

TABLE 25  
OUTPUT OF MINERALS AND LABOUR PRODUCTIVITY (1956)

State	Employment in Mines covered by the Act	Output (tons)	Value (Rs.)	Output per Worker (tons)	Value of Output per Worker (Rs.)
<i>A. Coal</i>					
Orissa	6,910	602,813	1,07,46,880	87.5	1,550
Madhya Pradesh	38,525	4,833,000	7,93,82,336	125	2,050
Bihar	182,194	20,083,000	31,65,26,000	114	1,740
West Bengal	98,943	11,188,283	18,70,67,248	114	1,920
All-India	352,429	39,280,000	65,07,92,699	111	1,860
<i>B. Iron Ore</i>					
Orissa	13,690	1,801,470	1,24,32,467	131	910
Bihar	13,692	1,849,217	1,37,41,716	135	1,010
Andhra Pradesh	4,290	396,574	54,11,605	92	1,260
Mysore	2,129	380,884	14,06,872	181	665
All-India	37,301	4,750,456	3,78,19,326	127	1,010
<i>C. Manganese</i>					
Orissa	17,701	353,618	1,79,67,826	20	1,010
Madhya Pradesh	31,773	441,744	4,35,00,931	13.9	1,370
Bihar	1,036	46,482	8,52,286	44.0	820
Andhra	11,307	214,826	74,33,401	18.9	655
Mysore	9,685	147,177	93,01,946	15.3	960
Bombay	27,938	570,991	5,34,72,340	20.5	1,920
All-India	109,948	1,780,837	13,27,41,212	16.3	1,220

SOURCE: Annual Report of the Chief Inspector of Mines (1957).

TABLE 26  
MINERAL PRODUCTION IN ORISSA: OUTPUT AND VALUE; ACTUALS FOR 1951 AND 1957  
AND ESTIMATES FOR 1961 AND 1971

(Based on 1957 average prices in Orissa)

Name of Mineral	1951			1957			1961		1971	
	Output (Thousand tons)	Gross Value (Rs. lakhs)	Net Value (Rs. lakhs)	Output (Thousand tons)	Gross Value (Rs. lakhs)	Net Value (Rs. lakhs)	Output (Million tons)	Net Value (Rs. lakhs)	Output (Million tons)	Net Value (Rs. lakhs)
1. Iron Ore	1,823	173.16	161.04	2,054	195.16	181.50	4.00	353	26.00	22.97
2. Coal	482	97.87	85.15	532	108.05	94.00	0.60	106	3.90	6.89
3. Manganese	252	150.32	139.80	382	227.85	211.90	0.40	221	0.70	3.88
4. Limestone	622 <sup>a</sup>	45.41	42.43	1,363	99.47	92.51	2.00	136	5.50	3.73
5. Dolomite	56 <sup>a</sup>	8.12	7.55	136	19.74	18.36	0.22	30	2.90	3.92
6. Chromite	2	0.55	0.51	69	23.66	22.00	0.08	26	0.10	32
7. China Clay	4	0.59	0.55	17	2.85	2.65	0.02	3	0.04	6
8. Fire Clay	15	2.53	2.35	19	3.24	3.01	0.03	5	0.10	17
9. Salt	37	9.74	9.06	44	11.63	10.82	0.05	12	0.07	16
10. Graphite	01 <sup>a</sup>	1.58	1.47	01	2.57	2.39	0.01	6	0.02	12
11. Kyanite	01	1.47	1.37	..	..	..				
12. Bauxite	Nil	..	..	Nil	..	..				
13. Steatite	01	0.02	0.02	01	0.06	0.05				
14. Asbestos	01 <sup>a</sup>	0.42	0.39	Nil	..	..				
15. Kaolin	Nil	..	..	2 <sup>a</sup>	0.97	0.90				
		491.78	451.69		695.25	640.09		898		42.22

<sup>a</sup> Quarterly Bulletin of Statistics, Government of Orissa.

01: Under one thousand tons

SOURCE: Mineral Production in India, 1957.

TABLE 27  
RELATIVE PRODUCTION OF IRON ORES BY VARIOUS STATES (1950-57)

(Percentages)

State	1950	1951	1952	1953	1954	1955	1956	1957
Andhra	..	..	0.41	1.98	6.60	8.25	8.92	5.32
Bihar	46.80	49.15	50.09	49.50	45.15	41.27	39.30	39.00
Bombay	0.35	0.04	0.05	0.19	0.39	1.06	2.72	2.45
Madhya Pradesh	..	0.01	0.25	0.11	..	0.14	0.69	0.70
Mysore	2.25	1.80	5.00	4.42	5.70	7.70	7.85	11.30
Orissa	50.60	50.00	44.29	43.00	41.78	40.10	37.60	40.43
Others	..	..	..	0.80	0.38	1.48	2.92	1.85
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

SOURCE: *Mineral Production in India, 1957.*

TABLE 28  
ORISSA'S SHARE IN ALL-INDIA MINERAL PRODUCTION (1950-57)

Mineral	1950	1951	1952	1953	1954	1955	1956	1957
Iron Ore	50.6	50.0	44.3	43.0	41.8	40.1	37.6	40.4
Coal	1.2	1.4	1.3	1.4	1.4	1.4	1.5	1.2
Manganese	17.1	19.5	21.1	22.7	24.5	25.3	21.1	23.1
Limestone	31.1 <sup>a</sup>	21.3 <sup>a</sup>	42.6	27.9	17.4	15.0	12.7	14.5
Dolomite	90.8 <sup>a</sup>	N.A.	N.A.	N.A.	91.7	80.4	96.0	96.6
Chromite	13.5	9.6	17.9	48.5	30.8	78.9	86.8	87.8
Kyanite	..	1.5	4.4	..	0.4	1.9	..	..
China Clay	5.8	5.3	5.2	4.5	3.4	3.3	7.2	9.7
Fire Clay	9.0	13.2	15.7	14.0	11.2	13.0	8.8	11.6
Salt	1.3	1.4	1.4	1.7	1.0	1.1	1.6	1.1
Steatite	0.7	0.2	2.8	0.2	..	0.2	0.1	0.3

<sup>a</sup> *Quarterly Bulletin of Statistics, Government of Orissa (For Orissa Output).*

N.A. = Not Available.

SOURCE: *Mineral Production in India, 1957.*

TABLE 29

MINERAL DEVELOPMENT IN ORISSA : ESTIMATED LEVELS OF ADDITIONAL (ANNUAL) OUTPUT, EMPLOYMENT AND INVESTMENT (1961-71)

Mineral	Location	Nature of Ownership	Principal Sources of Demand	Additional Output Required (Million tons)	Net Value of Additional Output at 1957 prices (Million tons)	Fixed Investment Required (Rs. lakhs)	Power Required (KWTs)	Additional Manpower Requirements			
								Managerial and Clerical	Skilled and Semi-skilled	Unskilled	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Mineral Ore	Sundargarh Keonjhar Mayurbhanj	Public Private	Rourkela, New Steel Plant, Foundry Grade Pig Iron, Exports to other States, and other countries	22.0	194.4	40,00	4,000	5,000	45,000	90,000	140,000
(Steam) Coal	Talcher Sambalpur	Private	Railways; Iron and Steel (State), Cotton, Cement, Paper and other Industries. Brick and lime burning, electricity supply, and exports to other States	3.3	58.3	15,00	10,000	1,500	13,500	15,000	30,000
Manganese	Bonai Keonjhar Gangpur	"	Ferro-Manganese Industry Beneficiation and Exports	0.3	16.7	170	2,000	200	3,800	6,000	10,000
Limestone	Purnapani	"	Lime burning, Cement, Steel, Ferro-manganese, Refractory, Paper and Chemical Industries, Exports to (Steel Plants in) other States	3.5	23.7	15	1,500	500	4,500	9,000	14,000
Dolomite	Sundargarh Sambalpur	"	Steel Industry in the State and other States	2.68	36.2	12	1,000	500	2,500	7,000	10,000
China Clay	Mayurbhanj Sambalpur	"	Ceramics and Potteries	0.02	0.3	2	500	20	130	450	600
Fire Clay	Sambalpur Dhenkanal	"	Refractory Industry	0.07	1.2	10	700	50	250	700	1,000



Salt	Cuttack, Puri Ganjam	"	General Consump- tion and Chemical Industries	0.02	0.5	1	300	25	125	350	500
Chromite	Keonjhar	"	Ferro-Chrome Industry	0.02	0.6	0.1	500	50	350	500	900
Bauxite	Kalahandi Sambalpur	"	Refractory Industry	0.025	0.2	0.2	500	20	280	400	700
Quartzite	Sambalpur	"	Ferro-silicon and Ceramic Industries	0.05	0.3	0.4	1,000	50	550	800	1,400
Glass Sand	Kalahandi	"	Glass industry	0.06	0.5	0.4	1,000	50	650	1,000	1,700
Graphite	}										
Kyanite											
Steatite				0.01	0.6	0.2	500	25	75	500	600
Asbestos											
Kaolin											
				333.5	5711.3	23,500	7,990	71,710	131,700	211,400	

TABLES

TABLE 30

FACTORY EMPLOYMENT IN SELECTED STATES OF INDIA

	<i>Number of Factory Workers (million)</i>	<i>Number of Factory Workers per 1000 Popu- lation<sup>a</sup></i>
All-India	2.882	7.4
Andhra Pradesh	0.167	4.9
Bihar	0.176	4.2
Bombay	0.998	18.8
Madhya Pradesh	0.098	3.6
Madras	0.300	9.3
Orissa	0.022	1.4
West Bengal	0.653	22.9

<sup>a</sup>Based on NCAER Population Projections.  
SOURCE: Chief Inspector of Factories, 1956.

TABLE 31

DISTRIBUTION OF EMPLOYMENT BY INDUSTRIES IN ORISSA AND ALL-INDIA (1957)

<i>Category of Industry</i>	<i>Orissa<sup>a</sup> Percentage of Total</i>	<i>India<sup>b</sup> Percentage of Total</i>
1. Agriculture-based	39.8	60.1
2. Forest-based	25.3	2.7
3. Mineral-based	12.5	7.3
4. Metal-based	11.7	15.5
5. Chemicals	0.6	3.5
6. Livestock-based	0.5	1.5
7. Miscellaneous	3.3	9.2

<sup>a</sup> Chief Inspector of Factories, Government of Orissa.

<sup>b</sup> *Indian Labour Gazette*. Data do not include figures for Kerala, Rajasthan and Union Territories except Delhi.



