

ORISSA STATE WATER PLAN 2004

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TABLE 1 Functions of Departments and Other State Agencies Concerned with Water Resources Development

Department / Authority / Board	Water-related Functions
Rural Development	The Rural Development Department is the Apex Administrative Authority in respect of water supply to rural areas.
Housing and Urban Development	The municipal water supplies in cities, large towns, Notified Area Councils and small towns covered under Corporations & Municipalities are under the control of Housing & Urban Development Department.
Panchayat Raj	Irrigation management from small tanks bore wells, and small water diversion structures with Ayacut less than 40 Hectres are handled by Panchayat Raj Department.
Agriculture	The agriculture Department are fully responsible for development of agriculture in the state. They work in close liaison with Water Resource Department for irrigated agriculture with optimal use of crop water and deciding cropping pattern.
Fisheries and Animal Resources	The Fisheries Department are utilising the water bodies like reservoirs and tanks for fish farm development as well as drawl of water for hatchery.

Forest and Environment	The Department in some selected areas draw water for Nursery and to sustain plantation developed in forest area. They also use some water bodies for their sanctuary & National park programme.
Industry	All industries depend on water sources and work in close liaison for deciding the mechanism for drawl of water.
Heath and Family Welfare	The Health & Family Welfare Department are dealing with the water born diseases and as such they are concerned about the level of pollutants and water quality.
Energy	The Energy Department is using water for Hydro Power generations. Further for Thermal plants drawl of water is also decided in close liaison with Water Resource Department.
Disaster Mitigation Authority	The disaster Mitigation Authority is looking after long term and short term remedial measures on account of failure of irrigation structures, river and control banks etc during natural hazards like flood & cyclones.
Pollution Control Board	The State Pollution Control Board has established water quality stations to monitor the water quality parameters.
Inland Water Transport	The rivers and canal in some selected stretches are used for river transport.

TABLE 2 Sector-wise Plan Outlay and Expenditure in Orissa (Rs crore)

Sectors	Expenditure				
	1997-2000	2000-2001	2001-2002	2002-2003	2003-2004 (outlay)
Agriculture and allied activities & forest	373.19	145.33	115.18	135.72	182.33
Rural Development	682.48	236.05	230.20	115.35	156.12
Irrigation & Flood control	1839.95	510.57	426.34	607.79	548.31
Energy	835.68	361.15	347.60	1003.54	706.08
Industry & Mineral	133.92	16.50	18.29	4.94	5.97
Transport	452.47	134.02	124.79	303.30	453.89
Science, technology & environment	60.59	25.20	12.83	14.81	6.82
General economic services	89.80	95.78	119.81	95.32	216.98
Social Services	2588.35	1009.62	943.62	651.49	924.14
General Services	46.25	27.84	41.78	167.74	199.36
Total	7,102.69	2,562.06	2,450.44	3,100.00	3400.00

Source: State Economy – 2002-03

TABLE 3 Percentage of Population Below Poverty Line

State	1973-74	1977-78	1999-00
Andhra Pradesh	48.66	39.31	15.8
Assam	51.21	57.15	36.1
Bihar	61.91	61.55	42.6
Gujurat	48.15	41.23	14.1
Haryana	35.36	29.55	8.7
Himachal Pradesh	26.39	32.45	7.6
Jammu & Kashmir	40.83	38.97	3.5
Karnatak	54.47	48.78	20.0
Kerala	25.79	52.22	12.7
Madhya Pradesh	61.78	61.78	37.4
Maharastra	58.24	55.88	25.0
Orissa	66.18	70.07	47.2
Punjab	28.15	19.27	6.2
Rajasthan	46.14	37.42	15.3
Tamilnadu	55.94	54.79	21.1
Uttarpradesh	57.07	49.05	27.0
West Bengal	63.43	60.52	26.1
India	54.88	51.32	26.1

Source: State Economy – 2002

Table – 3 A. Percentage of Population below the Poverty Line by Major States in Different Years.

