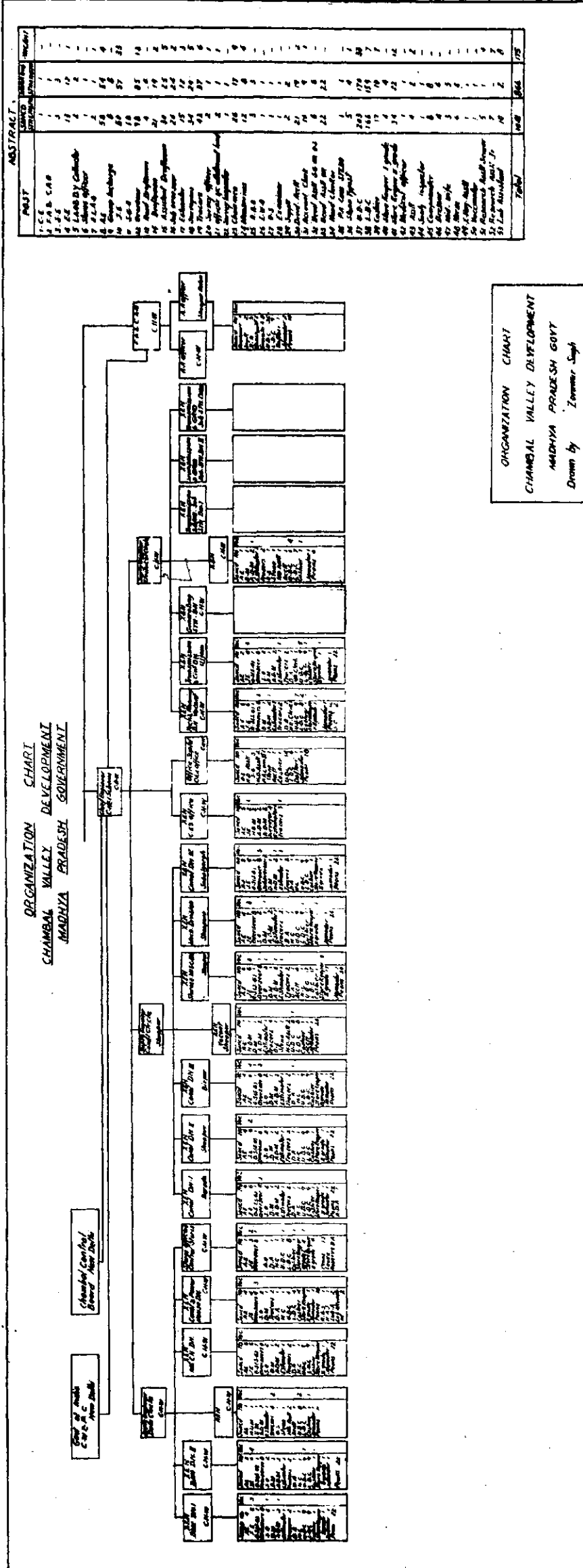
SG/- (A.K.Char)
 Chief Engineer,
 Chambal Hydel and Irrigation
 Scheme, Madhya Pradesh,
 24.9.57.

STATEMENT OF STAFF AS SANCTIONED AND AS IN POSITION ON CHEMICAL PROJECT KOTA

(UPTO OVERSEER LEVEL)

S. No.	Post	1953-54		1954-56		1955-56		1956-57	
		As sanctioned strength.	Actual sanctioned strength.	As sanctioned strength.	Actual sanctioned strength.	As sanctioned strength.	Actual sanctioned strength.	As sanctioned strength.	Actual sanctioned strength.
1.	Superintending Engineer.	1	-	1	-	-	1	2	2
2.	Executive Engineer	1	1	2	1	5	5	7	7
3.	Accounts Officer	1	1	1	-	1	1	1	1
4.	Asstt. Engineer Civil	4	3	10	10	18	18	31	31
5.	Asstt. Engineer Mechanical	1	1	1	1	4	1	4	4
6.	Engineering Subordinate	2	14	33	26	58	46	91	70
7.	Computer	-	-	2	-	5	2	7	3
8.	Mechanical Foreman.	4	3	5	1	9	5	11	11
9.	Draftsman Grade I.	3	2	4	2	6	3	9	9
10.	Draftsman Grade II	5	3	3	3	7	4	11	11

There has been persistent requests for Extra Staff and the same was not sanctioned by the Government.

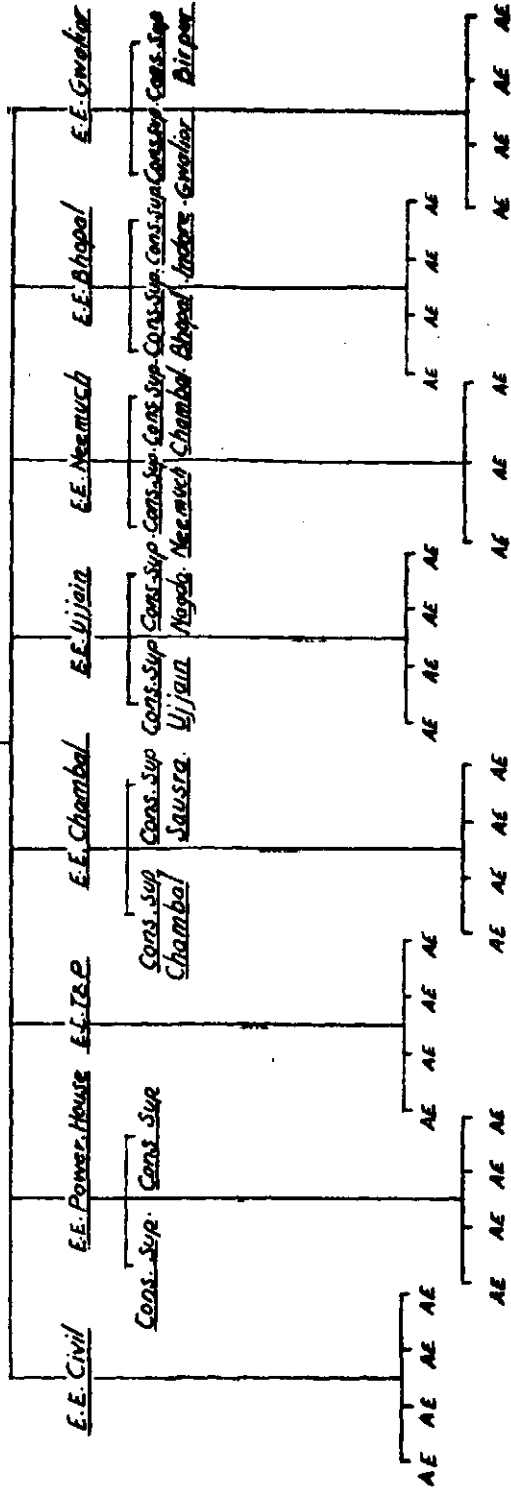


ABSTRACT

POST	GRADE	NO. OF OFFICERS	NO. OF ASSISTANTS	TOTAL
1. C.E.		1		1
2. P.W.D. CAB		1		1
3. S.E.		1		1
4. S.E.		1		1
5. S.E.		1		1
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ORGANIZATION CHART
CHAMBAL VALLEY DEVELOPMENT
MADHYA PRADESH GOVT
Drawn by Zammer Singh

S.E. E/EC



ELECTRICAL CIRCLE

S/No.	Designation	Sanctioned	Existing	Vacant
1	Superintending Engineer	1	1	
2	Executive Engineer	8	1	7
3	Asstt Engineer	33	7	26
4	Junior Engineer	68	10	58
5	Head Draughtsman	-	-	-
6	Junior Draughtsman	9	3	6
7	Overseer	18	14	4
8	Construction Superintendents	12		
	Total	149	36	101

CHAMBAL VALLEY DEVELOPMENT

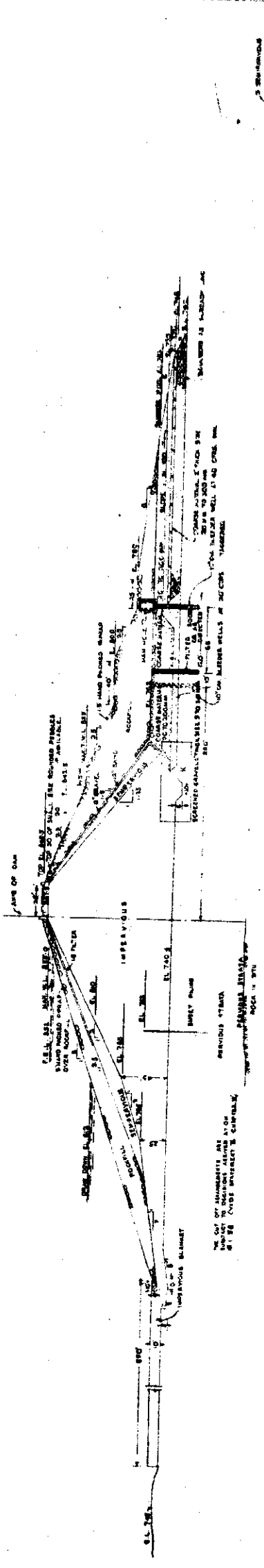
Statement Showing the

Sanctioned and Existing

Staff for 1957-58

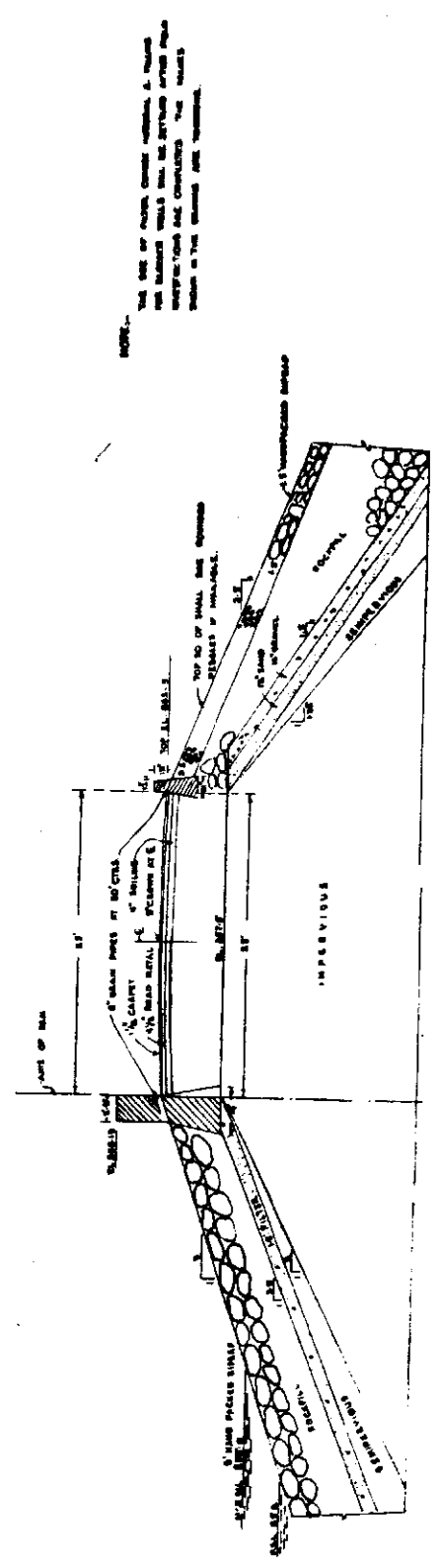
Electrical Circle

Drawn by:- Zorawar Singh

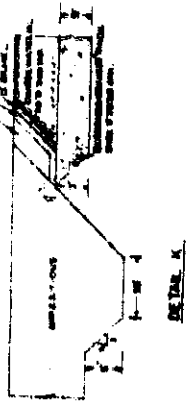


MAXIMUM SECTION

THE OUT OF BALANCE OF THE DAM IS TO BE CORRECTED BY THE CONSTRUCTION OF A CREST WITH AN OVERSIL



CREST DETAILS



NOTE: THE USE OF PILES OR OTHER ANCHORS AT THE DAM SITE MUST BE APPROVED BY THE CONTRACTOR AND THE ARCHITECT BEFORE CONSTRUCTION IS BEGUN.

GOVERNMENT OF HONG KONG CENTRAL WATER & POWER DEPARTMENT		DATE 1977
PROJECT KOWLOON WATER SUPPLY		NO. K.W.P. 103
SHEET NO. SHEET 103		SCALE AS SHOWN

Possible economies in the item of lining in rock-cut reaches Right Bank Canal (Madhya Pradesh)

As a result of detailed studies and discussions with the Chief Engineer, Chambal Project, Madhya Pradesh, the following conclusions have been arrived at:-

1. There is no objection to delete the provision of plastering the sides of canal in rock-cut reaches. Pointing may prove enough.
2. In some test sections, bed lining may be omitted.
3. Where possible the width between side walls may be increased to provide water-way without lining. The rugosity coefficient may be thus kept on the safe-side.
4. Alternatives of the above nature might be brought in during the course of construction in order to secure economy.

It is expected that there will be a period of 5 to 6 years before the canal will run full supply. Thus for this period there will be no risk for inadequate capacity in the Canal.

The omission of the 1" thick mortar on the sides has been suggested because such thick mortar even if applied is likely to crack due to differential shrinkage and thus lose its objective.

In the bed, the heavily pitted section might be made up by ramming of spawls and ballast prepared to suitable consistency with lime mortar thus saving cement which is a critically short material and also saving some cost.

The use of rubble masonry in the form of chip masonry as is practised on the Lakkavalli Project is recommended.

The provision of side walls in stone masonry is considered obligatory from the overall point of view of safety.

Wherever possible the bed width of the canal is recommended to be made 55 to 60 ft. rather than 45 ft. with lining. The actual economics will need to be taken into account for each section because the depth of cutting varies.

The data in respect of each reach where lining has to be done is not yet available. Under the circumstances, only the rough estimation of the probable savings can be made. This is given below :

1. Over the estimates of Rs. 35 lacs that are being sanctioned for lining, a saving of Rs. 12 lacs has been calculated if the bed lining and plaster are altogether altered and the side walls are done in rubble masonry.
2. If cement is substituted by Kankar lime, then an economy of about Rs. 6 lacs is anticipated.

In both cases, side walls have been allowed for as their construction appear obligatory. Some small savings can be had under this by the adoption of chip masonry rather than rubble masonry.

The above savings of Rs. 12 lakhs and 6 lakhs have been computed with regard to the sanctioned estimate of Rs. 35 lacs. On the average if the two methods are combined according to the site conditions, it will be reasonable to assume a saving of about Rs. 9 lacs. If the same saving is applied pro-rata to the total expected cost of Rs. 75 lakhs, the total saving will be of the order of Rs. 20 lacs.

P.S. The total estimated cost of lining in rock cut reaches is now figured at Rs. 1.08 crores (vide Chief Engineer's letter enclosed).

D.O. NO:26801

OFFICE OF THE CHIEF ENGINEER
CHAMBAL HYDEL & IRRIGATION SCHEME
MADHYA BHARAT
P.O. Chambal Hydel Works

Dated 25.9.57

My dear Shri Borker

As desired by you in your D.O. letter No:COPP/I and P/8/57 dated 17th September, 1957, I am enclosing herewith a statement of rocky reaches of Right Main Canal of M.P. portion, where lining is proposed to be done. The rocky reaches given in the statement are as per the final alignment of the Main Canal on which the work is now taken up. Column 7 in the statement gives the estimated cost of earth work and rock cut in these reaches, and column 8 gives the cost of lining of these rocky reaches. The total cost of earth work, rock cut and lining of the Canal in these reaches is now estimated to be about - Rs. 1,61,45,000/- as against the provision of Rs.56,73,780/- for excavation in rock and Rs. 35,00,000/- for lining of the Canal or a total of Rs. 91,73,780/-.

I hope this information serves the purpose.

Encl: 1 Statement
(in two sheets)

Yours sincerely,

Sd/- (A.K. Char)

Shri D.S. Borker,
Secretary,
Consultative Committee
on Irrigation & Power Projects,
New Delhi.

IRRIGATION & POWER TEAM

Copy forwarded with compliments to Member
Irrigation & Power Team.

Sd/- (D.S. Borker)
30.9.57

Member I & P Team (Shri H. Narasinhaiya)

PROBABLE ECONOMIES IN ESTABLISHMENT CHARGES DUE TO
PROPOSED ACCELERATION OF CONSTRUCTION OF CANALS.

The provision for Establishment is based as 11% of 5% of the provision for canals in the original estimate respectively for Rajasthan and Madhya Pradesh.

RAJASTHAN - Right Main Canal

Provision - 52.21 lakhs.

The work is scheduled to be completed by 1961-62.

It is now proposed to accelerate and complete it by 1960-61 i.e. one year ahead.

Work was started in 1953-54. Therefore number of years for completion was to be 8 years but now it will be 7 years.

Therefore economies on the same basis will be $1/8 \times 52.21 = 6.52$ say 6 lakhs.

Allowing for continuance of partial staff for settlement of claims etc. to the extent of 1 lakh Net savings will be Rs. 5 lakhs.

MADHYA PRADESH - Right/Main Canal

Provision is Rs. 84,51,853

Period of construction - 10 years starting from 1953-54, ending 1962-63.

It is now proposed to accelerate and complete it by 1960-61 i.e. two years ahead of the original target date. The work was started in January 1955 or 54-55 instead of in 1953-54. The number of years by which the work must be completed is therefore 7 years.

The reduced establishment charges will, according to this, be $84,51,853 \times 0.7 = 59,16,2971$.

Therefore savings will be 24,88,882.

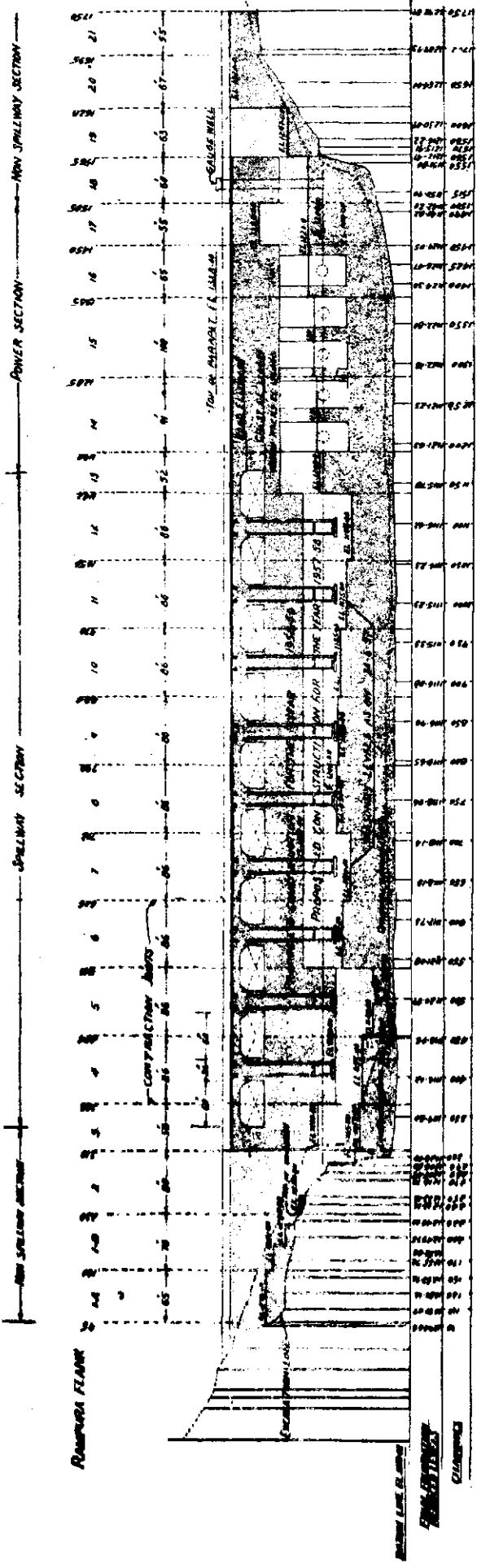
Allowing for settlement of claims and balance of works Rs. 5 lakhs, net savings will be approximately Rs. 20 lakhs.

The total economies on this sub head will be Rs. 5 + 20 or 25 lakhs.

It is expected that as the works get completed and certain staff is to be reduced the technical personnel will either be absorbed in the service of the States or on other major projects.

APPENDIX - 7

CONSTRUCTION SCHEDULE OF
WORKS IN PROGRESS.



CHAMBAL VALLEY DEVELOPMENT
GANDHI SAGAR DAM
LONGITUDINAL SECTION OF GANDHI
SAGAR DAM
Showing Masonry Joints as on 30-6-57
Scale 1" = 100 Feet

REFERENCES
MASONRY AS ON 30-6-57
PROPOSED CONSTRUCTION FOR THE YEAR 1957-58
PROPOSED CONSTRUCTION FOR THE YEAR 1958-59

APPENDIX - 8

Copy of D.O.No. 18764 dated 29-3-57
from the Chief Engineer, Madhya Pradesh to Shri
C.L.Handa.

I thank you for your D.O.letter No.200/C/CE/PL dated 6-6-57. From your letter I understand that you would like to know whether storage could be effected in monsoon of 1958 if additional bulkhead gates are obtained for the Penstock openings in the absence of Penstock gates. Since the visit of the team to Chambal early in March the following developments have taken place :-

1. On account of the delay in release of foreign exchange, supply of the gates for the dam proper is also being delayed by over six months.
2. The Penstock gates will not be available before end of 1958 due to delay in placing orders.
3. The Power House Crane will not be available for erection of these Generating units till middle of 1958.

Under the above circumstances it will not be possible either to store water in the dam or to have the units erected earlier than middle of 1959. Even in case the bulkhead gates are provided for all the 5 openings of Penstocks there is no possibility of regulating the water unless the Penstock gates are installed. Under the circumstances even effecting of initial storage in Gandhi Sagar Dam during 1958 is not possible. Even assuming that we can effect some initial storage in 1958 season no purpose will be served as neither the Power Station, nor the outdoor Switch gear nor the Transmission Lines nor the Sub-stations will be ready by end of 1958. In fact even the quotations for Sub-stations have not been received so far. Quotations for Sub-stations are expected to be received in September

1-2

-2-

next. On the irrigation side the Kotah barrage will not be ready by end of next year. There is therefore no possibility of utilising partial storage in 1958. On the other hand this will unnecessarily cause greater difficulties in construction and difficulties at the dam site and cause unnecessary hardship for people whose lands and houses are to be submerged a year earlier than the probable date when we could make use of such storage. All these aspects have been examined before the revised phased programme was approved by the Control Board.

ABSTRACT OF SUGGESTED ECONOMIES

As a result of studies and discussions with Chief Engineers, the following agreed conclusions have been reached.

1. Ranapratapsagar Dam

The machinery and equipment which will become available from the Gandhisagar Dam construction and Kotah barrage and other works, can certainly be utilized for Ranapratapsagar. The dovetailing of the work of Ranapratapsagar Dam with that of Gandhisagar Dam will unquestionably lead to economy in construction, besides greater efficiency.

Economies that will become possible by such implementation are:

1) Buildings	Rs. 32 lakhs.
ii) Establishment	Rs. 11 lakhs.
iii) Machinery and equipment.	Rs. 11 lakhs.

Total:	Rs. 54 lakhs.

Note: Depending upon detailed construction plant layout, the economy under machinery and equipment is expected to be about Rs. 25 lacs. However, the figure of Rs. 11 lacs has been adopted to remain on the conservative side in case the job is not as much mechanized as Gandhisagar Dam.

2. Acceleration of Canal Construction

Chief Engineer, Chambal, Madhya Pradesh, is in full agreement that acceleration of this work is possible if the organization is strengthened. Already earthwork, has been in excess of the target both for machinery and manual labour. Other difficulties are not regarded insurmountable. Availability of necessary funds is however essential.

Savings under this sub-head have been taken into account for establishment only. The amount estimated is Rs. 25 lacs.

3. Lining of Canals in rock cut reaches
Madhya Pradesh.

Chief Engineer, Madhya Pradesh has agreed to the suggestion made by the Team for simplification of the specifications of lining depending on the nature of the various reaches.

The modifications include omitting of plastering and of bed lining in certain reaches. Widening of the Canal has also been suggested where economically feasible. Side walls are to remain as per estimate. An economy of about Rs. 20 lacs is expected.

Abstract

1. Ranapratapsagar	Rs. 53 lacs (or 67 lacs)
2. Acceleration	Rs. 25 lacs
3. Lining in rockcut reaches	Rs. 20 lacs

	Rs. 98 lacs (or 112 lacs)

Approximately 1 crore.



PROPOSAL FOR TAKING UP THE RANAPRATAPSAGAR DAM WORK UTILIZING FACILITIES AVAILABLE AT GANDHI SAGAR AND KOTAH

A comparison of quantities of major items with those of Gandhisagar Dam

1. The quantities involved in the execution of Rana Pratap Sagar Dam are very much less than those in Gandhi Sagar Dam as noted below:-

<u>Item of work</u>	<u>Gandhisagar Dam</u>	<u>Ranapratapsagar Dam</u>
1. Excavation in mooram etc.	5,00,000 cft.	2,62,500 cft.
2. Excavation in hard rock.	95,00,000 cft.	22,84,000 cft.
3. Drilling	19,500 cft.	18,540 Rft.
4. Grouting	14,000 cft.	14,200 Rft.
5. Concreting	1,20,000 cft.	47,478 cft.
6. Stone masonry	2,62,00,000 cft.	1,32,95,605 cft.
7. R.C.C.	12,86,000 cft.	3,97,600 cft.

2. The excavation in Ranapratapsagar dam in ordinary soil (Mooram etc.) is just 5% that in the Gandhi Sagar Dam and in hard rock a little less than 25%.

Assuming about 200 working days in a season the daily progress to be secured would be 12,532 cft. A worker on an average can remove about 20 cft. per day in rock. A labour force of nearly 625 men is required. Allowing 20% for incidentals like absentees, 800 men in all are needed for the excavation job. There is sufficient working space for 900 men. This number is not too large to be recruited. They are available at the site of Gandhisagar Dam and at Kotah.

3. Excavation, Drilling, grouting, concreting and foundation treatment can be completed in 200 working days although not necessarily in one season but spread over two seasons.

4. As regards stone masonry in the Dam, the total quantity of all kinds of masonry is 1,32,95,608 cft. Which is nearly 50% of that in Gandhi Sagar Dam. From experience gained in this Dam, it is seen that an average 25,000 cft. of masonry can be done per day. According to this the number of days required is 532 days. Allowing 10% for incidentals it is a work of 600 days or three seasons.

The other items of work like R.C.C., Erection of gates, fixing of penstocks etc. can go on side by side with masonry work as the particular stage for each work is reached.

5. It is thus possible to complete the Dam in 4 years. The pre-requisite for such a target is that the design and Layout of the Dam should be complete in all respects.

6. The staff that is immediately required for this work is a Superintending Engineer with two Executive Engineers (Two Divisions) and adequate subordinate staff. One Executive Engineer will be in charge of the Main Dam work and procurement of materials etc., the second one will be in charge of procurement of machinery etc. He will also be in charge of the Running and Maintenance of machinery.

Possible Economies.

(i) Under Buildings.

There is a provision of Rs. 4,23,500 for permanent buildings in the project estimate. The provision of Rs. 2,00,000/- for the construction of an additional Chief Engineer's office at Jaipur is not necessary. The provision for the remaining buildings may be reduced as indicated in the Statement attached.

- 3 -

(a) Permanent

Type of Buildings.	Provision in the estimate.	Proposed provision.
Chief Engineer's office at Jaipur.	2,00,000	-
Rest House at Ranapratapsagar with out-houses.	30,000	30,000
Sub Rest House	30,000	30,000
A.E.'s Office.	13,000	13,000
A.E.'s Residence with outhouses	25,000	15,000
Overseer's Quarters 2 units (3 rooms)	37,500	25,000
Clerks' Quarters 2 units (2 rooms)	16,000	16,000
Class IV Quarters 2 units (2)	4,000	4,000
Telegraph Office and Signaller's quarters (1)	18,000	18,000
	4,23,500	1,51,000

Economy:- 2.72 lakhs.