TABLE 32  
DISTRIBUTION OF EMPLOYMENT BY INDUSTRIES (1956-57 AND 1960-61)

Category	1956-57 Percentage of Total	1960-61 Percentage of Total
1. Agriculture-based	39.8	37.0
2. Forest-based	25.8	13.8
3. Mineral-based	12.5	31.0
4. Metal-based	11.7	12.2
5. Chemicals	0.6	0.4
6. Livestock-based	0.5	0.3
7. Miscellaneous	9.1	5.3
	100.0	100.0

TABLE 33  
ESTIMATED INVESTMENT, OUTPUT AND EMPLOYMENT OF THE MORE SPECIFIC INDUSTRIES SUGGESTED (1970-71)

Category of Industry	Investment (Rs. crores)	Net Output (Rs. crores)	Employment
Mineral-based	487.75	109.10	37,760
Metal-based	15.10	15.80	25,150
Chemicals	26.90	13.60	15,600
Forest-based	8.90	3.20	1,740
Others	11.350	4.00	10,240
TOTAL	550.00	145.70	90,490

TABLE 34  
ADDITIONAL INVESTMENT, VALUE OF NET OUTPUT, EMPLOYMENT AND POWER REQUIREMENT FOR CATEGORIES OF SPECIFIC INDUSTRIES SUGGESTED FOR THE THIRD PLAN

Industries	Investment			Value of Net Output (Rs. crores)	Employment	Power (kW)
	Public (Rs. crores)	Private (Rs. crores)	Total (Rs. crores)			
Mineral-based	30.00	18.75	98.75	39.12	14,960	157,500
Metal-based	..	7.80	7.80	8.815	10,575	9,875
Chemicals	..	21.60	21.60	11.15	10,300	38,525
Forest-based	..	4.30	4.30	1.28	945	38,250
TOTAL	60.00	52.45	132.45	60.365	36,780	244,150



TABLE 35

ADDITIONAL INVESTMENT, VALUE OF NET OUTPUT, EMPLOYMENT AND POWER REQUIREMENT FOR CATEGORIES OF INDUSTRIES SUGGESTED FOR THE FOURTH PLAN

<i>Industries</i>	<i>Investment</i>			<i>Value of Net Output</i> (Rs. crores)	<i>Employment</i>	<i>Power</i> (kW)
	<i>Public</i> (Rs. crores)	<i>Private</i> (Rs. crores)	<i>Total</i> (Rs. crores)			
Mineral-based	370	19.0	389.0	69.95	22,800	385,000
Metal-based	..	7.30	7.30	7.01	14,575	8,125
Chemicals	..	5.30	5.30	2.47	5,300	1,400
Forest-based	..	4.55	4.55	1.91	795	39,000
<b>TOTAL</b>	<b>370</b>	<b>36.15</b>	<b>406.15</b>	<b>81.34</b>	<b>43,470</b>	<b>433,525</b>

TABLE 36

CAPACITY, INVESTMENT, VALUE OF NET OUTPUT, EMPLOYMENT AND POWER REQUIREMENT FOR SPECIFIC INDUSTRIES SUGGESTED FOR THE THIRD PLAN PERIOD

<i>Industries</i>	<i>Capacity</i>	<i>Investment</i> (Rs. crores)	<i>Value of Net Output</i> (Rs. crores)	<i>Employment</i>	<i>Power</i> (kW)
(1)	(2)	(3)	(4)	(5)	(6)
<i>Mineral-based</i>	(Million tons)				
1. Pig Iron	0.25	7.00	2.50	3,400	5,000
2. Steel					
(a) Production to capacity installed at Rourkela	..	..	12.00	4,000	..
(b) Expansion of Rourkela Plant	0.8	80.00	19.20	6,000	80,000
3. Aluminium (Expansion)	0.01	5.00	1.05	800	25,000
4. Ferro-Manganese (Expansion)	0.07	5.00	3.10	560	35,000
5. Ferro-Chrome	0.01	0.70	0.69	80	5,000
6. Ferro-Silicon	0.15	1.05	0.58	120	7,500
<b>SUB-TOTAL</b>		<b>98.75</b>	<b>39.12</b>	<b>14,960</b>	<b>157,500</b>

(Contd. overleaf)

TABLE 36 (Contd.)

Industries	Capacity	Investment (Rs. crores)	Value of Net Output (Rs. crores)	Employment	Power (kW)
(1)	(2)	(3)	(4)	(5)	(6)
<i>Metal-based</i>					
	<i>(Tons)</i>				
1. Steel Pipes and Tubes (Expansion) (New Plant)	30,000	2.50	26.0	325	1,875
2. Structural Fabrication (Expansion)	15,000	1.75	10.0	1,500	1,250
3. Bolts, Nuts and Rivets (Multiple Shifts)	1,200	0.50	0.25	250	750
4. C. I. Pipes (Multiple Shifts)	6,000		0.29	250	
5. Sewing Machines (Multiple Shifts)	6,000 (Nos.)		0.07	100	
6. Aluminium Rolling	20,000	2.50	2.50	2,000	2,500
7. A.C.S.R. (Multiple Shifts)	1,800	0.05	0.70	150	500
8. Industrial Machinery (Multiple Shifts)	6,000	0.50	1.40	6,000	3,000
SUB-TOTAL		7.80	8.81	10,575	9,875
<i>Chemicals</i>					
1. Refractories (Expansion and New Unit)	100,000	2.00	1.10	2,000	200
2. H. T. Insulators	2,400	0.30	0.23	250	925
3. Sanitaryware	5,000	0.50		500	
4. Tiles and Stoneware	5,000	0.20		250	
5. Domesticware, L. T. Insulators, etc.	2,000	0.20		200	
6. Glass (Expansion)	66,000	0.80	0.20	1,000	4,000
7. Styrene	10,000	1.50	0.30	500	15,000
8. Polystyrene	5,000	.60	0.70	100	250
9. Soda Ash-cum-Ammonium Chloride or Ammonium Sulphate	14,300 19,000	1.50 3.00	0.35 0.27		800
10. Nitro-limestone	580,000	12.00	7.00	5,000	10,000
11. Super-phosphate	50,000	0.35	0.34	300	500
12. Sulphuric Acid	24,700	0.15	0.13	50	50
13. Caustic Soda	16,500	1.50	0.80	150	6,800
SUB-TOTAL		21.60	11.15	10,300	38,525
<i>Forest-based</i>					
1. Paper	16,500	3.75	1.10	385	37,500
2. Paper Board	6,000	0.55	0.18	560	750
SUB-TOTAL		4.30	1.28	945	38,250
GRAND TOTAL		132.45	60.36	36,780	244,150

TABLE 37

CAPACITY, INVESTMENT, VALUE OF OUTPUT, EMPLOYMENT AND POWER REQUIREMENT FOR INDUSTRIES SUGGESTED FOR THE FOURTH PLAN PERIOD

<i>Industries</i>	<i>Capacity</i>	<i>Investment</i> (Rs. crores)	<i>Value of</i> <i>Net Output</i> (Rs. crores)	<i>Employment</i>	<i>Power</i> (kW)
(1)	(2)	(3)	(4)	(5)	(6)
<i>Mineral-based</i>	(Million tons)				
1. Steel					
(a) Expansion of Rourkela Plant	0.70	70.0	18.80	5,000	60,000
(b) New Plant	2.00	300.0	48.00	16,000	250,000
2. Aluminium					
(a) Expansion	0.01	5.0	1.05	800	25,000
(b) New Plant	0.02	14.0	2.10	1,000	50,000
SUB-TOTAL		389.0	69.95	22,800	385,000
<i>Metal-based</i>	(Tons)				
1. Steel Pipes and Tubes	30,000	2.50	2.60	325	1,875
2. Structural Fabrication	15,000	1.75	1.00	1,500	1,250
3. Bolts, Nuts and Rivets (Multiple Shifts)	1,200		0.25	250	
4. C. I. Pipes (Multiple Shifts)	6,000	0.50	0.29	250	750
5. Sewing Machines (Multiple Shifts)	6,000 Nos.		0.075	100	
6. A.C.S.R.	1,800	0.05	0.70	150	250
7. Industrial Machinery	18,000	2.50	2.10	12,000	4,000
SUB-TOTAL		7.30	7.015	14,575	8,125
<i>Chemicals</i>					
1. Refractories	200,000	4.00	2.20	4,000	400
2. H. T. Insulators	2,400	0.30		250	
3. Sanitaryware	5,000	0.50	0.27	500	
4. Tiles and Stoneware	5,000	0.20		250	
5. Domesticware	3,000	0.30		300	
SUB-TOTAL		5.30	2.47	5,300	1,400
<i>Forest-based</i>					
1. Paper	16,500	3.75	1.10	385	37,500
2. Particle-based	4,500	0.20	0.13	205	300
3. Hard Board	7,500	0.60	0.68	205	1,200
SUB-TOTAL		4.55	1.91	795	39,000
GRAND TOTAL		406.15	81.345	43,470	433,525



TABLE 38

## LIST OF METAL-BASED INDUSTRIAL UNITS LICENSED (1951-59)

<i>Licensed</i>	<i>Annual Capacity</i>
1. Steel Tubes	30,000 tons
2. Refrigerators	2,400 nos.
3. Re-rolling	5,472 tons
4. Foundry	4,500 "
5. C. I. Pans and Rain Water Pipes	3,000 "
6. Bolts and Nuts	2,400 "
7. Chilled Iron Shot and Grits and Steel Castings	Chilled Iron & shots 480 tons of Steel castings
8. Galvanized Black Steel Pipes	40,000 tons
9. Cycle Chains	232,500 nos.
10. Structural Steel	
Bridge and Girders	12,000 tons
Storage Tanks	8,000 "
11. Steel Castings	4,800 "
12. Ferro-Chrome	15,000 "
13. A.C.S.R.	3,600 " of rods 3,600 " of cables
14. Aluminium Ingots	20,000 "
15. Cast Iron Span Pipes	24,000 "
16. Cast Iron Casting	33,600 "
17. Electrilut Absorption Type of Cooling Units	4,800 "
18. Industrial Machinery	12,000 "
19. Steel Billets	600 "
20. Structural Transmission Towers	2,400 "
21. Pig Iron	15,000 "
22. Tubular Steel Structurals including Roofing Structurals	1,200 "
23. Steel Buckets	3,496,180 nos.
<i>Under Consideration for Licensing</i>	
1. Welded Steel Tubes	48,000 "
2. Welded Steel Pipes 27" to 72"	15,000 "
3. Pig Iron (Low Shaft Furnace)	75,000 "
4. Steel Castings	2,160 "
5. Double-Edged Spanners	
6. Ferro-Silicon	19,200 "
7. Ferro-Chrome	5,760 "



## TABLES

TABLE 39

POSITIVE AND PROBABLE INVESTMENT IN SUGGESTED (LARGE SCALE)  
INDUSTRIES (1961-71)

<i>District</i>	<i>Positive Investment (Rs. crores)</i>	<i>Probable Investment (Rs. crores)</i>	<i>Total</i>
1. Balasore	1.75	..	1.75
2. Cuttack	5.00	22.10	27.10
3. Dhenkanal	2.50	..	2.50
4. Keonjhar	7.00	6.90	13.90
5. Koraput	5.00	14.90	19.90
6. Mayurbhanj	1.00	..	1.00
7. Puri	1.00	..	1.00
8. Sambalpur	10.10	11.10	21.20
9. Ganjam	..	6.60	6.60
10. Bolangir	..	0.90	0.90
11. Sundargarh	30.00	..	30.00

TABLE 40

## INVESTMENT IN THE SUGGESTED SMALL FACTORY PLANTS BY LOCATION

<i>District</i>	<i>Investment (Rs. lakhs)</i>
Balasore	29.0
Bolangir	19.5
Cuttack	32.5
Dhenkanal	07.5
Ganjam	29.5
Kalahandi	04.0
Keonjhar	19.5
Koraput	15.25
Mayurbhanj	11.5
Phulbani	03.0
Puri	40.25
Sambalpur	23.25
Sundargarh	24.50
	259.25
Location not known	6.00
TOTAL	265.25

TABLE 41

INSTALLED CAPACITY AND POWER GENERATION IN PUBLIC ELECTRIC UTILITIES AND IN INDUSTRY-OWNED PLANT (1959-60)

	<i>Hydro</i>	<i>Steam</i>	<i>Oil</i>	<i>Total</i>
<i>Installed Capacity (Megawatts)</i>				
1. Total	123.0	N.A.	N.A.	229.300
1.1 Public Utilities	123.0	5.78	7.10	135.88
1.2 Industry-owned Plant	Nil	N.A.	N.A.	93.42
<i>Annual Generation (Million kWh)</i>				
2. Total	493.61	N.A.	N.A.	648.207
2.1 Public Utilities	493.61	1.12	7.00	501.73
2.2 Industry-owned Plant	Nil	N.A.	N.A.	146.48

N.A. = Not Available.