Sl. No.	State	1973-74		1977-78		1983		1987-88		1993-94			1999-2000		
		Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Combined	Rural	Urban	Combined
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Andhra Pradesh	48.4	52.6	38.1	46.5	26.5	40.1	20.9	44.6	15.9	38.3	22.2	11.1	26.6	15.8
2	Assam	52.7	32.7	59.8	37.6	42.6	26.4	39.4	17.3	45.0	7.7	40.3	40.0	7.5	36.1
3	Bihar	63.0	51.8	63.3	52.2	64.4	50.4	52.6	57.7	58.2	34.5	54.6	44.3	32.9	42.6
4	Gujarat	46.4	49.3	41.8	43.1	29.8	40.6	28.7	39.6	22.1	27.9	24.2	13.2	15.6	14.1
5	Haryana	34.2	39.6	27.7	36.2	20.6	23.5	16.2	17.8	28.0	16.4	26.1	8.3	10.0	8.7
6	Himachal	27.4	13.2	33.5	19.5	17.0	9.3	16.3	6.2	30.3	9.2	23.4	7.9	4.6	7.6
7	Jammu &	45.5	30.4	42.9	31.9	26.0	17.1	25.7	14.8	30.3	9.2	25.4	4.0	2.0	3.5
8	Karnataka	55.1	52.0	48.2	52.9	36.3	43.4	32.8	49.1	29.9	40.1	33.2	17.4	25.3	20.0
9	Kerala	59.2	62.2	51.5	59.5	39.0	48.7	29.1	43.4	25.8	24.6	25.4	9.4	20.3	12.7
10	Madhya	62.7	58.3	62.5	62.1	48.9	54.6	41.9	48.2	40.6	48.3	42.5	37.1	38.4	37.4
11	Maharashtra	57.7	43.0	64.0	40.6	45.2	40.6	40.8	39.0	37.9	35.2	36.4	23.7	26.8	25.0
12	Manipur	52.7	37.2	59.8	37.6	42.6	26.4	39.4	17.3	45.1	7.7	38.7	40.0	7.5	28.5
13	Meqhalaya	52.7	37.2	59.8	37.6	42.6	26.4	39.4	17.3	45.1	7.7	37.3	40.0	7.5	33.9
14	Orissa	67.3	56.3	72.4	53.6	67.5	50.6	57.6	44.1	49.7	41.6	48.6	48.0	42.8	47.2
15	Punjab	28.2	27.7	16.4	27.6	13.2	23.9	12.6	12.9	11.9	11.4	11.8	6.4	5.8	6.2
16	Rajasthan	44.8	53.2	35.9	46.4	33.5	40.4	33.2	39.0	26.5	30.5	27.5	13.7	19.9	15.3
17	Tamil Nadu	57.4	54.5	57.7	53.2	54.0	49.2	45.8	43.9	32.5	39.8	35.3	20.6	22.1	21.1
18	Tripura	52.7	37.2	59.8	37.6	42.6	26.4	39.4	17.3	45.1	7.7	38.0	40.0	7.5	34.4
19	Uttar Pradesh	56.4	59.5	47.6	57.1	46.5	50.3	41.1	45.2	42.3	35.4	40.4	31.2	30.9	31.2
20	West Bengal	73.2	34.5	68.3	38.7	63.1	32.2	48.3	32.8	40.8	22.4	35.6	31.9	14.9	27.0
	All India	56.4	49.2	53.1	47.4	45.6	42.2	39.1	40.1	37.3	32.4	35.9	27.1	23.6	26.1

Source: 1. For the years 1973-74, 1977-78, 1983, 1987-88 and 1993-94 Rural Development Statistics, 1999, National Institute of Rural Development, Hyderabad: Report of the Expert Group on Estimation of Proportion and Number of Poor, Planning Commission, July 1993.

2. For 1999-2000, Government of Orissa (2002) Economic Survey 2001-02, (estimated by Modified Expert Group of Planning Commission), Directorate of Economics and Statistics, Bhubaneswar.

TABLE 4 Per Capita state income of the major States in India for 2000-01

State	Per-capita NSDP at Constant Prices * (Rs)	Per-capitaNSDP at Current Prices (Rs)
Andhra Pradesh	9982	16373
Assam	6157	10198
Bihar	3345	5108
Gujurat	12975	19228
Haryana	14331	23742
Himachal Pradesh	10942	18920
Karnatak	18041	11910
Kerala	10712	21046
Madhya Pradesh	7003	10803
Maharastra	15172	23726
Orissa	5663	9273
Punjab	15390	25048
Rajasthan	7932	11978
Tamilnadu	12779	19889
Uttarpradesh	5770	9721
West Bengal	9778	16072
India	10254	16487

Base 1993-94

Source: Economic Survey – 2002-03

TABLE 5 District Index of Living Conditions*

District	Index of Living Condition	Rank
Angul	0.8145	14
Baleswar	0.8074	12
Bargarh	0.7501	7
Bhadrak	0.8129	13
Bolangir	0.8628	19
Boudh	0.9236	28
Cuttack	0.6743	2
Deogarh	0.9031	24
Dhenkanal	0.8176	15
Gajapati	0.8761	21
Ganjam	0.8018	11
Jagatsinghpur	0.6965	5
Jajpur	0.8008	10
Jharsuguda	0.6907	4
Kalahandi	0.9199	26
Kendrapara	0.8597	18
Kenujhar	0.8907	23
Khurda	0.6116	1
Koraput	0.8896	22
Malkangiri	0.9219	27
Mayurbhanj	0.8727	20
Nuapada	0.9175	25
Nayagarh	0.8412	16
Nabarangpur	0.9770	30
Phulbani	0.9273	29
Puri	0.7441	6
Rayagada	0.8505	17
Sambalpur	0.6889	3
Sonepur	0.7633	9
Sundergarh	0.7630	8
State average	0.8224	

Source: Orissa Development Report.
*Index of Living Condition has been Computed based on following parameters:-

- Rural Families above poverty line,
- Literacy Rate,
- Per capita Food grain production,
- Yield rate of Rice,
- Gross irrigated area,
- Villages electrified,
- Industrial workers population,
- Number of Banking branches,
- Medical institutions,
- Railway coverage,
- Road length coverage &
- Per capita net value added.