(b) Temporary

Kotah and Gandhisagar Dam site being easily accessible by Motor Transport, this provision can be reduced as noted below:-

Temporary Buildings.	Provision in the estimate	Proposal for buildings at the site	
Divisional Office building 1 for 3 Divisions.	1,00,000	35,000	One Division to stay.
Executive Engineer's Quarters (3 Nos.)	60,000	40,000	One to be constructed for Civil and one for Elec.

Asstt. Engineer's Quarters (9 Nos.)	1,35,000	72,000	@ 8000/- each.
Junior Engineer's Quarters (37 Nos.)	2,96,000	1,85,000	At 5000/- each.
Accountant	24,000	8,000	@ 8000/- each Only one to be provided.
Tracers and Foremen (6 Nos.)	30,000	21,000	@ 3500/-
Clerks' quarters (58 Nos.)	2,90,000 (30 Nos.)	1,05,000	Only 30 to be provided at 3,500 each as the rest will stay at Gandhisagar Dam.
Class IV (34 Nos.)	34,000	15,000	15 to be provided.
Mistri Quarters (50 Nos.)	1,00,000	1,00,000	
Labour huts (1000 Nos.)	5,00,000	5,00,000	
Store shed (4 Nos.)	1,20,000	1,00,000	
Magazines (2 Nos.)	10,000	10,000	
Workshop (other buildings)	50,000 1,00,000	10,000	Only a service station is enough.
Total:	22,72,500	12,01,000	
15% increase in rate	3,40,875	1,80,150	
Total Buildings.	26,13,375	13,81,150	
Roads in the colony 5 miles @ 15,000	75,000	45,000	3 miles.
	26,88,375	14,26,150	
Add for contingencies at 3%	80,651	42,785	
	27,69,026	14,69,935	

Economy : 13 lakhs.

BUILDINGS - P. PRODUCTION

There is no necessity for the construction of a residence for Superintending Engineer and Executive Engineer. The residence of the Executive Engineer constructed under 'head works' can be utilised by the Executive Engineer staying for Power House operational work. The rest are modified as follows:-

	Provision	Proposal
1. Circle and Divisional Office	50,000/-	Nil
2. Superintending Engineer's residence with out-houses.	40,000/-	Nil
3. Executive Engineer's residence with out-houses.	30,000/-	Nil
4. Assistant Engineers quarters 6 units.	1,50,000/-	1,50,000/-
5. Overseer's quarters 4 units.	50,000/-	50,000/-
6. Workshop Foremen, operators Mechanics etc.	1,87,000/-	1,87,000/-
7. Computers and Draftsmen.	37,500/-	--
8. Tracers and foremen.	16,000/-	--
9. Divisional Accountant	30,000/-	--
10. Clerical staff quarters	2,88,000/-	96,000/-
11. Class IV staff quarters	50,000/-	24,000/-
12. C.A.S. Class II Quarters	25,000	Nil
13. Head Compounder's quarters	12,500/-	12,500/-
14. Asstt. Compounder's quarters	8,000/-	8,000/-
15. Hospital Buildings.	30,000/-	10,000/-
16. School Buildings with Teachers quarters.	20,000/-	15,000/-
17. Club and library buildings.	20,000/-	20,000/-
Water Works Building.	10,000/-	10,000/-
Add 15% for increase in rates		5,82,500/- 87,375/- 6,70,000/-
Labour Huts.	75,000/-	75,000/-
Store shed.	1,20,000/-	50,000/-
Add 15% over last two items.		18,750/-
	Total:	8,13,750/-

Total provision	24.6 lakhs.	
Anticipated expenditure.	8.13 lakhs.	
Savings	16.47 lakhs.	say 16 lakhs.

There is a further provision of Rs. 20,60,000/- for buildings under transmission. No reduction in this is possible, if any has not been taken into account.

The total Economies will be $2.72 + 13 + 16.47 = 32.19$ lakhs or 32 lakhs.

II Establishment.

The total provision under establishment is as noted below:-

(i) Head works	39,15,000
(ii) Production	50,80,000
(iii) Transmission	23,55,000
Total	<u>1,13,50,000</u>

According to programme in the Project Report the work is to be done in seven years starting from 57-58 and completing by 63-64.

It has been suggested that the Civil works only need be taken up at present. The installation of power units as recommended by Shri N.N. Iengar, Member, Consultative Committee is to be taken up later. The dam and appurtenant works can be completed in four seasons. The reduction in cost of Establishment cannot be in direct proportion. The amount that may be needed for the full establishment for 5 seasons can be taken for this purpose. The economy will then be $\frac{39,15,000}{7} \times 52$

or say 11 lakhs.

III. Plant and machinery

Plant and machinery required for the construction of Rana Pratap Sagar Dam is given in the appendix (appendix XIV of Report). This does not provide for i) Pumps required for water supply of colony and works, and dewatering of foundations II) Machinery for Earth work and compaction and iii) Equipment such as Diesel locos, Concrete buckets and tramlines for conveying concrete from batching plant or mixers to site of works. There is however a lump sum provision of Rs. 5 lacs under the head 'provision for other machinery' which is not enough for the purchase of the above equipment.

From the list of equipment available at Gandhi Sagar Dam (vide enclosure), it is seen that most of the machinery listed in the equipment required for Rana Pratap Sagar Dam is available. The Gandhisagar Dam work is in a fairly advanced stage.

By properly phasing the programmes of the two projects, it will be possible to release the machinery without dislocating the programme of Gandhi Sagar Dam. The machinery and equipment at Kotah obtained for Barrage and canal construction will also be available.

A statement showing equipment and machinery required for Rana Pratap Sagar to be obtained from either Gandhi Sagar Dam site or from Kotah is enclosed. The transfer value is based on the anticipated work that these would have been put into in those works.

According to this the total value comes to Rs. 24,87,000/-

The provision made in the project Report is 32,50,000 and including the cost of pumps etc. referred to above this will come to Rs. 35,25,000/-

The resulting economy will be of the order of Rs.10.88 lakhs.

Foreign exchange for the total value of equipment will be saved.

Abstract

Buildings	22 lakhs
Establishment	11 lakhs
Plant and Machinery	11 lakhs
Total	----- 54 lakhs.

As a result of our study, it has been seen that the construction equipment of the value of Rs. one crore is employed at Gandhisagar Dam. This includes two cable ways of cost of about Rs. 11 lakhs and crushing and batching plants, prices of these two items Rs.14 lacs.

The extent to which the job of Ranapratapsagar is mechanized will only be determined when a detailed construction plant layout is prepared. However, it is considered that for completion of the Ranapratapsagar work with optimum speed, it may be possible to utilize equipment to the extent of Rs. 50 lacs out of the total value of Rs. 1 crore. Under the circumstances allowing for full wear and tear which is rightly chargeable to Gandhisagar Dam, it is considered that the overall economies in the execution of the two jobs by proper detailing may be of the order of Rs. 25 to 30 lacs.

However to remain on the conservative side, the Team has put forward a figure of only 11 lacs.

Appendix 11 (A)

Power Supply position in the area covered by the Chambal Transmission system in Madhya Pradesh.

This area comprises the former states of Madhya Bharat and Bhopal. This is served at present by several steam and diesel power stations. Among the steam power stations, the major ones would be the following:-

TABLE 1

Station	Installed capacity KW	Addition in 2nd Plan. KW	Firm capacity by 1960-61 KW
<u>Public Utility Plants</u>			
Indore	2-5000 1-3700 1-3000 1-1800	-	10000
Gwalior	1-2500 1-1000 2-500	-	2500
Bhopal	1-2500	2-2500	5000
			<u>17500</u>
<u>Industrial Power Plants</u>			
Gwalior Rayons Ltd. Nagda.	1-5000 1-3000	1-5000	8000
J.C.Mills Gwalior.	1-2250 (Old) 1-4500	-	2000
A.C.C.Ltd. Morena.	2 x 1000	-	1000

The load survey of this area has been carried out by the C.W.P.C. recently. The estimated demands are given categorywise as under:-

Table 2

Sl. No.	Category.	Aggregate demand in KW.		
		1955-56	1960-61	1965-66
<u>MADHY. DEPT.</u>				
1.	General lighting	4394	7620	15200
2.	Street lighting.	438	683	1000
3.	Water Works.	1855	3789	5988
4.	<u>Industries:</u>			
	a) Small	2444	8368	16750
	b) Medium.	1039	5720	11700
	c) Large.	704	5525	11200
	d) Heavy.	900	21612	53900
	e) Provision for unforeseen large & heavy industries during 3rd & 4th Plan periods.			3600
5.	Irrigation.	518	5898	12158
6.	Bulk supply to Rly. & E.E.S.	717	1547	2421
Arithmetical Total		13,009	60,762	133,917
The simultaneous demand on the system after applying diversity factor.		9215	52238 *	115500*
* includes conversion demands of steam & diesel drives amounting to			5100	21500

It is stated that the reason for the increase in the estimated demand by 1960-61 to be over 5 times the demand that existed in 1955-56 is due to the fact that although a good potential market existed, cheap power was not available in the first Plan period. It is expected that a large number of existing industries generating their own power in small in-efficient power plants, will change over to hydel power from Chambal. The conversion demands from existing steam, diesel and non-utility electric drive are estimated to be 5100 KW by 1960-61 and 21500 KW by 1965-66.

There is said to be ample scope for lift irrigation as Department of agriculture has assisted by way of 'Taccavi' loans in the construction of 22000 irrigation wells during the first Plan period and it is proposed to construct about 25000 additional wells in the second Plan period. It is assumed that by 1960-61

25% of the existing 1500 diesel-driven pumps would be converted to electric drive and an additional 200 electric driven pumps would be installed. A demand of 5898 KW is estimated by 1960-61.

It is stated that the Department of Industries has made provision of Rs. 4.2 crores for the development of industries in the state during the 2nd Five Year Plan. Out of this amount, Rs. 2.5 crores is for small scale industries, including the setting up of training centres to improve technical skill, demonstration centres, group industries schemes, assistance to industrial cooperatives etc., Of the training schemes, the establishment of a Central Wood working Institute at a cost of about Rs. 20 lakhs with a wood seasoning, wood preservation and a mechanised workshop is the most important. Under group industries scheme, it is proposed to set up the manufacture of umbrella ribs, cycles, pressed metal products, hurricane lanterns, lead pencils, electrical consumer goods etc. It is also proposed to establish Industrial Estates in the vicinity of Indore and Gwalior.

With regard to large & heavy industries, the following demands have been taken into account:-

Industry	Demand 1960-61 KW	Demand 1965-66 KW
1. Textiles at Gwalior (existing)	self- generation	4000
2. Rayon at Nagda	1000	8500
3. Sugar	3500	4000
4. Cement		
a) Bannore (existing)	2000	2000
b) Mochuch (new)	2500	2500
c) Another factory	-	2500
5. Starch at Mandasaur	110	110
6. Rolling Mills at Indore.	400	400
7. Workshops at Gwalior	1200	1700
8. a) Gwalior Potteries	228	285
b) Ratlam "	150	225
c) Insulators at Mandasaur.	500	1000
9. Paper factory near Gwalior	1500	2700
10. Cotton Seed oil at Ujjain.	100	200
11. Power alcohol near Ratlam.	100	200
12. Hard Board factory at Bastana	300	1500
13. Caustic soda at Nagda	2000	3000
	<u>22000</u>	<u>35000</u>

The Rayon factory at Nagda has its own generating plant of 8000 KW capacity and it is proposed to add another set of 5000 KW capacity during the second Plan. The demand of the factory has been estimated at 7000 KW in 1960-61 and 8500 KW in 1965-66 and included in the above table. As the factory has its own generating plant, we may not take its demand on the Chambal Grid for the present. Hence the demand due to large and heavy industries may be 15000 KW in 1960-61 and 27000 KW in 1965-66.

BHOPAL.

The load forecast in Bhopal as assessed by the C.W.& P.C. is given below.

	<u>1955-56</u>		<u>1960-61</u>	<u>1965-66</u>
	Day Peak KW	Night Peak KW	Day Peak KW	Day Peak KW
General Lighting	184	920	551	651
Street Lighting	-	98	-	-
Water Works.	156	153	477	532
Industries.				
Small	732	441	2517	3704
Medium	98	98	225	250
Large	450	450	2372	2840
Irrigation.	209 (diesel drive)	120 (1660 KW)	3263	4232
Railways	40	40	30	100
Total	1869	2320	9485	12309
Simultaneous Demand allowing for diversity etc.		2115	8494	11100
Additional load due to Bhopal being selected as capital of Madhya Pradesh.		-	3000	5000
Total		2115	11,500	16,100

It is stated that the erstwhile Government of Bhopal had allocated a sum of Rs. 159 lakhs for the construction of several barrages and for sinking of 2000 wells. The Government had also decided to issue taccavi loans recoverable in

in 25 years with 25% subsidy to farmers for sinking wells. It is expected that by the end of 2nd Five Year Plan, at least 25% of the wells and 50% of the proposed tanks and barrages would use electric power for lift irrigation. The area commanded by the above schemes will be 21250 acres requiring 4250 h.p. or 3186 kW of connected load or a demand of 1911 kW.

It is assumed that industries at present using steam and diesel drives would be converted to electric drive by 1960-61. With regard to small industries, the estimated connected load in 1955 with steam and diesel drive was about 1000 kW, and with electric drive, it was 1200 kW. There is only one medium industry, an ice factory with a demand of 98 kW. Among the large industries, the existing ones are textiles, straw products and sugar. Their demand is estimated at 1320 kW by 1960. It is expected that new industries such as a spinning mill with 20,000 spindles, a hardboard factory & a flour mill, will be started resulting in an additional demand of 1050 kW by 1960.

Annexure-2-

Power supply position in the area covered by the Chambal transmission system in Rajasthan.

This area comprises the districts of Jaipur, Sawaimadhopur, Tonk, Bundi, Kotah, Bhilwara, Bharatpur, Alwar, Udaipur, Jhalawar, Chittor, Dungarpur, Banswara, and Parbetsar subdivision of Nagaur district, and the former state of Ajmer.

This area is served at present by several thermal power stations, five of which are owned by industrial establishments. Among the steam power stations, the major ones would be the following:-

Station	Installed capacity KW	Plant to be added during 2nd plan. KW	Total firm capacity 1960-61. KW
Jaipur	3x2500	1x5000 1x5000	10,500
Kotah	500	2x1000	3,000
Bhilwara	-	2x1000	
Bharatpur	-	2x1000	
Alwar	-	2x1000	
			16,500
Sawaimadhopur (Cement works)	1x5000	1x5000	5000
Lakheri (Cement works)	1x6000 1x3500	-	3500

According to the Load Sureys made by the C.E.P.C. the following demands are expected in the Chambal region:-

Rajasthan.

Day time loads	<u>1955-56</u> KW	<u>60-61</u> KW	<u>65-66</u> KW
General Lighting	900	1300	1900
Water Works	1200	2500	3000
Irrigation	1400	2800	5100
Industries			
Small	2800	6300	12000
Medium	500	2200	4600
Large	200	1900	3700
Heavy	2000	31000	70000
Bulk Supply to Rys. & E.E.S.	400	800	1400
	<hr/>	<hr/>	<hr/>
Total simultaneous Demand allowing for diversity etc.	9500	48000	100,000.

The figures for 1960-61 & 1965-66 include the following major loads.

	<u>1955-56</u> KW	<u>1960-61</u> KW	<u>1965-66</u> KW
<u>Jai pur.</u>			
Engg. Works	1625	2850	2850
<u>Sawa imedhour</u>			
Cement	3500	9000	10,000
<u>Lakheri</u>			
Cement	6000	8500	8500
<u>Za...ar</u>			
Mining	-	2000	25000
Unforeseen large & heavy industries.		8500	44500
		<hr/>	<hr/>
		30850	68350

It would be seen from the above table that a fairly large component of the total load figure has been assigned to unforeseen industries. In order to find out which of the industries would be definitely established, discussions

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were held with the Chief Electrical Engineer, Rajasthan and the following load picture has resulted.

	<u>1960-61</u> KW	<u>1965-66</u> KW
<u>Jaisalmer</u>		
Engg. Works	4000	5000
Copper Smelter	-	5000
<u>Samthar</u>		
Chemical industries	2000	10000
<u>Sawai madhour</u>		
Cement	4000	5000
Wagon factory	1500	2000
<u>Lakheri</u>		
Cement	4000	5000
<u>Kotah</u>		
Nylon	600	1000
<u>Chittor</u>		
Cement	-	4000
<u>Udaipur</u>		
Zinc smelter	7000	12000
Textiles	750	1000
<u>Zawar</u>		
Mining	3000	3500
<u>Bharatpur</u>		
Wagon factory	<u>1500</u>	<u>1500</u>
Total	28350	55000
as against	<u>30850</u>	and <u>68350</u>

Ajmer

The load forecast made by the C.W.P.C. is as follows:

	<u>1955-56</u> KW	<u>1960-61</u> KW	<u>1965-66</u> KW
Lighting	N-4	700	1100
Water Supply	400	800	1500
Industries			
Small diesel drive (4700 B h p)		4000	6000
Large			
Railways:1800		2500	3000
Textiles:Self-generat- ion		2500	3000
Irrigation) diesel drive pumping)		900	2900
		<u>11400</u>	<u>17500</u>
Simultaneous demand allowing for diversity etc.)	3500	10,000	15000

The above demands have been estimated assuming that necessary financial and technical aid would be forthcoming for encouraging installation of small industries lift irrigation and water supply schemes. The demand for power for small scale industries provides for conversion of existing steam and oil engine drives of industries processing agricultural products, woolen goods industries in Beawar and other cottage industries.

The large scale industries consist mainly of the Railway Workshops at Ajmer and the textile mills at Beawar. It is stated that there is not much scope for setting up new major industries in the state for want of adequate supply of water.

ANNEXURE 3.

Modified Load Estimates

Taking into consideration the loads due to large and heavy industries that will be definitely coming, as detailed in Annexures 1 & 2 and assuming that the other types of load will double in 5 years, the load forecasts may be modified as below:-

MADHYA BHARAT REGION

1960-61

	KW
Large & Heavy industries,	15000
plus 2 (1955-56 demand excl. large & heavy industries)	
i.e. 2(9215-1604) -	<u>15000</u> <u>30000</u>

1965-66

Large & heavy industries	27000
Plus 2(1960-61 demand excl. heavy industries)	
or 2 (15000)	<u>30000</u> <u>57000</u>

	1960-61	1965-66
Bhopal	5000	10000
(Additional load in Bhopal due to its being selected as Capital of Madhya Pradesh)	3000	5000
Heavy Electrical Plant Factory	<u>2000</u>	<u>10000</u>
	<u>10000</u>	<u>25000</u>

Rajasthan

1960-61.

Large & Heavy industries	28400
Plus 2(1955-56 demand excl. Large & heavy industries)	
i.e. 2(9500-2200)	<u>14600</u> <u>43000</u>

1965-66

Large & heavy industries	55000
Twice 1960-61 load excl. large & heavy industries i.e. 2x14600	<u>29200</u> <u>84200</u> say <u>84000</u>

Ajmer

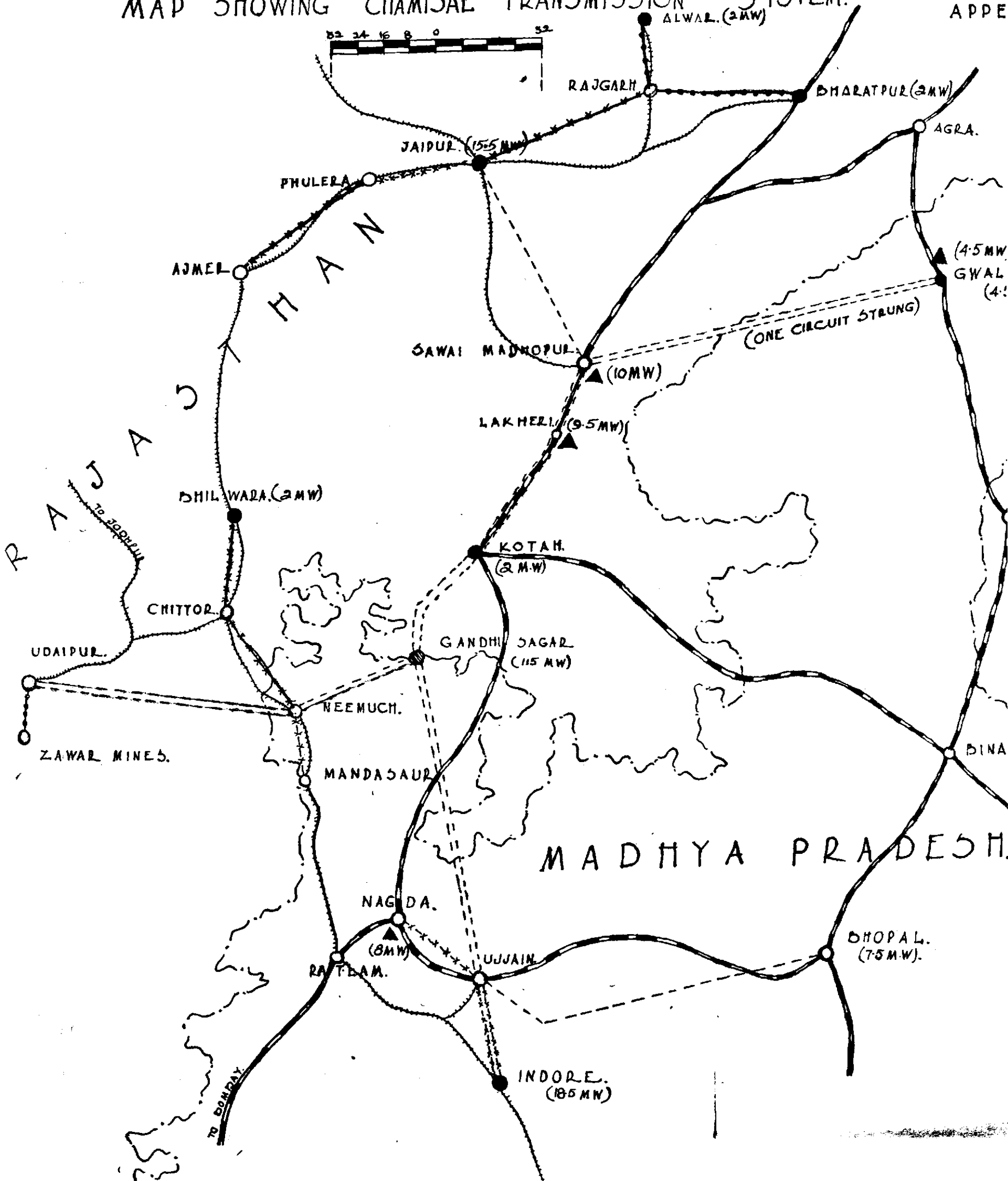
1960-61	5000
1965-66	10000

Hence total demand on Chambal grid may be as given below:

	<u>1960-61</u>	<u>1965-66</u>
Former Madhya Bharat region.	30000	57000
Bhopal	(5000 (3000	(10000 (5000
Heavy Elec. Plant	<u>2000</u>	<u>10000</u>
Sub-total	<u>40000</u>	<u>82000</u>
Rajasthan	43000	04000
Ajmer	<u>5000</u>	<u>110000</u>
Sub-total	<u>48000</u>	<u>94000</u>
Grand total	88000	176000

MAP SHOWING CHAMBAL TRANSMISSION SYSTEM.

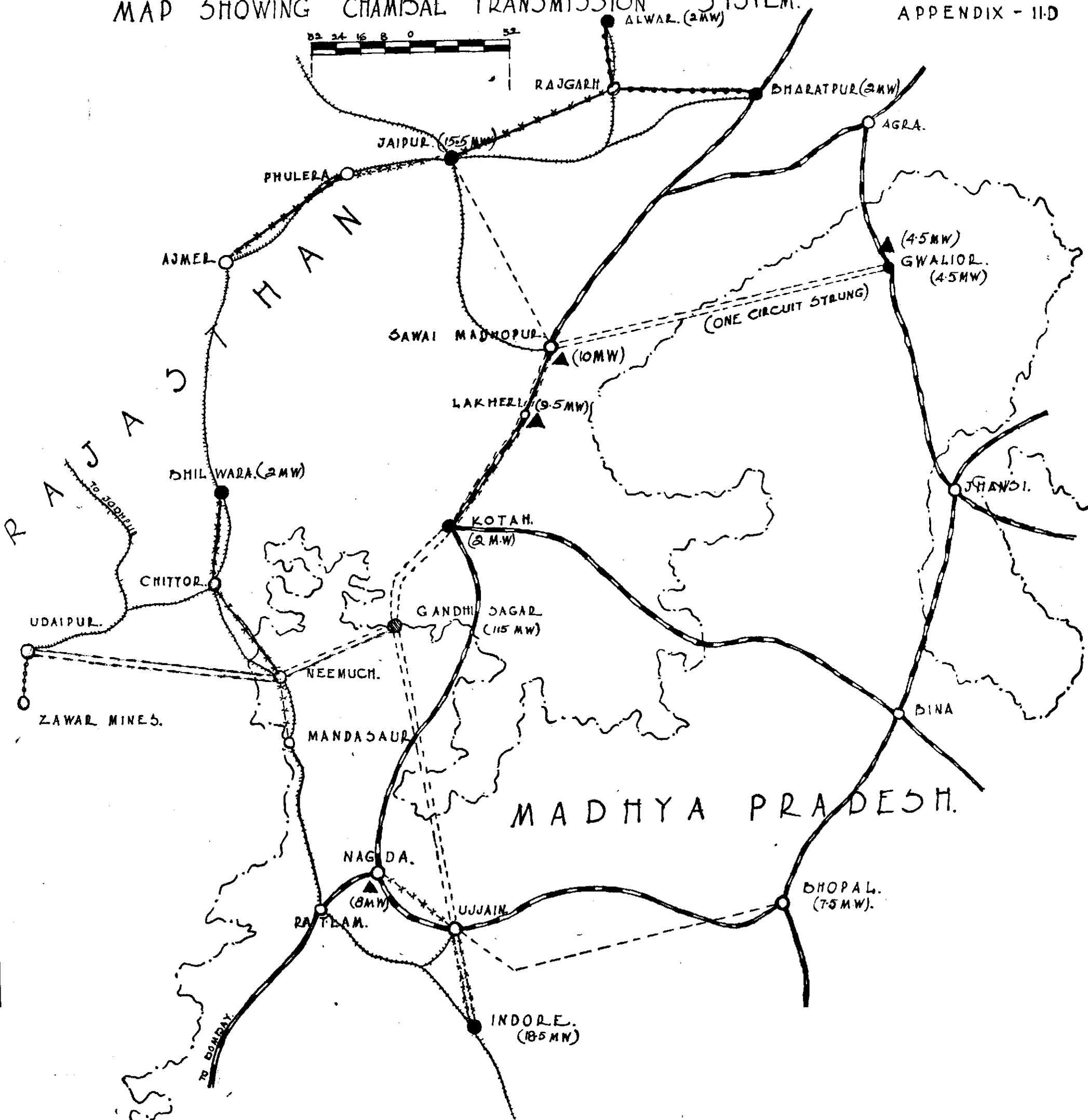
APPE



<p>STATE BOUNDARY LINE</p> <p>RAILWAY LINE (BROAD GAUGE)</p> <p>RAILWAY LINE (METER GAUGE)</p> <p>THERMAL PLANT (PUBLIC SUPPLY)</p> <p>DO (INDUSTRIAL)</p>	<p>HYDRO PLANT</p> <p>132 KV LINE</p> <p>66 KV LINE</p> <p>35 KV LINE</p> <p>(MW) FIGURES RELATE TO POWER STATION CAPACITIES.</p>	<p>LINES IN RED ARE TO BE SANCTIONED</p>
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MAP SHOWING CHAMPAL TRANSMISSION SYSTEM.