SOURCE: "Public Electricity Supply: All-India Statistics, 1959-60, General Review" (mimeographed), Central Water and Power Commission.

TABLE 42

INSTALLED CAPACITY OF PUBLIC ELECTRICITY UNDERTAKINGS (1950-60)  
(Public Utilities only)

<i>Year</i>	<i>Orissa (kW)</i>				<i>All-India Total (kW)</i>	<i>Orissa as Per cent of All-India</i>
	<i>Diesel</i>	<i>Steam</i>	<i>Hydro</i>	<i>Total</i>		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1950	3,835	776	5	4,616	1,712,515	0.27
1951	4,079	776	5	4,860	1,835,426	0.26
1952	4,339	3,776	5	8,180	2,061,755	0.40
1953	4,523	5,776	5	10,304	2,305,190	0.45
1954	4,925	3,026	5	7,956	2,493,906	0.32
1955	5,072	5,776	5	10,853	2,694,817	0.40
1956	3,991	5,776	34,005	33,772	2,886,141	1.17
March						
1958	4,060	5,776	85,505	95,341	3,223,111	2.97
1959	5,445	5,776	123,005	134,226	3,511,536	3.82
1960	7,101	5,776	123,005	135,882	3,873,166	3.51

NOTE: (1) At the end of the calendar year for 1950 to 1956.

(2) At the end of the calendar year March 1958-1960.

SOURCE: "Public Electricity Supply: All-India Statistics, 1959-60, General Review" (mimeographed), Central Water and Power Commission.



## TABLES

TABLE 43  
ELECTRICITY GENERATED (1950 to 1959-60)  
(Million kWh)

<i>Year<sup>a</sup></i>	<i>Orissa</i>	<i>All-India</i>	<i>Orissa as Per cent of All-India</i>
1950	5.693	5,106	0.11
1951	6.811	5,856	0.12
1952	8.263	6,120	0.14
1953	9.041	6,697	0.14
1954	11.813	7,521	0.16
1955	16.515	8,592	0.19
1956	21.145	9,662	0.21
1957-58	93.220	11,369	0.82
1958-59	288.730	12,994	2.22
1959-60	501.732	14,992	3.33

<sup>a</sup> Calendar year except where stated otherwise.

SOURCE: "Public Electricity Supply: All-India Statistics, 1959-60, General Review" (mimeographed), Central Water and Power Commission.

TABLE 44  
PATTERN OF POWER GENERATION (1955 to 1959-60)  
(Public Utilities only)  
(Million kWh)

<i>Year</i>	<i>Total</i>	<i>Diesel</i>	<i>Steam</i>	<i>Hydro</i>	<i>Percentages</i>			
					<i>Total</i>	<i>Diesel</i>	<i>Steam</i>	<i>Hydro</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1955	16.515	3.249	13.254	0.012	100.00	19.67	80.26	0.07
1956	21.145	3.517	17.617	0.011	100.00	16.63	83.32	0.05
1957-58	93.220	3.724	19.495	70.001	100.00	4.00	20.91	75.09
1958-59	233.720	4.239	0.441	284.050	100.00	1.47	0.15	98.38
1959-60	501.732	6.998	1.125	493.609	100.00	1.39	0.22	98.39

SOURCE: "Public Electricity Supply: All-India Statistics, 1959-60, General Review" (mimeographed), Central Water and Power Commission.



TABLE 45  
SALE OF ELECTRICITY FROM PUBLIC UTILITY  
UNDERTAKINGS (1951 to 1959-60)

(Million kWh)

Year	Domestic Light and Power	Commercial Light and Power	Industry	Public Lighting	Irrigation	Water Works and Sewage Pumping	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1951	2.256	1.408	1.117	0.243	..	0.101	5.125
1952	2.254	1.878	1.279	0.316	..	0.109	6.026
1953	2.731	1.715	2.213	0.363	..	0.161	7.183
1954	2.951	1.572	2.741	0.418	0.001	0.589	8.272
1955	3.474	1.848	4.788	0.485	0.218	0.634	11.447
1956	4.023	1.938	7.578	0.614	..	1.049	15.201
1957-58	12.189	4.992	44.671	0.714	..	0.731	63.297
1958-59	14.470	6.271	240.450	0.894	..	1.516	263.601
1959-60	16.806	7.229	426.481	1.193	0.672	3.091	435.482

SOURCE: "Public Electricity Supply: All-India Statistics, 1959-60, General Review" (mimeographed), CWPC.

TABLE 46  
PATTERN OF POWER SALES IN PUBLIC UTILITY  
UNDERTAKINGS (1951 to 1959-60)

(Percentage distribution)

Year	Domestic Light and Power	Commercial Light and Power	Industry	Public Lighting	Irrigation	Water Works and Sewage Pumping	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1951	44	27	22	5	..	2	100
1952	41	31	21	5	..	2	100
1953	38	24	31	5	..	2	100
1954	36	19	33	5	..	7	100
1955	30	16	42	4	2	6	100
1956	26	13	50	4	..	7	100
1957-58	19	8	71	1	..	1	100
1958-59	5.5	2.4	91.2	0.3	..	0.6	100
1959-60	3.7	1.6	93.6	0.3	0.2	0.6	100

NOTE: These have been worked out by the NCAER on the basis of the data given in "Public Electricity Supply: All-India Statistics, 1959-60, General Review" (mimeographed), CWPC.

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TABLE 47

PATTERN OF POWER SALES IN PUBLIC UTILITY  
UNDERTAKINGS IN INDIA (1951 to 1959-60)

(Percentages)

Year	Domestic Light and Small Power	Commercial Light and Small Power	Industry	Public Lighting	Irriga- tion	Water Works and Sewage Pumping	Traction	Total
1951	12.4	6.9	63.7	1.4	4.3	4.4	4.1	100.0
1952	12.6	6.7	64.0	1.5	4.3	4.4	4.5	100.0
1953	12.3	7.1	64.6	1.5	3.8	4.3	5.1	100.0
1954	12.1	7.1	65.2	1.5	3.7	4.3	5.7	100.0
1955	12.0	7.2	66.0	1.5	3.6	4.0	6.1	100.0
1956	11.7	6.8	66.9	1.5	4.0	4.0	6.4	100.0
1957-58	11.6	6.5	66.0	1.5	6.0	3.8	6.5	100.0
1958-59	11.5	6.3	67.0	1.5	6.0	3.6	6.9	100.0
1959-60	11.1	6.2	68.4	1.4	5.9	3.5	3.6	100.0

NOTE: This table has been computed by the NCAER on the basis of the data given in "Public Electricity Supply: All-India Statistics, 1959-60, General Review" (mimeographed), CWPC.

TABLE 48

PER CAPITA CONSUMPTION OF ELECTRICITY IN ORISSA AND LEADING  
STATES OF INDIA

(Public Utilities only)

(in kWh)

	1951	1955	1959-60
Orissa	0.35	0.78	27.89
Domestic	0.15	0.24	1.03
Commercial	0.10	0.13	0.44
Industries	0.08	0.37	26.31
Public lighting	0.02	0.03	0.07
Irrigation	..	0.01	0.04
West Bengal	41.68	61.56	79.91
Bombay	43.95	62.06	62.70
Bihar	2.95	6.96	17.83
Madras	10.62	23.15	43.07
ALL-INDIA	13.25	19.65	30.40

SOURCE: "Public Electricity Supply: All-India Statistics, 1959-60, General Review" (mimeographed), CWPC.

TECHNO-ECONOMIC SURVEY OF ORISSA

TABLE 49  
PATTERN OF ELECTRICITY SALES (SELF-GENERATION INCLUDED)  
(1955 to 1959-60)  
(Percentages)

Year	Domestic Light and Small Power	Commercial Light and Small Power	Industry	Public Lighting	Irrigation	Water Works and Sewage Pumping	Traction	Total
1955	3.8	2.0	92.7	0.5	0.2	0.7	..	100.0
1956	4.2	2.0	92.0	0.6	..	1.1	..	100.0
1957-58	9.3	3.8	85.7	0.5	..	0.6	..	100.0
1958-59	4.4	1.9	92.8	0.3	..	0.5	..	100.0
1959-60	2.8	1.2	95.2	0.2	0.1	0.5	..	100.0

NOTE: This table has been computed by the NCAER on the basis of the data given in "Public Electricity Supply: All-India Statistics, 1959-60, General Review" (mimeographed), CWPC.

TABLE 50  
INDUSTRIAL POWER CONSUMPTION—SELF-GENERATION'S SHARE (ALL-INDIA AND ORISSA)  
(1955 to 1959-60)  
(Million kWh)

Year	All-India		Orissa		Share of Self-generation to Total	
	Total	Self-generation	Total	Self-generation	All-India	Orissa
1955	6382.604	2184.815	84.488	79.700	31.74	94.33
1956	7532.753	2208.509	87.578	80.000	29.33	91.35
1957-58	8569.549	2288.290	111.790	67.119	26.70	60.04
1958-59	9644.717	2420.683	307.098	66.648	31.84	21.70
1959-60	11187.473	2760.817	572.966	146.475	24.67	25.56

SOURCE: "Public Electricity Supply: All-India Statistics, 1959-60, General Review" (mimeographed), CWPC.

## TABLES

TABLE 51

## HYDRO ELECTRIC POWER POTENTIAL

<i>Hydel Sources</i>	<i>Power Potential in MW (60 per cent Load Factor)</i>
1. Sabari <sup>a</sup>	1,000
2. Upper Mahanadi	278
3. Lower Mahanadi	558
4. Lower Brahmani	255
5. Baitarani	275
6. Upper Brahmani <sup>b</sup>	509
TOTAL	2,875 <sup>c</sup>

<sup>a</sup> Includes share of Andhra Pradesh.

<sup>b</sup> Includes share of Bihar.

<sup>c</sup> Net share of Orissa of not less than 2 million kW.

TABLE 52

## ESTIMATED INSTALLED CAPACITY, GENERATION AND EFFECTIVE CONSUMPTION OF ELECTRICITY

(1960-61 to 1970-71)

(Self-generation included)

	<i>Unit</i>	<i>1960-61</i>	<i>1965-66</i>	<i>1970-71</i>
1. Installed Capacity <sup>a</sup>	MW	264	634	1,054
2. kWh/kW Installed	per year	3,000 <sup>b</sup>	3,500 <sup>b</sup>	4,000 <sup>b</sup>
3. Generation	Million kWh	792	2,225	4,216
4. Losses <sup>c</sup>	"	95	267	506
5. Effective Consumption	"	697	1,958	3,719
(a) Index	unit	100	230	530
(b) Growth Rate (compounded)	Annual percentage		22.5	13.6

<sup>a</sup> Table 53, col. 6.