TABLE 6 District Population (Thousands)

District	Male	Female	Total	Rural	Urban	Population density (per/km ²)
Angul	587	552	1139	981	158	179
Balasore	1038	985	2023	1803	220	532
Baragarh	681	665	1346	1242	104	231
Bhadrak	675	657	1332	1191	141	532
Bolangir	674	662	1336	1182	154	203
Boudh	188	185	373	355	18	120
Cuttack	1208	1133	2341	1699	642	595
Deogarh	138	136	274	254	20	93
Dehenkanal	543	523	1066	973	93	239
Gajapati	255	263	518	465	53	120
Ganjam	1569	1568	3137	2599	538	382
Jagatsinghpur	538	518	1056	952	104	633
Jajpur	823	800	1623	1550	73	560
Jharsuguda	262	248	510	324	186	245
Kalahandi	667	667	1334	1234	100	168
Kandhamal	323	325	648	604	44	81
Kendrapara	646	656	1302	1228	74	492
Keonjhar	790	772	1562	1349	213	188
Khurda	986	888	1874	1069	805	666
Koraput	589	589	1178	980	198	134
Malkanagiri	240	240	480	445	35	83
Mayurbhanj	1122	1100	2222	2066	156	213
Nawarangpur	511	507	1018	959	59	192
Nayagarh	446	418	864	827	37	222
Nuapada	264	266	530	500	30	138
Puri	761	737	1498	1295	203	431
Rayagada	406	417	823	708	115	116
Samalpur	472	457	929	675	254	140
Sonepur	275	266	541	501	40	231
Sundargarh	935	895	1830	1201	629	188
Orissa	18612	18095	36707	31211	5496	236

Source: Economic Survey 2002-03

Table 7 BASIN WISE POPULATION

SL. No.	BASIN	2001			2051		
		RURAL	URBAN	TOTAL	RURAL	URBAN	TOTAL
1	MAHANADI	13,024,910	3,177,223	16,202,133	17,194,558	6,666,048	23,860,606
2	BRAHMANI	4,083,301	1,027,359	5,110,660	5,131,422	2,394,961	7,526,383
3	BAITARANI	3,496,088	333,843	3,829,931	4,322,685	1,291,664	5,614,349
4	RUSHIKULYA	2,578,229	364,672	2,942,901	3,434,890	891,174	4,326,064
5	INDRAVATI	1,084,131	107,329	1,191,460	1,404,599	254,474	1,659,073
6	KOLAB	971,515	137,169	1,108,684	1,185,816	335,393	1,521,209
7	VANSADHARA	944,259	79,079	1,023,338	1,154,526	349,622	1,504,148
8	NAGAVALI	545,411	32,732	578,143	681,095	132,347	813,442
9	BUDHABALANG & JAMBHIRA	1,673,399	166,870	1,840,269	2,088,090	549,673	2,637,763
10	BAHUDA	260,136	10,801	270,937	357,011	26,955	383,966
11	SUBERNAREKHA AREA DIRECTLY DRAINING TO SEA	1,121,629	29,275	1,150,904	1,450,357	241,293	1,691,650
12	3731 SQ.KM. TOTAL	1,427,594	29,966	1,457,560	2,389,676	45,315	2,434,991
		31,210,602	5,496,318	36,706,920	40,794,725	13,178,919	53,973,644

Source : DoWR

Table 8 Basin-wise Number of Industrial Workers

SL. No.	BASIN	2001	2045/2051
1	MAHANADI	814157	2505364
2	BRAHMANI	256811	790270
3	BAITARANI	192454	589507
4	RUSHIKULYA	147881	454237
5	INDRAVATI	59871	174203
6	KOLAB	55711	159727
7	VANSADHARA	51423	157936
8	NAGAVALI	29052	85411
9	BUDHABALANG & JAMBHIRA	92474	276965
10	BAHUDA	13615	40316
11	SUBERNAREKHA	57833	177623
12	AREA DIRECTLY DRAINING TO SEA	73242	255674
	3731 SQ.KM.		
	Total :-	1844524	5667233

Source : DoWR

TABLE 9 Basin Areas (km²)

Basin	Basin Area	Percentage
Mahanadi	65628	42.15%
Brahmani	22516	14.46%
Baitarani	13482	8.66%
Rushikulya	8963	5.76%
Indravati	7400	4.75%
Kolab	10300	6.61%
Vansadhara	8960	5.75%
Nagavali	4500	2.89%
Budhabalang	6354	4.08%
Bahuda	890	0.57%
Subernarekha	2983	1.92%
Area directly draining to sea	3731	2.40%
TOTAL	155707	100.00%

Source: DoWR

TABLE 10 Extent Of Soil Types

Types of Soil	Approximate Area ('000 Ha)	Percentage Distribution
Red loam and red sandy soils	7050	45.54
Mixed red and yellow soils	5440	35.14
Black soils	960	6.20
Laterite and lateritic soils	700	4.52
Deltaic alluvial soils	670	4.33
Coastal saline and sandy soils	390	2.52
Brown forest soils	170	1.10
Mixed red and black soils	100	0.65
Total	15480	100.00

Source: Agriculture in Orissa,
Directorate of Agriculture and Food Production, Orissa, Bhubaneswar. ODR

TABLE 11 District-Wise (Undivided) Water-Logged Area

District	Area in Sq.Km.
Balasore	68.38
Bolangir	0.17
Cuttack	89.44
Dhenkanal	0.50
Ganjam	24.11
Kalahandi	0
Koraput	5.46
Mayurbhanja	2.62
Phulbani	0
Puri	175.16
Sambalpur	6.49
Sundergarh	3.01
Total	379.10