APPENDIX - II-D



<p>----- STATE BOUNDARY LINE</p> <p>———— RAILWAY LINE. (BROAD GAUGE).</p> <p>----- RAILWAY LINE. (METEL GAUGE)</p> <p>● THERMAL PLANT (PUBLIC SUPPLY)</p> <p>▲ — DO — (INDUSTRIAL)</p>	<p>● HYDRO PLANT.</p> <p>----- 132 KV LINE.</p> <p>-x-x-x-x- 66 KV LINE.</p> <p>----- 33 KV LINE.</p> <p>(MW) FIGURES RELATE TO POWER STATION CAPACITIES.</p>	<p>LINES IN LED ARE TO BE SANCTIONED</p>
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Programme of Construction of Chambal Transmission system.

Particulars.	Voltage and No. of circuits	Distance in miles	Towers	Status about line materials Conductors & Insulators	Scheduled date for completion	Present status regarding erection
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MADHYA PRADESH

1. Gandhi Sagar-Ujjain	132 kV, d/c	118	Ordered	ordered	May 1959.)
2. Ujjain - Indore	66 kV, d/c	32	-do-	-do-	August 1958)
3. Ujjain - Bhopal	132 kV, s/c	116	-do-	-do-	March 1960)
4. Ujjain-Nagda-Retlam	66 kV, s/c	62	-do-	-do-	July 1959)
5. Gandhi Sagar-Neemuch	132 kV, s/c	47	-do-	to be ordered	" 1959)
6. Neemuch-Mandsaur	66 kV, s/c	29	-do-	soon "	March 1959)
7. Sawaimadhapur-Cwalior	132 kV, d/c	116	-do-	-do-	July 1960)

Grid Substation equipment:

Tenders due on 1.10.57
Tentative date for commissioning May 1960.

RAJASTHAN

1. Gandhi Sagar-Kotah-Swainadhapur	132 kV, d/c	115				
2. Swainadhapur-Jaipur	132 kV, s/c	75				
3. Kotah-Ajmer	132 kV, s/c	120				
4. Neemuch-Udaipur-Zawar	132 kV, s/c	100				
5. Neemuch-Chittor-Bhilwara	66 kV, s/c	75				

Tenders due on 30.9.57

Grid substations equipment:

Specifications ready enquiries to be issued.

Report on agricultural aspect of
Chambal Valley Project.

Foreword

This is a brief summary of the preliminary draft report of about 80 typed pages. The report is divided in three parts - part I dealing with likely changes in the pattern of agriculture with the advent of canal irrigation and economic justification of this project; Part II with serious problems already existing, or which are likely to arise with canal irrigation which may militate against the success of the project or even render canal irrigation harmful in certain areas and Part III steps to be taken immediately by cultivators, the States and the Central Government to solve various problems and to derive maximum benefit from canal irrigation.

The proposals and recommendations made in the report are the outcome of mutual discussion with officers of Irrigation, Revenue and Agriculture Departments of the States concerned.

Part I. Pattern of Agriculture

1. Present pattern of agriculture is rather discouraging-people largely lazy and not inclined to work, fields terribly infested with ber bushes, even elementary principles of dry farming being ignored, farm-yard manure not much cared for; green manuring and composting little practised, standard of cultivation too low and accordingly crop yields also low-using 40-50 seers of wheat seed per acre and getting 4-5 mds. of yield per acre; very little of cash crops being grown, cows yielding only a few ounces of milk each, in the absence of any green fodder. All this is likely to undergo revolutionary change with the supply of canal water. Area under cash crops like cotton, sugarcane, fruits vegetables, potatoes & groundnuts is bound to increase immensely. Although there is difference of opinion between

Irrigation & Agriculture Officers about likely crop rotations in future and a conference of Irrigation & District Agricultural Officers is desirable to arrive at some conclusions, yet it is clear that future pattern of agriculture will largely depend to what extent the Agriculture Departments of two States are able to solve numerous problems facing the cultivators which will determine the relative profits from various crops.

2. The economic justification of the project lies not so much on the assumed increase in yield of cereals of a few maunds per acre, because of canal water (which may not accrue in case of Kharif cereals on account of abundant supply of summer rains) as on the immense scope for improvement in agricultural practices and introduction of cash crops. Because of low standard of cultivation, and accordingly low yield of crops, there can be immense increase in "per acre yield of crops" by wholesale adoption of even one or two agricultural practices out of many i.e. use of suitable varieties of crops, proper time of sowing, cultural, irrigational and manurial practices, green manuring, composting, eradication of pernicious ber bushes etc. or by greater production of cash crops. Horticulture and sugar industries offer remarkable scope. In short the extent of economic success of the project or estimated economic return, will depend, not so much on mere supply of water, as on the extent to which the suggested agricultural improvements are brought about. This points to the need of closer co-ordination between Agriculture & Irrigation Departments and appreciation by the latter, of the agricultural problems. Agricultural Departments as they exist at present in these two States, have neither the staff & nor the finances, to carry out the work on the desired scale.

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3. Need for Agricultural Research: The advent of canal irrigation must bring about radical changes not only in the type of crops grown but in the very pattern of farming or agricultural practices which are going to have tremendous effect on the income of farmers or even on canal revenue. It is therefore urgent that experiments should be initiated at once to find answers to at least some of the elementary but fundamental questions that would be asked such as (a) varieties of crops best suited under irrigated conditions, time of sowing, seed-rate, irrigational, manurial and cultural requirements etc., which apparently looking trivial, have nevertheless tremendous effect on the yield as explained in detail in the report-variety alone may cause a difference of 100 per cent or 5 to 10 mds. per acre in wheat alone; likewise other factors can depress or increase yield by 10%. While other States (where Agricultural Departments have been in existence for long) are in a position to give advice, to the cultivators on every aspect of farming, position in these two States is different. Although, now the two biggest States in India, they are, nevertheless, an outcome of merger of a large number of princely States - many of them small ones, which could not have been expected to do much of research and development work for lack of funds and staff. No doubt two Agricultural Colleges in Rajasthan and four in Madhya Pradesh have been recently started and research stations are in the course of establishment but the agricultural officers in these two States will have to do immense amount of work and that also, in the shortest possible time, to catch up with other States.

So far as Chambal Valley Area is concerned, the Agricultural Departments are not in a position to give authentic advice on any agricultural matter. The best they

can do is, to make a guess on the basis of work done in other States, but authentic advice is possible only on the basis of actual experiments conducted. In consultation with agricultural experts of both Rajasthan and Madhya Pradesh, and after visiting both Govt. Farms and private farms where experiments work can be started, a list of experiments, the lines on which they are to be conducted, and also the rough cost involved, have been prepared and given in appendix. Experiments (requiring collection of detailed data) will be conducted on Govt. Farms while simple type experiments such as relative suitability of various varieties of crop, time of sowing, seed-rate or irrigational practices etc. would also be conducted on private farms, partly to confirm the results obtained at Govt. Farms & partly for demonstration to the public.

4. G.C.A. & C.C.A. (Need for their verification)

Canal authorities for calculating figures of G.C.A. & C.C.A. have naturally depended upon revenue record and Survey of India reports. I observed however in some localities, enormous areas of undulating nature such as near Etawah and Pipalada etc. which (although now under so called crops and hence included in C.C.A.) would not be amenable to flow irrigation & deserves to be excluded from C.C.A. Re-checking is necessary to determine the magnitude of difference between the C.C.A. theoretically calculated and what actually exists on spot, in order to determine the amount of water likely to become surplus. This becomes all the more important, as water allowance on these canals, is already far in excess of that allowed in Bhakra Mangal Project (5 cusecs as against 2.5 cusecs) in spite of much lower rainfall and little danger of water-logging in the latter. If, as a result of this enquiry, water is found to be surplus it can be profitably utilised in several other ways such as creating "Sugarcane Belts" where sugarcane

where sugarcane can be concentrated which would necessitate higher water allowance.

Secondly it may seem desirable to earmark area or fields in each locality which are to receive irrigation so that cultivators may know which of their fields come under the commanded area and they may proceed with preparation in advance.

Part II :

Some of the serious problems already existing or likely to arise with the advent of canal irrigation.

(1) Water logging and high salt contents.

Keeping in view (a) the sad experience of canal irrigation in Punjab where several million acres of once fertile land have been ruined by water-logging and alkalinity largely, as a result of seepage of water from canals, distributaries, and minors, even though the sub-soil water level was very low to start with (in some cases 100') and further U.P. Delhi or even Harsi Dam Canal Area in Madhya Pradesh itself, have fared no better, the high water table in the wells and their salt contents in Rajasthan and Madhya Pradesh (as given in detail in the report) points to serious danger of water-logging, at least in areas like Digod Tehsil in Rajasthan and Gohad Tehsil in Madhya Pradesh. In the latter, water table in Monsoon already rises to ground surface; both Ph and T.S.S. are high in some places as much as 3000 to 6000 P.P.M; the land already suffers from what is called "Soil Sickness"; crop yields even in the presence of seasonal canal water, have dwindled down to lower level than in the adjoining barani areas. The supply of more water in this area from the proposed perennial canal to the extent of 1.5 lakh acres, is fraught with serious danger which requires detailed discussion. If danger, at least in some areas, is found to be real, then steps must

be immediately taken to prevent perennial canal irrigation proving a curse than a blessing. Various methods to deal with the situation are discussed in the report, such as (i) lining of canal in specified areas susceptible to water-logging. (ii) reducing water allowance for such areas or (iii) cutting out canal water but supplying instead, water from tubewells sunk in that very area (iv) drainage ditches (v) reclamation of salt infested lands or (vi) encouraging installation of pumping sets in the numerous percolation wells already existing there etc.

(2) Kankar layers in numerous localities are met with & experiments are urgently required to be undertaken to determine their permeability to water and roots and also whether, with continuous canal irrigation, they will tend to disintegrate or become worse. Results of these experiments, will determine the irrigation practices to be followed in various localities.

(3) Hard pan: Likewise hard pan exists in some places simple experiments should be carried out i.e. in two adjoining plots, hard pan being broken by implements in one case & left undisturbed in the other, to see the seriousness or otherwise of this problem and to the extent it is required to be tackled.

(4) Consolidation of land holdings is desirable before canal water becomes available to facilitate most economical use of water and for establishing Waraband; States may be asked to what extent steps are being taken in this direction.

(5) Pernicious Ber Bushes : The extent to which lands, both in Rajasthan and Madhya Pradesh, are infested with pernicious ber bushes, can only be appreciated in full by personal observations. Infestation varies anything from 10% to 100%. Removal of this pest alone, in the opinion of the Deputy Director of Agriculture Madhya Pradesh, can bring an additional

yield of 3 to 4 mds. per acre on an average for the State as a whole, and in his opinion, the area physically occupied by ber bushes is about 50%. Apart from waste of land, they rob the soil of its moisture & plant nutrients which would otherwise go to crop. All the officers of Agriculture, Irrigation & Revenue Depts. agree with me that steps should be taken at once to get this eradicated for which various suggestions have been offered i.e. (a) getting it uprooted by Govt. tractors or and (b) by privately owned tractors but through the Agency of Govt. and in both cases recovering the cost in 5 yearly instalments (c) the eradication charges being calculated not on acreage basis but on hourly basis for which the tractor is worked, so that cultivators are induced to utilise Govt. tractors only for severely infested areas (d) issuing notices to the land owners to have it eradicated before water becomes available, failing which, they will ~~get~~ no water but will have to pay irrigation charges.

(6) Soil erosion : Although not directly concerned with the proposed canal project, yet it would be well for all to appreciate that soil erosion is causing greatest havoc both in Rajasthan and Madhya Pradesh; in the former State, gullies and ravines alone, measuring about 1540 miles in length cover no less than 500 square miles besides large areas eroded by small nullahs. About 30% of total area in Rajasthan has been already ruined by erosion. Erosion in all forms--sheet, rill, gullies & ravines, is taking place all over; sheet erosion although imperceptible is nevertheless continuously washing away fertile soil and this is likely to be intensified by heavy flow of canal irrigation unless necessary precautions are taken. Erosion in some places have eroded all the soil cover from the rocks; and lands which were once producing good crops, are now deserted. Even kankar layers have appeared near the ground because of constant removal of good soil from top. Hundreds of villages, becoming

inaccessible due to soil erosion on all sides, have been deserted. In Madhya Pradesh it is almost equally bad in Districts like Bhind and some places near Rajeshwar and Baroda in Morena Dist. In Bhind Dist. almost 30% of the total area is ruined by soil erosion. In fact soil erosion (producing big gullies for bad characters to hide) has contributed greatly to the dacoity problem which is costing the State so heavily. Remedies against soil erosion are well known and practised extensively all over the world which comprises, in the case of sheet and rill erosion-strip cropping, bunding, contour cultivation, terracing, levelling, proper crop rotation etc. and in case of gullies and ravines, prevention of grazing and felling of trees encouraging growth of hardy and drought resistant trees, and plugging gullies to prevent further on-slaught etc. etc. The problem is one that should be seriously tackled by the Central Govt. as it may be beyond the financial resources of the State Govts. which for want of finances, can only tinker with the problem. Even in the U.S.A. soil conservation is a Federal subject.

Part III : Task ahead :

(1) In addition to the experiments already suggested in Part I para 3 "Need for Agricultural Experiments" and verification of G.C.A. and C.C.A. and those in Part II relating to kankar, hard pan, ber bushes, water-logging etc. other problems requiring attention are summarized below.

(2) Phased Programme : as regards phased programme of Irrigation and development period, detailed information is given in the report about the localities and acreage expected to come under irrigation within 2,3 years. But the irrigation authorities consider that it will take 10 years before whole of the available water begins to be fully utilised by the cultivators who are said to be unprogressive and resourceless and not likely to make full use of water by levelling the land or contour cropping or removal of ber bushes etc. The matter should be discussed in a

meeting as it will be pity not to make serious efforts to curtail this development period of 10 years and to allow the wastage of water for long, calling it as " natural course". Further it will be desirable to mark out exact area in each locality which are to receive irrigation.

3. Horticulture industry : Horticulture offering greatest scope, can bring about revolutionary change in the agricultural economy of these States. Unfortunately we, in India, have yet little conception of what "fruit farming" can mean to an individual or to the economy of the State. California, with a population of only a fraction of that in Rajasthan, has over two million acres under fruits bringing annual income of hundreds of crores of rupees. Even though area under fruits at present is insignificant in both the States yet the presence of a good number of fruit trees, flourishing here and there and laden with fruits of excellent quality, indicate remarkable scope. Bunches on some orang trees were seen carrying two dozen fruits each, and some kaghzi lime plants are said to yield even five mds. of fruits each, giving an income of even Rs.100 a tree. Fruits are more badly needed in India than even the cereals, as they are something more than mere food; our present fruit production requires to be atleast doubled to meet even the basic need of the country. Many fruits "per unit area of Land" produce more food and give greater return to the grower, greater employment to labour and greater income to the Govt. than most other farm crops, nor is the price of fruit likely to be unremunerative within for-seeable future. There is scope for establishing a really first-class. Horticulture Industry; and Agriculture Department should resort to mass scale production of nursery plants for supply to public at

"no profit no loss basis" and even then the cost price will only be a fraction of that charged by private nursery men. In this connection, the gardens of erstwhile Rulers like that of His Highness Kotah, can play valuable role by supplying (at reasonable price) budwood from high quality fruit trees, growing in their gardens. Immediate survey should be taken in hand to locate trees of outstanding merit in private or Government gardens from which budwood could be taken for mass scale production of nursery plants of pedigree stock, thereby laying the foundation of fruit industry on most scientific lines.

4. Sugar Industry: Sugar industry, also like horticulture, offers greatest scope. In the presence of two biggest factors i.e. plentiful supply of water and fertilizer and the absence of severe frost, there is no limit to yield of cane; in fact cultivators in some places in India are already getting as much as 1500 mds. cane per acre as against an average of 300 mds for India. Hirachand Walchand Farm in Bombay State gave in one year highest yield in the world - almost 3000 mds per acre. In order to get required quantity of water, cultivators in Bombay Presidency do not mind paying as high as 100 to 120 rupees per acre for irrigation. Due to abundant supply of canal water and much greater "water allowance" in the proposed canal area than in other States, there is no danger of water shortage and nor of fertilizer, both artificial and organic, and there is also little fear of frost and all these factors must contribute to very high yield of cane.

Most desirable course will be to earmark certain area as "Cane Belts" where ~~cane~~ cultivation may be concentrated, with due regard to soil, water conditions and other factors. Further, two biggest factors in "Recovery of sugar from cane" are (a) time-lag between cutting of cane in the fields and its crushing

in the mills i.e. shorter the stalk, greater the recovery (b) correct ripeness of cane when cane is crushed, besides of course suitable varieties & good practicable practices. Since all these factors can be fully provided if cane cultivation is concentrated in certain areas, in other words these cane belts to give not only very high yield but also high recovery of sugar. In Rajasthan and Madhya Pradesh we can aspire to create Cuba and Hawaii which are so famous for their sugar industry. Area under cane at present is insignificant i.e. about 65,000 acres and 75000 acres in Rajasthan and Madhya Pradesh respectively as against about four lac Acres in Punjab (which in size is hardly one third of Madhya Pradesh) and only a small area in the Districts coming under Chambal Valley Project i.e. about 800 acres in Rajasthan and about 7,000 acres in Madhya Pradesh. Each of these States is going to be bigger in size than even U.P. which alone has got over 25 lakh acres under sugarcane and 68 sugar mills. Even half of this area under sugarcane in Rajasthan and Madhya Pradesh, with half the number of sugar mills, can bring about remarkable prosperity to the cultivators, the State Government and public at large especially when conditions for cane cultivation are so favourable. This will enable India to export sugar in big lot and thereby earn much needed foreign exchange.

5. Farm-yard manure, composting and green manuring :

The practice of storing farm-yard manure in pits, green manuring in fields and composting refuse in towns are almost unknown; so much so, that even in a town like Kotah, all the city sweepings, animal dung, rubbish and human excreta, are all used in filling depressions in the city which is a criminal waste of valuable material. In order to popularise

-12-

the practice of green manuring, green manure crops may have to be exempted from irrigation charges as in Punjab provided the crop is ploughed before sowing date. Likewise some of the States may have to be given loans to take up the same. The Government by legislation (as in Punjab) may be authorized to store storage of farm-yard manure in pits so that their useful ingredients are not lost by rain water, sun heat or wind.

6. Soil management : Lands in both the States, over large areas, are of undulating, sloping and uneven nature. Unless necessary precautions are taken, the heavy flow of canal water, on slopy land will wash away the fertile upper surface and hasten sheet erosion, which is already doing serious harm. In case of undulating land, the crops grown in depressions will suffer on account of excess moisture, and those at the top will die for lack of moisture. Soil management practices will have to be thought out immediately for rendering advice to the agriculturists, and for this purpose, the soil sections of two States should discuss the matter in all aspects and formulate definite plans and recommendations to suit each locality.

7. Price support policy : People in these two States have experienced abnormal fall in prices of cereals whenever there is bumper crop; so much so, that couple of years back, jowar and maize were sold at Rs.4/-, 5/- per md. If increased production through canal irrigation, does result in unduly depressing cereal prices, people may not feel enthused to pay irrigation charges, and much less, betterment fee. So Government will have to safeguard against abnormal fall in prices and announce "Price Support Policy" to remove any misapprehension on this account. It may also ponder over its present policy of building big reserves by heavy imports from abroad.

8. Special manuring experiment: Soils in these States being highly calcareous (lime percentage in some places being as high as 20 or even 30) application of phosphatic fertilizers seems desirable and experiments be made to determine quantity, frequency and form of phosphatic fertilizer. This is of course in addition to the usual manurial experiments. Likewise the application of trace elements particularly iron, copper, zinc and manganese may be tried.

9. Village tanks and their future use:

A very large number of big village tanks, (which formerly prevented soil erosion and stored water for irrigation) are now going out of use and their utility in future may be thought out. With the advent of canal irrigation they can still be put to good many uses like "Fish Tanks" to rear fish which has proved such a paying proposition in many states or for production of crops like Sangara or as insurance against periodic closure of canals for short period etc. Since with the advent of canals, there will be little danger for these big village tanks to dry up, a well thought out plan by the Fisheries Adviser to Government of India can augment fish resources immensely.

10. New Villages: In canal irrigated areas, residential houses have got to be as near the fields as possible, otherwise canal irrigation has little meaning. Accordingly many new villages are bound to arise and this will also lead to high standard of cultivation. In new canal colonies of Punjab, plans for all new villages on model lines were worked out in advance and necessary guidance given to the people in construction of houses. This aspect may also receive consideration if haphazard growth of villages is to be avoided.

11. Towns. Some of the existing towns in proposed canal area, like Sheopur, look deserted and in ruins and offer dreary look. They are bound to grow rapidly with the advent of canal and their haphazard or un-controlled growth would prove a curse. If present Sheopur Town cannot be remodeled or its growth regulated then a new town, properly laid out, with wide roads near the canal, with ample supply of water for lawns, grassy plots, ornamental, shady or fruit trees, would be a place of envy.

12. Pucca Roads: With the on set of Monsoon, most of the roads in the proposed canal area, got out of order and villages remain completely cut off during Monsoon, Punjab had happy experience of constructing pucca roads, almost simultaneously with canal irrigation, which immensely helped in opening up and developing the new areas, leading to the prosperity of the people. The matter deserves consideration at this stage.

13. Reaction of people to canal water: There is strong feeling that in certain areas (details given in my report) people may not be enthusiastic to take water and pay irrigation charges and betterment fee, unless sufficient propaganda is done before hand on the economic returns from crops under irrigated conditions and this is borne out by previous experience in places like Harsi Dam Canal Area in Madhya Pradesh itself, where it took long time for Government to induce people to take water even though no betterment fee was to be paid. In view of (a) people accustomed to dry farming and not remotely conversant with canal irrigation, unprogressive and resourceless and (b) lands unlike Punjab, being of undulating nature and (c) reckless or uncontrolled canal irrigation on such lands likely to do far more harm than good, either some sort of legislation or effective propaganda, accompanied by financial help, seems indispensable to compel or induce people to make lands fit for irrigation or adopt

contour cultivation, thereby preventing soil erosion and making best use of water and maintaining the fertility of soil;

14. Warabandi: The usual practice in Harsi Dam Canal Area (U.P., India) on the part of cultivators is, to take any amount of water, at any time, for any length of period, during the period a minor runs, with the result, that cultivators at the head get excess supply of water to the extent that lands get water-logged, while crops at the tail-end dry up for lack of irrigation, thereby embittering relations between cultivators themselves. The Warabandi of the type, existing in Punjab, (whereby each cultivator whether at the head or at the tail-end gets the required quantity of water according to his turn) is indispensable. Immediate steps should be taken to popularise this if chaos at the eleventh hour is to be avoided.

15. Main field channels: Although it is the responsibility of the village to construct and maintain main water channels, yet it would be better if construction (and not maintenance) should also be the responsibility of canal authorities. This seems necessary on account of lack of experience on the part of the cultivators, and undulating and uneven nature of the land which adds to the difficulties. In fact even in regard to the alignment of water courses or field channels, some technical guidance will be necessary from Irrigation Department for which training should be arranged right now to avoid eleventh hour troubles.

16. Malarial problem: The existence of numerous depressions all over the places (where water is bound to stagnate and provide ample scope for mosquito breeding) would accentuate malarial problem and spleen percentage is said to be already very high.

17. Cooperative garden colonies and cooperative farming:

There is good scope to establish cooperative garden

colonies of the type started in Punjab, not only to prevent retired people from settling in the cities and to enable them to lead a useful and productive life in rural areas but to lay the foundation of fruit industry on most scientific lines. The foundation of Fruit Industry in California, so famous all over the world, was laid largely by the people who had retired from active life and found horticulture not only a good hobby but a big paying proposition. Report gives details where this can be easily started.

18. If cooperative farming is at all to be a success in India, there is scope for starting an experiment in these two States as culturable waste land is available which can be given to the progressive farmers to farm on cooperative basis from the very beginning. This will help in determining to what extent, cooperative farming can be a success at least under favourable conditions. The other alternative is to lease out, on long term basis, sufficiently large area of culturable waste land to some progressive persons possessing necessary capital and technical 'know-how' who may reclaim the land, set high standard of farming, reap benefits for a certain number of years and then either pay its price or handover the land back to the State - to be run on cooperative farming or to be divided amongst peasants.

19. Likely delay: The Collector Morena wished me particularly to bring to the notice of authorities concerned that digging of canals in Morena and Bhind is likely to be greatly delayed as the area is predominantly populated by Brahmans and Rajputs who consider it below dignity to do any manual work, so that labour from outside will have to be imported. He also laid great emphasis on reviving of cotton cultivation in Morena and Bhind Districts where it was grown extensively before. But this work is already included in the list of experiments that

we have planned out.

20. Implementation: Some of the proposals in this report, if accepted in principle, will obviously require further looking into. For instance (a) if it is decided to create "Sugarcane Belts" (para 4 part III) then further probe will be necessary to select localities best suited for the purpose from every angle, extent of area coming under sugarcane in each locality, amount of water required and number of sugar mills (cooperative or private) needed and financial implications if any to the State etc. (b) In case of horticulture, if development is to take place on big scale, then ways and means to be adopted for "mass scale nursery production" on self supporting basis (c) if removal of bar bush is deemed essential then how it is to be implemented (d) likewise best way to tackle the problem of soil erosion (e) in case of cooperative garden colony scheme, the places most ideally suited, how allottees are to be selected, their obligations and how land is to be paid for - and so on with other proposals. A High Power Committee including amongst others, the Chief Ministers, the Agriculture Ministers, the Chief Engineers and the Directors of Agriculture of both the States, will be necessary to take final decision about the implementation of the schemes and financial implications involved. But obviously the first thing is to see to what extent the proposals can be accepted in principle.

Acknowledgment for valuable advice and hearty co-operation in my work, I owe a deep debt of gratitude to many, and more particularly, in case of Madhya Pradesh to the Collectors of Bhind and Morena Districts, Shri Y.G.Mane, Superintending Engineer and his Chief Engineer Shri A.K.Char, Shri T.R. Mehta, Joint Director Research and Shri C.B.L.Bhargava, Regional Deputy Director Agriculture; and in Rajasthan to

Shri A. Choudhary, Superintending Engineer, Shri Acharya, Executive Engineer, Shri K.S.U. Menon, Commissioner of Kotah and Shri Surinder Singh, Collector of Meerut, whose enthusiasm and missionary spirit in the cause of agricultural development must be a source of inspiration to all. I also got valuable data from Dr. C.L. Dhawan of Punjab Irrigation Research Institute and Shri K.M. Mehta, Agricultural Chemist Rajasthan, who have done some very useful work in soil analysis; Shri Jagdeep Singh a leading farmer of Kotah (Rajasthan) also gave some valuable suggestions.

Lal Singh
 Member Irrigation & Power Team,
 Planning Commission
 (ex Director of Agriculture Punjab
 & ex adviser to Government of India)

Copy of note submitted for discussion in the meeting held on 15.10.57 in the office of Shri S.K.Patil, Union Minister for Irrigation when Deputy Minister for Irrigation, Shri Gadgil, Members of Irrigation & Power Team, Members of the Consultative Committee and Members of C.W.& P.C. were all present. The whole position was explained by Sardar Lal Singh verbally and the meeting agreed with the views expressed in the report.