<sup>b</sup> 2,830 in 1959-60. (The value will steadily improve.)

<sup>c</sup> 12 per cent of total generation (in 1959-60 this was 11.8 per cent).



TABLE 53  
ESTIMATED MAXIMUM DEMAND AND ADDITIONS TO GENERATING CAPACITY  
(1960-61 to 1970-71)

(MW)

Year	Maximum Demand	Installed Capacity			Total
		Needed	Existing	Net Additions	
(1)	(2)	(3)	(4)	(5)	(6)
1960-61	190 <sup>a</sup>	219	264 <sup>a</sup>		
1961-62	230	265		147 <sup>b</sup>	411
1962-63	278	320			411
1963-64	337	388		60 <sup>c</sup>	471
1964-65	410	472		163 <sup>d</sup>	634
1965-66	500	575			634
1966-67	558	642		60 <sup>e</sup>	694
1967-68	621	714		60 <sup>f</sup>	754
1968-69	692	796		100 <sup>g</sup>	854
1969-70	772	888		100 <sup>g</sup>	954
1970-71	860	989		100 <sup>g</sup>	1,054
1971-72	950	1,093		100 <sup>g</sup>	1,154
1972-73	1,050	1,208		100 <sup>g</sup>	1,254
1973-74	1,160	1,324			
1975-76	1,415	1,630			
1977-78	1,720	1,980			

<sup>a</sup> Chief Engineer, Electricity, Orissa.

<sup>b</sup> Hirakud Stage 2 ( $=2 \times 37.5 + 3 \times 24$ ).

<sup>c</sup> Talcher 1 set = 60 MW.

<sup>d</sup> Talcher sets 2, 3 & 4 ( $3 \times 60$ ) minus uneconomic diesel and steam sets (17 MW).

<sup>e</sup> Talcher extension 5th set } suggested.

<sup>f</sup> Talcher extension 6th set }

<sup>g</sup> Hydel schemes.

NOTE: Col. (3) = Col. (2)  $\times$  1.15.

Col. (2) = Growth rate 21 per cent (Third Plan)  
annual 11.5 per cent (Fourth Plan)  
10.4 per cent (Fifth Plan).



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TABLE 54

INVESTMENT FOR POWER DEVELOPMENT (1960-61 to 1970-71)

Period	Description	Capacity (MW)	Maturity during Plan Number	Investment	
				Rs./kW	Total (Rs. crores)
(1)	(2)	(3)	(4)	(5)	(6)
1960-61	Thermal	240	Third	1,800	43.2
to	Hydro	147 <sup>a</sup>	„	600	8.8
1965-66	Hydro	300	Fourth	800 <sup>b</sup>	24.0
	Hydro	200	Fifth	400 <sup>c</sup>	8.0
	Investigation	..	..	..	1.0 <sup>d</sup>
	Total				85.0
1965-66	Thermal	120	Third	1,800	21.6
to	Hydro	300	Fourth	1,200 <sup>b</sup>	36.0
1970-71	Hydro	200	Fifth	1,200 <sup>e</sup>	24.0
	Hydro	400	Fifth	300 <sup>e</sup>	12.0
	Hydro	200	Sixth	200 <sup>f</sup>	4.0
	Investigation	..	..	..	1.0
	Total				98.6

<sup>a</sup> Stage II, Hirakud.<sup>b</sup> 40% during Third Plan; 60% during Fourth Plan.<sup>c</sup> 20% during Third Plan; 60% during Fourth Plan.<sup>d</sup> Lumpsum.<sup>e</sup> 15% during Fourth Plan; 85% during Fifth Plan.<sup>f</sup> 10% during Fourth Plan.

NOTE: (1) The above includes requirements for generation, transformation, transmission and distribution.

(2) Total investment for:

Thermal 1,800 Rs./kW

Hydro 2,000 „

(Based on the study of Natural Resources Division, Planning Commission.)

TABLE 55

ROAD DEVELOPMENT AS ENVISAGED IN THE CHIEF ENGINEER'S ROAD DEVELOPMENT PLAN (1961-81)

	<i>Mileage at commencement of 20-year Plan</i>	<i>Mileage by end of 20-year Plan</i>	<i>Increase in Mileage</i>
National Highways	852	1,642	790
State Highways	1,415	2,942	1,527
Major District Roads	3,129	4,170	1,041
Other District Roads*	886	7,174	6,288

\* PWD portion only.

SOURCE: Chief Engineer, Roads, Government of Orissa.

TABLE 56

TENTATIVE PROPOSALS OF STATE GOVERNMENT FOR ROAD DEVELOPMENT (1961-66)

	<i>State Sector</i>	<i>Central Sector</i>	<i>Total</i>
Improvement of Existing Roads (miles)	1,228	160	1,388
Construction of New Roads (miles)	40	22	62
Bridges continued from Second Plan (number)	28	14	42
Construction of New Bridges (number)	14	45	59

TABLE 57

SUGGESTED PROGRAMME OF ROAD DEVELOPMENT (1961-66)

	<i>Mileage</i>	<i>Cost (Rs. crores)</i>
National Highways	264	5.5
State Highways	464	6.4
Major District Roads	417	2.6
Other District Roads	1,952	2.7
TOTAL	3,097	17.2



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TABLE 58

ESTIMATE OF CAPITAL EXPENDITURE ON NEW (RAILWAY)  
LINES AND OPEN LINE FACILITIES

(Rs. crores)

1. Extension of Rourkela-Dumaro line to Talcher	11.6
2. Rail-link from Tomka upto Railway main line, and South Eastern siding	3.0
3. Rail-link from Cuttack to Paradip	10.0
4. Rail-link between Gua and Manoharpur	5.8
TOTAL	30.4

TABLE 59

## PROGRAMME FOR WATERWAY DEVELOPMENT (1961-66)

(Rs. lakhs)

	<i>Cost</i>
1. Improvement in the Mahanadi from Dholpur to Cuttack	50
2. Dredgers for maintaining depths as on canals, estuaries and on Mahanadi	60
3. Major Improvements to High Level Canal I, Talando and Kendra Canal	200
4. Development of country-boat cooperatives	50
5. Terminal facilities at Jenapur and Paradip	40
6. Ferries in the estuaries of the Mahanadi, Dhamasa and Devi rivers	50
TOTAL	450

TABLE 60  
SUGGESTED INVESTMENT IN IMPROVEMENT OF TRANSPORT (1961-66)  
(Rs. crores)

	Cost
1. Railways	30.4
2. Roads	17.2
3. Forest Roads	4.0
4. Inland Waterways	4.5
5. Road Transport	1.5
6. Bridges, etc.	3.2
<b>TOTAL</b>	<b>60.8</b>

NOTE: In addition, there will be these investments during the period 1961-71: new goods carriers (private sector) Rs. 30 crores, Paradip port (Centre) Rs. 10 crores and communications (Centre) Rs. 5.8 crores.

TABLE 61  
ADDITIONAL MANPOWER REQUIREMENT IN NON-AGRICULTURAL OCCUPATION (1961-71)  
(in thousands)

	Employment in 1961 <sup>b</sup>	Additional Manpower Requirements for the period 1961-71	Employment in 1971 <sup>b</sup>
Factory Industry	79	96	175
Non-factory Industry	430	95	525
Mining	82	195	277
Power	6	32	38
Construction	199	151	350
Tertiary	1,030	670	1,700
<b>TOTAL</b>	<b>1,826</b>	<b>1,239</b>	<b>3,065</b>

<sup>a</sup> For details, see Table 66.

<sup>b</sup> (i) The sectorwise net outputs for 1961 are as given in Table 8 for 1971 as given in Table 86.

(ii) Increase in output per worker—  
in factory industry, mining and power is based on individual employment estimates for new capacity or expansion in capacity suggested;  
in non-factory industry, it is derived from independent estimates of net output and employment increase. Employment is taken to increase at the rate of natural increase of population;  
in construction, it is assumed to increase at the rate of 1.5 per year per cent during 1951-61 and 3.3 per cent per year during 1961-71 and in tertiary sector it is assumed to increase by 3 per cent per year during 1951-61 and 4 per cent per year during 1961-71.



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TABLE 62

PROPORTION OF THE TOTAL WORKING FORCE ENGAGED IN DIFFERENT SECTORS OF THE ECONOMY IN 1961 AND 1971<sup>a</sup>

(Percentages)

	1961	1971
1. Primary Sector	73.1	62.8
2. Secondary Sector	11.7	16.6
Factory Industry	1.2	2.1
Non-factory Industry	6.3	6.4
Mining	1.2	3.4
Power	0.1	0.5
Construction	2.9	4.2
3. Tertiary Sector	15.2	20.6
TOTAL	100.0	100.0

<sup>a</sup> For details, see Table 66.

TABLE 63

NET OUTPUT PER WORKER BY DIFFERENT SECTORS OF THE ECONOMY IN 1961 AND 1971.

	1961		1971			
	Net Output (Rs. crores)	Employment (thousands)	Net Output per Worker (Rs.)	Net Output (Rs. crores)	Employment (thousands)	Net Output per Worker (Rs.)
Factory Industry	25.5	85	3,000	201.2	213	9,441
Non-factory Industry	24.5	430	570	39.2	525	747
Mining	9.0	82	1,098	42.2	277	1,523
Construction	12.0	199	603	24.9	350	711
Tertiary Activities	113.7	1,030	1,103	267.2	1,700	1,572
TOTAL	184.7	1,826	1,012	574.7	3,065	1,875

TABLE 64  
REQUIREMENT AND SUPPLY OF TECHNICAL PERSONNEL

<i>Additional Requirements of Engineers and Diploma Holders for the period 1961-71<sup>a</sup></i>		<i>Annual Requirements for the period 1961-71</i>	<i>Annual Supply for the period 1961-71</i>
Factory Industry	4,575		Engineers 155 <sup>b</sup>
Mining	2,035		Diploma Holder 460 <sup>b</sup>
Government Programmes	2,290		
TOTAL	8,900	890	
Plus Replacement Requirements	..	150	
TOTAL		1,040	615

<sup>a</sup> For method of estimating requirement, see Appendix 9.

<sup>b</sup> After allowing 15 per cent for wastage requirement; see Appendix 9.

TABLE 65  
REQUIREMENT AND SUPPLY OF CRAFTSMEN

<i>Additional Requirements of Craftsmen for the period 1961-71<sup>a</sup></i>		<i>Annual Requirements for the period 1961-71</i>	<i>Annual Supply for the period 1961-71</i>
Factory Industry	29,301		Industrial Schools 960 <sup>b</sup>
Mining	61,035		Training Coal-mining 200
Government Programmes	1,905		Training by Tribal Welfare Department 100
TOTAL	92,249	9,225	
Plus Replacement Requirements		1,737	In-plant and unor- ganized training 1,300
TOTAL		10,962	2,560

<sup>a</sup> For method of estimating requirement see Appendix 9.

<sup>b</sup> After allowing 15 per cent for wastage; see Appendix 9.