Source : Wasteland Atlas of India
Ministry of Rural Development and NRSA- 2000

TABLE 12 Rate of Extraction of Important Minerals

Minerals	Rate of Extraction (Lakh ton)				
	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002
Bauxite	26.7	28.2	28.8	29.1	36.1
Chromite	14.1	13.2	16.9	19.3	17.6
Coal	423.4	0	0	0	478.03
Iron Ore	123.6	116.7	120.5	143.5	167.9
Manganese Ore	4.3	5.4	5.3	5.5	5.4
China clay	0.1	0.1	0.1	0.1	0.1
Dolomite	9.5	9.6	11.0	12.4	14.5
Fireclay	0.5	0.6	0.6	0.5	0.4
Graphite	0.6	0.9	0.8	0.8	0.4
Limestone	19.2	18.2	18.5	21.2	21.5

Source: Economic Survey 2002-2003

TABLE 13 Share of Orissa in All-India Mineral Resource Stock and Output, 1991-92 to 1999-2000

Minerals	Share (%) of Orissa in all-India					
	Resource Stock			Out Put		
	91-92	94-95	99-00	91-92	94-95	98-99
Bauxite	69.7	52.66	59.50	38.9(1)	43.88	43.65
Chinaclay	10.8	17.31	31.50	1.4	1.37	1.08
Chromite	98.4	98.39	98.40	92.2(1)	98.25	98.87
Coal	23.8	23.63	24.80	19.2(4)	10.70	14.83
Copper ore	0.9	0.82	Nil	N.A	0.00	0.00
Dolomite	12.2	15.26	17.90	55.1(1)	42.01	31.75
Fireclay	12.5	26.52	25.60	19.8(2)	23.26	1.42
Graphite	32.6	16.86	71.00	89.0(1)	80.00	67.00
Iron ore	26	33.41	32.90	15.5(5)	12.42	16.30
Limestone	1.6	1.62	2.10	2.8(8)	2.39	16.31
Manganese	31.8	29.09	67.60	12.3(1)	34.52	33.27
Nickle ore	95.2	95.09	91.80	N.A	N.A	N.A
Total	18.5	17.34	19.72	9.7	10.00	31.97

Figures in parentheses refer to Orissa's rank among the states of India

Source: Orissa Development report

Table 14 Production of Minerals/Ores

Year	Production (in Lakh tons)	Value (Rs in crores)	% of increase of production value over previous year
1990-91	310.7	629.01	
1991-92	370.0	812.39	19.73
1992-93	398.6	1033.71	7.15
1993-94	405.8	1166.84	1.81
1994-95	438.6	1300.70	8.08
1995-96	511.2	1634.03	16.55
1996-97	569.1	1791.33	11.33
1997-98	628.1	2148.96	19.96
1998-99	634.30	2365.56	10.06
1999-00	644.87	2605.05	10.12
2000-01	689.24	2776.15	6.57
2001-02	749.79	2910.47	4.84

Source: Economic Survey 2002-03

TABLE 15 Actual Forest Cover Based on Satellite Data, Orissa Area in sq.kms

Year	Total Geographical Area (T.G.A)	Total Forest Area (T.F.A)	Area under closed Forest (C.F.A)	TFA / TGA %	CFA / TFA %	CFA / TGA %
1972-75	155707	48383	37320	31.01	77.13	23.97
1980-82	155707	39425	28812	25.32	73.08	18.50
1990-91	155707	47205	27349	30.32	57.94	17.56
1995	155707	47107	26101	30.25	55.60	16.76
1997	155707	46941	26073	30.15	55.43	16.74

Note: 1. Closed forest refers to forest with more than 40% crown density,
Source: Orissa Development Report.

TABLE 16 Forest Area diverted to Non-Forest Use in Orissa (As on 01.06.2002)

Year	Number of Projects	Area diverted to non-forest use (in Hectare)
1982	1	3.43
1983	4	124.02
1984	18	2000.89
1985	5	517.38
1986	3	770.08
1987	5	952.90
1988	9	975.63
1989	13	1737.38
1990	24	2714.92
1991	5	3.17
1992	7	508.84
1993	8	4729.25
1994	3	788.92
1995	6	317.94
1996	12	1354.61
1997	14	1902.49
1998	53	4722.35
2000	27	1219.06
2001	20	1711.74
Total	237	27055.00

Source: Principal Chief Conservator of Forest, Orissa, Bhubaneswar

TABLE 17 Wild Life Census 2002**A. Elephant Census**

Forest Circle	Male	Female	Unsexed	Calf	Total
Angul	110	256	35	164	565
Berhampur	24	52	6	38	120
Koraput	19	34	0	8	61
Sambalpur	107	285	51	78	521
Similipal	97	283	5	127	512
Chandaka (WL) Sanctuary	13	30	0	19	62
Total	370	940	97	434	1841

B. TIGER CENSUS

Male	51
Female	72
Cub	43
Unsexed	07
Total	173

C. LEOPARD CENSUS

Male	187
Female	224
Cub	45
Unsexed	01
Total	457

Source: Principal Chief Conservator of Forest, Orissa, Bhubaneswar

TABLE 18 Orissa : River length and Catchment Area in km²

Rivers	Total Catchment (km ²)	C.A. Inside orissa(km ²)	Total length (km)	Length inside Orissa (km)
Mahanadi	141134	65628	851	494
Brahmani	39116	22516	765	461
Baitarani	14218	13482	440	360
Rushikulya	8963	8963	175	175
Vansadhara	11377	8960	239	176
Nagavali	9275	4500	217	125
Kolab	20427	10300	343	270
Indravati	41700	7400	530	167
Bahuda	1118	890	96	74
Subernarekha	19277	2983	446	81
Burhabalanga	4838	4838	199	199

Bramhani starts at Panposh In Orissa

Source: DoWR.