AGRICULTURAL ASPECT OF CHAMBAL VALLEY PROJECT

INTRODUCTION

1. As a result of preliminary survey of the area coming under the Project, Sardar Lal Singh submitted a report (appendix 12) which dealt with (a) likely changes in the existing pattern of agriculture as a result of canal irrigation (b) some serious problems already existing and those likely to arise with the advent of canal irrigation (c) steps urgently required to be taken if canal irrigation is to yield the best results and Chambal Project is to be a financial success.
2. This report was discussed first by Irrigation & Power Team and Consultative Committee, then by the State Agriculture Departments of both Rajasthan and Madhya Pradesh at technical level and subsequently at Ministers' level, proceedings of various meetings are given in the appendices attached.
3. After the proposals, recommendations and observations made in the report, were generally approved of in principle, both the State Governments and Deputy Chairman, Planning Commission, desired the financial implications of the same to be worked out. This has been finalized in case of most schemes of Madhya Pradesh, both at technical level and at Ministers' level (Agriculture & Irrigation) and the work has reached the stage of implementation. But in regard to Rajasthan, the State Agriculture Department is still working

out the same in consultation with Sardar Lal Singh which is likely to be completed in the course of couple of weeks, so that this note deals with the schemes of Madhya Pradesh only.

4. Before summarizing the recommendations and proposals contained in the report, and indicating on which items, full agreement between all concerned has been reached, it would be well to refer to some salient points in the report.

5. The Agricultural aspect of the Project is justified on three calculations or presumptions namely (a) increased yield of one third of a ton (over 9 mds.) of cereals per acre as a result of canal irrigation (b) cultivators paying Rs.8/- to Rs.25/- per acre as irrigation charges and (c) land owners paying land betterment fee of Rs.75/- per acre besides some other cesses. First calculation or expectation i.e. an overall increase of 9 mds. per acre for all the 14 lac acres, to use polite language, is the height of optimism at least so far as Kharif food crops are concerned which due to abundant rainfall (35-40 inches in Summer) require little artificial irrigation. As regards other two presumptions or calculations or expectations they would materialize only if cultivators find canal irrigation remunerative enough to justify payment of these dues; and there is reasonable apprehension of canal irrigation not proving remunerative, unless some agricultural problems, now facing the cultivators, are first attended to. In fact in certain areas like Gohad and Mehgaon Tehsils as referred to on page 105 of the report, canal irrigation may actually prove highly injurious, within a short period unless special precautions are taken before advent of canal irrigation.

6. On the other hand, these expectations or calculations on which financial justification of the Project is based, can be realized or even exceeded if agricultural aspect of the Project is given due attention which unfortunately has not been the case so far. The State authorities fully agree with the observations made in the report vide proceedings of the meeting held at Bhopal at Minister's level, on July 23rd presided over by Leader, Irrigation & Power Team (appendix 15 para 3 & 4) which reads "there

was general agreement on all the recommendations made in Sardar Lal Singh's report. It was agreed unanimously that the economic success of Chambal Valley Project will depend upon the extent to which the agricultural problems referred to in the report, are solved. Unless precautions are taken to avoid the anticipated danger and experimental work is done to find answers to the questions that will arise with the advent of canal irrigation, the canal irrigation may not prove as beneficial a proposition as expected and may in fact even prove a curse in certain areas by bringing about water-logging or creating alkalinity problems or hastening soil erosion".

7. The present pattern of agriculture or standard of farming in most areas is highly disappointing (vide report page 100). The advent of canal irrigation must bring about radical changes not only in the types of crops grown but in the very pattern of farming and in agricultural practices which will have tremendous effect on the income of the farmer, and incidentally, on canal revenues. Certain specialized branches of agriculture like fruit farming and sugar industry for which ideal conditions prevail with the advent of canal irrigation, as also some of the serious problems, already existing or like to be hastened by canal water (like water-logging, alkalinity, soil erosion etc.) have been high lighted. For proper guidance of the cultivator, the State must be in a position (it is unable at present) to give answers to at least elementary but fundamental questions that will arise with the advent of canal such as the varieties of each important crop, seed-rate, time of sowing, cultural and manurial practices best suited under irrigated conditions in this particular area or water requirements of crops - all these looking trivial, have nevertheless tremendous effect upon yield of crops, and through increased yield, would enable the farmer to appreciate the value of canal irrigation.

8. In working out the financial implications of various schemes, utmost care has been taken to keep the expenditure at lowest level by utilizing the facilities of land, buildings, equipment, bullocks already existing on the Government farms and utilizing the Agriculture budgets and staff already provided for; and only additional expenditure required has been worked out. . . Further, expensive schemes like land development to make them fit for irrigation costing Rs.50 lacs in five years or mass production

of fruit nursery plants for horticultural development on commercial scale, are planned out on self supporting or "No profit No loss basis"; with the result that net expenditure on all the schemes worked out so far, would be of the order of only 3-4 lacs a year, the rest will only be a loan recoverable from the land owners.

Note: For explanation of various schemes, reference may be made to appendices as under:-

Appendix No. 12 Shree Lal Singh's report.

- | | | | |
|---|---|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| " | " | 15 | Proceedings of meeting at Bhopal, presided over by Leader, Irrigation & Power Team. |
| " | " | 16 | Proceedings of meeting at Technical level at Cwallior, to work out financial implications of schemes. |
| " | " | 17 | Proceedings of final meeting at Bhopal at Ministers' level (Minister for Agriculture and Industries and Minister for Irrigation) besides Heads of Irrigation and Agriculture Departments and Secretaries to Government. |
| " | " | 14 | Views of Irrigation & Power Team on Shri Lal Singh's report. |

ITEMS (OBSERVATIONS & PROPOSALS) ON WHICH FULL AGREEMENT IS REACHED WITH MADHYA PRADESH

Sl. No. I Items

Reference to appendices I Financial implications

- | | | | |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------|
| 1. | Present pattern of agriculture to undergo radical changes with the advent of canal irrigation on lines indicated in the report. | Part I
App.12/para I
App.16 part I | - |
| 2. | Varietal and cultural experiments to determine suitable varieties of crops and cultural practices best suited under irrigated conditions in this particular area. | Part I
App.12/para 3
App.15 para 6
App.16 para I
App.17 para 12(I) | Rs.52,000/- per year |
| 3. | Experimental-cum-demonstration work on private farms for popularizing suitable agricultural practices. | Part I
App.12/para 3
App.16 para II. | App.15 para 7 Rs.30,000/- per year
App.17 para 12(2) |
| 4. | Kankar layers and hard pan - experiments to determine their nature and avoid their injurious effects.
Soil studies to determine the nature of soil and its treatment under irrigated conditions. | App.12 Part II para 2, App.15 para 8
App.16 para III App.17 para (III)B. | Rs.59,340/-per yr. |
| 5. | Study of irrigation practices or water requirements of crops. | App.16 para IV.
" 17 para IV. | Rs.16,000/- |

6 Irrigation & Land Development.

Unless land is levelled or otherwise made fit for irrigation, canal irrigation may do more harm than good and in some places actually prove injurious, as discussed fully in the report.

App-12 Part II(6) & Part III(6)
 App. 15 para 9
 App. 16 para V
 App. 17 para IV

Rs. 34.5 lacs in the first year and Rs. 6.8 lacs per year in subsequent years for 5 years; Cost to be recovered by instalments from cultivators. The Govt. is yet to determine whether this work should be done by Government through its own tractor organisation or utilize private enterprise - Govt. serving only as an agency to get the work done and to arrange payment; the amount required as loan remaining the same in both cases.

7 Horticultural development:

(a) mass production of nursery plants of reliable varieties for prospective fruit growers.

(b) Staff for advisory work.

(c) Experimental-cum-demonstration gardens.

App. 12 Part III(3)
 App. 15 (13)
 App. 16 Part VI.
 App. 17 VI

(a) Rs. 1,46,000 in first year and Rs. 86,000/- per year subsequently - scheme to run on self-supporting basis.
 (b) Rs. 34,000/- per year.
 (c) Rs. 30,000/- for first year and Rs. 13,500/- per year for five years - this will also be productive expenditure.

8. Publicity & Propaganda Section to acquaint the farmers about development schemes and programme for Charbal Project area.

App. 16(VIII)
 App. 17(VIII)

Rs. 55,000/- in 1st year and Rs. 20,000/- per year subsequently.

9. For overall supervision and co-ordination of work in Charbal Project Area, special development officer to be appointed with special staff for agricultural extension work on intensive scale for this area alone.

App. 15 (16)
 16 (IX)
 17 (VII&IX)

Cost is not yet worked out as there is difference of opinion between Director Agriculture and Government whether the present Deputy Director, with additional staff, would serve the purpose or new officer should be appointed but there is agreement on the need of the staff.

10. Sugarcane belts: On account of abundant supply of canal water, ideal climate, free from frost, rich soil and extensive areas of land, there is a wonderful scope for sugar industry. Creation of sugarcane belts with necessary provision for enhanced supply of water in these areas right now when distributories and minors are being designed, would go a long way to immensely increase both cane yield per acre and sugar recovery from cane. Government fully supported the proposal, with the remarks that, this opportunity if not availed of now, will be lost for ever. Special Committee representing concerned Departments has been appointed to earmark such areas and irrigation authorities will do the needful.

11. Pernicious Ber Bushes: is a serious pest in this area which if not removed, would seriously hamper proper utilisation of canal water and decrease crop yields. There is full agreement of all Departments on urgent need for eradicating it. Agriculture Department has been asked to work out the comparative cost of eradicating it by weedicide and tractorisation.

12. (a) Green manuring to maintain fertility of soil, green manure crops to be exempted from irrigation rates provided they are ploughed under, and not harvested.
(b) Fodder crops like senji, shaftal, berseen to be charged half the normal irrigation rates in the interest of development of dairy industry and animal husbandry. Proposals are accepted.
(c) Composting of refuse in cities and storage of farm yard manure in pits in villages.

13. (a) Co-operative Garden Colonies as in Punjab, both in the interest of Horticultural Development, encouragement of co-operative spirit and to enable retired persons to lead a productive and useful life. A Committee is to go to Punjab to study the scheme and decision is being taken as to which Department - Agriculture or Co-operation, is to take charge of it.

App. 12 Part III(4)
" 15 (12)
" 17 (7)

No additional cost involved. State Agriculture Department to make arrangement for seed supply of good cane varieties, and growers will require no special incentive except the usual guidance and taccavi loan. State Govt.'s request for license to start sugar mills in this area deserves favourable consideration from Central Government.

App. 12 Part II(5)
" 15 (14)
" 17 (para 4)

Financial implications pending till the comparative cost is worked out.

App. 12 Part III(5)
" 15 (15)
" 17 (8)

No additional expenditure. The existing agricultural staff to do propaganda reg. (a), (b) & (c)

App. 12 Part III(17)
" 15 (para 13)
" 17 (para 10)

Financial implications not yet worked out.

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13. (b) Commercial fruit garden: At the suggestion of Minister Agriculture, it was agreed to set aside some big plot - say 9000 acres, for commercial fruit garden not only for commercial fruit production but to start other side - industries like fruit preservation, canning, manufacture of fruit products, cold storage etc. The Irrigation Department agreed to find the required area out of Government waste land.

App.12
App.17 para 6.

Financial
implications not
yet worked out.

14. Water-logging & alkalinity are likely to become serious problems if sufficient care is not taken from the very beginning. They have been responsible for ruining millions of acres of once fertile land in many States of India, including areas under Bara Den in Madhya Pradesh itself. In some areas coming under this Project and particularly in Gohad & Mehgaon Tehsils, the ground water table has already risen to dangerous point, salts appearing on surface and soil sickness prevailing over a large part of this area, even though canal irrigation is now only seasonal and with percanal canal, the trouble is bound to be accentuated. The Agriculture Department upto Agriculture Minister's level, fully supported the views contained in Sardar Lal Singh's report, also proceedings of meeting July 22nd presided over by Leader, Irrigation & Power Team. In a joint meeting of Agriculture and Irrigation Departments when both Ministers and Heads of both Departments with their expert staff were present, the Chief Engineer Irrigation was asked to examine the problem in Gohad & Mehgaon and to report within a month; and Chief Engineer Chambal was asked to ensure that canal and drainage programme in the whole Chambal Project go hand in hand.

App.12 Part II(i)
App.18 para 4 & 11
App.17 para 2

Financial impli-
cations cannot be
worked out until
submission of
report by Chief
Engineer.

15. Soil erosion is a problem of immense magnitude and of great urgency (more serious than any other problem) and requires immediate efforts. It has already ruined large areas of once fertile land in Erid District alone 30% of the total area has been ruined as also in many other places coming under Chambal Project. In Rajasthan State gullies and ravines covering 1540 miles, covering 500 sq.miles besides large areas eroded by gullies, and this devastation is increasing day by day and it will be suicidal for the country to ignore it. Methods of controlling it, although well known, are expensive and beyond the resources of the State, and Central assistance is urgently called for. Since however this problem is not directly concerned with Chambal Project (although canal water will hasten surface erosion in case of uneven lands) this matter is proposed to be taken up separately although State authorities were keen to have this problem also included in this investigation.

Ref:
App.12 Part II(6)

16. Implementation

(a) High Power Committee

As the factor is the essence of the success of the Project and unnecessary delays should be suicidal, the meeting at Bhopal presided over by Leader, Irrigation & Power Team and attended by Agriculture Minister and others recommended to have a High Power Committee with representatives of Planning, Agriculture, Revenue, Irrigation, Finance and Industries of the State and of the Planning Commission; this Committee to have the final power both in regard to planning and execution of schemes and for issuing financial sanctions. This was also strongly supported at Technical level and in the last meeting, Minister Agriculture and Minister Irrigation asked Secretary Agriculture to put up a note specifying the composition and functions of the Committee.

Ref:
App.12 para 20
App.15 para 19
App.16 para 12
App.17 para 13

(b) Joint Agricultural Committee.

The proposal to have a Joint Committee of Agricultural Departments of Rajasthan and Madhya Pradesh to discuss schemes of common interests (as both States in Chambal Project Area have many common problems) to exchange views, to avoid duplication of work and benefit from one another's experience, has been strongly supported by both States and immediate effect is desired to be given to this.

17. MISCELLANEOUS SUGGESTIONS

(a) New villages and towns in Chambal Project Area. Evil results of haphazard growth of villages - Need for proper layout of new villages on well thought out plans as done in new canal colonies in West Punjab, as there is bound to be immense expansion all around with the advent of canal irrigation, are appreciated.

App.15 para 17 Not possible at this stage.

(b) Pucca roads:- In some areas coming under this Project, villages remain cut off during the Monsoon Season rendering transport of agricultural produce by road difficult. This will greatly hamper the rural prosperity unless canal irrigation and pucca roads in rural areas go hand in hand.

Government have agreed with above suggestions and a Committee is to be appointed to work out the details.

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18(a) Warabandi: In Harsi Dam Area in Madhya Pradesh (seasonal canals) the prevalent practice with the cultivators is to take any amount of water at any time for any length of period when a minor or distributory runs, with the result, that there is too much water at the head and lands get water-logged due to excess water, and at tail end, crops die for want of water. If this chaos is to be avoided in Chambal Project Area, then strict "warabandi" of the type prevailing in Punjab should be enforced in Chambal Area from the very beginning and people be trained in this method. Government, agreeing with this proposal, have now sent a Superintending Engineer to Punjab to study the system.

App. 12
Part III (14&15)
App. 17 (para 11)

(b) Main field channels: It will not be easy for villagers to align water channels on lands that are very uneven. It is decided that while their construction must remain the responsibility of villagers, but necessary technical guidance be made available by the Irrigation Department; and Chief Engineer has been asked to take necessary steps to ensure this.

19. Consolidation of Holdings: Canal irrigation over scattered bits of land, is highly wasteful of water. Consolidating small plots into a big plot would render canal irrigation most profitable. Although this subject was not given high priority by the State in 2nd Five Year Plan, yet Government agreeing with the proposal, have now decided to start the work in the area coming first under the irrigation project in order to gain experience and demonstrate its beneficial results.

App. 12 Part II(4)

20. Betterment Levy: Steps should be taken for enactment by 1958-59 of a law for imposing betterment levy so that the act should be ready by the time irrigation starts. It was considered that it should be possible to increase the period and number of instalments for recovering betterment levy.

App. 15 para 10.

21. Phased Programme: Irrigation Department considers that it will require ten years before available water begins to be fully utilized by the cultivators. Agriculture Department agrees with the observation in S. Lal Singh's report that it would be possible to curtail this period considerably if sufficient propaganda is done and agricultural problems (referred to in their schemes) are attended to immediately. Irrigation Department would support every effort of the Agriculture Department to achieve the results.

App. 12 Part III
para 2
App. 17 para 5.

22. Private enterprize to develop waste lands: Giving of large areas of undeveloped waste lands to individuals or groups, for purpose of development, for a period of 25 years with certain conditions including exemption from "Ceiling" will be considered by the State Government inasmuch as, it will expedite the development of the area, increase agricultural production and supplement financial resources of the State.

App. 15 para 9

23. Water allowances for crops and need for verification of culturable command area (C.C.A.)

In case of Chambal Project area both in Rajasthan and Madhya Pradesh, water allowance varies from 2.5 cusecs to 5.5 cusecs per 1000 acres depending upon the area (6 cusecs per 1000 acres at the Head) as against about 3.5 cusecs per 1000 acres in Punjab and only 2.6 cusecs in Bhakra Nangal Project even in areas like Hissar District which has annual rainfall less than half of that in Chambal Project area and where ground water level is too deep with little danger of water-logging or alkalinity for long time to come unlike some areas in Chambal Project where ground water level is already rising to dangerous point so that water allowance in Chambal area seems to be on the liberal side. Further, C.C.A. figures are arrived at, on the basis of revenue records and Survey Map of India i.e. area shown under crops in revenue records alongwith half of the area lying now waste is supposed to be the C.C.A. actual visits by Sardar Lal Singh on the spot in some parts of Rajasthan, disclosed large areas (shown as cropped in revenue records and hence included in C.C.A.) where canal irrigation is not a feasible proposition and it would do more harm than good. It was suggested to verify the area as calculated on the basis of revenue figures and what actually exists or the spot to determine the differences between two figures. In Rajasthan, they have agreed to probe into this matter, but Chief Engineer, Madhya Pradesh, has assured that difference is not likely to be much in Madhya Pradesh.

SUBJECTS FOR PRELIMINARY DISCUSSIONS
OF THE CONSULTATIVE COMMITTEE
JULY 8TH TO 11TH

SUBJECT NO. 6 IRRIGATION DEVELOPMENT

A summary of a report on the agricultural aspect of the Chambal Valley Project is attached.

This report prepared by Sardar Lal Singh, Member Irrigation & Power Team, as a result of site visits and intensive study and consultation with State Officers of Agriculture, Irrigation and Revenue Departments, is presented by the Team as an item of utmost importance.

At present, no exact data is available to indicate what specific areas will be served with irrigation facilities year by year. In the context of Storage water being available for irrigation in 1959-60, it is imperative that preparatory work as indicated in the recommendations be undertaken.

An urgent issue is the provision of additional supplies for what has been termed in the report as "Sugar Cane Belts". Although the exact quantity of discharge needed to be reserved for the fullest development of "Sugar Cane Belts" cannot be determined at this stage, it may be substantial enough to require modifications of the capacities of some of the distributory channels. Details of this should be determined at the earliest.

In respect of the issue of water-logging and land deterioration due to salts, action is called for adjusting water allowances and also localizing areas for the specific treatment that would be necessary to prevent any serious harm by water-logging and salt accumulation,

A close co-ordination of the Irrigation, Agriculture and Revenue Departments of the two States is called for so that timely action is initiated and effective follow-up provided in order to have the benefits from irrigation nature without time-lag.

AGRICULTURAL ASPECT OF CHAMBAL VALLEY PROJECT

The Irrigation & Power Team have gone through the draft report of Sardar Lal Singh, Member Irrigation and Power Team and ex Director of Agriculture Punjab. The report deals with (a) present pattern of agriculture and likely changes as a result of irrigation (b) the serious problems already existing or likely to arise with the advent of canal and (c) measures to be taken immediately. We have had further discussion on the subject and we fully endorse his views and proposals viz:

(1) The present pattern of farming, which is of the poorest type from every aspect, is capable of undergoing revolutionary changes for the better with the supply of canal water provided the Agricultural Departments of the two States can solve numerous problems facing the cultivators. In fact even the very economic success of the Project will depend, not so much on mere supply of water to land, as on the extent to which suggested agricultural improvements are carried out under irrigation farming.

(2) Rajasthan and Madhya Pradesh, being the outcome of the merger of small princely States which had done little research in agriculture and their Agricultural Departments are still in process of formation, they would take time to be able to give authentic advice even on such fundamental questions as the varieties of crops best suited under irrigated conditions, seed-rate, time of sowing, irrigational, cultural and manurial requirements etc. which have tremendous effect on the yields of crops. Any one of the many items of improvements suggested, can bring about as much as or even greater increase in yield than that, contemplated as a result of irrigation alone. Hence immediate necessity to carry out certain Agricultural Experiments given in appendix.

(3) Verification of C.C.A. theoretically calculated and what actually exists on the spot, as called for, for reasons explained in the note, as in the event of appreciable difference, it may involve substantial changes in plans.

(4) There is danger of water-logging and accumulation of salt as a result of canal irrigation as explained at length in the note. This matter deserves immediate consideration, to avoid canal irrigation proving harmful in certain areas of Rajasthan and Madhya Pradesh.

(5) The problem of kankar layers and hard pan, met with in certain localities, deserve immediate consideration to determine irrigation practices to be recommended.

(6) Removal of pernicious ber bushes, so severely infesting the land and which immensely depress crop yields does require immediate consideration along lines suggested in the report.

(7) Soil erosion which has already ruined about 30 per cent of land in Rajasthan and which is equally bad in the Chambal Valley Areas of Madhya Pradesh, requires to be tackled at the highest level.

(8) We agree that Sugar Industry can contribute immensely to the economic well-being of these two States and it is an excellent idea to concentrate sugarcane production in certain areas called "Cane Belts" in order to obtain the highest yield of cane per acre and highest recovery of sugar from cane. The details of this require to be worked out.

(9) Likewise to lay foundation of horticultural industry on soundest lines which has remarkable scope in these two States, the Agricultural Department should undertake "mass scale nursery production" of reliable varieties by taking advantages of the existence of a large number of fruit trees of outstanding merits existing here

and there both in the gardens of erstwhile State Princes and others. Co-operative garden colonies scheme given in the report has great potentialities - both in developing this industry on scientific lines and enabling retired persons to be productive members of the Society in rural areas.

(10) Measures for storage of farm-yard manure in pits by villagers, composting of refuse in towns by Committees and green manuring practices to be followed by cultivators as recommended in the report, can certainly contribute to the maintenance of fertility of the soil.

(11) Soil Sections of the two States should discuss and formulate definite plans and recommendations for soil management on the advent of canal irrigation, as un-controlled irrigation on sloping, uneven and undulating lands may do more harm than good so far as yields of crop are concerned; besides hastening soil erosion (sheet and rill type) which is already washing away the upper fertile soil.

(12) Cultivators in these two States require to be assured that increased production of cereals (as a result of canal water) would not unduly depress the prices of crops which may discourage the cultivators paying irrigation charges and more so the betterment fee etc.

(13) Village Tanks of big size, existing in large number, should certainly be maintained and used as "Fish Tanks" or for other purposes mentioned in the report.

(14) New villages which are bound to arise in certain areas must be planned in advance (as done in the new canal colonies in West Punjab) if haphazard growth of villages is to be avoided; likewise the existing towns in the Chambal Valley Area (such as Shoopore) are bound to expand immensely and their unregulated and haphazard growth will prove a curse if the matter is not immediately tackled.

(15) Since (a) the people are accustomed to dry farming and remotely conversant with canal irrigation and are

unprogressive and resourceless and (b) lands unlike Punjab are undulating and uneven and (c) reckless or un-controlled canal irrigation on such lands can do more harm than good and (d) people in certain areas are also not very enthusiastic about canal water, some sort of effective propoganda or even legislation to popularise certain agricultural practices, which will prevent soil erosion and make best use of water and maintain the fertility of soil, seen indispensable.

16. Warabandi of the type practised in Punjab, and the absence of which in Madhya Pradesh, has already caused immense harm, requires to be popularised if eleventh hour chaos in irrigation practice is to be avoided.

17. At present canal department has no responsibility for construction and maintenance of main field channels but it would seen desirable to make canal authorities responsible for their construction and not maintenance due to uneven nature of soil and in-experience of cultivators. Even for the alignment of ordinary field channels they will require guidance for which canal authorities should make necessary preparations.

18. Other matters like consolidation of land holdings to make optimum use of irrigation water, construction of pucca roads to develop the canal area and making it accessible even in Monsoon Season when villeges remain cut off, malarial problem, or co-operative farming as discussed in the report, deserve due consideration, if, of course, finances permit for work like pucca roads.

19. Immediate steps to be taken to earmark area which are to receive irrigation year by year, and farmers to be informed accordingly in the interest of a phased programme by all concerned.

20. For the purpose of final decisions and implementation of schemes, it does seen necessary to have a High Power Committee of the type recommended in the report or other suitable arrangements. It is also obvious that if the proposals outlined in the report are accepted in principle, further details in some of the items will have to be worked out as discussed in the report.

MEMBERS
IRRIGATION & POWER TEAM.

CHAMBAL VALLEY PROJECT - AGRICULTURAL ASPECT.

Proceedings of the Meeting held by Shri N.V. Gadgil, Leader of Irrigation and Power Team of the Planning Commission, at the Raj Bhawan Bhopal on the 23rd July 1957. The following were present:-

- 1. Shri N.V. Gadgil, Leader I.P.F.
- 2. Sardar Lal Singh, Member I.P.F.
- 3. Shri Takhatmal Jain, Minister for Industries (Agriculture)
- 4. Secretary to Govt. Agriculture Deptt. (M.P)
- 5. Director of Agriculture (M.P)
- 6. Joint Director of Agriculture (Extension) M.P.
- 7. Joint Director of Agriculture (Research) M.P.
- 8. Dy. Director of Agriculture, Gwalior Division, M.P.

2. The summary report on the agricultural aspect of the Chambal Valley Project prepared by Sardar Lal Singh Ex-Director of Agriculture, Punjab was discussed at length. Before this, the report was discussed at the officers level and also subsequently with the Minister for Agriculture (M.P) at his residence, where some M.L.As., of Madhya Pradesh were also present.

3. There was general agreement on all the recommendations made in Sardar Lal Singh's report. In particular, the aspects mentioned hereunder were appreciated.

4. It was agreed unanimously that the economic success of Chambal Valley Project will depend upon the extent to which the agricultural problems referred to in the report are solved. Unless precautions are taken to avoid the anticipated dangers and experimental work is done to find answers to the questions that will arise with the advent of canal irrigation, the canal irrigation may not only be as beneficial a proposition as is expected, but may in fact even prove a curse in certain areas by bringing about water-logging or creating alkalinity problems or hastening soil erosion.

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5. The cultivating community in the area concerned is largely accustomed to dry farming which is entirely different from that of wet farming, in so far as the varieties of crops or the - agricultural practices are concerned and people will have to be trained in the proper use of canal water.

6. It was agreed that the urgent experiments to be conducted should include (a) varietal trials on all important crops particularly wheat, cotton, sugarcane and paddy in order to determine the varieties best suited under irrigated conditions (b) cultural experiments such as seed-rate, manures, rotation, spacing, green-manuring as all these have tremendous effect on the yields of crops. For the above experiments necessary area of land is already available on three Government Farms of 100 acres each, which have been started recently with the same object at Sheopur (Baroda) Jora and Bhind. At all these places irrigation water by ~~well~~ irrigation is already available. At Bhind the water level being very low, experimental work during the initial two or three days may have to be done at Chimka Agricultural School where some area is already available and more can be acquired. As soon as canal water becomes available, most of the experimental work can be shifted to Bhind farm.