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TABLE 66

OUTPUT, EMPLOYMENT AND LABOUR PRODUCTIVITY (1951, 1961 AND 1971)

	1951			1961			1971		
	Net Output (Rs. crores)	Employment (Thousands)	Net Output per Worker (Rs.)	Net Output (Rs. crores)	Employment (Thousands)	Net Output per Worker (Rs.)	Net Output (Rs. crores)	Employment (Thousands)	Net Output per Worker (Rs.)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Agriculture and Allied Activities	165.4	4,041	409	188.0	4,954 <sup>a</sup>	379	315.1	5,175 <sup>a</sup>	609
Factory Industry	3.1	24	1,292	22.1	79	2,797	179.4	175	10,251
Non-Factory Industry	20.1	385	522	24.5	430	570	39.2	525	747
Mining	4.5	40	1,125	9.0	82	1,098	42.2	277	1,523
Power	Neg.	Neg.	Neg.	3.4	6	5,666	21.8	38	5,737
Construction	2.5	49	510	11.9	199	603	24.9	350	711
Tertiary	91.0	1,076	846	113.7	1,030	1,103	273.5	1,700	1,609
TOTAL	286.6	5,615	510	372.6	6,780 <sup>b</sup>	550	896.1	8,240 <sup>b</sup>	1,087

<sup>a</sup> Employment in agriculture is residual.

<sup>b</sup> Total working force for 1961 and 1971 is estimated on the basis of 1951 participation ratios—38.6 per cent of the total population.

TABLE 67

ESTIMATED VITAL RATES OF REORGANIZED STATES FOR THE PERIOD 1941-50

State	Birth Rate (Per thousand population)	Death Rate (Per thousand population)	Rate of Natural Increase (Percentage)
1. Andhra	38.2	25.1	13.1
2. Assam	49.8	34.9	14.9
3. Bihar	42.2	29.8	12.4
4. Bombay	42.7	25.8	16.9
5. Kerala	38.2	19.9	18.3
6. Madhya Pradesh	45.2	37.2	8.0
7. Madras	35.8	22.7	13.1
8. Mysore	40.2	23.6	16.6
9. Orissa	41.8	33.3	8.5
10. Punjab	45.3	28.2	17.1
11. Rajasthan	47.7	32.6	15.1
12. Uttar Pradesh	41.5	30.1	11.4
13. West Bengal	40.0	27.0	13.0
ALL-INDIA	41.4	28.5	13.0

SOURCE: NCAER Estimates (made for population projections).

TECHNO-ECONOMIC SURVEY OF ORISSA

TABLE 68  
DEATH RATE BY CAUSES (1951-57)

Year	Fever	Dysentery and Diarrhoea	Cholera	Small-pox	Respiratory Diseases	Others	Total
1951	10.47	1.20	0.54	0.86	0.58	7.94	21.52
1952	9.57	0.69	0.57	0.25	0.52	6.05	15.17
1953	11.88	1.04	0.32	0.13	0.54	5.14	19.04
1954	9.68	0.82	0.08	0.25	0.48	4.67	19.98
1955	8.93	0.88	0.06	0.15	0.51	4.76	15.29
1956	8.86	1.17	0.71	0.12	0.68	4.63	16.17
1957	11.33	1.28	0.25	0.38	0.76	4.98	18.98
Average	10.10	1.01	0.36	0.31	0.58	5.45	17.45
ALL-INDIA AVERAGE	6.31	0.66	0.16	0.17	1.26	4.43	12.99

SOURCE: 1. Director-General of Health Services, Ministry of Health.  
2. Director of Health Services, Government of Orissa.  
3. *Statistical Abstract, Orissa, 1957.*

TABLE 69  
CAUSE SPECIFIC DEATH RATES: STATES AND ALL-INDIA (1957)  
(Number of deaths per 1,000 population)

State	Fever	Dysentery and Diarrhoea	Cholera	Small-pox	Respiratory Diseases	Others	Total
Andhra	6.2	0.7	0.17	0.4	1.0	7.2	15.7
Bihar	..	0.05	0.29	0.1	0.07	1.0	7.8
Bombay	5.4	0.7	0.13	0.2	2.3	6.2	15.0
Kerala	1.1	0.7	..	0.04	1.0	6.8	9.6
Madras	2.3	1.1	0.09	0.1	1.4	9.2	14.2
Mysore	3.4	1.1	0.01	0.2	0.9	3.9	9.5
Orissa	11.4	1.3	0.3	0.4	0.8	5.0	19.0
Punjab	9.6	0.4	..	0.01	2.3	2.5	14.8
Uttar Pradesh	5.5	0.4	0.2	0.1	0.7	1.6	8.5
West Bengal	4.1	0.6	0.1	0.4	1.1	3.7	10.0
ALL-INDIA	5.0	0.6	0.2	0.2	1.1	4.0	10.6

SOURCE: Director-General of Health Services, Ministry of Health (as quoted in *Statistical Abstract, India, 1957-58*).

TABLES

TABLE 70

DEATH RATES FROM CHIEF DISEASES BY DISTRICTS (1952 AND 1957)

Districts	Fever		Dysentery and Diarrhoea		Respiratory Diseases		Cholera		Small-pox	
	1952	1957	1952	1957	1952	1957	1952	1957	1952	1957
Balasore	13.47	10.18	0.36	0.29	0.12	0.09	0.63	0.50	0.22	0.22
Bolangir	19.13	17.65	0.93	0.96	0.60	0.78	1.76	0.07	0.28	0.02
Cuttack	11.01	13.55	2.37	1.2	0.78	0.36	0.73	0.56	1.89	0.58
Dhenkanal	10.44	13.55	0.61	1.12	0.26	0.36	0.09	0.81	0.20	1.51
Ganjam (Plain)	8.78	9.40	1.01	1.20	0.61	0.66	0.12	0.04	0.06	0.27
Ganjam (Agency)	1.48	N.A.	0.14	N.A.	0.03	N.A.	N.A.	N.A.	N.A.	N.A.
Kalshandu	16.83	16.03	0.30	0.44	0.12	0.28	0.20	0.10	0.77	0.15
Konjhar	14.83	16.03	0.26	0.51	0.04	0.29	0.01	0.15	0.13	0.37
Khondmals (Phulbani)	18.18	14.94	0.69	1.48	0.21	0.90	2.62	N.A.	0.17	0.02
Koraput	12.29	4.53	0.45	0.65	0.17	1.52	0.02	0.05	0.20	0.08
Mayurbhanj	12.29	14.20	0.45	0.50	0.17	0.36	0.02	0.06	0.20	0.17
Puri	9.72	7.68	1.46	2.19	1.39	1.31	0.42	0.25	0.35	0.59
Sambalpur	12.30	10.87	1.62	0.99	1.12	1.01	0.51	0.03	0.60	0.07
Sundargarh	12.66	11.04	1.29	0.95	0.69	0.68	0.03	0.02	0.22	0.08
Orissa State	12.04	11.35	1.16	1.28	0.52	0.76	0.56	0.25	0.62	0.38
ALL-INDIA	8.5	5.0	0.8	0.6	1.21	1.1	0.23	0.2	1.18	0.2

SOURCE: Statistical Abstract, Orissa, 1957.  
Statistical Abstract, India, 1957-58.

TABLE 71

CAUSE SPECIFIC DEATH RATES: ORISSA AND ALL-INDIA (1952 AND 1957)  
(Rural, Urban and General)  
(Number of deaths per 1,000 of population)

Diseases	Orissa						All-India					
	1952			1957			1952			1957		
	Rural	Urban	General	Rural	Urban	General	Rural	Urban	General	Rural	Urban	General
1. Fevers (including Malaria)	12.26	4.46	12.04	11.56	4.51	11.33	9.7	2.81	8.5	5.5	2.5	4.99
2. Dysentery and Diarrhoea	1.14	1.81	1.16	1.24	2.56	1.28	0.71	1.23	0.8	0.5	0.8	0.6
3. Cholera	0.51	1.49	0.5	0.29	0.01	0.25	0.24	0.17	0.23	0.03	0.05	0.03
4. Respiratory Diseases	0.51	0.93	0.52	0.74	1.22	0.76	1.04	2.05	1.21	1.1	2.2	1.3
5. Small-pox	0.63	0.02	0.62	0.36	0.76	0.38	0.20	0.68	0.18	0.10	0.07	0.1

SOURCES: 1. Orissa: Director of Health Services.  
2. India: Director-General of Health Services;  
Health Statistics of India, 1958.

TABLE 72

PER CAPITA MONTHLY CONSUMER EXPENDITURE IN RURAL AREAS: STATES AND ALL-INDIA (1952)

(Rs. per month per person)

State	Total	Food	Non-food	Grains	Milk, etc.	Meat, Egg, Fish	Sugar	Edible Oil
1. Assam	24.24	15.82	8.42	10.43	1.08	1.07	0.44	0.48
2. Bihar	24.03	16.10	7.93	11.42	1.16	0.41	0.26	0.38
3. Bombay	19.32	11.40	7.92	11.40	1.34	0.29	0.61	0.52
4. Madhya Pradesh	16.40	10.08	6.32	6.55	0.76	0.18	0.31	0.41
5. Madras	18.28	12.14	6.14	7.96	0.82	0.50	0.23	0.48
6. Orissa	15.02	10.11	4.91	7.15	0.38	0.50	0.21	0.28
7. Punjab	31.96	19.16	12.80	9.64	5.40	0.23	1.08	0.83
8. Saurashtra	20.58	13.59	6.99	7.28	2.60	0.05	1.17	0.64
9. Travancore	18.64	11.17	7.47	6.10	0.43	0.78	0.40	0.57
10. Uttar Pradesh	23.45	14.99	8.46	9.38	1.66	0.25	0.70	0.46
11. West Bengal	28.10	16.63	11.47	10.91	0.88	1.26	0.38	0.65
ALL-INDIA	27.81	16.65	11.16	9.63	3.92	0.15	0.83	0.45

<sup>1</sup> SOURCE: Report of the National Sample Survey: Fourth Round.

TABLE 73

FOOD CONSUMPTION STANDARDS

(Ozs. per adult unit)

Item	Recommended Diet	All-India Average	Orissa	
			Rural	Cuttack
(1)	(2)	(3)	(4)	(5)
Cereals	14	16.62	23.69	19.3
Pulses	3	2.26	0.47	0.9
Leafy Vegetables	4	0.85	2.11	1.3
Other Vegetables	6	4.10	1.68	5.4
Ghee and Oil	2	0.92	Negligible	0.2
Milk and Milk Products	10	3.31	..	0.3
Meat, Fish and Eggs	4	0.94	0.09	0.7
Fruits and Nuts	3	0.58	..	0.1
Sugar and Jaggery	2	0.67	..	0.1
Condiments	..	0.41	..	..

NOTE: Columns (2) and (3) from p. 18, column (4) from p. 119 and column (5) from p. 120 of ICMR Report No. 20.



TABLE 74

REGISTERED DOCTORS AND LICENTIATES IN ALL-INDIA, ORISSA AND SELECTED STATES (1956)

Area	Graduates	Licentiates	Total Doctors	Number of Doctors and Licentiates per 100,000 Population
Bombay	9,623	8,009	17,623	33
Madhya Pradesh	950	1,403	2,353	8
Orissa	515	772	1,287	8
West Bengal	7,246	14,283	21,529	78
ALL-INDIA	34,077	39,931	74,008	19

SOURCE: *Triennial Report of Directorate General of Health Services, 1954-55*, Government of India, 1959.