TABLE 19 Flow Series of Orissa (Present Scenario 2001) Unit : million m³

Year	Inside orissa	Descending order	Outside orissa	Desc.	Total	Desc.
1974-75	42195	139019	23531	70968	65725	209987
1975-76	76994	115596	26881	44124	103875	158614
1976-77	75814	107784	34757	43859	110572	148176
1977-78	81910	97328	40075	43017	121985	141187
1978-79	87505	87910	28746	42735	116251	125413
1979-80	51070	87505	14502	41975	65572	125357
1980-81	77839	86983	44124	41761	121963	124900
1981-82	68502	86263	34914	40393	103416	121985
1982-83	71244	83667	21667	40075	92911	121963
1983-95	83652	83652	41761	38698	125413	119460
1995-85	87910	83382	36990	36990	124900	119372
1985-86	107784	81910	40393	35705	148176	116251
1986-87	83667	77839	35705	34914	119372	113749
1987-88	45835	76994	38698	34757	84533	110572
1988-89	63817	75814	42735	33198	106552	106552
1989-90	86263	71244	33198	28746	119460	103875
1990-91	115596	68502	43017	26881	158614	103416
1991-92	97328	63817	43859	26766	141187	92911
1992-93	86983	51070	26766	23531	113749	84533
1993-94	83382	45835	41975	21667	125357	65725
1994-95	139019	42195	70968	14502	209987	65572
Average		81634		36441		118075

(Excl. Subarnarekha)
Yield of subarnarekha
Orissa portion 1193
Outside orissa 1115
Dep. Flow from all basins (orissa) = 69695 mcum
Flow from all basins (orissa) average = 82827 mcum
Average available flow = 120383 mcum
(including flow from outside state)

Source: DoWR

TABLE 20 Inflow of Individual Basins (Present Scenario 2001) Unit : million m³

Basin name	75% Dependable.			Average		
	Own	Outside	Total	Own	Outside	Total
Mahanadi	25508	23225	48732	29900	29255	59155
Brahmani	8489	5521	14011	11391	7186	18577
Baitarani	5434		5434	7568		7568
Rushikulya	2782		2782	3949		3949
Vansadhara	3881		3881	5083		5083
Budhabalang	2521		2521	3111		3111
Kolab	8885		8885	11089		11089
Indravati	4451		4451	6265		6265
Bahuda	213		213	438		438
Nagavali	2322		2322	2853		2853
Subernarekha	1193	1115	2308	1193	1115	2308
Total	65679	29861	95540	82841	37556	120397

Source: DoWR

TABLE 21 Inflow of Individual Basins (Future Scenario 2051) Unit : million m³

Basin name	Dependable flow			Average flow		
	Own	Outside	Total	Own	Outside	Total
Mahanadi	25508	16702	42210	29900	21039	50939
Brahmani	8489	2395	10884	11391	3118	14509
Baitarani	5434		5434	7568		7568
Rushikulya	2782		2782	3949		3949
Vansadhara	3881		3881	5083		5083
Budhabalang	2521		2521	3111		3111
Kolab	8885		8885	11089		11089
Indravati	4451		4451	6265		6265
Bahuda	213		213	438		438
Nagavali	2322		2322	2853		2853
Subernarekha	1193	1115	2308	1193	1115	2308
Total	65679	20212	85891	82841	25272	108113

Source: DoWR

TABLE 22 Ground Water Resource of Orissa

District	Ground water resource assessed (HM)	Utilisable resource for domestic and industrial use (HM)	Annual draft for irrigation use (HM)	Gross annual draft for all uses (HM)	Stage of GW development
Angul	86673	3935	9338	11968	13.81
Balasore	99888	5556	38410	41804	41.85
Bargarh	56073	3687	2060	4548	8.11
Bhadrak	51209	2928	17480	19854	38.77
Bolangir	71349	4051	3421	6231	8.73
Boudh	36977	1359	4938	5775	15.62
Cuttack	105367	6747	10755	14886	14.13
Deogarh	21225	786	1340	1853	8.73
Dhenkanal	65195	3479	6571	8840	13.56
Gajapati	27754	1202	3085	3966	14.29
Ganjam	113804	9098	18828	24431	21.47
Jagatsinghpur	139699	2765	11423	13646	9.77
Jajpur	58997	4848	14059	17104	28.99
Jharsuguda	17267	1849	2304	3381	19.58
Kalahandi	89520	6911	7832	11483	12.83
Kandhamal	62396	2170	4278	5549	8.89
Kendrapara	32344	782	6852	7550	23.34
Keonjhar	132291	4954	12713	16042	12.13
Khurda	90183	8542	4455	10017	11.11
Koraput	82136	4033	1358	4685	5.70
Malkangiri	32880	1281	781	1725	5.25
Mayurbhanj	152064	6640	22798	27362	17.99
Nawapara	36729	1528	3139	4318	11.76
Nawarangpur	48103	3809	1372	3353	6.97
Nayagarh	51429	2418	4270	6077	11.82
Puri	88348	3187	4431	6470	7.32
Rayagada	62882	3389	3807	7038	11.19
Sambalpur	66332	2921	3304	5214	7.86
Subarnapur	29940	1827	1951	3092	10.33
Sundergarh	92074	5590	8691	12427	13.50
State Total	2101128	112272	236044	310689	14.79