7. The experiments requiring collection of detailed data will necessarily have to be conducted at the above government farms. The total amount of expenditure required will be of the order of Rs.25,000/- for each farm per year in addition to the provisions already made or a total of about Rs.75,000/- per year for three Chambal Farms. In addition to the experiments on Government farms a considerable amount of experimental-cum-demonstration work must be undertaken on cultivators' private farms, firstly to confirm the results obtained at Government farms and also for its propaganda value,

and for trial of such simple experiments as optimum seed-rate varietal trials, use of green manuring or fertilizers, time of sowing, rotation and spacing. For this a subsidy of Rs. 200/- or so will be required for each farm so that if 20 farms are selected for each of the three areas, the total amount required will be of the order of Rs.12,000/-. In addition to this, in order to create confidence in the mind of the cultivator on whose farm demonstrations are done that recommendations made by the department will not result in financial loss to him, it is necessary to give assurance to indemnify the cultivator in case of loss- although it must be said on the basis of experience in other states that there is hardly any possibility of any such losses. The demonstration plots, to be selected should be near market places or along road-sides, in the interest of maximum - publicity. It was particularly emphasised by the Minister that it is not so much the need of water as its proper use which requires special emphasis during demonstration. Further, demonstration must be on private farms of representative types in size of holding, level of fertility and financial resources of the owner etc.

8. Apart from the agronomic experiments referred to above, the research staff in the Agricultural Chemistry Section will have to be strengthened to carry out experiments on kankar layers and hard pan referred to in the report, which will necessitate an expenditure of about Rs.10,000/- per year.

9. As regards soil conservation, the Agricultural Department has already got special section for the purpose with six soil conservation units working in Madhya Bharat region alone but they are fully engaged in normal work. Accordingly extra staff and facilities will be needed for giving concentrated attention in Chambal Project command area. We consider that two units comprising 15 Buldozers

each for each of the three zones, coming under Chambal Valley Project should be provided, for which the estimates would be prepared in the course of a few days. The possibility of private enterprise taking up this work may also be examined.

In addition to above, giving of large areas of undeveloped waste lands to individuals or groups for purpose of development, for a period of 25 years with certain conditions including exemption from "ceiling" will also be considered by the State Govt. In as much as, it will expedite the development of the area increase agricultural production and supplement the financial resources of the State.

10. Betterment levy:- Step should be taken for enactment by 1958-59 of a law for imposing betterment levy so that the Act should be ready by the time irrigation starts. It was considered that it should be possible to increase the period and number of instalments for recovering betterment levy.

11. Gohad Tehsil:- It was fully agreed that water-logging and alkalinity problems will assume a serious shape particularly in Gohad area if canal irrigation water is supplied without taking necessary precautions as referred to in the report, as has already been the bad experience both in this State as well as in other places. It will be unwise to treat this matter lightly.

12. Sugarcane Belts:- The meeting endorsed the recommendation for creating special 'sugarcane belts' where sugarcane cultivation may be concentrated and sugar mills situated in the centre of cane area. This opportunity if not availed of immediately, would be lost for ever; and we suggest that a small Committee with one representative from Agriculture, Revenue, Industry, Irrigation, Co-operative Departments may

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be immediately appointed to select the areas for the purpose to locate such areas before canals, distributories and minors are dug so that they could be so planned as to provide necessary amount of water for such areas. The other question whether the mills are to be run on co-operative basis or by private parties should also be immediately settled. So far as Agriculture Department is concerned, (after such areas are selected) necessary preparation will have to be made immediately for introducing suitable varieties of cane in that area.

13. Horticultural Industry:- The meeting supported the idea of developing horticultural industry, cold storage, fruit and vegetable preservation which have got very big scope and which can greatly help in the economic amelioration of the agricultural community. In this connection the Minister for Agriculture, commended detailed study of the co-operative garden colony scheme started in the Punjab and also to discuss at length the desirability of starting a big commercial garden of a few thousands acres within which fruit preservation factory, cold storage etc. etc. may be installed. The cost and its details should be worked out by the department promptly. What is immediately required is the production of nursery plants from trees of outstanding merit. Although the scheme if it is run efficiently will ultimately become self-supporting and Govt. will not have to suffer any loss in the long run, necessary provision will have to be made to start nursery work at the three government farms. One Horticultural Development Officer with three Assistants would be needed for survey, propaganda and advisory work.

14. Ber Bushes:- The meeting agreed with, the observations made in the report, both in regard to the serious nature of this menace and the desirability of exterminating it. The Agriculture Department will take immediate steps to work out the comparative cost of eradicating it by weedicide or

tractorisation, before any recommendation is made to the agriculturists.

15. Green Manuring:- In order to encourage the practice of green manuring to maintain fertility of soil, the irrigation charges be waived on green manuring crops as recommended in the report and as practised in the Punjab. Further since the yield of milch animals in Madhya Pradesh is low on account of shortage of green fodder and poor breed, it would seem desirable to remit 50% of the irrigation charges in case of fodder crops like Berseem, Senji, shoftol etc.

16. Special Staff:- For giving concentrated attention to the development of Chambal Project Area, additional staff is urgently required comprising of one Chambal Development Officer of the status of at least Divisional Officer drawn from Agricultural Department with one Assistant Director and three Assistants in each of the three tracts in the commanded area for intensive development of sugarcane horticulture, cotton etc. supply of seeds and fertilizers and necessary guidance in all agricultural matters.

17. The meeting also agreed with other recommendations made in the report such as (a) layout of model villages on the pattern of canal colonies of West Punjab or some other approved pattern (b) preventing haphazard growth of townships in the area (c) improvement of roads and plantation etc.

18. Since change over from dry farming to wet farming would involve considerable expenditure on the part of the cultivators, necessary financial accommodation in the form of loan would be necessary for which financial arrangements either from Co-operative Banks or from other sources will have to be made.

19. Lastly the meeting strongly feel the necessity of having a High Power Committee which should have the representatives of Planning, Agriculture, Revenue, Irrigation, Finance, Industry Departments of the State and the Planning Commission.

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This Committee should have the final power both in regard to planning and execution of schemes and for issuing financial sanction in order to avoid unnecessary delay as time factor is the essence of the success of the project, and any avoidable delay may defeat the objectives in view.

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PROCEEDINGS OF THE MEETING HELD AT
GWALIOR ON SEPTEMBER 6TH, 7TH & 8TH, 1957.

Subject:-S.Lal Singh's report on Agricultural
aspect of Chambal Valley Project.

The following were present.

- 1) Sardar Lal Singh, Member I & P Team, Planning Commission, New Delhi.
- 2) Dr. T.R.Mehta, Joint Director (Research) M.P.
- 3) Shri C.B.L.Bhargava, Dy. Director Agriculture, Gwalior.
- 4) " P.N.Baijal, Agricultural Engineer, Gwalior.
- 5) " P.M.Tamboli, Chief Chemist, Agricultural Research Institute, Gwalior.
- 6) " Marathe, Soil Conservation Officer, Gwalior.
- 7) " R.N.Srivastava, Asstt. Soil Conservation Officer, Gwalior.
- 8) " S.K.Pathak, Horticultural Inspector, Gwalior.

2. The schemes with their financial implications which had been sent by Dr. T.R.Mehta to Sardar Lal Singh were discussed at length and they were modified considerably. The schemes as finalised are listed below:-

- I. Varietal and cultural experiments.
- II. Experimental-cum-Demonstration work.
- III. Kankar layer and hard pan.
- IV. Study in irrigation practices.
- V. Irrigation & land development.
- VI. Horticultural Development.
- VII. Strengthening of district staff for extension work.
- VIII. Establishment of publicity and propaganda section.
- IX. Overall supervision & coordination of work.
- X. Other problems.

3. The detailed costs of schemes and their justification are given in the following pages. These schemes are now to be considered on September 11th at Bhopal in the presence of Director Agriculture, Secretary Agriculture Minister for Agriculture when the officials of the State Irrigation Department are also to be present, besides Minister for Irrigation.

4. The total cost as given in Statement 10, during the first year (inclusive of non-recurring expenditure) amounts to Rs. 38.93 lacs and in subsequent years, Rs. 6.83 lacs per year. Since, however, the total cost on account of levelling detailed in statement 5 and that on account of commercial production of nursery plants as detailed in statement 6(B) would be recoverable in full (in fact in nursery production the income may far exceed the expenditure incurred) the net expenditure involved would only be of the order of Rs. 3 lacs in the first year and Rs. 2.33 lacs in each of the subsequent years.

I. Varietal and cultural experiments

The advent of canal irrigation must bring about radical changes, not only in the type of crops grown, but in the very pattern of farming or agricultural practices which are going to have tremendous effect on the income of farmers or even on canal revenue. It is, therefore, urgent that experiments should be initiated at once to find answers to at least some of the elementary but fundamental questions that would be asked such as (a) varieties of crops best suited under irrigated conditions, time of sowing, seed-rate, irrigational, manurial and cultural requirements, etc., which apparently looking trivial, have nevertheless tremendous effect on the yield. For instance variety alone may cause a difference of 100 per cent, or 5 to 10 mds. per acre in wheat alone; likewise other factors can depress or increase yield by 100%. Although, now one of the biggest states in India, Madhya Pradesh is, nevertheless, an outcome of merger of a large number of princely states --- many of them small ones, which could not have been expected to do much of research and development work for lack of funds and staff.

Fortunately three Government farms of 100 acres each already exist in three different tracts namely, Bhind, Jora and Sheopur (Baroda) representing three different soils types. The land was acquired by Government two years back - total cost on account of land and equipment amounting to Rs.3 lacs besides a provision of Rs.3 lacs for the buildings proposed to be constructed. These farms were to be used for demonstration and seed-multiplication and for this purpose necessary recurring expenditure, to the extent of about Rs.50,000/- per year, has also been provided for.

Seeing the urgency of the experimental work referred to above, necessary area of land on each farm can be set aside for the purpose, so that no capital expenditure will be required either for land or building or equipment.

Statement I

Details of expenditure of Rs.52,000/- for varietal and cultural experiments at three farms.

Pay of officers:

1. Assistant Agronomist 1(250-600) 3,000/- For overall supervision of the 3 farms.

Pay of Establishment:

1. Research Assistants 6(200-350) 14,400/- Two at each farm. One for Agronomy and one for Botany.

2. Fieldmen 12(60-90) 8,640/- Four at each farm.

3. Clerk 1(60-90) 720/-) For the Assistant Agronomist.
4. Peons 2(25-35) 600/-)

Total: 27,060/-

Dearness allowance. 8,720/-

Travelling allowance 1,000/-

9,720/-

Contingencies 15,000/- About Rs.5,000/- for each farm

GRAND TOTAL : Rs.51,780/- Say Rs.52,000/-

II. EXPERIMENTAL-CUM-DEMONSTRATION WORK

The superior varieties and cultural practices already being recommended by the State Agriculture Department and those which may emerge from the experiments at the three Chambal Farms, cannot diffuse far and wide among the cultivators unless they are demonstrated on their own fields. In order to popularize them in the shortest time, it is proposed to select 50 private farms in each of the three Chambal zones to demonstrate the varieties of various crops best suited to the locality, best time of sowing, proper seed-rate or spacing, best doses of fertilizers and their time of application, irrigation and cultural practices etc. etc.

=4-

This roughly represents one demonstration for every 10 square miles. In conducting these demonstrations, the cultivator will have to incur extra expenditure by way of cost of seed of new varieties, manuring, additional labour for separately harvesting and thrashing the produce of numerous experimental plots of different crops such as wheat, paddy, sugarcane and cotton. It has been estimated that for the several demonstrations at each of the 150 farms of the cultivators, the total cost will on an average amount to Rs.200/- each as subsidy. The total cost for the 150 centres will be Rs.30,000/- (Statement II).

Statement II.

Subsidy to farmers for experimental-cum-demonstration work.

Subsidy per farm	Rs.200/-
Total subsidy for 150 farms (50 in each of the 3 zones)	Rs.30,000/-
	<u>Rs.30,000/-</u>

III. KANKAR LAYER AND HARD PAN

Since this trouble is met with in both the States - Rajasthan and Madhya Pradesh, this experiment need not be conducted in both the States but can be carried out in Rajasthan alone.

On the other hand, with very limited staff (comprising of two Assistants only, working under the direct control of Agricultural Chemist) and with a contingency of about Rs.1000/- a month, a preliminary soil survey has been conducted which has yielded most useful information. It was not possible to undertake more than 150 profiles involving 1580 samples. While this preliminary work has given good indication of the distribution of soil types in the Commanded area, it cannot be considered adequate enough. It is,

therefore, desirable to continue the present work more extensively which can be done by increasing the present staff of 2 Assistants to 4 with a contingency of Rs.2,000/- per month, so that the work is completed more thoroughly and in shorter period. The total cost involved would be as in Statement III.

Statement III.

Pay of Establishment:

1. Research Assistants Senior 4(200-350)	Rs. 9,600/-
2. Research Assistants Junior 2(100-200)	Rs. 2,400/-
3. Laboratory Assistant 1(40-60)	Rs. 480/-
4. Driver 1(50-3-95)	Rs. 600/-

Total: Rs. 13,080/-

Dearness Allowance Rs. 3,360/-

Travelling Allowance Rs. 2,000/-

Total Rs. 5,360/-

Contingencies Rs.24,000/-

Non-recurring:

1. Pick up	Rs.14,500/-	} Rs.17,000/-
Petrol etc.	Rs. 2,500/-	

GRAND TOTAL: Rs. 59,340/-

IV. STUDY IN IRRIGATION PRACTICES

Considering that dry farming has been the general rule in the area coming under the Chambal Valley Project, and irrigation farming is not much understood, and much less the frequency, intensity and the proper time of irrigation for various crops when irrigation can yield best results, it

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is necessary to carry out experiments on the water requirements of various crops under Madhya Pradesh conditions. These investigations are exceedingly important as they will have great bearing on the proper use of water and productivity of land. The experiments will be conducted on Jora farm. Not only would the yields of crops be compared under different systems of irrigation but the moisture content of the soil upto various depth after each irrigation would be noted to determine the right dose of water necessary to encourage the root system in each crop.

For this purpose a small staff and only a small contingency as given in statement No.IV, will be needed as the existing farm and crops growing on the same will be utilised.

Statement IV

I. Pay of establishment:

1. One Research Assistant 200-10-350(220x1x12)	Rs. 2,400/-
2. One Fieldman 40-3-70 (40x1x12)	Rs. 480/-
3. Peon 1(25-35)	Rs. 300/-
Leave Salary	Rs. 310/-
Total	<u>Rs. 3,490/-</u>

II. Allowance and Honoraria:

1. Dearness allowance	Rs. 1,140/-
2. Travelling allowance	Rs. 500/-
3. Medical charges	Rs. 150/-
Total	<u>Rs. 1,790/-</u>

III. Contingent charges:

(a) Non-recurring:

1. Furniture & fittings.	Rs. 1,400/-
2. Equipment & Accessories.	Rs. 6,000/-
3. Water channels etc. (pucca in some places)	Rs. 1,000/-
Total.	<u>Rs. 8,400/-</u>

(b) Recurring:

1. Stationery, Printing & Postage	Rs. 400/-
2. Books and periodicals	Rs. 400/-
3. Lab. consumable articles	Rs. 600/-
4. Miscellaneous expenses	Rs. 1,000/-
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Total	Rs. 2,400/-
	<hr/>
Grand total.	Rs. 16,080/-
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V. IRRIGATION AND LAND DEVELOPMENT

Without proper levelling of land, canal irrigation is likely to do more harm than good, in as much as the crop on high lands will die for lack of moisture, and that in the depression/^{suffer} due to excessive moisture. This does not hold good to the same extent in case of rainfed areas where level of land is of comparatively less importance. The land in Madhya Pradesh coming in Chambal Valley Project, is in many places, uneven and of undulating nature and it is extremely desirable to level this land in a manner that would make canal irrigation most fruitful. It is estimated that the total area requiring levelling would be 15 to 20% of the total area coming under irrigation or about 1 to 1½ lac of acres of land altogether.

2. The State has got about 200 Crawler tractors and 50 wheel tractors, including 75 tractors in Madhya Bharat region alone. These tractors are at present utilised for the purposes of bunding, levelling, drainage and also for ploughing, cultivating, harrowing and jungle clearance work. None of these tractors can be spared for Chambal Valley Area as they are fully occupied; and in fact, they have more work than they can cope with.

3. Further, the type of work required to be done in Chambal Valley Area will be of some what different nature.

In the rainfed area the work of levelling is not of such great importance, as that of bunding to prevent erosion and to conserve moisture. On the other hand in the irrigated area of Chambal Valley, levelling work will be of far greater importance than bunding, in as much as, the canals distributaries, minors, village and even field channels, will serve the purpose of bunding to a considerable extent, so that major portion of the work will consist of levelling the land, although bunding may have to be done here and there, as also digging drainage ditches to allow surplus rain water to escape.

4. On the basis of previous experience in the State, levelling and a slight amount of bunding work is likely to cost on an average about Rs.50/- per acre which means a total expenditure of about Rs.50/- to 75/- lacs for 1 to 1½ lacs of acres, which, as referred to above, will be required to be levelled or developed for the purpose of irrigation. It is obvious that the sooner this work is completed the better, both for the cultivator and the Government.

5. The State Agriculture Engineer for Madhya Bharat region is of the opinion that 6 units, each comprising 8 crawler tractors with necessary equipment as given in Statement No.5 would be necessary to complete the work in the course of 5-7 years. This will involve a non-recurring expenditure of about 23.48 lacs, with a recurring expenditure, about six lacs per year or a total of 34.49 lacs in the first year and about Rs.24 lacs in the subsequent 4 years.

6. Since the total amount is proposed to be recovered from the cultivators in the course of 5 years i.e. Rs.10/- or so per acre per year, ultimately there will be no financial loss to the State, and this will only be a sort of loan.

7. The importance of this work cannot be too strongly emphasised in as much as, proper levelling of land would increase its productivity and enable the cultivators to

pay gladly the irrigation charges as also betterment fee. In the absende of this levelling, the irrigation may not produce such good results and may not increase crop yield and this may discourage the farmers to pay even irrigation charges and more so the betterment fee. Further, in the absence of levelling, there will be immense wastage of canal water which will be a great national loss, leave alone the devastation of land as a result of water logging or soil erosion.

8. The alternatives suggested are:-

- (a) The State Agriculture Department may undertake this work on the same lines as is being done at present in other parts of the State.
- (b) C.T.O. may be asked to undertake this work on the assumption that they can spare their existing tractors and equipment for this purpose.
- (c) Private agency may also be induced to undertake this work which will mean that the State will not have to incur much capital expenditure in the beginning, but will only serve as an agency to get the work completed by private agency, on behalf of the cultivators, and the State will pay the charges to private agency and recover the same from the cultivators as in (a).
- (d) Half of the work be got done through private agency and half through Governmental agency - both of them serving as counter check on the efficiency and economy of one another and at the same time initial expenditure could also be curtailed.

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Statement No.5

(I) Staff for supervision of the work:

Pay of officers

1. Asstt. Agril. Engineer (300-550)	3,600/-
Total	<u>3,600/-</u>

Pay of Establishment:

1. Supervisor	2 (150-250)	3,600/-
2. Head Clerk	1 (100-200)	1,200/-
3. U.D.C.	2 (70-150)	1,680/-
4. L.D.C.	3 (50-125)	1,800/-
5. Accountant	1 (70-180)	840/-
6. Cashier	1 (50-125)	600/-

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7. Store-keeper	1(70-150)	840/-
8. Driver	1(50-95)	600/-
9. Peon	4(25-35)	1,200/-
		<u>Total 12,360/-</u>

Allowances & Honoraria:

Dearness allowance	7,000/-
Travelling allowance	1,500/-
Other allowances	250/-
Total	<u>8,750/-</u>

Contingencies:

Stationery & Printing etc.	1,500/-
Running expenses of Jeep	2,500/-
Office rent	1,200/-
Other expenses	1,500/-
Total	<u>6,700/-</u>

Non-recurring:

Purchase of Jeep	14,000/-
Typewriter	1,000/-
Furniture	1,000/-
Total	<u>16,000/-</u>

Total recurring = 31,410/-

Total non-recurring = 16,000/-

	<u>No.</u>	<u>Grade</u>	<u>Amount</u>
Mechanic	1	100-150	1,200/-
Junior Mechanic	1	80-130	960/-
Tractor Operators	8	80-120	7,680/-
Haulage Tractor Operators	2	60-100	1,440/-
Mates	10	40-70	4,800/-
Smiths	1	60-100	720/-
Hammerman	1	25-35	300/-
Welder	1	60-100	720/-
Turner	1	60-100	720/-
Chowkidar	1	25-35	300/-
Peon	1	25-35	300/-
Store Clerk	1	50-125	600/-
Lower Divn. Clerk	1	50-125	600/-
Surveyors	2	60-100	1,440/-
Agri. Assistants (Overseers)	1	125-225	1,500/-
			<u>25,080/-</u>

II. Allowances & Honoraria:

1. D.A.	--	--	14,000/-
2. T.A.	---	---	2,500/-
3. Other Allowances	--	--	500/-
Total			<u>17,000/-</u>

III. Contingencies:

(i) Recurring

1. Stationery & Printing	--	1,000/-
2. Fuel oil like H.S.D., petrol etc.		24,000/-
3. Lubricants		4,000/-
4. Spare parts and repairs		20,000/-
5. Labour charges		1,000/-
6. Transportation		1,000/-
7. Other expenses		1,500/-
8. Waste Cotton.		500/-
		<u>53,000/-</u>

(ii) Cost of one Bulldozer Unit:

(i) Pay of Establishment:

1. Supervisor 1 (150-250)	1,800/-
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(ii) Non-recurring:

<u>Description</u>	<u>Quantity</u>	<u>Approx. cost.</u>
1. 40-50 H.P. Crawler Tractors	8	Rs. 2,80,000/-
2. Bullgrader blades for above tractors.	6	72,000/-
3. Heavy duty chisel cultivators	4	12,000/-
4. Heavy duty disc harrow	4	12,000/-
5. Automatic leveller	3	15,000/-
6. Haulage Tractors	2	20,000/-
7. Haulage Trailers	4	14,000/-
8. Lathe	1	6,000/-
9. Electric Welding set	1	3,500/-
10. Drilling machine	1	1,500/-
11. Grinder	1	500/-

12. Mechanic and workshop tools viz. Spanners, wrenches, files, micrometers, chainpullay, gas welding equipment, etc.	Rs. 8,000/-
13. Tractor servicing shed and machine shop and tractor shed.	" 12,500/-
14. Store and office rooms	" 12,500/-
15. Furniture and fittings.	" 1,000/-
	<hr style="width: 10%; margin: 0 auto;"/>
	Rs. 4,72,000/-
	<hr style="width: 10%; margin: 0 auto;"/>

Recurring cost of one unit	95,080/-
Non-recurring cost of one unit	4,72,000/-
Non-recurring cost of 6 units	28,48,000/-
Recurring cost of 6 units per annum.	6,01,890/-
Recurring cost of 6 units (Five Years)	30,09,450/-
Total expenditure in first year.	34,49,890/-
Recurring expenditure in subsequent 4 years.	24,07,560/-

VI - HORTICULTURAL DEVELOPMENT

of Sardar Lal Singh

As explained at length in the report/ Madhya Pradesh

offers remarkable scope for horticultural development with the advent of canal irrigation and this should go a long way to improve the economic position of the farmers. Fruit gardening can, however, be a big industry, only if it is started on the right lines i.e. if the gardens are laid-out properly and they are stocked with trees of outstanding merit and subsequently maintained in good health and protected against insect pests and diseases. Gardens require far greater care in the beginning than other crops do, because while in the case of crops, (mistakes in the matter of planting or selection of varieties etc.) can be easily rectified in the course of a year or so, this is not so in the case of ^{fruit} gardens where mistakes once committed, whether in the layout of the gardens or in the selection of varieties of nursery trees or in planting the same, can not be rectified during the life time of the trees which may be anything from 5 to 25 years or more. So, in the establishment or development of horticultural industry, the State has moral responsibility to ensure that trees to be planted by the prospective growers, are of the best varieties and the gardens are laid out in a systematic manner. This means a supply of nursery plants of pedigree stock to the people at reasonable price, supplemented by advisory and extension work in the matter of fruit plantation.

2. So the horticultural scheme has to be divided into three parts namely:

- (a) Nursery Production: By taking budwood from trees of outstanding merit already existing in the State, either in Govt. Gardens, private gardens or in the gardens of erstwhile rulers. This scheme can be easily made, at least, self-supporting if not actually a paying concern, even if the plants are supplied to the public at half the market rate so that the expenditure as given in the statement amounting to Rs. 1,46,250/- in the first year and about Rs. 88,000/- per year in subsequent years would be a working capital which would be easily recovered by the sale of plants.

- (b) Staff for advisory work:- For giving guidance to prospective fruit growers in laying out the gardens on proper lines. The cost as given in the statement works to about Rs.34,000/- per year.
- (c) Demonstration-cum-experimental gardens on three Government farms. These gardens will be established by securing plants of leading varieties of important fruits from all over India or even abroad, so that, in due course of time the Department is able to recommend varieties best suited for the State.

Fortunately, trees of good varieties of fruits of various kinds, are already met with in some of the private gardens particularly belonging to the erstwhile Rulers and they will be readily utilised for the purpose of propagating nursery plants for supply to the public. But there is also scope for getting still better varieties. And this object will be served by the experimental gardens proposed to be planted. After a number of years when these gardens come to bearing and comparative merit of each variety is determined, the Department will be in a position to give to the farmers nursery plants of the varieties found to be the best. The total cost (non-recurring) as will be seen in the statements comes to Rs.10,000/- per garden of 15 acres with annual recurring expenditure of Rs.4,500 per garden per year or a total cost of Rs.30,000 (for three gardens) in the first year and Rs.13,500 per year subsequently. It may be noted that after 5 years these gardens also will definitely be a source of big income to the State so that this expenditure is bound to prove a profitable investment even for the Government, besides doing enormous good to the public.

3. It may be mentioned that the Assistant Horticulture Development Officer although shown under extension staff would also have an overall charge of the Experimental Gardens and Commercial production of nursery plants. No Horticultural Assistant is separately provided for the Experimental Gardens as the one Horticultural Assistant provided in the nursery scheme at each centre (whose pay will be debited to the nursery account) will look after the garden work also. The area,

in-between fruit trees in the gardens, upto the time the trees come to a bearing stage, will be utilised for production of nursery plants and vegetable seeds etc. for sale to the public.

4. It may be noted that it is only in the case of nursery production, that capital cost on residential quarters of Mali is provided for. This is because the work of nursery production will be of a permanent and of a Revenue-earning nature; and the residence of Mali on the spot will improve the efficiency of work. Neither any expenditure on bullocks and bullock-carts and nor the feeding charges of the bullocks have been provided for as the bullocks and the carts available on the farms will be utilised for the purpose and the cost of their hire will be debited to the nursery account.

The details of cost are given in Statement VI.

Statement 6.