TABLE 75

NURSES, MIDWIVES, ETC., IN ORISSA AND ALL-INDIA (1956)

Region	Nurses		Midwives		Dais		Health Inspectors		Vaccinators	
	Total Number	Per 100,000 Population	Total Number	Per 100,000 Population	Total Number	Per 100,000 Population	Total Number	Per 100,000 Population	Total Number	Per 100,000 Population
All-India <sup>a</sup>	24,724	6	28,423	7	7,977	2	4,229 <sup>b</sup>	1.1	4,312 <sup>b</sup>	1.1
Orissa <sup>c</sup>	294	2	232	1.5	318	2	250	1.5	N.A.	N.A.

<sup>a</sup> *Triennial Report of DGHS, 1954-55*, Government of India, 1959.<sup>b</sup> *Health Statistics of India, DGHS, 1954-55*, Government of India, 1959.<sup>c</sup> *Handbook of Orissa*, Home Department, Government of Orissa, 1958.

TABLE 76  
PROVISION FOR MEDICAL AND HEALTH PROGRAMMES UNDER THE  
SECOND FIVE YEAR PLAN

	Provision (Rs. lakhs)	Percentage
1. Administration	3.99	37.72
2. Education and Training	111.65	
3. Medical Institution	12.50	
4. Hospitals	12.20	
5. Health Ranges	0.40	
6. Public Health Organization and New Municipalities	2.65	15.30
7. New Primary Health Units	58.12	
8. Control of Diseases	109.94	28.93
9. Maternity and Child Welfare	4.37	4.87
10. Indian Medical System	5.41	
11. Family Planning	3.24	
12. Medical Laboratories	5.48	0.68
13. Statistics and Publicity	2.55	
14. Water Supply and Sanitation	47.50	12.50
TOTAL	380.00	100.00

TABLE 77  
ADDITIONAL HEALTH PERSONNEL REQUIRED BY 1971

Category of Personnel	Total Number Available in 1959 <sup>a</sup>	Total Number Required in 1971 <sup>b</sup>	Additional Personnel Required by 1971 (3-2)
(1)	(2)	(3)	(4)
1. Doctors (Graduates and Licentiates)	1,401	4,200	2,799
2. Nurses	343	3,900	3,557
3. Midwives	269	3,900	3,631
4. Dais	457	3,900	3,443
5. Health Visitors and Health and Sanitary Inspectors	323	1,000 <sup>c</sup>	677
6. Compounders	N.A.	1,000 <sup>c</sup>	..

<sup>a</sup> SOURCE: Director of Health Services, Government of Orissa.

<sup>b</sup> These estimates are based on norms adopted for all-India Second Plan: These are as follows:

Doctors	20 for 100,000 population
Nurses	18 to 19 for 100,000 population
Midwives	18 to 19 for 100,000 population
Health Visitors and Health and Sanitary Inspectors	4 to 5 for 100,000 population
Dais	18 to 19 for 100,000 population

<sup>c</sup> Estimates for additional compounders required for 1961-71 are arbitrary and are based on an assumption that a compounder may be required for each of the 1,000 new Primary Health Units proposed for the period 1961-71.

N.A. = Not Available.



## TABLES

TABLE 78

ESTIMATED ALLOCATION FOR HEALTH PLAN SCHEMES (1961-71)

<i>Schemes</i>	<i>Allocation Required (Rs. crores)</i>
1. Malaria Control	0.50
2. Supply of Anti-Malaria Drugs	0.4
3. Filaria Control	0.60
4. Urban Water Supply	3.00
5. Urban Drainage and Sewage Facilities	14.40
6. Rural Water Supply	1.75
7. Mobile Health Units (Cholera and Small-pox Control)	0.15
8. T.B. Control	1.50
9. Supply of Vitamin Tablets, etc.	0.15
10. Medical Education and Training	10.80
11. Primary Health Units	10.00
12. Hospitals and Dispensaries	5.00
13. Vital Statistics	0.50
14. Health Publicity	0.50
15. Maternity and Child Welfare, Family Planning, etc.	0.45
TOTAL	49.70

NOTE: See Appendix 10 for method of estimation.



TABLE 79  
CONSTRUCTION IN PUBLIC HEALTH PLAN (1961-71)  
(Rs. crores)

<i>Schemes</i>	<i>Total Outlay</i>	<i>Percentage of Construction Expenditure</i>	<i>Cost of Construction</i>	<i>Current Outlay</i>
1. Malaria Control	0.50	..	..	0.50
2. Supply of Anti-Malaria Drugs	0.40	..	..	0.40
3. Filariasis Control	0.60	..	..	0.60
4. Urban Water Supply	3.00	100	3.00	..
5. Urban Drainage and Sewage Facilities	14.40	100	14.40	..
6. Rural Water Supply	1.75	100	1.75	..
7. Mobile Health Units	0.15	..	..	0.15
8. T.B. Control	1.50	20	0.30	1.20
9. Supply of Vitamin Tablets, etc.	0.15	..	..	0.15
10. Medical Education	10.80	30	3.24	7.56
11. Primary Health Units	10.00	20	2.00	8.00
12. Hospitals and Dispensaries	5.00	50	2.50	2.50
13. Vital Statistics	0.50	..	..	0.50
14. Health Publicity	0.50	..	..	0.50
15. Maternity and Child Welfare and Family Planning	0.45	..	..	0.45
TOTAL	49.70	54.7	27.19	22.51

TABLE 80  
DIRECT EMPLOYMENT POTENTIAL OF PROPOSED HEALTH PLAN (1961-71)

<i>Category of Personnel</i>	<i>Employment Potential</i>
1. Doctors	2,800
2. Nurses	3,500
3. Midwives	3,600
4. Dais	3,400
5. Health Visitors	700
6. Compounders	1,000 <sup>a</sup>
7. Unskilled Personnel	15,000 <sup>b</sup>
TOTAL	30,000

<sup>a</sup> At the rate of one compounder for each primary health unit.

<sup>b</sup> A ratio of 1 unskilled person for every person in all the other skilled categories, has been assumed. See Table 77 for estimates of categories 1 to 6.

TABLE 81  
STATEMENT SHOWING THE COMPARATIVE REVENUE POSITION OF THE  
STATE GOVERNMENTS (1957-58)

	Andhra Pradesh	Assam	Bihar	Bombay	Jammu and Kashmir	Kerala	Madhya Pradesh	Madras	Mysore	Orissa	Punjab	Rajasthan	Uttar Pradesh	West Bengal	Total
1. Per Capita State Taxes (Rs.)	9.08	12.53	4.93	13.25	2.04	8.47	7.49	9.60	7.84	4.07	10.31	7.95	7.11	12.25	8.74
2. Per Capita Tax Revenue (Rs.)	11.90	15.73	7.61	16.74	4.95	11.26	10.40	12.59	10.71	6.85	13.22	10.74	9.91	16.02	11.74
3. Per Capita Total Revenue (Rs.)	17.42	28.12	11.18	22.77	17.17	17.56	17.78	18.71	19.43	13.46	22.18	16.36	13.70	22.79	17.76
4. Per Capita Grants from Union Government (Rs.)	2.29	8.29	2.32	1.04	7.35	2.19	2.88	1.98	4.08	3.73	2.39	3.05	1.50	3.81	2.51
5. Shared Taxes as percentage of Total Revenue	23.65 <sup>a</sup>	20.41	35.21	20.83	58.70	24.75	23.01	23.71	25.83	40.98	22.04	20.45	28.29	23.50	25.23
6. Union Grants as Percentage of Total Revenue	13.15	29.48	20.77	4.56	42.82	12.48	16.17	10.56	21.00	27.70	10.67	18.63	10.92	16.71	14.16
7. Net Revenue from Public Enterprises as Percentage of Total Revenue <sup>b</sup>	7.73	2.31	0.57	4.36	19.30	8.37	11.38	3.26	12.09	10.47	9.46	2.52	7.82	0.39	6.00

<sup>a</sup> Includes Agricultural Income Tax.

<sup>b</sup> Irrigation receipts for which capital accounts are not kept are taken on a gross basis.

SOURCES: Reserve Bank of India Bulletin, June 1959, pp. 686-92. Absolute figures of revenues other than Union Government grants are taken from the Bulletin; Union grants to State Governments are derived from the State budgets. Population figures for the above per capita calculations are based on projections made by the National Council.



TABLE 82  
STATEMENT SHOWING TAX AND NON-TAX REVENUE OF ORISSA (1950-51 to 1959-60)  
(Rs. lakhs)

<i>Heads of Revenue</i>	<i>1950-51 Accounts</i>	<i>1951-52 Accounts</i>	<i>1952-53 Accounts</i>	<i>1953-54 Accounts</i>	<i>1954-55 Accounts</i>	<i>1955-56 Accounts</i>	<i>1956-57 Accounts</i>	<i>1957-58 Accounts</i>	<i>1958-59 Accounts</i>	<i>1959-60 Accounts</i>	<i>1960-61 R.E.</i>
TAX REVENUE											
1. TAXES ON INCOME											
(i) Share of Income Tax	142	157	207	209	208	217	206	274	283	309	324
(ii) Agricultural Income Tax	10	13	6	5	3	2	2	3	3	3	3
2. TAXES ON PROPERTY AND CAPITAL TRANSACTIONS											
(i) Estate Duty	..	..	..	..	2	6	8	7	6	7	8
(ii) Land Revenue	103	104	114	149	127	124	159	199	229	237	314
(a) Land Revenue Collections	102	103	112	147	126	124	159	197	153	134	284
(b) Others	1	1	2	2	1	..	..	2	76	103	30
(iii) Stamps and Registration	74	81	88	90	89	59	62	68	70	80	79
3. TAXES ON COMMODITIES AND SERVICES											
(i) Share of Union Excise	..	..	74	72	68	75	77	159	254	262	267
(ii) State Excise	213	200	181	167	157	143	97	102	120	108	125
(iii) General Sales Tax	80	110	112	112	132	118	130	166	186	212	290
(iv) Sales Tax on Motor Spirit	13	15	16	17	19	28	23	33	27	30	37
(v) Entertainment Tax	6	6	6	6	9	6	8	8	10	12	14
(vi) Electricity Duties	..	..	..	..	..	..	1	1	1	3	4
(vii) Tax on Motor Vehicles	11	11	10	11	11	40	48	66	77	76	79
(viii) Passengers and Goods Transport Tax	..	..	..	..	..	..	..	..	..	5	44
(ix) Tax on Railway Fares	..	..	..	..	..	..	..	9	19	23	24
TOTAL TAX REVENUE	652	698	815	838	824	819	820	1095	1285	1367	1612

TABLE 82 (Continued)

Heads of Revenue	1950-51 Accounts	1951-52 Accounts	1952-53 Accounts	1953-54 Accounts	1954-55 Accounts	1955-56 Accounts	1956-57 Accounts	1957-58 Accounts	1958-59 Accounts	1959-60 Accounts	1960-61 R.E.
NON-TAX REVENUE											
1. Administrative Receipts	104	106	126	87	88	98	113	167	217	191	377
2. Forests	100	97	89	111	143	159	189	257	279	313	281
3. Irrigation (net)	(-4)	2	1	(-7)	(-11)	(-25)	(-18)	(-10)	(-9)	(-4)	(-12)
(i) For which Capital Accounts are kept	(-6)	..	(-1)	(-9)	(-13)	(-27)	(-20)	(-12)	(-13)	(-6)	(-14)
(ii) For which Capital Accounts are not kept	2	2	2	2	2	2	2	2	4	2	2
4. Electricity Schemes (net)	(-2)	(-3)	(-4)	..	1	6	(-2)	13	107	24	103
5. Road and Water Transport (net)	..	3	4	3	4	1	15	22	31	28	30
6. Interest	21	17	21	22	22	23	23	25	39	38	67
7. Grants	116	135	175	148	269	499	486	589	706	875	1304
(i) Union Government	116	133	172	148	268	490	466	589	706	875	1304
(ii) Other	..	2	3	..	1	9	20	..	..	..	..
8. Extra-ordinary Receipts	29	82	..	1	14	10	6	2	..	(-40)	10
9. Other Non-Tax Revenue	16	64	38	23	46	22	25	45	110	79	119
TOTAL NON-TAX REVENUE	379	503	448	390	577	793	838	1110	1480	1504	2279
TOTAL REVENUE	1031	1201	1263	1228	1401	1512	1657	2205	2765	2871	3891

NOTE: 1. Other Non-Tax Revenue includes Receipts in aid of Superannuation, Stationery and Printing, Miscellaneous Receipts and Miscellaneous Adjustments between Union and State Governments.  
2. All grants from the Union are shown under Item 7.