Source: G.W.S.I Directorate

TABLE 23 Per Capita Water Resources In Basins of Orissa Present Scenario (million m³)

Basin name	Dependable		Average.	
	Total	Per Capita (m ³)	Total	Per Capita(m ³)
Mahanadi	48732	3007.75	59155	3651.06
Brahmani	14011	2741.52	18577	3634.95
Baitarani	5434	1418.82	7568	1976.01
Rushikulya	2782	945.33	3949	1341.87
Vansadhara	3881	3792.49	5083	4967.08
Budhabalang	2521	1834.35	3111	2263.65
Kolab	8885	6550.15	11089	8174.97
Indravati	4451	3496.78	6265	4921.89
Bahuda	213	786.16	438	1616.61
Nagavali	2322	4227.89	2853	5194.73
Subernarekha	2308	2365.24	2308	2365.24
Total	95540	2665.64	120397	3359.17

Source: DoWR

Per Capita Water Resources In Basins of Orissa Future Scenario(million m³)

Basin	Dependable.		Average.	
	Total	Per Capita (m ³)	Total	Per Capita (m ³)
Mahanadi	42210	2017	50939	2434
Brahmani	10884	1446	14509	1928
Baitarani	5434	9678	7568	1348
Rushikulya	2782	719	3949	1021
Vansadhara	3881	2580	5083	3379
Budhabalang	2521	1315	3111	1623
Kolab	8885	4471	11089	5579
Indravati	4451	2439	6265	3433
Bahuda	213	687	438	1412
Nagavali	2322	3059	2853	3758
Subernarekha	2308	1766	2308	1766
Total	85891	1762	108113	2218

The table shows that Rushikulya will reach the scarcity condition in future in about 50 years. Other basins close to scarcity condition will be Baitarani and Bahuda basins

Source: DoWR

TABLE 24 Monthly Per Capita Consumption of Fish in Major States of India

States	Quantity (Consumed in kg)		Reporting Fish Consumption per 1000 Households	
	Rural	Urban	Rural	Urban
A.P.	0.11	0.08	259	206
Gujarat	0.02	0.04	79	98
Karnataka	0.14	0.14	135	117
Kerala	1.35	1.62	857	828
Maharashtra	0.11	0.16	167	259
Orissa	0.29	1.94	586	884
Tamil Nadu	0.17	0.17	272	339
West Bengal	0.54	0.72	907	804
Goa	1.36	1.91	862	817

Source: Directorate of Fisheries, Govt. of Orissa

TABLE 25 Maritime State-wise (Inshore) Marine Fishery Resource Potential

Region	States	Resource Potential('000t)	Resource Potential*
North Western Coastal Region(NWCR)	Gujarat	385	5.92
	Maharashtra	155	5.96
South Western Coastal Region(SWCR)	Goa	90	30.0
	Karnataka	230	28.75
Lower Eastern Coastal Region(LECR)	Kerala	380	29.23
	Tamil Nadu	280	11.66
Upper Eastern Coastal Region(UECR)	Andhra Pradesh	200	11.76
	Orissa	300	20.0
	West Bengal	240	20.0

*per sq km.of Continental Shelf Area (MT per.km²)

Source: Orissa Development Report.

TABLE – 26 REQUIREMENT OF WATER FOR PISCICULTURE TANKS/PONDS

Appendix - I

Sl.	Year	Area under Pisciculture (In ha.)	Requirement of Water (In million ltrs.)	Additional requirement for the culture tanks towards 5% water exchange	Total requirement of water (in million ltrs.)
1	2003-04	53509.00	802635.00	40131.75	842766.75
2	2004-05	56009.00	840135.00	42006.75	882141.75
3	2005-06	58509.00	877635.00	43881.75	921516.75
4	2006-07	61009.00	915135.00	48756.75	960891.75
5	2007-08	63509.00	952635.00	47631.75	1000266.75
6	2008-09	66009.00	990135.00	49506.75	1039641.75
7	2009-10	68509.00	1027635.00	51381.75	1079016.75

N.B: Additional Coverage of pisciculture tanks per annum calculated @ 2500 ha.

Source: Directorate of Fisheries.

Table – 26(A) REQUIREMENT OF WATER FOR FISH SEED HATCHERIES

Sl	Year	Requirement of Water annum (in million litres)	Remarks
1	2003-04	3466.91	The requirement includes the requirement of water for nursery tanks also.
2	2004-05	3813.60	
3	2005-06	4191.96	
4	2006-07	4614.46	
5	2007-08	5075.90	
6	2008-09	5583.49	
7	2009-10	6141.84	

N.B: Additional Coverage of hatcheries per annum calculated @ 10%

Source: Directorate of Fisheries.