A. Plantation of garden (15 acre at each of the 3 farms)

	<u>1st yr.</u>	<u>2nd yr.</u>	<u>3rd yr.</u>	<u>4th yr.</u>
1. Cost of plants	3,000/-	-	-	-
2. Layout of garden and digging of pits.	1,500/-	-	-	-
3. Manure and Insecticides etc.	2,000/-	1,000/-	1,000/-	1,000/-
4. Irrigation etc.	1,500/-	1,500/-	1,500/-	1,500/-
5. Labour charges @ 3 labour.	2,000/-	2,000/-	2,000/-	2,000/-
Total.	10,000/-	4,500/-	4,500/-	4,500/-
For 3 gardens.	30,000/-	13,500/-	13,500/-	13,500/-
				= Rs. 70,500/-

B. Commercial Production of nursery plants
(Nursery of 20 acres at each of the 3 farms)

<u>I. Establishment:</u>	<u>1st yr.</u>	<u>2nd yr.</u>	<u>3rd yr.</u>	<u>4th yr.</u>
1. Horticulture Asstt. 1(150-10-250)	1,800/-	1,920/-	2,040/-	2,160/-
2. Incharge Nursery 1(60-4-80-5-125)	720/-	768/-	816/-	864/-
3. Nurseryman 4(50-3-95)	2,400/-	2,544/-	2,688/-	2,832/-
4. Clerk 1(50-4-70-5-125)	600/-	648/-	696/-	744/-
5. Accountant 1(100-200)	1,200/-	1,260/-	1,320/-	1,380/-
6. Malies 8(30-1-40)	2,880/-	2,976/-	3,072/-	3,168/-
7. Chowkidar 1(25-1-35)	300/-	312/-	324/-	336/-
8. Khalla-i 1(25-1-35)	300/-	312/-	324/-	336/-
	<u>10,200/-</u>	<u>10,740/-</u>	<u>11,280/-</u>	<u>11,820/-</u>
Leave Salary	850/-	900/-	950/-	1,000/-
Total:	<u>11,050/-</u>	<u>11,640/-</u>	<u>12,230/-</u>	<u>12,820/-</u>
<u>II. Allowances & Honoraria:</u>				
1. Dearness Allowance	6,000/-	6,000/-	6,000/-	6,000/-
2. Tour allowance	500/-	500/-	500/-	500/-
	<u>6,500/-</u>	<u>6,500/-</u>	<u>6,500/-</u>	<u>6,500/-</u>
<u>III. Contingencies:</u>				
1. Seeds & Manures etc.	500/-	500/-	500/-	500/-
2. Pots, packing material & freight charges etc.	2,500/-	2,500/-	2,500/-	2,500/-
3. Cartage	2,000/-	2,000/-	2,000/-	2,000/-
4. Daily labour	3,000/-	3,000/-	3,000/-	3,000/-
5. Stationery & Stamps	500/-	500/-	500/-	500/-
6. Medical Aid.	200/-	200/-	200/-	200/-
7. Miscellaneous	2,000/-	2,000/-	2,000/-	2,000/-
	<u>10,700/-</u>	<u>10,700/-</u>	<u>10,700/-</u>	<u>10,700/-</u>
<u>IV. Non-recurring:</u>				
1. Malies' quarters (8)	8,000/-			
2. Nursery Shed	3,000/-			
3. Well and irrigation channels.	5,000/-			
4. Furniture, tools and implements.	4,500/-			
	<u>20,500/-</u>			
Grand total:	<u>48,760/-</u>	<u>28,840/-</u>	<u>28,430/-</u>	<u>30,020/-</u>
For three nurseries	1,46,280/-	86,520/-	88,290/-	90,060/-

=Rs. 4,11,120/-

C. Extension & Advisory work

<u>1. Establishment:</u>	<u>1st yr.</u>	<u>2nd yr.</u>	<u>3rd yr.</u>	<u>4th yr.</u>
1. Asstt. Horticulture Development Officer 1(250-20-500)	3,000/-	3,240/-	3,480/-	3,720/-
2. Horticulture Asstt. 3(150-10-250)	5,400/-	5,760/-	6,120/-	6,480/-
3. Demonstrator 9(60-4-80-5-125)	6,480/-	6,912/-	7,344/-	7,776/-
4. Clerk-cum-Typist 1(70-150)	840/-	900/-	960/-	1,020/-
5. Peons & Khallasi 5(25-1-35)	1,500/-	1,560/-	1,620/-	1,680/-
	<u>17,220/-</u>	<u>18,372/-</u>	<u>19,524/-</u>	<u>20,676/-</u>
Leave salary	850/-	950/-	1,050/-	1,150/-
	<u>18,070/-</u>	<u>19,322/-</u>	<u>20,574/-</u>	<u>21,826/-</u>

Note:- Accountant or extra clerks are provided in the nursery work and paid there from.

II. Allowances & Honoraria:

Dearness allowance.	6,900/-	6,900/-	6,900/-	6,900/-
Tour allowance	4,000/-	4,000/-	4,000/-	4,000/-
	<u>10,900/-</u>	<u>10,900/-</u>	<u>10,900/-</u>	<u>10,900/-</u>

III. Contingencies.

1. Stationery and stamps.	2,000/-	2,000/-	2,000/-	2,000/-
2. Rent for office building.	600/-	600/-	600/-	600/-
3. Medical Aid	500/-	500/-	500/-	500/-
4. Miscellaneous	500/-	500/-	500/-	500/-
	<u>3,600/-</u>	<u>3,600/-</u>	<u>3,600/-</u>	<u>3,600/-</u>

IV. Non-recurring

1. Furniture	1,000/-	--	--	--
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Grand total. 33,570/- 33,822/- 35,074/- 36,326/-

= Rs. 1,38,792/-

Gist:

A. Plantation of garden.	30,000/-	13,500/-	13,500/-	13,500/-
B. Nursery production work.	1,46,250/-	86,520/-	88,290/-	90,060/-
C. Extension and Advisory work.	<u>33,570/-</u>	<u>33,822/-</u>	<u>35,074/-</u>	<u>36,326/-</u>
Total.	<u>2,09,820/-</u>	<u>133,842/-</u>	<u>136,864/-</u>	<u>139,886/-</u>
				= Rs. 6,20,412/-

VII. STRENGTHENING OF DISTRICT STAFF FOR EXTENSION WORK.

District Morena and Bhind come under the Chambal commanded area. There is one Assistant Director of Agriculture for District Morena, and an Assistant Director Agriculture is soon to be appointed for Bhind District. According to present practice, each Assistant Director of Agriculture in the above Districts has two Agriculture Assistants and five to six Demonstrators for the Agricultural Extension work. This small staff which was considered sufficient before the advent of canal irrigation, will prove inadequate with the coming of canal water and the introduction of development schemes. It is necessary to add two more Agriculture Assistants in each District and the cost will be as under:-

Statement VII.

<u>Pay of Establishment:</u>		Rs. 3,180/-
1. Agriculture Assts. 2(120-220)	Rs. 2,880/-	
2. Peons 2(25-35)	Rs. 300/-	
<u>Allowances & Honoraria</u>		Rs. 2,400/-
Dearness Allowance	Rs. 1,300/-	
Tour Allowance	Rs. 1,000/-	
Other allowances.	Rs. 100/-	
		<u>Rs. 5,580/-</u>
	Round total:	Rs. 6,000/-
		<u>Rs. 12,000/-</u>
	For two Districts:-	

VIII. PUBLICITY AND PROPAGANDA SECTION:

Some of the effective methods employed to educate the farmers are audio-visual aids, Demonstration and Propaganda, Cinema Shows, Exhibition etc. Publicity also plays an important roll in education and acquainting the farmers about the Development Schemes and programmes. At present in

the Gwalior Division, there is no such section which takes care of this important work. In order to educate the farmers and to make Agricultural Development successful in the Chambal Commanded Area, it is proposed that a section to meet the above demands be provided. The following staff and equipment would be necessary for this section.

Statement VIII

Pay of Officers & Establishment. Rs.6,240/-

1. Asstt. Information Officer 1(250-450)	Rs.3,000/-
2. Operator-cum-Demonstrator 1(120-220)	Rs.1,440/-
3. Driver for Cinema Van 1(50-95)	" 660/-
4. Helper-cum-cleaner 1(25-25)	" 300/-
5. Peons 3(25-35)	" 900/-

Allowances:

Rs.3,950/-

1. Dearness Allowance	" 2,350/-
2. Travelling Allowance	" 1,500/-
3. Other Allowances.	" 100/-

Contingencies:

Rs.10,000/-

1. Recurring	
(i) Stationery, Printing postage etc.	" 1,500/-
(ii) Running expenses of van.	" 4,000/-
(iii) Purchase of films, preparation of posters, charts, exhibition material etc.	" 4,000/-
(iv) Other expenses.	" 500/-

Non-recurring.

Rs.30,000/-

Cinema Van completely equipped with projector, generator, films, charts, exhibition material and camera etc.

Total:- Rs.50,000/-

In the first year the expenditure will be - Rs.50,000/-
while in subsequent years the exdr. will be - Rs.20,000/-

IX. OVERALL SUPERVISION AND COORDINATION
OF WORK.

Since the development scheme in Chambal Valley Area would involve big expenditure amounting to several millions of rupees and fairly big staff including about a dozen Gazetted Officers, it is necessary to supervise and coordinate the activities of all sections and to remove hurdles that would frequently arise in day to day working. For this purpose an ideal course will be to appoint one Agricultural Development Officer of sufficiently high rank to command respect from all quarters. If this be not acceptable, then work can be entrusted to the Deputy Director Agriculture incharge of this Circle, and his staff strengthened by the addition of one Assistant Director of Agriculture with two Agricultural Assistants and necessary clerical help as given in the statement below at a total cost of about Rs.19,000/-

<u>Pay of Officer & Establishment:-</u>	Rs.11,460/-
1. Asstt. Director of Agriculture 1(250-450)	Rs.3,000/-
2. Agricultural Assistants 2(120-220)	" 2,880/-
3. Accountant 1(100-200)	" 1,200/-
4. U.D.C. 2(70-150)	" 1,680/-
5. L.D.C. 3(50-125)	" 1,800/-
6. Peons 3(25-35)	" 900/-
<u>Allowances & Honoraria.</u>	Rs.7,500/-
Dearness allowance	" 5,000/-
Travelling allowance	" 2,000/-
Other allowances	" 500/-
	<hr/> Rs.18,960/- <hr/>
Round total:	Rs.19,000/- <hr/>

X. OTHER PROBLEMS

Some of the items referred to in Sardar Lal Singh's report but the financial implications of which have not been worked out by the State Agriculture Department are given below along with our remarks on the same:-

1. Need for verification of C.C.A. & G.C.A.: The State Agricultural Chemist says, with which other members of the Department agree, that in some areas there may not be any great difference between the C.C.A. as calculated by the Canal authorities on the basis of Revenue record and the C.C.A. as actually available on the spot fit for irrigation. But there is likelihood of considerable difference between these two figures in certain other areas, especially where soil erosion is of severe type as in places like Ater in Bhind District and Ambah and Morena in Morena District. In case the difference between the two figures comes out to more than 10% in any place, it would be a matter of considerable importance in the distribution of water or water allowance for crops in that area. As the matter is of considerable economic importance, we feel that a small Committee representing three Departments, namely Agriculture, Revenue and Irrigation, may be constituted immediately to undertake this work in particular areas where the difference is likely to be appreciable.

2. Water logging and high salt contents: In certain areas like Gohad and Mehgaon, this is undoubtedly a serious problem which requires immediate attention. But as this work is not entirely the concern of Agriculture Department but has to be tackled jointly both by Irrigation and Agriculture Departments, the matter has been left out for discussion by the Joint Committee of the two Departments.

3. Consolidation of Holdings: Although highly desirable from the point of view of agricultural production, efficiency and economy in water use/^{it} nevertheless a matter which pertains to the Revenue Department, which may express its opinion.

4. Pernicious Ber Bushes: This is a matter of great economic importance if canal water is not to be wasted and lands are to give reasonable crops. Since however the relative costs of eradicating it by weedicide or tractorisation have not been worked out, we are not in a position to work out the cost or prepare a definite scheme. Further if levelling of the land is to be undertaken, on the scale envisaged in our scheme, most of the area now infested with ber bushes would be automatically cleared in any case.
5. Phased Programme: Irrigation Authorities consider that it will take 10 years before whole of the available water begins to be fully utilised by the cultivator. We feel this period can be considerable curtailed if sufficient propaganda is immediately started on the lines indicated in our schemes and the proposals made by us are immediately implemented.
6. Commercial Fruit Garden: The Minister for Agriculture in the last meeting wished the Agriculture Department to plan out a big commercial fruit garden of several thousand acres not only for growing fruits and vegetables but also for establishing processing plants for canning of fruits and vegetables or manufacture of by-products, cold storages etc.etc. and starting other subsidiary industries. This scheme cannot be worked out unless it is definitely known whether the private lands are to be acquired for the purpose or some Government waste lands can be made available.
7. Sugar Industry: As regards recommendations in the report to encourage sugarcane cultivation in concentrated areas, in the centre of which sugar mills may be installed, the decision in the last meeting held at Bhopal which was presided over by Shri N.V. Gadgil and when the Minister for Agriculture was also present, was as under:-

"A small Committee with one representative from Agriculture, Revenue, Industry, Irrigation, Co-operative Departments may be immediately appointed to select the areas for the purpose before distributories and minors are dug so that they could be so planned as to provide necessary amount of water for such areas. The other question, whether the mills are to be run on co-operative basis or by private parties, should also be immediately settled. So far as Agriculture Department is concerned, (after such areas are selected) necessary

preparation will have to be made immediately for introducing suitable varieties of cane in that area."

The Government is requested to constitute this Committee immediately.

8. Green manuring, composting and farm yard manure:

Government is requested to issue orders to waive irrigation charges in case of green manure crops provided they are ploughed under before the specified period. Likewise the previous Committee had recommended remission of 50% of irrigation charges in case of fodder crops like berseem, senji, shaftal in the interest of dairy development. These recommendations are also required to be implemented. In regard to the composting of refuse in cities and towns in the Chambal Valley Area, Government instructions are required to be issued forthwith to the Municipalities or Town Committees about leans, trenching ground etc.

9. Village tanks, pucca roads, planning new villages and Mandis, remodelling old town like Sheopur:

The recommendations already made in the report in connection with above matter require to be implemented by other Departments as they are beyond the purview of Agriculture Department.

10. Co-operative Garden Colonies Scheme:

As regards recommendations made in the report about Co-operative Garden Colonies Scheme, the last meeting at Bhopal presided over by the Minister for Agriculture had approved of the scheme in general but it was decided to depute somebody from the Agriculture Department to study the working of this scheme in Punjab before it is launched in the State. Two steps required to be immediately taken in this connection are (a) to depute a Team of two or three Officers to see the actual working of the Scheme in Punjab and (b) to find out where Government lands are available, either in Chambal Area or in other parts of the State, where this scheme can be taken up.

11. As regards recommendations of warabandi, construction of main channels, malarial problem etc. they concern Departments other than Agriculture.

12. High Power Committee:

The recommendation made in the last meeting presided over by Shri N.V.Gadgil when Minister for Agriculture was also present is as follows:-

"The meeting strongly feels the necessity of having a High Power Committee which should have the representatives of Planning, Agriculture, Revenue, Irrigation, Finance, Industry Departments of the State and the Planning Commission. This Committee should be the final power both in regard to planning and execution of schemes and for issuing financial sanction in order to avoid unnecessary delay as time factor is the essence of the success of the project, and any avoidable delay may defeat the objectives in view".

The Rajasthan Agriculture Department has made an additional recommendation which is as under:-

"since a number of agricultural problems facing both Madhya Pradesh and Rajasthan States in connection with Chambal Valley Project, are common, it would be desirable to create a common Board consisting of representatives of both the States to consider the same and take decisions under the guidance of Sardar Lal Singh".

Such a Committee consisting of representatives of the two States Agriculture Departments would be useful in co-ordinating the work and exchange of useful information and avoiding duplication and checking up the results of experiments in two States. The preliminary meeting should be immediately called. This is particularly important in view of the common problems and also the remedial measures for various ailments from which the two States are suffering such as soil erosion, Kankar layer, eradication of weeds, lack of suitable varieties etc.etc. For instance, climatic and soil conditions etc. in Sheopur Area in Madhya Pradesh and in the adjoining Kota District in Rajasthan are, more or less, similar and it would be futile to duplicate experiments so that Sheopur Farm can carry out one set of experiment and Rajasthan Farm another set of experiment with advantage to both the States. Likewise this Joint Committee can frame recommendations on several common matters for both the States.

Statement 10Summary of expenditure for various schemes

Sl. No.	Name of scheme	(Amount in thousand rupees)	
		First yr.	Second Yr.
1.	Varietal & cultural experiments.	52	52
2.	Experimental and demonstration work.	30	30
3.	Kankar Layer and hard pan.	59	45
4.	Study in irrigation practices	16	8
5.	Irrigation and land development.	3450	600
6.	Horticulture Development		
	(a) Plantation of Gardens	30	13
	(b) Commercial Production of nursery plants.	146	88
	(c) Extension & Advisory work	34	34
7.	Strengthening of district staff for extension work.	12	12
8.	Publicity and Propaganda	50	20
9.	Overall supervision and co-ordination of work.	19	19
	Total	3898	921
	Total amount recoverable in full.	3596	688
	Net expenditure	302	233

N.B. Financial implications of other items referred to under item X have not yet been worked out for want of decision by Government or for other reasons mentioned therein.

CHAMBAL VALLEY PROJECT

Proceedings of the meeting held on 11-9-57 at 3 p.m. in the Office Room of Shri Takhat Mal Jain, Minister for Agriculture and Industries at Bhopal.



The following were present:-

1. Shri Takhat Mal Jain, Minister for Agriculture & Industries, Madhya PradeshCHAIRMAN
2. Shri Shankarlal Tiwari, Minister for P.W.D.& Irrigation M.P.
3. Sardar Lal Singh, Member, Irrigation & Power Team, Planning Commission, Government of India, New Delhi.
4. Shri R.C.Murab, I.A.S., Secretary Agriculture, M.P.
5. Shri S.L.Sood, Chief Engineer, P.W.D. and Irrigation, M.P.
6. Shri A.K.Char, Chief Engineer, Chambal Hydel Scheme, M.P.
7. Shri N.S.Apte, Director of Agriculture, M.P.
8. Dr.P.R.Mehta, Joint Director of Agriculture (Research) M.P.
9. Shri Y.G.Mane, Superintending Engineer, Chambal Canal Circle.
10. Shri R.S.Verma, I.A.S., Deputy Secretary Agriculture, M.P.
11. Shri Patil, Superintending Engineer, P.W.D., Building and Roads, Madhya Pradesh.
12. Dr.C.B.L.Bhargawa, Deputy Director of Agriculture, Gwalior, Madhya Pradesh.
13. Shri P.N.Baijal, Agriculture Engineer, Gwalior, M.P.

The proceedings of the meeting held at Gwalior on 6th to 8th September, 1957 at technical level to discuss the financial implications of schemes and proposals contained in the report of Sardar Lal Singh on Agricultural Aspect of Chambal Valley Project, were discussed in the meeting. These proceedings had been circulated to the members beforehand. Other problems (Item No.X), relating to departments other than Agriculture were taken up first.

In regard to the need for verification of C.C. and G.C. the Chief Engineer Chambal explained at length that the areas unsuited for irrigation had already been left out of calculation and no less than 3 lacs of acres coming under

ravines or otherwise unfit for irrigation had been excluded. He expressed the belief that there would not be any great difference between the C.C.A. calculated on the basis of revenue records and the C.C.A. actually existing on the spot.

2. WATER LOGGING AND SALT CONTENTS:

The meeting agreed that the Chief Engineer (Irrigation) should examine the problems in Johad and Mehgaon area and submit a report within a month stating the measures to be adopted. It was further suggested that the canal and drainage programme in the whole Chambal Project area should go hand in hand and the Chief Engineer (Chambal) will take necessary action.

3. CONSOLIDATION OF HOLDINGS.

It was explained that this was already included in the Second Five Year Plan although it was deemed proper that the work of consolidation might be started in the area which is to come first under the irrigation project, in order to gain experience and demonstrate its beneficial results.

4. BER BUBHIC.

The meeting reaffirmed the stand taken on this point at the meeting held on 23rd July, 1957.

5. PHASED PROGRAMME

The Chief Engineer Chambal stated that if the period of 10 years estimated by the Canal Authorities for full utilisation of water by the cultivators, could be reduced, it would indeed be most welcome as it will greatly improve the financial success of the scheme; and the necessary propaganda as suggested in the report should be conducted to make the cultivators irrigation-minded.

6. COMMERCIAL FRUIT GARDENS:

The meeting agreed with the suggestion of bringing an area of five thousand acres or so under fruit plantation. The Chief Engineer Chambal stated that it would be possible to spare necessary area out of Government waste lands. The Agriculture Department was to select the area and to send up the proposals with financial implications of the same.

7. SUGAR INDUSTRY:

The meeting endorsed the recommendations made in the report of Sardar Lal Singh and suggested the appointment of a Committee comprising (a) Superintending Engineer, Chambal Canal Circle, Sheopur (b) Deputy Director of Agriculture, Gwalior Division (c) Sugarcane Development Officer (Industries Department) and (d) Agricultural Chemist - the terms of reference of the Committee being survey of the area with a view to select suitable sites from the viewpoint of (i) suitability of soil for sugarcane (ii) nearness to Railway Station (iii) abundance of water supply. The Committee would select 7,8 sites out of which 5 may be finally selected as Chambal Valley Area could easily feed five sugar mills.

8. Green Manuring:

The meeting reaffirmed the stand taken on this point at the meeting held on 23rd July, 1957.

9. Construction of Pucca Road, Planning of New Villages and Mandis, Towns etc.

The meeting suggested that a Committee be appointed by the Government to work out the details.

10. Co-operative Garden Schemes:

The meeting agreed that a policy decision as to the section Agriculture or Co-operation under which this work has to be placed be taken first.

11. Warabandi & Construction of main channels.

As regards Warabandi referred to in the report, the

Superintending Engineer, Mr. Mani is to proceed to Punjab in the third week of this month to study the system there.

As regards the construction of main channels, it was deemed proper that while the main channels will be constructed by the villagers, the necessary technical guidance be made available by the Irrigation Department, Chief Engineer Chambal was to take necessary steps for the same.

12. HIGH POWER COMMITTEE:

Secretary Agriculture will put up a note regarding the composition and the specific functions of the Committee.

As regards Joint Committee of Agriculture Departments of Rajasthan and Madhya Pradesh, the proposal was deemed workable. It was suggested that a Committee be formed immediately to start functioning, as the exchange of views between the two State Agriculture Departments would be advantageous to both the States, both in the matter of economy and efficiency of work and avoiding duplication of efforts. The Secretary Agriculture will take necessary action.

After the items referred to above coming under Para X were disposed of, the financial implications of various schemes as worked out by the Technical Committee and numbered I to IX were seen and it was felt that these amounts will be outside the State Plan and it was understood that the Central Government may come forth for full assistance on all the items.

No. I - Varietal and cultural experiments on three Government Farms involving an expenditure of Rs. 52,000/- per year.

No. II - Experimental-cum-Demonstration work. One private demonstration farm, within an area of every 10 square miles, aggregating in all, 150 farms in three Zones were to cost Rs. 30,000/- per year.

No.III - Kankar Layer and hard pan

(a) There was no need of duplication and that this work need not be started here when Rajasthan agriculture Department was proposing to do it.

(b) It was felt that the present staff engaged in Soil Survey and analysis work needs to be strengthened. The total cost will be Rs.59,000/- per year.

No.IV - Study in Irrigation Practices to determine the water requirement for various crops was to cost Rs.16,000/- per year.

No.V - Irrigation and Land Development: It was felt that in order to make the best use of irrigation facilities, the land must be levelled otherwise canal irrigation is likely to do more harm than good, if water is applied to uneven lands. This involves a total expenditure of Rs.34.5 lacs including Rs. 28.5 lacs non-recurring on purchase of machinery in the first year and about Rs. 6.8 lacs per year in subsequent years. Cost of levelling the land could be recovered from the owners. In regard to 3 alternatives whether:-

(a) the work should be done by the State Agriculture Department on the same lines as bull-dozing work.

OR (b) the work should be done by private agency.

OR (c) both Government agency and private agency, it was suggested that the Secretary Agriculture will get it examined at expert level.

No: VI - Horticulture Development :

(a) Production of nursery plants for supply to public involves an expenditure of Rs. 1,46,000/- in the first year and about Rs. 85,000/- per year in subsequent years.

(b) Staff for advisory work would cost Rs.34,000/- per year.

(c) Establishment of demonstration-cum-experimental gardens on three Government Farms will cost Rs. 30,000/- in the first year and Rs. 13,000/- per year in subsequent years.

The above items were deemed proper.

- 6 -

No: VII & IX - Strengthening of District Staff for extension work in Agriculture : Overall supervision and coordination of work:

The technical Committee meeting at Gwlior suggested the appointment of a Development Officer of a high status, or to entrust this work to the present Deputy Director of Agriculture, Gwlior, and strengthen his staff. However, it was deemed proper to have a special staff for Chambal area alone if funds permitted.

No: VIII - Publicity and Propoganda Section: It will involve an expenditure of Rs. 50,000/- in the first year and Rs. 20,000/- per year in subsequent years.

Sd/-
Durga Prasad,
Under Secretary to the Govt. of M.P.
Agriculture Department.

Copies to all concerned.

* To make the above proceedings self contained, proceedings of the meeting of July 23rd in regard to Ber Bushes & Green Manuring are reproduced below:-

Ber Bushes: The meeting agreed with, the observations made in the report, both in regard to the serious nature of this menace and the desirability of exterminating it. The Agriculture Department will take immediate steps to work out the comparative cost of eradicating it by weedicide or tractorisation, before any recommendation is made to the agriculturists.

Green Manuring: In order to encourage the practice of green manuring to maintain fertility of soil, the irrigation charges waived on green manuring crops as recommended in the report and as practised in the Punjab. Further since the yield of milch animals in Madhya Pradesh is low on account of shortage of green fodder and poor breed, it would seem desirable to remit 50% of the irrigation charges in case of fodder crops like Berseem, Senji, Shaftal etc.

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APPENDIX 18

Shri. M.L.Sood, ISE,
Chief Engineer Irrigation,
Msfhys Pradesh.

D.O.No.415-U/W(1)/56
Office of the Chief Engineer,
Irrigation, M.P.

Dated, Raipur, the 6th Dec.57

My dear Shri. Lal Singh,

Many thanks for your letter No. COPP/I&P/III dated 19/20-11-57. I am sorry to learn that you have been down with heart attack. I hope that you will recover quickly and attain the normal state of health soon.

2. Shri. Char, Chief Engineer, Chambal and I accompanied by the Superintending Engineers and Executive Engineers concerned inspected the commanded area of Bhind Canal System. In the Gohad and Mahgaon area Rabi crop is doing as well as anywhere else in the commanded area. A few patches of usar with white salts on top are there, as I had witnessed with a much higher intensity in Manipuri, Etawah and Cawnpur districts of the U.P. when I was Executive Engineer Canals at Etawah. There even, though the spring level during monsoons came up quite close to ground level but there was no water-logging problem and, crops did quite well except on those patches which were believed to be due to lack of underground drainage owing to underlying kankar layers. To my mind this appears to be a case of absolute lack of drainage facilities. Wherever irrigation is introduced and the country is as flat as this tract, it is absolutely essential to have a suitably laid out drainage system to dispose of rain water and the seepage water. Shri Char and I have agreed that ample provision will be made in the proposals for remodelling Bhind to provide an elaborate drainage system. Also I have issued instructions that a record of spring levels in the wells in this tract should be maintained. Both, depths of water levels from ground level and their reduced levels should be recorded twice, a year, once before the monsoon in May and again after the monsoon in October. Besides I am requesting Dr. Mehta, to study subsoil conditions upto 10 ft. depth in Gohad and Mahgaon areas with a view to ascertain the nature of the soil contents with particular reference to the presence of salts, and the perviousness as related to underground drainage. I understand from Dr. Mehta that provision for such studies has already been made as item No.III in the proposals framed under your advice, in the meeting of 6th to 8th December at Gwalior.

3. I am enclosing herewith a copy of Shri, R.J.Dhumal,Dy. Chief Engineer's inspection note of 28.9.57 in this connection.

With kind regards,

Yours sincerely,
sd/- M.L.Sood.

Shri. Lal Singh,
Adviser Agriculture,
Planning Commission,
Kotah House,
New Delhi.

PTO

No

Dated, Raipur, the 6th December 57

Copy of the above is forwarded to:-

1. The Secretary to Government of Madhya Pradesh, P.W.D. Bhopal.
2. The Secretary to Government, M.P. Agriculture, Bhopal.

in continuation of this office endt. No.415-0/W(I)/56 dated 26.10.1957.

3. Shri A.K.Char, Chief Engineer, Chambal Project, P.O. Chambal Hydrel Works (via. Zalawar Road).
4. The Superintending Engineer, Irrigation Survey Circle, Gwalior, in continuation of Chief Engineer's inspection note dated 30-11-1957.

for information and favour of necessary action.

sd/- M.L.Sood,
Chief Engineer Irrigation, M.P.