SOURCE: Budgets of Orissa Government; adapted.



TABLE 83  
FUNCTIONAL ANALYSIS OF EXPENDITURE BY THE GOVERNMENT OF ORISSA  
(1951-52 and 1957-58)

(Rs. lakhs)

	1951-52		1957-58		1951-52 to 1957-58
	Amount	Percentage	Amount	Percentage	Percentage Increase
<i>A. Development Expenditure</i>					
1. Education	1,40	6.8	3,54	7.4	
2. Medical and Public Health	68	3.3	1,40	2.9	
3. Agriculture, Veterinary and Cooperation	1,08	5.2	2,87	6.0	
4. Rural and Community Development	..	..	1,71	3.6	
5. Irrigation	7,64	37.0	6,50	13.5	
6. Electricity	1,96	9.5	5,00	10.4	
7. Road and Water Transport	3	0.1	9	0.2	
8. Civil Works	1,88	9.1	6,13	12.7	
9. Industrial Development	29	1.4	1,35	2.8	
10. Forest	33	1.6	65	1.4	
11. Miscellaneous <sup>a</sup>	22	1.1	94	1.9	
TOTAL (A)	15,51	75.1	20,18	62.8	94.6
<i>B. Non-Development Expenditure</i>					
12. Direct Demands on Revenue	48	2.3	65	1.4	
13. Civil Administration	3,33	16.1	4,71	9.8	
14. Interest Payment	30	2.4	3,75	7.8	
15. Repayment of Debt	36	1.7	3,78	7.8	
16. Famine	..	..	48	1.0	
17. State Trading	(-)8	(-)0.4	3,73	7.8	
18. Miscellaneous <sup>b</sup>	57	2.8	79	1.6	
TOTAL (B)	5,16	24.9	17,89	37.2	246.7
GRAND TOTAL (A) + (B)	20,67	100.0	48,07	100.0	132.6

<sup>a</sup> Includes labour, statistics, employment exchanges, etc.<sup>b</sup> Includes stationery and printing, displaced persons, etc.

NOTE: The figures in this table will not necessarily tally with budget figures because of several adjustments.

TABLES

TABLE 84

PROPOSED INVESTMENT BY CENTRE AND STATE GOVERNMENT AND THE PRIVATE SECTOR (1961-71)

(Rs. crores)

	<i>Centre</i>	<i>State</i>	<i>Private</i>	<i>Total</i>	<i>Percentage of Total</i>
1. Agriculture and Allied Activities	..	245.3	63.7	309.0	21.7
2. Factory Industry—Large and Small	450.0	9.0	102.1	561.1	39.3
3. Non-Factory Industry	..	4.5	7.2	11.7	0.8
4. Mining	25.0	10.0	22.1	57.1	4.0
5. Power	..	184.0	..	184.0	12.9
6. Tertiary	46.2	123.1	134.8	304.1	21.3
TOTAL	521.2	575.9	329.9	1427.0	100.0

NOTE: See Appendix 12 for the basis of investment proposals and allocations and the breakdown of tertiary investment.

TABLE 85

ALLOCATION OF INVESTMENT DURING 1951-61 AND 1961-71

<i>Sector</i>	<i>Investment 1951-61 (Rs. crores)</i>	<i>Percentage of Total</i>	<i>Investment 1961-71 (Rs. crores)</i>	<i>Percentage of Total</i>	<i>Percentage Increase in Investment of 1961-71 over Investment of 1951-61</i>
1. Agriculture, etc.	82.8	19.1	309.0	21.7	227
2. Factory Industry	234.1	53.8	561.1	39.3	144
3. Non-Factory Industry	8.9	2.0	11.7	0.8	31
4. Mining	13.4	3.0	57.1	4.0	326
5. Power	33.4	7.7	184.0	12.9	451
6. Transport and Communications	14.3	3.3	106.8	7.5	640
7. Public Health	3.3	0.8	27.2	1.9	769
8. Other Tertiary Activities	44.6	10.3	170.1	11.9	318
TOTAL	434.8	100.0	1427.0	100.0	228

NOTE: See tables 10 and 84 and for methods of estimation see Appendices 3 and 12.

TECHNO-ECONOMIC SURVEY OF ORISSA

TABLE 86  
PROJECTED STATE INCOME (1960-61 AND 1970-71)

(Rs. crores)

Sector	Income in 1960-61	Percentage Distribu- tion	Income in 1970-71	Percentage Distribu- tion	Additional Output in 1961-71	Percentage increase during 1961-71	Sectoral Origin of the Percent- age Increase in Total Output
1. Agriculture and Allied Activities							
(a) Agriculture	164.74	44.2	271.76	30.3	107.02	65.0	28.7
(b) Animal Husbandry	14.43	3.9	18.47	2.1	4.04	28.0	1.1
(c) Forestry	6.97	1.9	13.50	1.5	6.53	109.4	1.8
(d) Fisheries	1.85	0.5	11.42	1.3	9.57	517.3	2.5
TOTAL	187.99	50.5	315.15	35.2	127.16	67.6	34.1
2. Mining	8.98	2.4	42.22	4.7	33.24	370.2	8.9
3. Factory Enterprise	22.10	5.9	179.35	20.0	157.25	711.5	42.2
4. Power	3.36	0.9	21.76	2.4	18.40	547.6	4.9
5. Non-factory Enterprise	24.51	6.6	39.23	4.4	14.72	60.1	4.0
6. Construction	11.95	3.2	24.90	2.8	12.95	108.3	3.5
TOTAL	70.90	19.0	307.46	34.3	236.56	333.6	63.5
7. Transport and Communications	5.78	1.5	273.50	30.5	159.78	140.5	42.9
8. Trade and Commerce	43.74	11.7					
9. Other Services	49.81	13.4					
10. House Property	14.39	3.9					
TOTAL	113.72	30.5	273.50	30.5	159.78	140.5	42.9
TOTAL STATE INCOME	372.61	100	896.11	100.0	523.50	140.0	140.5
POPULATION (Million)	17.57		21.35				
PER CAPITA INCOME (Rs.)	212		420				

TABLE 87

PHASING OF LARGE SCALE INDUSTRIAL DEVELOPMENT

<i>Period</i>	<i>Investment (Rs. crores)</i>	<i>Value of Net Output (Rs. crores)</i>	<i>Employment (Numbers)</i>	<i>Power (kW)</i>
1961-66	137.45	61.415	37,080	269,150
1966-71	401.15	80.295	42,670	359,525

TABLE 88

ESTIMATES OF EMPLOYMENT AND LABOUR PRODUCTIVITY (1961 and 1971)

	1961		1971	
	<i>Employment (Thousand)</i>	<i>Net Output per Worker (Rs.)</i>	<i>Employment (Thousand)</i>	<i>Net Output per Worker (Rs.)</i>
Agriculture and Allied Activities	4954 <sup>a</sup>	379	5175 <sup>a</sup>	609
Factory Industry	79	2800	175	10,251
Non-factory Industry	430	570	525	747
Mining	82	1098	277	1523
Power	6	5670	38	5,737
Construction	199	600	350	711
Tertiary	1030	1103	1700	1,609
	6780 <sup>b</sup>	550	8240 <sup>b</sup>	1,087

<sup>a</sup> Employment in agriculture is residual.

<sup>b</sup> Total working force for 1961 and 1971 is estimated on the basis of 1951 participation ratio—38.6 per cent of the population.

TABLE 89

SHIFT IN THE SECTORAL DISTRIBUTION OF OUTPUT AND EMPLOYMENT (1961-71)

(Percentages)

	<i>Net Output<sup>a</sup></i>		<i>Employment<sup>b</sup></i>	
	<i>1961</i>	<i>1971</i>	<i>1961</i>	<i>1971</i>
Agriculture and Allied Activities	50.5	30.3	73.1	62.8
Factory Industry	5.9	20.0	1.2	2.1
Non-factory Industry	6.6	4.4	6.3	6.4
Mining	2.4	4.7	1.2	3.4
Power	0.9	2.4	0.1	0.5
Construction	3.2	2.8	2.9	4.2
Tertiary	30.5	30.5	15.2	20.6
	100.0	100.0	100.0	100.0

<sup>a</sup> *Vide* Table 86.

<sup>b</sup> *Vide* employment estimates for 1961 and 1971 presented in Table 66.



## Appendices



## Appendix I

### Composition of the Survey Team

#### *Director-General*

DR. P. S. LOKANATHAN

#### *Project Director*

MR. M. V. DIVATIA

#### *Economists*

MR. I. Z. BHATTY

MR. S. R. BOSE

DR. R. J. CHELLIAH

(LATE) DR. D. P. KHANNAPURKAR

DR. (MISS) MEENAKSHI THIAGARAJAN

MR. M. NARAYANASWAMY

MR. R. K. PATIL

MR. P. R. RAO

DR. (MISS) P. SEN GUPTA

MR. R. S. SHARMA

MR. VINOD DUBEY

#### *Technical Officers*

DR. ASHOK SINGH

MR. S. BALAKRISHNA

MR. M. K. CHATTERJEE

MR. V. KANNAN

MR. H. S. KULKARNI

#### *Consultants*

##### *Indian*

DR. B. N. CHOPRA

MR. K. K. KAPANI

MR. V. K. KRISHNASWAMI

##### *Foreign*

MR. LARS C. BRATT

MR. PAUL FLOYD

MR. C. KARL GALETSCHKY

MR. TERU SASAKI



## Appendix 2

### State Income of Orissa, 1956-57—Methodological Notes

#### *Agriculture*

The outturn figures for all agricultural crops except rice for the years 1950-51 and 1956-57 are taken from *Area, Production and Average Yields of Principal Crops* published by the Ministry of Food and Agriculture. Rice outturn figures from the same source are not taken, as the State Government feel that they are very much on the side of under-estimation—a feeling which is confirmed by examination of findings of recent crop cutting and consumption surveys conducted in the State. The crop cutting surveys conducted by the State Government in 1959-60 showed that the average yield of rice per acre was around 776 lbs. as against the Ministry's figures for the earlier years which varied between 450 and 500 lbs., representing an under-estimation of 50 to 60 per cent. Hence the State Government's estimates of rice production in the State, derived mainly by applying the average yield differentials, are taken as a starting point.