Table – 26(B) REQUIREMENT OF WATER FOR PISCICULTURAL TANKS/PONDS**ABSTRACT***(In million Litres)*

Sl. No.	Year	Requirement of Water for piscicultural tanks/ponds per annum (Appendix-I)	Requirement of Water for hatchery operation & nursery management per annum (Appendix-II)	Total requirement of water for piscicultural activity per annum	Total requirement of water for piscicultural activity per day (MLD)
1	2003-04	842766.75	3466.91	846233.66	2318.45
2	2004-05	882141.75	3813.60	885955.35	2427.27
3	2005-06	921516.75	4194.96	925711.71	2536.20
4	2006-07	960891.75	4614.46	965506.21	2645.22
5	2007-08	1000266.75	5075.90	1005342.65	2754.36
6	2008-09	1039641.75	5583.49	1045225.24	2863.63
7	2009-10	1079016.75	6141.84	1085158.59	2973.04

Source: Directorate of Fisheries

TABLE 27 Water Supply To U.A. (Annual)

Name	Status	Population	Domestic	Population	Domestic
		2001	Demand (mcum)	2051	Demand (mcum)
Class - i (1,00,000 & above)		2660573	145.666	5321146	291.333
Bhubaneswar	U.A				
Bhubaneswar	M.corp.	647302	35.440	1294604	70.880
Bhubaneswar	Ind. & colony	10175	0.557	20350	1.114
Cuttack u.a					
Cuttack	M. Corp.	535139	29.299	1070278	58.598
Chowdwar					
Chowdwar	M.	42597	2.332	85194	4.664
Chowdwar	Ind.	9901	0.542	19802	1.084
Rourkela	U.A				
Rourkela	Ind. & colony				
Rourkela	Ind. & colony	206566	11.309	413132	22.619
Idl factory	Ind. & colony	6665	0.365	13330	0.730
Rourkela					
Rourkela	M.	224601	12.297	449202	24.594
Kalunga	Ind. & colony	34503	1.889	69006	3.778
Jalda	C.T	11957	0.655	23914	1.309
Berhampur	M	289724	15.862	579448	31.725
Sambalpur	U.A				
Sambalpur					
Sambalpur	M.	154164	8.440	308328	16.881
Dhankauda & mathapali	O.G	3599	0.197	7198	0.394
Burla					
Burla	N.A.C.	39188	2.146	78376	4.291
Amsadhakatapali area		3618	0.198	7236	0.396
Hirakud	N.A.C.	26397	1.445	52794	2.890
Puri	M	157610	8.629	315220	17.258
Baleswar	U.A				
Baleswar					
Baleswar	M	106032	5.805	212064	11.611
Baleswar	Ind. & colony	21284	1.165	42568	2.331
Remuna	N.A.C.	28958	1.585	57916	3.171
Baripada	U.A				
Baripada	M.	94947	5.198	189894	10.397
Podaastia business centre	O.G	3720	0.204	7440	0.407
Subernarekha & colony	O.G	1926	0.105	3852	0.211

Note : for class -i cities demand 150 lpcd

M.Corp – Municipal Corporation, M- Municipality, N.A.C- Notified Area Council, IT- Industrial Township, CT- Census Town

TABLE 28 Water Supply To Towns

Name	Status	Population 2001	Domestic Demand (mcum)	Population 2051	Domestic Demand (mcum)
Class – ii towns					
(50,000-99,999)		940975	46.367	1881950	92.733
Bhadrak	M.	92397	4.553	184794	9.106
Balangir	M.	85203	4.198	170406	8.397
Brajarajnaragar	M.	76941	3.791	153882	7.583
Jeypore	M.	76560	3.772	153120	7.545
Jharsuguda	M.	75570	3.724	151140	7.447
Paradip	N.A.C	73633	3.628	147266	7.257
Bargarh	M.	63651	3.136	127302	6.273
Bhawanipatna	M.	60745	2.993	121490	5.986
Sunabeda	N.A..C	58647	2.890	117294	5.780
Jatani	U.A				
Jatani	M.	54550	2.688	109100	5.376
Ind. & colony area	O.G	3277	0.161	6554	0.323
Rayagada	M.	57732	2.845	115464	5.689
Dhenkanal	M.	57651	2.841	115302	5.682
Barbil	M.	52586	2.591	105172	5.182
Kendujhar	M.	51832	2.554	103664	5.108
Note : for class -ii cities demand 135 lpcd					
Class - iii					
(20,000-49,999)		1000298	25.558	2000596	51.115
Rajgangpur	M.	43912	1.122	87824	2.244
Parlakhemundi	M.	42991	1.098	85982	2.197
Kendrapara	M.	41404	1.058	82808	2.116
Byasnagar	U.A				
Byasnagar	M.	37609	0.961	75218	1.922
Educational area	O.G	3127	0.080	6254	0.160
Koraput	N.A.C.	39523	1.010	79046	2.020
Khurdha	M.	39034	0.997	78068	1.995
Joda	M.	38671	0.988	77342	1.976
Sundargarh	M.	38402	0.981	76804	1.962
Angul	N.A.C.	38022	0.971	76044	1.943
Anandpur	N.A.C.	35043	0.895	70086	1.791
Talcher	M.	34984	0.894	69968	1.788
Phulbani	N.A.C.	33887	0.866	67774	1.732
Belpahar	N.A.C.	32807	0.838	65614	1.676
Pattamundai	N.A.C.	32724	0.836	65448	1.672
Jajapur	M.	32209	0.823	64418	1.646
Jagatsinghpur	N.A.C.	30688	0.784	61376	1.568
Titlagarh	U.A				
Titlagarh	N.A.C.	27756	0.709	55512	1.418
D.a.v. College area	O.G	2495	0.064	4990	0.127
Basudevpur	N.A.C.	29998	0.766	59996	1.533
Biramitrapur	M.	29434	0.752	58868	1.504
Nabarangpur	N.A.C.	27975	0.715	55950	1.430
Soro	N.A.C.	27793	0.710	55586	1.420
Umarkote	N.A.C.	24853	0.635	49706	1.270