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Water logging in Mehgaon and Gohad area of Bhind Canal System, District Bhind.

Date of Inspection

27th September 1957.

The following were present :-

1. Shri V.L.Athawale, Superintending Engineer, Irrigation Survey Circle, M.P.Gwalior.
2. Shri Y.K.Patil, Superintending Engineer, P.W.D., and Irrigation, M.P.Gwalior Circle.
3. Shri G.M.Tikerkar, assistant Director, Agriculture, Gwl.
4. Shri S.S.Yadav, Research Assistant, Agriculture, Gwalior.
5. Shri Shri Horam Singh Sharma, Assistant Engineer, P.W.D. and Irrigation Sub Division, Gohad.
6. Shri B.K.Agrwal, Assistant Engineer, C.E.'s Office, Irrigation Branch, Gwalior.

1. The Agriculture Department has prepared a statement of soil analysis for the area falling under the Chambal canal in this tract. The statement was studied and some spots were visited.

2. Bara Area : The village worstly affected by the stagnant water ponds of rains and canal water were seen. It is possible to drain off this area after completing the contour survey. The country is so flat that the ground slope is one foot per mile. It is very difficult to trace natural drainage lines. Artificial drains can be constructed and the drainage would be discharged in the Baisly River which is situated at a distance of 5 to 10 miles from the canal system. Sub soil water level of wells after taking readings in this area which is mostly submerged in rainy season, was also noted. The sub-soil water level is from 4 ft. to 10 ft. below ground level in certain localities which are adjacent to the standing water either due to rains or wastage from the water courses.

3. Area near Khander and Nibrol villages on Gohad Mho road :

This area is not under the command of the existing Bhind canal, but it will come under the remodelled Bhind canal in connection with the Chambal Canal Scheme. There were stagnant pools of water due to recent rains and the water level in the wells was from 3 ft. to 5 ft. below ground level.

4. Pipandi, Kanipura and Tehra area:

The canal was running full for paddy crops and fields were full of water as the Irrigation was in progress. The water in the adjoining wells was 4 ft. below ground level.

5. The area around Mehgaon and Gohad is very flat. In heavy rains when the fields get flooded with water they are not drained off for days together. In many places natural drainages are not existing and the ground slope is also very flat and obstructed by the embankment of the road or the railway or the canal.

6. . The cultivators usually drain out the water by breaching canals which is no doubt very objectionable especially in Chandokher, Sherpur and Br. distributory area. This is already a saline area.

7. To minimise the effects of seepage from canal the present Bhind Canal needs lining in Usar (Saline) soil portions.

8. The area could be improved by providing elaborate drainage system. It is desirable that surveys should be taken up by the Chambal Scheme authorities along with the remodelling of Bhind canal system. Only in places where seepage and stagnant water is excessive as stated in para 6, drainage of the area could be executed by the Executive Engineer, Bhind. Remaining areas will have to be carefully surveyed and efficient drainage system will have to be designed along with the remodelling of the Bhind canal by the Chambal Organisation. The Chief Engr. Irrigation, has already suggested to get the area surveyed through the Director, Surveys Deptt., Government of India.

9. In Usar area, tube wells should be tried and when these are successful, irrigation from canal water should be stopped.

10. Drainage culverts should be constructed where road railway and canal embankments obstruct the rain water flow and waste has to pass along the fields to a longer distance parallel to the obstructions, till they meet some drainage crossings.

11. The Chambal Organisation should be requested to survey the Bhind canal area along with the remodelling of the Bhind canal and to provide suitable measures for the drainage of this area.

At some points as mentioned in para 6 where drainage arrangements are to be provided by the department, first phase estimates of these schemes should be submitted, by the Superintending Engineer as early as possible.

In Gohad and Mehgaon tract the patches of saline soils were in existence long before the canal was constructed. Even salt was also being manufactured by villagers in old days from some of the saline spots in the area. Water level in the wells in most of the area is very low. Only in few places near stagnant pools of water the water level in the wells is high. Even in this area the out-turn of crop is still not affected at present it is likely to be affected in future. The area which may show signs of water logging is confined in some isolated patches near the pools of water. The drainage arrangement for such areas is necessary. The saline areas which were in existence long before the canal was constructed were not considered suitable for cultivation. Recently some paddy cultivation is started in the saline area by Punjabi cultivators. It will be better to have the area investigated by Chambal Organisation in connection with the surveys and projects of remodelling of Bhind Canal.

Sd/-R.J.Dhumal, 28/9/57
Dy. Chief Engineer(N), P.W.D., Irrigation Branch
M.P. Raipur.

PROCEEDINGS OF THE MEETING

A meeting of the officers of Agriculture Department was held in the office of Director of Agriculture Rajasthan on August 1st. The following were present:

1. Sardar Lal Singh, Member I & P Team.
2. Shri Samrath Raj, Dir.Agriculture Rajasthan.
3. S. Shamsheer Singh, Dy.Dir.Agric.(Adm)
4. Shri H.P.Bhatnagar, Economic Botanist.
5. Shri K.M.Mehta, Agricultural Chemist.
6. Shri M.C.Joshi, Sugarcane Development Officer.
7. Shri H.C. Kothari, Statistician.
8. Shri S.D.Mathur, Plant Protection Officer.
9. Shri U.S.Badal, Assistant Food Commissioner.

2. The report prepared by Sardar Lal Singh, Member Irrigation & Power Team, Planning Commission, on agricultural aspect of Chambal Valley Project was discussed at length both in the Forenoon and in the Afternoon. After each and every item was explained at length, the Members discussed and fully supported all the observations, recommendations and proposals contained in the report.

3. In connection with the phased programme, the Director of Agriculture felt, and all other Members agreed with him, that the period of 10 years estimated by the Canal Department for full utilisation of canal water was too long and it could be curtailed by 4 years, if not more, provided of course that necessary facilities and requirements of the schemes are made available to enable the Agriculture Department to implement them. The Director of Agriculture further suggested that since a number of agricultural problems facing both Madhya Pradesh and Rajasthan States in connection with Chambal Valley Project, are common, it would be desirable to

to create a common Board consisting of representatives of both the States to consider the same and take decisions under the guidance of Sardar Lal Singh. This suggestion of the Director was supported by all Members.

Further the Agriculture Department of Rajasthan fully agree with the views expressed in the report of S. Lal Singh that even the very financial success of the Chambal Valley Project would be in jeopardy unless the agricultural problems referred to in the report, are attended to - in fact the extent of success of the Project will depend upon the extent to which the suggestions given in the report are implemented.

It was further decided that the financial implication of each scheme may be worked out, after the report has been discussed with the Hon'ble Minister for Agriculture this Afternoon.

Sd/- Samrath Raj
1/8
Director of Agriculture, Rajasthan,
Jaipur.

PROCEEDINGS OF THE MEETING

The report of the Technical Committee was placed before the Minister of Agriculture where the Agriculture Secretary, the Director of Agriculture and the Deputy Director of Agriculture were present. All the aspects of Chambal Valley Project were discussed which were explained in very great detail by Shri Lal Singh, Member Irrigation & Power Team, Planning Commission. The report of Shri Lal Singh is a very learned discourse on various aspects of agricultural improvements that have to be brought about in the Cultural Commanded Area of the Chambal Project. All the proposals, recommendations and observations regarding agriculture that have been made in the report are generally approved of. Although it may be beyond the financial resources of the State Government to implement all the suggestions that have been given by Shri Lal Singh Ji yet it was strongly felt that unless these suggestions are implemented, Project may not prove a boon to the cultivators. The Minister of Agriculture, however, desired that financial implications of these schemes may be worked out by Agriculture Department in consultation with Shri Lal Singh Ji.

It was strongly felt that we must post the Publicity Section immediately in the Kotah Barrage in order to educate the cultivators and also make them canal conscious. Unless this is done the cultivators may not take full advantage of the irrigation facilities. This suggestion of Rajasthan Government was agreed to by Shri Lal Singh.

It will be appreciated if Shri Lal Singh Ji could pay more frequent visits to Rajasthan to advise us on various aspects of agriculture in Chambal.

Sd/- Nathu Ram Midha 2/8
Minister for Agriculture Rajasthan,
Jaipur.

COMMITTEE ON PLAN PROJECTS
(Irrigation & Power Team)

.....

Minutes of the Meeting with Representatives
of Rajasthan Government held at 9 A.M. on the 15th
September 1957 in the Multi-storeyed Building,
Queen Victoria Road, New Delhi.

.....

PRESENT:

Shri N.V. Gadgil
Leader (in the chair)

Shri Mohan Lal Sukhadia
Chief Minister Rajasthan

Shri Lal Singh
Member
Irrigation & Power Team

Shri Balwant Singh
Secretary Rajasthan Government
Irrigation & Agriculture Departments

Shri Moti Ram
Chief Engineer Irrigation
Rajasthan

Shri Samrath Raj
Director of Agriculture
Rajasthan

Shri D.S. Borker
Secretary
Consultative Committee on
Irrigation & Power Projects
and Irrigation & Power Team

In attendance:

Shri Suresher Singh
Deputy Director Agriculture
Rajasthan

Shri K.M. Mehta
Agricultural Chemist
Rajasthan

Shri U.S. Badal
Assistant Food Commissioner
Rajasthan

Shri N.V. Gadgil, the Leader initiated the discussions
by pointing out that the utilisation aspects of both power
and water were not gone into sufficient detail and the later
subject only was intended to be discussed at this meeting.
He pointed out that Irrigation & Power Team's approach in
the matter had been already discussed with Madhya Pradesh

Government and the same procedure was to be followed for Rajasthan for obtaining the State Government's approval, subject to any amendments that they might like to suggest in the course of discussions.

2. Shri Lal Singh made it clear that the proposals were already finalised with the Madhya Pradesh Government in a meeting which was attended, besides the Minister for Agriculture and Industries and the Minister for Irrigation, by the Secretaries and Heads of Departments concerned. He further explained that so far as Rajasthan was concerned, agricultural problems had been discussed in a meeting attended by the Ministers, Secretaries and the officers of Irrigation and Agriculture Departments and they had approved of the recommendations and proposals contained in the report. The financial implications of the proposals were being worked out. The object of the present meeting was to secure the opinion and approval of the Chief Minister to the recommendations contained in the report. Shri Lal Singh explained briefly the salient points made out in the report. He emphasised that agriculturists in Kotah-Bundi area commanded by the Chambal Project, were accustomed to depend on rainfall and the rainfall being ample the Kharif crops were successfully grown without much artificial irrigation. He expressed the opinion that it would be too optimistic to assume that the cultivators would readily take to the use of canal water for irrigating kharif crops and pay water rates. If they were expected to pay water rates and betterment fees, they need to be convinced about the better yields resulting from canal irrigation. This would require effective demonstration and propaganda based on the results of actual experiments. He referred to the tremendous scope for developing horticulture in Rajasthan since the climatic conditions were very favourable, besides plentiful supply of canal water. He suggested that production of nursery plants of reliable varieties could be undertaken on a self-supporting basis even if the plants were to be supplied to the farmers

at a price lower than that charged by private nurserymen.

3. Shri Lal Singh dwelt on the possibility of development of sugar industry - both cane production and sugar manufacture, which had enormous scope in Rajasthan due to good soil, suitable climate which is free from frost and ample supply of canal water. He proposed the creation of 'sugarcane belts' for intensive cultivation of sugarcane, after a careful study of soils availability of irrigation water, marketing facilities and railway communications etc. had been undertaken. Since sugarcane required much more water than most other crops 'sugarcane belts' will have to be provided a large quantity of irrigation water from the very beginning. This will, of course, bring greater return to Government on account of higher irrigation charges on the area under sugarcane crop which incidentally will help in the prosperity of the area. He also stressed the need for carrying out experiments like varietal trials to determine the varieties of crops best suited under irrigated conditions as also their irrigational and manurial requirements, seed rate etc. He referred to the possible troubles due to the existence of kankar layer and hard pan at many places and the need for carrying out experiments.

4. When asked by Shri G dgil as to what the experience of Rajasthan Government was in this respect, the Chief Minister Rajasthan replied that experiments in this regard had not yet been completed. Shri Lal Singh further referred to the problem of water-logging and alkalinity in parts of Rajasthan even though this problem was more serious in certain areas of Madhya Pradesh. Shri Balwant Singh reported that these problems were not likely to be of a serious nature in the Chambal area. Shri Lal Singh said that examination of about 20% of the existing wells had indicated that there was likelihood of this trouble in some areas and he wanted that 50% of the wells may be brought under examination in order to get a better idea of the extent of these problems. This was agreed to.

4. Shri G. dgil expressed anxiety that all these experiments should be completed by the end of June 1959 so that results thereof could be applied on the fields when water would be available for irrigation. He assumed that the Government of Rajasthan had agreed to the formation of 'sugarcane belts'. He proposed that useful information regarding the amount of water required for sugarcane cultivation should be ascertained from the Bombay Government as cultivation of sugarcane was done, on a fairly large scale in that State. Shri Lal Singh was requested to supply to Rajasthan Government a list of detailed items to which the Madhya Pradesh Government had agreed to.

5. Shri Mohan Lal Sukhadia Chief Minister Rajasthan generally agreed with the suggestions and proposals made in the Report. He added that the Rajasthan Government will have to approach the Central Government for extra funds and necessary sanction for putting up sugar mills in the area.

6. Shri N.V. Gadgil concluded that the Planning Commission will have to be approached for such extra grants after the financial implications of the schemes had been worked out in some detail. He thought that normally there should be no difficulty in securing the necessary grants provided the schemes were not of large magnitudes.

Record of discussions held between Shri Lal Singh and the Representatives of Rajasthan Government at technical level on 15 September 1957 in the Multi-storeyed Building, Queen Victoria Road, New Delhi.

PRESENT:

Shri Lal Singh
Member
Irrigation & Power Team

Shri Balwant Singh
Secretary Rajasthan Government
Irrigation & Agriculture Departments

Shri Moti Ram
Chief Engineer Irrigation
Rajasthan

Shri Samrath Raj
Director of Agriculture
Rajasthan

Shri Samsher Singh
Deputy Director Agriculture
Rajasthan

Shri K.M.Mehta
Agricultural Chemist
Rajasthan

Shri U.S.Badal
Assistant Food Commissioner
Rajasthan

Since the Chief Minister Rajasthan and Leader, Irrigation & Power Team had to leave the meeting to attend to some other urgent work, they asked the remaining Members to continue discussion on technical aspect of the report, also to work out the financial implications of the schemes and to secure as far as possible, unanimity of opinion between the Irrigation & Agriculture Departments of Rajasthan on various matters referred to in the report. Accordingly the matters pertaining to both Irrigation and Agriculture Departments were taken up first:

1. Water-logging and high salt contents: It had already been agreed to, previously in the meeting, that since the examination of 20% of the existing percolation wells had disclosed high salt content in sub-soil water and high ground water level in certain areas, which were of disquieting

nature, it was desirable to intensify this work, so as to include examination of about 50% of the existing wells to secure more reliable and authentic information and this matter be taken up immediately.

2. Need for verification of C.C.A. in Kotah Area: Although Chief Engineer (Shri Moti Ram) felt that there was not likely to be very great difference in the C.C.A. as (a) theoretically calculated by Irrigation Department on the basis of figures from revenue record and (b) what actually exists on the spot, yet there was no harm in investigating this matter further; and for this purpose a Committee of two persons namely Agricultural Chemist Rajasthan and a Representative of Irrigation Department (to be nominated by Shri Moti Ram) may go into this matter. They may compare the figures, as obtained from revenue record, with those compiled by the Agricultural Chemist as a result of his survey about the irrigability of various lands. The work is to be undertaken immediately so that if there is found to be any appreciable difference between the two figures, needful could be done before the construction of distributories and minors in certain specified areas.

3. Hard Pan and Kenkar Layers: Both Irrigation and Agriculture Departments agreed on the need of carrying out the experiments as referred to in the report.

4. Soil Erosion : It was unanimously agreed that this problem was of a most serious nature and requires to be given top-most priority. But since this is a problem not entirely concerned with Chambal Project, the matter may be taken up separately.

5. Ber Bushes: Both Departments agreed that removal of this pernicious bush which is a serious pest, will certainly help in better utilisation of canal water.

6. Phased Programme: The Canal authorities consider that it would take 10 years before available water begins to be fully utilised by the cultivators. If this period can be curtailed by means of necessary propaganda or publicity as suggested in the

report, the Irrigation Department would naturally welcome every such proposal as this will still further improve the financial aspect of Chambal Project.

7. Horticulture Industry and Sugarcane Belts: Irrigation authorities agreed with Agricultural Department about the scope of development of horticulture and sugar industry referred to in the report, and with the proposal of ear-marking suitable areas as "sugarcane belts" where intensive cultivation of sugarcane may be resorted to, with sugar-mills installed in the centre of cane areas. The Chief Engineer stated that if such areas are immediately ear-marked, his Department will have no difficulty in arranging enhanced supply of water for such areas, if necessary by suitable modification in the capacities of the minors or distributories concerned. Likewise for fruit gardening also which requires greater supply of water than usual field crops do, the Canal Department will have no difficulty in arranging necessary supply of water.

8. Green manuring: Irrigation Department agreed with the Agriculture Department to the recommendations made in the report to remit irrigation charges in full in the case of green manure crops to maintain fertility of soil and to charge only 50% irrigation rates in case of fodder crops like senji, berseem and shaftal in the interest of Dairy Industry and animal husbandry.

9. Development of land to make it fit for irrigation:

The Canal Department agreed with the Agriculture Department on the need for developing the lands by levelling, contour bunding etc. so as to make them fit for flow irrigation. All Members agreed that if any scheme on the lines planned out in Madhya Pradesh whereby lands could be developed and cost recovered from the land owners through easy instalments, could be started in Rajasthan also, it

should immensely help in utilising canal water most profitably, to the advantage of both the cultivator and the Government.

10. In regard to construction of main field channels; it was agreed that while this work cannot be undertaken by the Irrigation Department and it must remain the responsibility of the villagers themselves, yet technical guidance must be provided by the Irrigation Department so that the channels are aligned and laid out properly.

11. Financial implications of schemes: After the matters pertaining to both Agriculture and Irrigation Departments were gone over, the financial implications of various schemes which had already been submitted by the Director of Agriculture were considered. After some discussion, it was decided that Rajasthan Agricultural Department be supplied with copies of schemes alongwith their financial implications, as already finalised in case of Madhya Pradesh. After these were studied by the Agriculture Department, fresh schemes alongwith their financial implications would then be put up by the Rajasthan Agriculture Department for consideration. Sadar Lal Singh agreed to supply copies within a course of two, three days.

Appendix - 20 B

Proceedings of the meeting at technical level held at Jaipur from October 10th to 12th for finalising agricultural schemes.

Present:

1. Sardar Lal Singh, Member Irrigation & Power Team, Planning Commission, New Delhi.
2. Shri Samrat Raj, Director Agriculture, Rajasthan, Jaipur.
3. Shri Shamsher Singh, Dy. Director of Agric. (Admn) Jaipur.
4. Sardar Jogindar Pal Singh, Asst. Director Agriculture, Jaipur.
5. Shri K.M. Mehta, Agricultural Chemist, Rajasthan, Kotah.
6. Shri M.P. Bhatnagar, Economic Botanist, Rajasthan.
7. Shri H.C. Kothari, Statistician, Rajasthan.
8. Shri Suresh Dyal Mathur, Plant Protection Officer, Rajasthan, Jaipur.
9. Shri M.C. Joshi, Cane Development Officer, Rajasthan.
10. Shri Laxma Sarup, Marketing Officer, Rajasthan.
11. Dr. Ranbir Singh, Soil Conservation Officer, Jaipur

The observations, suggestions and proposals or schemes contained in Sardar Lal Singh's report, having been previously approved of in principle, both at technical level and at administrative (Minister and Chief Minister's level) the financial implications of these schemes were worked out by the Agriculture Department and these were discussed in these meetings.

AGRICULTURAL RESEARCH STAFF FOR CHAMBAL PROJECT AREA

1. Horticulture Section.

Ist year Rs.

1. Assistant Horticulturists (250-700)	1	2750/-
2. Research Asstt. (150-350)	3	4950/-
3. Field man (60-130)	6	3960/-
4. Peons (25-1-40)	4	1100/-
	Total:	<u>12760/-</u>

Allowance & Hon.

Dearness allowance.	4235/-
Travelling allowance	<u>2000/-</u>
	6235/-
	Grand total: <u>18995/-</u>

2. Agricultural Chemistry Section.

1. Asstt. Agric. Chemist Class II (250-700)	1	2750/-
2. Research Asstt. (150-350)	5	8250/-
3. Fieldman (60-130)	10	6600/-
4. Laboratory Asstts. (40-2-60)	2	880/-
5. Laboratory Attendants. (30-1-45-2-55)	2	660/-
6. Peons (25-1-40)	6	1650/-
	Total:	<u>20790/-</u>

Allowance & Hon.

Dearness allowance	7645/-
Travelling allowance.	<u>3000/-</u>
	10645/-
	Total: <u>31435/-</u>
	Grand Total:

3. Economic Botanist's Section

1. Asstt. Economic Botanist Class II (250-750)	1	2750/-
2. Research Asstt. (150-350)	5	8250/-
3. Fieldman. (60-130)	10	6600/-
4. Peons (25-1-40)	6	1650/-
		<u>19250/-</u>

Allowance & Hon.

Dearness allowance	6655/-
Travelling Allowance	<u>2000/-</u>
	8655/-
	Grand Total: <u>27905/-</u>

IV. Agronomy Section.

1. Asstt. Agronomist Class II (250-700)	1	2730/-
2. Research Asstt. (150-350)	5	8250/-
3. Fieldman (60-130)	10	6000/-
4. Peons (25-1-40)	6	1650/-
		<u>19250/-</u>

Allowance & Hon.

Dearness allowance.	6655/-
Travelling allowance.	<u>2000/-</u>
	8655/-
	Grand Total: <u>27905/-</u>

V. Soil Conservation Section

1. Research Assistant (150-350)	2	3300/-
2. Fieldman (60-130)	4	2640/-
3. Peons (25-1-40)	2	550/-
		<u>6490/-</u>

Allowance & Hon.

Dearness allowance.	2420/-
Travelling allowance.	<u>1000/-</u>
	3420/-
	Grand Total: <u>9910/-</u>

Grand Total:- 1,16,150/- for 3 years = 3,48,450.

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RESEARCH AND EXPERIMENTAL FARMS IN THE CHIMBAL PROJECT AREA

1. Farm Staff

	<u>1st Year</u>
1. Farm Manager (150-350)	1650/-
2. Fieldmen (60-130)	1320/-
3. U.D.Cs. (80-200)	1760/-
4. L.D.Cs. (60-130)	660/-
5. Mechanic-cum-carpenter (60-130)	660/-
6. Tractor Driver (60-100)	660/-
7. Cleaners (25-1-40)	550/-
8. Jeep Driver (60-100)	660/-
9. Ploughman (30-1-45)	1320/-
10. Peon. (25-1-10)	275/-
11. Chowkidars (25-1-40)	550/-
12. Sweeper (25-1-40)	275/-
TOTAL	<u>10340/-</u>
	4730/-
	600/-
TOTAL	<u>5830/-</u>
GRAND TOTAL	<u>15,670/-</u>

1. Non-Recurring

1. Cost of land, 100 acres (if Govt. land is not available @ 200/- per acre)
2. Fencing.
3. Levelling and layout.

20,000/-
10,000/-
5,000/-

Construction of buildings:-

- (a) Office building. 20,000/-
- (b) One quarter for class II officer. 10,000/-
- (c) Six quarters for Research Assistants & Farm Managers @ 5000/- each. 30,000/-

35,000/-

- (d) 15 quarters for fieldman and ministerial staff @ 3,000/- each
- (e) 10 quarters for plough man and Class II @ 1500/- each
- (f) Thrashing floor.
- (g) Bullock shed.
- (h) Implement shed cum store tractor shed.
- (i) Horticulture house.

45,000/-
 15,000/-
 2,000/-
 7,000/-
 5,000/-
 5,000/-

TOTAL

1,40,000/-

2. Other non-recurring expenses.

- (1) Cost of jeep and trailer.
- (2) Tractor & implements.
- (3) Bullock pairs 4 @ 800/- per pair.
- (4) Bullock drawn implements.
- (5) Cost of 4 wells with pumping sets @ 6000/- each.
- (6) Tyre bullock carts.

15,000/-
 20,000/-
 3,200/-
 1,000/-

24,000/-
 1,200/-

TOTAL

64,400/-

3. Office expenses (Non-recurring)

- (1) Typewriter one.
- (2) Furniture and fittings.
- (3) Iron safe.
- (4) Meteorological Unit.

1,000/-
 4,000/-
 300/-
 4,000/-

9,300/-

TOTAL

Rs. 2,48,700/-

4. Recurring (Farm expenditure) including Research Experiments.

- (1) Extra labour.
- (2) Feed & Fodder.
- (3) Manure & Fertiliser.
- (4) Seed.
- (5) Tractor maintenance & running.
- (6) Running charges of jeep.
- (7) Irrigation charges

8,000/-
 2,000/-
 3,000/-
 2,000/-
 5,000/-
 2,500/-
 3,000/-

GRAND TOTAL NON RECURRING =

(8)	Petty Items.	1,000/-
(9)	Liveries.	300/-
(10)	Plant protection equipment insecticide and fungies.	2,000/-
(11)	Service postage.	200/-
(12)	Stationery.	500/-
(13)	Books & periodicals.	1,000/-
	TOTAL:	<u>33,200/-</u>
	TOTAL RECRUITING-STAFF CONTINGENCIES	15,670/-
		<u>33,200/-</u>
		<u>48,870/-</u>

Recurring Grand total for
four farms.

1,95,480/- x 3 i.e. for 3 years = 5,86,440
9,94,800 = 15,81,240

Non-Recurring G. Total for
four farms

2,48,700/- x 4 = 9,94,800/-

Note: Income from the sale proceeds of farm crops from four farms would amount to rupees fifty thousand or so per year as they are meant for research work and not for seed multiplication or commercial farms.

Commercial production of Nursery Plants (Nursery of 20 acres at each of 3 farms).

Establishment.	Ist year.	II year	III year	IV year	Vth year.
1. Incharge nursery (60-130)	660/-				
2. Budders nursery men (40-2-60)	1760/-				
3. Lower Division Clerk (60-130)	660/-				
4. U.D.C. (Accountant (30-200)	330/-				
5. Malies (25-1-40)	2640/-				
6. Chowkidar. (25-1-40)	275/-				
7. Challasari. (25-1-40)	275/-				
Total	7150/-				

Allowance & Hon.

Dearness allowance	2145/-
Travelling allowance.	500/-
	<u>2795/-</u>

Contingencies.

1. Seed & larvae etc.	500/-
2. Irrigation charges.	1500/-
3. Pots packing material and freight charges etc.	2500/-
4. Cargate	2000/-
5. Daily labour	3000/-
6. Stationery and stamps	500/-
7. Medical Aid.	200/-
8. Other petty items.	2000/-
	<u>12,200/-</u>

Recurring G.Total 21,995/- and for 3 nurseries Rs.65,985/- X 3 for 3 years

= 1,97,955.

Non-recurring expenditure.	Ist year	II year	III year
1. Malles' quarters	8000/-		
2. Nursery sheds.	3000/-		
3. Well & Irrigation channels.	5000/-		
4. Tools and implements.	4000/-		
	<u>20000/-</u>		

Recurring	1,97,955
Non-Recurring.	60,000
Grand Total.	<u>2,57,955</u>

Total non-recurring for 3 nurseries Rs.60,000/-

II. Plantation of experimental-cum-demonstration gardens on 3 farms.

1. Cost of plants.	1500/-
2. Layout of gardens & digging of pits etc.	2000/-
3. Manures & Insecticides.	1500/-
4. Irrigation etc. from wells until canal water become available.	2000/-
5. Labour charges @ 3 labours.	<u>10,000/-</u>

For 3 gardens. Rs.30,000/-

Note:

I. Re.Nursery: This is to be run on commercial lines on 'No profit no loss basis'. Even if price charged for nursery plants is substantially lower than the market rate, still there should be little fear of any loss. Expenses in toto, as also under different items, will depend upon what type of plants are in greatest demand how soon the demand is created. Production of plants of some varieties or types require far greater expenditure and more elaborate arrangement for packing & despatch than others. The recurring expenditure of Rs.22,000/- per year may have to be increased after some time but income would also correspondingly increase.