2. These estimates are further checked with the estimates independently made on the basis of data relating to rice consumption in the State furnished by different consumption surveys conducted recently, to which the estimated net exports of rice from the State have been added. The estimates given here for both the years are thus the estimates of the State Government, with slight modifications which the "consumption" approach called for.

3. Gross output of agriculture in both the years is obtained by multiplying the outturn of principal crops with the corresponding State average prices in 1956-57. These prices are supplied by the Director of Agriculture, Government of Orissa. Gross value is netted at 14 per cent to provide for the value of seeds, manures and fertilizers and for depreciation of implements etc., on the basis indicated in the *National Income Committee (Final) Report, 1954*.

4. For crops for which only area figures are available, estimates of net output are made by using the figures of net output per acre of small millets. Net output for all crops estimated on these bases comes to Rs. 139.92 crores for 1950-51 and to Rs. 147.57 crores in 1956-57 at 1956-57 prices.

5. For 1960-61, the anticipated outturn of principal crops as given in the Draft Third Plan of Orissa Government is taken. The net output from farming in 1960-61 derived from the above comes to Rs. 164.74 crores at 1956-57 prices.

#### *Livestock*

6. Net output of livestock products for 1950-51 is obtained by estimating livestock population for 1950-51 from 1945 and 1957 Livestock Censuses, and applying to this estimate the ratios of different livestock products per unit of livestock population as derived from the 1957 Census, and the prices of livestock products prevalent in 1950-51. Deductions are made at the rate of



40 per cent of gross value. This gives a figure of Rs. 20.47 crores at 1950-51 prices. Livestock product prices are assumed to change with food-group index in the cost of living index. For Cuttack, this index was about 119 for 1950-51 and 107 for 1956-57, giving a fall of about 10 per cent from 1950-51. Income from livestock in 1950-51 at 1956-57 prices would, therefore, be  $20.47 \times 0.9 = \text{Rs. } 18.42$  crores.

7. Estimate for 1956-57 is based on data collected in 1957 Livestock Census. Data for milk, ghee, butter and wool are taken from *Statistical Abstract of India, 1956-57*. Estimates of meat, eggs, poultry and hides and skins as also ratios of amount of products per unit of livestock of different types are derived from 1957 Census data. Dung output is taken at 88.7 maunds of dung per adult cattle per year and 44.4 maunds per young stock. Generally, average prices prevailing in 1956-57 are used. In some cases, however, estimates are made either by extrapolation or on the basis of prices prevailing in the neighbouring States. Gross values are netted by making a deduction of 40 per cent for feed costs and cost of materials and depreciation. The net output for 1956-57, on this basis, comes to Rs. 14.43 crores.

8. For 1960-61 the estimate is based on the assumption that during the Second Plan adequate measures would be taken to prevent further deterioration in livestock output. Thus the estimate for this year remains the same as for 1956-57, at that year's prices.

### Forests

9. Net output for 1950-51 and 1956-57 is calculated from the data given below, after deducting 5 per cent for expenses from the gross values of major and minor forest products. Prices current in 1956-57 are used, so that 1950-51 net output is also expressed in terms of constant prices.

Year	Timber			Bamboos			Firewood			Producer Gross Value (Rs. crores)
	Output (Thousand Cft.)	Price per Cft. (Rs.)	Gross Value (Rs. crores)	Output (Thou- sands)	Price per ton (Rs.) (1 ton = 300 bamboos)	Gross Value (Rs. crores)	Output (Thou- sand Cft.)	Price per Cft. (Rs.)	Gross Value (Rs. crores)	
1950-51	10,533	3	3.16	91,914	50	1,532	15,092	0.50	0.75	0.308
1956-57	10,504	3	3.15	47,760	50	4.796	15,272	0.50	0.76	0.535

SOURCE: Output from Orissa Government's note and *Statistical Abstract, Orissa, 1957*. Price estimates by NCAER Expert on Forestry.

On the above basis gross values for 1950-51 and 1956-57 come to Rs. 5.75 crores and Rs. 5.24 crores respectively. Deducting 5 per cent from these values net output figure for 1950-51 comes to Rs. 5.46 crores and for 1956-57 to Rs. 4.98 crores, both at 1956-57 prices. For 1960-61 the estimate is highly tentative. It is based on the consideration that according to Government's estimates the revenue from forests is expected to increase from Rs. 1.895 crores in 1956-57 to Rs. 2.740 crores in 1959-60, i.e., by 44.5 per cent in 3 years or 14.8 per cent a year. In view of this it is assumed that the forest outturn will also increase by about 10 per cent a year or by 40

per cent over the four-year period, 1956-57 to 1960-61. Applying this rate of increase to net output figure for 1956-57, the estimate for 1960-61 (at 1956-57 prices) comes to  $4.98 \times 1.4 =$  Rs. 6.97 crores.

### Fisheries

10. In 1950-51, according to 1951 Census, 44,054 persons were reported to be engaged in fishery industry in a professional way. According to National Income Committee Report, the average net income per person engaged in fishery came to Rs. 458 in 1950-51. For Orissa this income appears to be about 30 per cent less. A figure of Rs. 320 is, therefore, taken for Orissa. This gives an estimate of Rs. 1.40 crores as net income from this activity. It was raised by about 25 per cent to account for fish caught by non-professionals. The estimate thus comes to Rs. 1.75 crores. Further addition to this figure is made to account for net incomes of gatherers of shells, sponges, pearls, seaweeds, etc. Using the NIC proportion of this income to income from fishing, the total net income from fishing and allied activities for 1950-51 (at 1950-51 prices) comes to Rs. 1.78 crores. Fish prices in Orissa declined by about 10 per cent between 1950-51 and 1956-57 (*Orissa Statistical Abstract*, Table 166), the estimate for 1950-51 at 1956-57 prices, therefore, comes to  $1.78 \times 0.90 =$  Rs. 1.60 crores. For 1956-57 the estimate is obtained by raising the 1950-51 estimate by 10 per cent. This is the percentage by which fish output increased in India during 1950-56 (*Selected Plan Statistics*, 1959, Government of India). Estimate for 1956-57 (at 1956-57 prices) thus comes to  $1.60 \times 1.10 =$  Rs. 1.76 crores. No spectacular increase is expected between 1956-57 and 1960-61, and the rate of increase in fishing output may not be more than about 1 per cent per year or 4 to 5 per cent during this period. At this rate the estimate for 1960-61 (at 1956-57 prices) would be  $1.76 \times 1.05 =$  Rs. 1.85 crores.

### Mining

11. Gross value<sup>1</sup> (at pit head price) of minerals produced in Orissa in 1950-51 comes to Rs. 3.65 crores and deducting 7 per cent (following NIC Report) for depreciation, etc., the net value comes to Rs. 3.32 crores. This is at 1950-51 prices. The Index of mineral prices (all-India) increased from 391 in 1950 to 531 in 1956, i.e., by about 36 per cent. The value of mineral output of 1950-51 in terms of 1956-57 prices would, therefore, be  $3.32 \times 1.36 =$  Rs. 4.52 crores. The estimate for 1956-57 based on data given in *Minerals Production in India* (1956 and 1957) comes to Rs. 6.40 crores. The value of output of three main minerals—iron ore, coal and manganese—was expected to increase by 140 per cent between 1955-56 and 1960-61. Applying this rate to total net output of minerals in 1956-57, valued at Rs. 6.40 crores, the probable estimate for 1960-61 at 1956-57 prices

$$6.40 \times \frac{140}{100} = \text{Rs. } 8.98 \text{ crores}$$

### Large Scale (Factory) Industries

12. The general method of getting an estimate of net output of factory industries of Orissa in 1950-51 is to multiply the number of workers in each industry by average net value added per worker, as far as possible, for identical industry. Where estimates of net output per worker

<sup>1</sup> SOURCE: *Mineral Production in India*, 1956 and 1957.

for identical industries are not available, those relating to allied or related industries in Orissa or neighbouring States are generally used. In each case a deduction of 10 per cent is made from estimates in order to allow for miscellaneous expenses (e.g., advertising, bank charges, stationery costs, etc.) which are included in estimates of net output per worker, as derived from data given by *Census of Manufactures*. Data relating to number of workers are taken from Annual Report on Factories prepared by the Labour Department of the State Government, and those relating to net output per worker are derived from *Census of Manufactures : India*. The estimate for 1950-51 for factory industries, on the above basis, comes to Rs. 2.81 crores. This includes net output of electricity industry as well. As this industry is developing rapidly in Orissa, estimates relating to it are separated. In 1950-51, 5.1 million kWh of electricity was sold in Orissa. It is estimated that one kWh of electricity creates a net output of 4 nP. On this basis the net output of this industry in Orissa, for 1950-51, comes to  $51 \times 4 = \text{Rs. } 2.04$  lakhs, or say Rs. 2 lakhs. Deducting this figure from the output of factory industries, the estimate comes to Rs. 281—2 = Rs. 279 lakhs. The above estimates are in terms of 1950-51 prices. All-India wholesale price index for manufactured goods is used to reduce the estimate of output from factory industry to 1956-57 prices. The index for 1956-57 was about 10 per cent higher than that for 1950-51. Hence the estimate of factory net output in 1950-51 at 1956-57 prices comes to  $2.79 \times 1.1 = \text{Rs. } 3.07$  crores. For electricity industry no correction is made.

13. The method of estimation of net output of factory industries for 1956-57 was similar to that used for 1950-51. The figure including net output of electricity industry comes to Rs. 4.90 crores. The estimate for factory industry is separated by deducting from the total Rs. 6.3 lakhs for net output of electricity industry, obtained by multiplying 15.813 million kWh of power sold in 1956-57 by net output per kWh at the rate of 4 nP. Factory net output thus comes to Rs. 4.84 crores, and power estimate to Rs. 60,000, both in terms of 1956-57 prices.

14. During the Second Plan a number of large scale and heavy industries are being established in Orissa (e.g., steel, aluminium, ferro-manganese, cement, refractories, paper, sugar, fertilizers and heavy engineering). Power potential is also being created through the multi-purpose projects. A number of new plants are likely to go into production in or before 1960-61. Table I of this Appendix gives details of output likely to materialize during 1960-61 or between 1956-57 and 1960-61. According to these estimates, which are based on expected output of individual plants, by 1960-61 Rs. 16.78 crores worth of new net output will materialize. The net output of factories in production during 1956-57 is also expected to expand at the rate of about 2.5 per cent per annum, i.e., at about the all-India rate (Cf. *Selected Plan Statistics*, Government of India, 1959). Thus factory net output in Orissa may well be expected to increase to Rs. 22.1 crores in 1960-61 from Rs. 4.84 crores in 1956-57, in terms of 1956-57 prices. The calculations are as follows:

- (a) Annual rate of increase in net output from factories in production during 1956-57 is 2.5 per cent. Therefore, over four years, 1957-58 to 1960-61, increase would be 10 per cent, and total net output during 1960-61 from normal growth would be  $4.84 \times 1.1 = \text{Rs. } 5.324$  crores.
- (b) Estimated net output due to new plants coming into production between 1957-58 and 1960-61 would be Rs. 16.78 crores.
- (c) Hence total factory net output in 1960-61 would be Rs. 5.324 crores + Rs. 16.78 crores = Rs. 22.104 crores or say Rs. 22.1 crores. (See Table I for details)