2. Re.Fruit Garden: Out of 20 acres set aside, fruit garden will ultimately occupy 15 acres but the production of vegetables, nursery plants etc. will continue in the whole area - space between fruit trees being utilised for this purpose, so long as the trees do not attain too big size. This will avoid or greatly lessen expenditure on maintenance of fruit gardens.
3. Staff for research and advisory work in Horticulture provided on the Research Farms will also look after gardens and nursery production in the initial stages but later on when work under nursery production increases, some more staff - say one additional man (Graduate) on each farm will be needed.

Recurring for 3 years 90,000.

Plant Protection Work.

Seven lac acres coming under Chambal Valley Project, grow at present ordinary kharif crops like bajra, jowar, maize and rabi crops like alsin and wheat which, due to inadequate supply of moisture in the soil, give at present very poor yields. With the advent of canal irrigation not only would the yields of the present crops go up, and there will be more intensive cultivation but new cash crops like sugarcane, cotton, vegetables, potatoes, chillies etc. would also be introduced and extensively grown.

The unfortunate experience in most places has so far been that the introduction or multiplication of better varieties also bring, in their trail, new insect pests and diseases, or such pests as already exist, greatly multiply on account of favourable atmosphere under irrigation farming. This is best illustrated by an example of one sugarcane borer alone known as Gurdaspur borer. It was once confined to a small area in Punjab but, with the introduction of some sugarcane varieties, it also got introduced in areas like Jagadhri where it did not exist previously and it has become the greatest menace not only in Punjab but even in U.P. area adjoining Punjab and is already doing damage to the extent of crores of rupees a year. Likewise red rot disease of cane which at one time could be easily controlled, is causing heavy damage over lacs of acres, and we are paying heavily for our neglect. Likewise there are many other diseases of fruits and vegetables that can multiply greatly with the extension. In fact according to the Plant Protection Officer Rajasthan this area has already got some serious pests and diseases to deal with such as grass hopper, field rats, some sugarcane pests, pink boll worm in cotton and cut work in potatoes, canker on citrus trees, fruit rot in chillies, grain smut in jowar etc. etc.

Since prevention is always better than cure, and timely action can nip the mischief in the bud, it would be desirable not only to prevent the introduction of new pests and diseases when new crops are introduced; but also prevent those already existing, from multiplying under favourable conditions. It would therefore appear desirable to have a Special Plant Protection Staff in this area for this purpose i.e. not only to ensure that the seeds, plants and cuttings, particularly new sugarcane seed for sowing as also fruit plants imported from other States, are free from insect pests and diseases but whenever any serious pest appears in any locality, immediate steps be taken to control the same. Small amount of expenditure on this work is bound to repay hundred folds and save heavy damages later on. It may induce the growers in due course of time, to resort to spraying or dusting against various pests and diseases at their own expense. The total cost on plant protection work will be of the order of Rs. 1½ lacs during first year (inclusive of Rs. 50,000/- as non-recurring) and about a lac of rupees per year subsequently (per statement attached herewith).

PLANT PROTECTION STAFF.

Pay of Officers.

Asstt. Plant Protection Officer in the grade of 200-600.	1	2400/-
		<u>2400/-</u>

Pay of Establishment & Executive. -

Plant protection supervisors. 110 225	5	6600/-
Plant Protection Mukaddams (30-1-45)	25	9000/-
Plant Protection Fieldmen. 60-4-80-5-130	10	7200/-
Upper Division Clerk. 80-220	1	960/-
Lower Division Clerk 60-130	2	1440/-
Driver. 60-4-80-EB-4-100	1	720/-
Peons. 25-1-40	2	600/-
Total		<u>25820/-</u>

Allowance & Honoraria.

Dearness allowance.	9840/-
Travelling allowance.	4500/-
	<u>14340/-</u>

Recurring.

Office expenses.

1. Postage and telegrams.	450/-
2. Stationery.	500/-
3. Light and water charges.	500/-
4. Liveries.	100/-
	<u>1600/-</u>

Other expenses.

1. Purchase of pesticides.	50000/-
2. Labour Charges.	500/-
3. Transportation of equipment.	5000/-
4. Repair and renewal of furniture.	500/-
5. Rent for accommodation.	2500/-
	<u>58500/-</u>

Non-recurring.

1. Purchase of equipment.	20000/-
2. Purchase of Hand equipment.	4700/-
3. Purchase of seed treating drums.	2000/-
4. Fumigation covers.	1000/-
5. Purchase of Cargo personnel carrier.	19000/-
	<u>46700/-</u>

Grand Total: Rs.1,50,000/-

Recurring for 3 years. 3,10,980/-
Non-Recurring for 3 years. 46,700/-

Grand Total. 3,57,680/-

SOIL EROSION & LAND DEVELOPMENT FOR IRRIGATION

Soil erosion is a problem of immense magnitude and of great urgency - in fact more serious than perhaps all other problems put together, and requires herculean efforts. In Rajasthan State, gullies and revines alone measure 1540 miles, covering 500 square miles besides large areas eroded by nallahs, and this devastation is increasing day by day and it will be suicidal for the State to ignore it. Methods of controlling it, although well known, are expensive and beyond the resources of the State and Central assistance is urgently called for.

Need for levelling lands:-

Since however soil erosion is not confined to area coming under Chambal project only (although canal water will hasten surface erosion in case of uneven lands) this matter is proposed to be taken up separately as it concerns the State as a whole. Accordingly, in our schemes, we have incouded expenditure only on such items which are directly concerned with canal project and are urgently required to be undertaken in order to make lands fit for irrigation. For instance unless levelling is done in certain areas, canal irrigation may prove, not only useless but, actually harmful. By levelling land the utility of canal water will be greatly enhanced.

Area requiring levelling.

According to the survey carried out by Agricultural Chemist, out of 7 lacs of acres coming under Chambal Project in Rajasthan, about 6 lacs of acres have a slope of 1 per cent (i.e. less than 1' slope per 100 feet.). This estimate is based on the soil conservation survey where the slope percentage has been determined by hand already levell. Any slope greater than this, is considered harmful both from the view point of soil erosion and proper utilisation of canal water. The total area with slope of 1 to 3% is of the order of 80,000 acres and area with slope of 3 to 7 per cent is about 14,000 acres or a total of about 94,000 acres or roughly 1 lac of acres.

At present under rain-fed conditions, both in Rajasthan and Madhya Pradesh, bunding is considered of the greatest importance but under changed conditions of canal irrigation, bunding will become of secondary importance in as much as, canals, distributories, minors, village and field channels will, to a certain extent, serve the purpose of bunding so although bunding may still be required in certain areas after the advent of canal system, yet levelling of land or terracing will assume greatest importance.

Levelling of land by cultivators or by Government.

The next question discussed was whether this work of levelling lands to make them fit for canal or flow irrigation, could be left to the sweet will of cultivators alone (the Agriculture Department only supplying necessary technical guidance) or the work be done by Governmental Agency and cost recovered from the land owners as in being done at present on extensive scale by Bombay and Madhya Pradesh Agriculture Departments in regard to bunding. After a through discussion, it was felt that although there should be every encouragement to a land owner to level his own land if he so desires, yet the State must step in, to ensure the completion of this work. The best interests of the State demands that this work should be done by the State Agriculture Department and cost recovered from the land owners - Option of course being left to the cultivators so that there should not be any element of compulsion.

Levelling by bulldozers or bullock implements.

The next question discussed was whether this work should be done with the help of bull-dozers or by manual labour i.e. scrapers and scoopers drawn by bullocks. Both these systems have got certain advantages and disadvantages. Levelling by bull-dozers is likely to be more economical and also more expedient or quicker than scooping by bullocks. Further, scooping by bullocks can only be carried out, at the most for 3 to 4 months in a year, as the soil in the absence of canal water would be hard and would not prove workable.

Whereas bull-dozing can be done throughout the year except in rainy season. There would also be the question of training a large number of villagers in the art of scraping and a large number of scrapers and scoopers will also have to be purchased. On the other hand, bull-dozing has the disadvantage in that, foreign exchange to buy equipments in a serious problem. After a great deal of discussion, it was decided that both the methods should be tried as complimentary to one another. Wherever scooping by bullocks is possible, this may be done, and wherever it is absolutely necessary, bull-dozers may be used. Wherever scraping by bullocks is carried out, the cultivator would have the option to supply his own bullocks and the Department would be charging the remaining cost of operation, i.e. wages of trained men and supervision charges. In the case of 14,000 acres, where slope is of the order of 5-7 ft. work will have largely to be done by bulldozers. In otherwords, bull-dozers will be used largely in the area where fall is very steep but they will also be used in other areas in conjunction with bullock drawn scrappers.

Cost of Levelling to be recovered from land owners.

It may be mentioned that the Agriculture Department, Rajasthan, has already got three bull dozers which at present are used to level the land on behalf of the cultivators and to recover the cost in advance; so the Department has already got a certain amount of experience both in handling bull dozers and scrappers. Accordingly this new work should not present any unsurmountable difficulty, either in regard to the actual running of the scheme or in the realisation of the dues from the cultivators. These bull-dozers cannot however be spared for Chambal area as they have already more work than they can cope with. Need for subsidy. It must, however, be made clear that although every effort will be made by the Agriculture Department to make the scheme self supporting yet both the Central and the State Governments must be ready to incur certain amount of loss which may not exceed 25% of the total cost. And

It will be worthwhile for the Governments to incur this in view of the fact that land will produce more foodgrains than would otherwise be the case if land is left as such and secondly the Government will get irrigation charges which may otherwise be lost and the cultivators would be enabled to make full use of the water and get greater income. This scheme deserves as much concession on subsidy as is allowed by Government in numerous other schemes like subsidy on percolation wells, small irrigation tanks etc. etc.

Total Cost.

Whether the work is to be done by bull dozing or by scrapers or by both the methods, financial implications of this work remain more or less the same, i.e. the total expenditure of Rs. 30 lakhs would be needed to level 1 lakh of acres. As to what proportion of this expenditure should be on account of bull dozing or by scrapers, can be left for some time as we gain experience. For the present, it is suggested that only three bull dozers may be purchased which would in any case be the minimum number even if the work is to be done by both the systems, and the number of scrapers will also be got prepared, and required number of men trained for the purpose. The work will be started simultaneously by both methods, the comparative cost worked out and work expended in one direction or the other, as experience is gained. The statement attached herewith shows the cost of three bull-dozers with necessary attachment which amounts to Rs. 5,67,000/- non-recurring and Rs. 1,50,000 recurring per year or total of Rs. 9,67,000 in three years (say Rs. 10 lacs in four years).

The remaining amount of Rs. 20,00,000/- will remain at the disposal of the Agriculture Department to be utilised for purchase of bulldozers or the bullock drawn scrapers as the case may be.

Details of equipments staff etc. required for levelling work to be conducted on the lands to be commanded by Chambal irrigation Project.

A. Cost of Machinery.

1. Tractors with bull-dozers 75.85 H.P. with Electric equipments	3 No.	3,40,000/-
2. Scraper with Cable control.	1 one.	60,000/-
3. Grader.		30,000/-
4. Truck 4 wheel drive.		40,000/-
5. Jeep with Trailer.		15,000/-
6. Mobile workshop equipment		50,000/-
7. Camp equipments including generating set.		12,000/-
	Total.	<u>5,67,000/-</u>

B. Recurring expenditure.

a) Staff.		
1. Foreman. 120-225	1	3,000/-
2. Supervisor. 150-10-3000	1	1,800/-
3. U.D.C. cum- 80-5-200 Accountant.* + 10/-Sp.Pay.	1	1,080/-
4. L.D.C. 60-130 * + 10/- "	1	840/-
5. Tractor Drivers 80- -15/-Camp allowance	6	6,840/-
6. Truck Jeep Drivers 60- - 15/- sp.	2	1,800/-
7. Helpers 40-2-60	10	4,800/-
8. Watchman. 25-1-40	4	1,200/-
9. Peon 25-1-40	1	300/-
		<u>21,660/-</u>

Dearness Allowance.	5,000/-
Travelling Allowance.	1,500/-
	<u>6,500/-</u>

Other charges such as stationary Stamps etc.	3,000/-
Rent of office and store.	900/-
Cost of maintenance of equipment.	35,000/-
Cost of materials.	80,000/-
Total of recurring.	<u>1,47,060/-</u>

Say. 1,50,000/-

ABSTRACT.

Year.	Recurring.	Non-Recurring.	Total.
1st Year.	1,50,000/-	5,67,000/-	7,17,000/-
2nd Year.	1,50,000/-	-	1,50,000/-
3rd Year.	1,50,000/-	-	1,50,000/-
			9,67,000/-
			20,33,000/-
		Grand Total	<u>30,00,000/-</u>

As clarified in the note the balance of Rs. 20,000,00/- will remain at the disposal of the Agriculture Department to be utilised for the purchase of bull dozers or bullock drawn scrapers as the case may be. Details of recurring and non-recurring can only be worked out after the decision is taken on the experience of one years working of both methods of Soil Conservation (ii) by Bullock dozing or scrapers.

(1) Intensive work in general agriculture, particularly sugarcane development.

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Apart from purely experimental work on various crops, referred to previously, to find answers to many questions that will be asked by farmers on the advent of canal irrigation, it is necessary to carry out intensive work in general agriculture and particularly in the development of certain cash crops like sugarcane and cotton and to popularise certain agricultural practices. The present District Staff require to be strengthened by the appointment of one Assistant Director of Agriculture with usual subordinate staff at a cost of Rs.65,000/- (including Rs.18,750/- on nonrecurring) in the first year and about Rs.46000/- subsequently per year as given in the statement attached herewith. This very staff would look-after "Sugarcane Bolts" to be created and to do intensive propaganda for cultivation on right lines.

Demonstration trials on cultivators' fields.

Experiments requiring skill in conduct of experiments and collection of detailed data, would be largely carried out on five experimental farms but simple type experimental-cum-demonstration work would also be carried on private farmers' fields partly to confirm results obtained on experimental farms and partly to demonstrate the benefits of certain agricultural practices. Such demonstrations on private farms have been found very impressive and fruitful in every State. On the basis of fifty private demonstration farms for each Agriculture Assistant and an average expenditure of Rs.100/- on each farm, total expenditure would amount to Rs.20,000/- per year.

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INTENSIVE WORK IN GENERAL AGRICULTURE AND
PARTICULARLY SUGARCANE DEVELOPMENT

1. RECRUITING

A. Pay of Officer Amount for one year.

1. Asstt. Director of Agriculture (1)
250-25-600-EB-25700 3,000/-

B. Pay of establishment.

1. Agricultural Assistant (4)
(110-5-220) 5,280/-

2. Fieldmen. (12)
60-4-80-EB-5-130 8,640/-

3. Accountant 1
150-300 1,800/-

4. Upper Division Clerk. 2
80-5-120-EB-200 1,920/-

5. Lower Division Clerk. 6
60-4-80-5-130 4,320/-

6. Driver 60-4-130 1 720/-

7. Peons & Chowkidar. 25-1-40 6 1,800/-

Total: 27,680/-

C. Allowances & Honoraria.

1. Dearness Allowance 8,580/-

2. Travelling allowance 3,000/-

Total: 11,580/-

D. Other Charges

1. Postage, telegrams etc. 700/-

2. Light & Power Charges. 1,000/-

3. Books & Periodicals. 600/-

4. Liveries. 300/-

5. Stationery and Printings. 1,500/-

6. Petty Items. 500/-

7. Maintenance of Vehicle. 3,000/-

8. Rent for office accommodation. 1,500/-

9. Telephones. 800/-

Total: 9,900/-

2. NON-RECURRING

1. Jeep with trailer 15,000/-

2. Typing machine 1,000/-

3. Furniture & office equipment 2,500/-

4. Cycle. ... 1 250/-

Total: 18,750/-

TOTAL EXPENDITURE OF ONE YEAR.

1. Recurring 49,160/-

2. Non-Recurring 18,750/-

Total: 67,910/-

TOTAL EXPENDITURE OF THREE YEARS

1. Recurring 1,47,480/-

2. Non-Recurring 18,750/-

GRAND TOTAL: 1,66,230/-

Investigation of marketing conditions in the Chambal commanded Area.

With the development of irrigation in the Chambal Area, the production potentials will increase immensely. Not only will the yields of crops already grown, increase greatly but new crops, (grown scarcely hitherto like sugarcane, cotton, vegetables, fruits etc.) Will also be grown extensively. This will necessitate the establishment of Mandis or Markets. According to our experience in Punjab new canal colonies, markets or mandis of enormous sizes handling farm produce worth crores of rupees, had come into existence in places where none existed before the advent of canal irrigation. In order to avoid haphazard location and growth of mandis or markets, it is necessary to plan out everything before hand; and for this purpose it will be desirable to appoint couple of men to undertake thorough survey of the whole area and estimate roughly the total produce of each commodity likely to be available, best places for markets, with due regard to transport facilities both by rail and road and convenience of the cultivating community etc. After the necessary information is collected in the course of six months or at the most one year, further steps will be taken to ensure that madis are located in suitable localities and growth of madis is also regulated and warehouses for storage of agricultural produce are constructed properly and at right places and marketing of agricultural produce started on co-operative basis from the very beginning. As already mentioned, for the present, a provision for only couple of investigators with necessary clerical help and travelling allowance, has been made as per statement attached - the total cost being about Rs. 9,000/- or so for the year as under:-

i)	Two Investigators @ 150/- in the grade of 150-10-230	
	ED-10-250-12½-350	- 3,600/-
ii)	Two peons 25-1-40	- 600/-
iii)	One Typist (U.D.C.) 80-120	- 960/-
iv)	Dearness allowance.	- 1,500/-
v)	Travelling allowance	- 2,000/-
vi)	Miscellaneous contingencies.	- 340/-

	Total...	9,000/-

The staff will carry out the Market Investigations before the Irrigation starts and later on might be engaged on planning the Market, yard, Market proper, Market areas, Primary assmbling centre, ware-housing etc. Thus it may be continued from year to year upto the end of the Second Five Year Plan with an annual provision of 9,000/- as detailed above. The total funds needed upto the end of the five year plan will be as under:-

1958-59	1959-60	1960-61
9,000/-	9,300/-	9,600/-

Total :- 27,900/- for three years

PUBLICITY AND PROPAGANDA

Publicity and propaganda in acquainting the farmers about the modern techniques of agriculture in the shortest possible time soon indispensable and special arrangements will have to be made for this work in Chambal Project area for which an amount of Rs.52,000/- (including Rs.32,000/- as non-recurring) will be need for the first year and about Rs.20,000/- per year in subsequent years as given below:

STAFF:

<u>a. Pay of Officers and Establishment.</u>		<u>1st Year Rs.</u>
1. Asstt. Information Officer. 175-15-400/-	1	2,100/-
2. Project Operator cum Demonstrator 110-225.	1	1,320/-
3. Asstt. operator. 60-130.	1	720/-
4. Driver for Cinema Van 60-100.	1	720/-
5. Cleaner, 25-40	1	300/-
6. Peon 25-40	1	300/-
Total:		<u>5,460/-</u>
<u>b. Allowances.</u>		
Dearness Allowance.		1,740/-
Travelling Allowance		2,500/-
House Rent Allowance		340/-
Total		<u>4,580/-</u>

OTHER CHARGES

<u>a. Recurring</u>		
1. Maintenances & running charges of Generator & Propelling charges Van including repairs.		4,000/-
2. Purchase of Films preparation of publicity material including organising exhibitions.		3,000/-
3. Stationary, Printing & Postage.		1,000/-
4. Other expenditures.		500/-
5. Remuneration to Bhajan Mandli or Dramatic Associations.		1,000/-
Total:		<u>9,500/-</u>
Total Recurring Rs.19,440/- say		<u>19,500/-</u>

<u>b. NON-RECURRING:</u>		
1. Cinema Van completely equipped with projector, Generator, Films charts and P.A., arrangements & Gramophone & Radio Units.		30,000/-
2. Swiss cottage and one tent with Daries and Shamiyana.		2,500/-
Total		<u>32,500/-</u>
Grand Total (Rs.32,500/- Non-Recurring & Rs.19,500/- Recurring) :- Rs.		51,940/-
for 3 years.	Recurring	58,500/-
	Non-Recurring	<u>32,500/-</u>
		<u>91,000/-</u>

Senior Officer in over all charge:

In view of the fact that the officer in over all incharge of the work in Chanbal Area, would have work of very great responsibility, both in regard to finances involved and research and development work to be undertaken, and he will have to coordinate the activities of half a dozen officers besides looking after the research work of all the five experiential farms, a senior officer of the Department conversant with research and development will have to be put incharge of this. It would seem desirable to give him an allowance of Rs. 200/- P.M. for this purpose, over and above the salary drawn by him at present.

Total Cost Rs. 2400/- per year.

for 3 years = 7,200/-

Summary of expenditure for agricultural schemesRAJASTHAN

<u>Sl. Name of Scheme No.</u>	<u>Recurring expdr. one year</u>	<u>Recurring expdr. 3 years</u>	<u>Non-recurring</u>	<u>Total</u>
1. Agricultural Research.	1,16,150	3,48,450	-	3,48,450
2. Research & Experimental Farms (4 Farms)	1,95,480	5,86,440	9,94,800	15,81,240
3.(a) Commercial Production of Nursery Plants (3 Nurseries)	65,985	1,97,955	60,000	2,57,955
3.(b) Plantation of Experimental-cum-Demonstration Gardens (3 Farms)	30,000	90,000	-	90,000
4. Plant Protection Staff Scheme.	1,03,660	3,10,980	46,700	3,57,680
5. Scheme for Soil Erosion and Land Development for Irrigation	1,50,000	4,50,000	5,67,000	10,17,000) 30 lac 19,83,000
6. Intensive Agricultural Work particularly Sugarcane Development.	49,160	1,47,480	18,750	1,66,230
7. Investigation of Marketing Conditions	9,000	27,900	-	27,900
8. Publicity & Propaganda	19,500	58,500	32,500	91,000
9. Senior Officers Allowance	2,400	7,200	-	7,200
Total	7,41,335	22,24,905	17,19,750	59,27,655

Note:

In regard to recurring expenditure, as already explained in the Memorandum, full expenditure under item 3a (production of nursery plants) and under item 5 (on Land Development) is expected to be recovered; as also a sum of Rs. 50,000/- per year from the crop sale of experimental farms under item 2, so that net annual recurring expenditure will be of the order of about Rs. 4.8 lakh or for 3 years about Rs. 15 lakh.

In regard to the non-recurring expenditure, a sum of Rs. 5.67 lakh is provided under Land Development for purchase of bulldozers etc. and Rs. 19.83 lakh as reserve for expenditure on levelling land and Rs. 60,000/- under nursery plants and all these expenditures are expected to be recovered as the work in both cases is to be done on 'no profit on loss basis'. Besides, an expenditure of about Rs. 97,000/- provided under items 4, 6 & 8, there is also a provision of Rs. 9.64 lakh for establishing 4 Research and Experimental Farms, including cost of building, machinery and price of land if Government land be not available.

Summary of expenditure for various schemes

Sl. No.	Name of scheme	(Amount in thousand rupees)	
		First yr.	Second Yr.
1.	Varietal & cultural experiments.	52	52
2.	Experimental and demonstration work.	30	30
3.	Kankar Layer and hard pan.	59	45
4.	Study in irrigation practices	16	8
5.	Irrigation and land development.	3450	600
6.	Horticulture Development		
	(a) Plantation of Gardens	30	13
	(b) Commercial Production of nursery plants.	146	88
	(c) Extension & Advisory work	34	34
7.	Strengthening of district staff for extension work.	12	12
8.	Publicity and Propaganda	50	20
9.	Overall supervision and co-ordination of work.	19	19
	Total	3898	921
	Total amount recoverable in full.	3596	688
	Net expenditure	302	233

N.B. Financial implications of other items referred to under item X have not yet been worked out for want of decision by Government or for other reasons mentioned therein.

Summary of expenditure for agricultural schemesRAJASTHAN

Sl.No. Name of Scheme	Recurring expdr. one year	Recurring expdr. 3 years	Non-recurring	Total
1. Agricultural Research.	1,16,150	3,48,450	-	3,48,450
2. Research & Experimental Farms (4 Farms)	1,95,480	5,86,440	9,94,800	15,81,240
3.(a) Commercial Production of Nursery Plants (3 Nurseries)	65,985	1,97,955	60,000	2,57,955
3.(b) Plantation of Experimental-cum Demonstration Gardens (3 Farms)	30,000	90,000	-	90,000
4. Plant Protection Staff Scheme.	1,03,660	3,10,980	46,700	3,57,680
5. Scheme for Soil Erosion and Land Development for Irrigation	1,50,000	4,50,000	5,67,000	10,17,000
				19,83,000
6. Intensive Agricultural Work particularly Sugarcane Development.	49,160	1,47,480	18,750	1,66,230
7. Investigation of Marketing Conditions	9,000	27,900	-	27,900
8. Publicity & Propaganda	19,500	58,500	32,500	91,000
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Total	7,41,335	22,24,905	17,19,750	59,27,655

Note:

In regard to recurring expenditure, as already explained in the Memorandum, full expenditure under item 3a (production of nursery plants) and under item 5 (on Land Development) is expected to be recovered; as also a sum of Rs.50,000/- per year from the crop sale of experimental farms under item 2, so that net annual recurring expenditure will be of the order of about Rs.4.8 lakh or for 3 years about Rs. 15 lakh.

In regard to the non-recurring expenditure, a sum of Rs. 5.67 lakh is provided under Land Development for purchase of bulldozers etc. and Rs.19.83 lakh as reserve for expenditure on levelling land and Rs.60,000/- under nursery plants and all these expenditures are expected to be recovered as the work in both cases is to be done on 'no profit on loss basis'. Besides, an expenditure of about Rs. 97,000/- provided under items 4, 6 & 8, there is also a provision of Rs.9.64 lakh for establishing 4 Research and Experimental Farms, including cost of building, machinery and price of land if Government land be not available.

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APPENDIX B

INDIAN COUNCIL OF AGRICULTURE RESEARCH
QUEEN VICTORIA ROAD
NEW DELHI

Dated 25th March, 1958
26th

D.O.No.50(4)/58-CDN

My dear Indarjit Singh,

Will you kindly refer to my D.O.letter No. 42/VR-58, dated the 2nd January, 1958, forwarding Dr. Kalamkar's comments on the note entitled "Agricultural Aspects of Chambal Valley Project"? As has been mentioned by Dr. Kalamkar, assistance from the Indian Council of Agricultural Research can be availed of in the implementation of the following schemes:-

1. Strangthening of research concerning variental and cultural experiments;
2. Water requirements of various crops (under the scheme of Model Agronomic Experiments);
3. Horticultural Development; and
4. Publicity and Propaganda.

If schemes on the above subjects are submitted by the State Government, the Indian Council of Agricultural Research would be prepared to consider subsidising them in accordance with the approved pattern of financial assistance. However, the State Government has since finalised their 1958-59 Plan and if they are unable to accommodate the above schemes, the requisite funds should be made available by the Planning Commission from within the Chambal Valley Project estimates. This is to ensure that these important schemes are not held up for want of funds during 1958-59.

Yours sincerely,

Sd/-M.S.Randhawa

Shri Indarjit Singh,
Joint Secretary and
Secretary, Committee on Plan Projects,
Economy Division,
Ministry of Finance,
New Delhi.