Gunupur	U.A				
Gunupur	N.A.C.	21196	0.542	42392	1.083
Ind. & educational area	O.G	3508	0.090	7016	0.179
Malkangiri	N.A.C.	23110	0.590	46220	1.181
Rairangpur	N.A.C.	21682	0.554	43364	1.108
Karanjia	N.A.C.	21420	0.547	42840	1.095
Jaleswar	N.A.C.	21382	0.546	42764	1.093
Hinjilicut	N.A.C.	21344	0.545	42688	1.091
Asika	N.A.C.	20718	0.529	41436	1.059
Chhatrapur	N.A.C.	20288	0.518	40576	1.037
Bhuban	N.A.C.	20134	0.514	40268	1.029
Kantabanjhi	N.A.C.	20090	0.513	40180	1.027
Debagarh	M.	20085	0.513	40170	1.026
Note : for class -iii cities demand 70 lpcd					
Class - iv (10,000-19,999)		695416	17.768	1390832	35.536
Bhanjanagar	N.A.C.	19699	0.503	39398	1.007
Polosara	N.A.C.	19566	0.500	39132	1.000
Barapali	N.A.C.	19154	0.489	38308	0.979
Chandili	C.T	18688	0.477	37376	0.955
Patnagarh	N.A.C.	18685	0.477	37370	0.955
Dera colliery township	C.T	18583	0.475	37166	0.950
Dhamnagar	N.A.C.	18555	0.474	37110	0.948
Nalco	C.T	18038	0.461	36076	0.922
Baudhgarh	N.A.C.	17996	0.460	35992	0.920
Sonapur	M.	17535	0.448	35070	0.896
Kesinga	N.A.C.	16914	0.432	33828	0.864
Nimapada	N.A.C.	16914	0.432	33828	0.864
Khariar road	N.A.C.	16627	0.425	33254	0.850
Banapur	N.A.C.	16437	0.420	32874	0.840
Kabisuryanagar	N.A.C.	16092	0.411	32184	0.822
Banki	N.A.C.	15987	0.408	31974	0.817
Atagarh	N.A.C.	15850	0.405	31700	0.810
Balugaon	N.A.C.	15824	0.404	31648	0.809
Junagarh	N.A.C.	15759	0.403	31518	0.805
Ghantapara	C.T	15587	0.398	31174	0.796
Padampur	N.A.C.	15438	0.394	30876	0.789
Konark	N.A.C.	15015	0.384	30030	0.767
Kamakhyanagar	N.A.C.	15002	0.383	30004	0.767
Kotpad	N.A.C.	14914	0.381	29828	0.762
Nilagiri	N.A.C.	14745	0.377	29490	0.753
Surada	N.A.C.	14647	0.374	29294	0.748
Binika	N.A.C.	14537	0.371	29074	0.743
Nayagarh	N.A.C.	14311	0.366	28622	0.731
Pipili	N.A.C.	14263	0.364	28526	0.729
Purushottampur	N.A.C.	14249	0.364	28498	0.728
Redhakhhol	N.A.C.	13722	0.351	27444	0.701
Kuchinda	N.A.C.	13584	0.347	27168	0.694
Khariar	N.A.C.	13402	0.342	26804	0.685
Buguda	N.A.C.	13253	0.339	26506	0.677
Kodala	N.A.C.	12341	0.315	24682	0.631
Pratapsasan	C.T	11970	0.306	23940	0.612
Balagoda(bolani)	C.T	11830	0.302	23660	0.605

Udala	N.A.C.	11712	0.299	23424	0.598
Balimela	N.A.C.	11500	0.294	23000	0.588
Athmalik	N.A.C.	11383	0.291	22766	0.582
Ganjam	N.A.C.	11312	0.289	22624	0.578
Khalikot	N.A.C.	10959	0.280	21918	0.560
Digapahandi	N.A.C.	10888	0.278	21776	0.556
Chikiti	N.A.C.	10801	0.276	21602	0.552
Rambha	N.A.C.	10715	0.274	21430	0.548
Panposh	C.T	10227	0.261	20454	0.523
G.udaygiri	N.A.C.	10206	0.261	20412	0.522
Note : for class -iv cities demand 70 lpcd					
Class - v (5,000-9,999)					
		174385	4.456	348770	8.911
Belanguntha	N.A.C.	9961	0.255	19922	0.509
Kashinagar	N.A.C.	9782	0.250	19564	0.500
Hatibandha	C.T	9296	0.238	18592	0.475
Khandapada	N.A.C.	8754	0.224	17508	0.447
Kantilo	C.T	8727	0.223	17454	0.446
Damanjodi	C.T	8475	0.217	16950	0.433
Champua	C.T	8310	0.212	16620	0.425
Rengali dam project					
Township	C.T	8115	0.207	16230	0.415
Tarabha	N.A.C.	7993	0.204	15986	0.408
Nuapatna	C.T	7846	0.200	15692	0.401
Bishamkatak	C.T	7407	0.189	14814	0.378
F.c.i. Town	C.T	7059	0.180	14118	0.361
Lathikata	C.T	6896	0.176	13792	0.352
Mukhiguda	C.T	6859	0.175	13718	0.350
Gudari	N.A.C.	6843	0.175	13686	0.350
Gopalpur	N.A.C.	6660	0.170	13320	0.340
T.t.p.s. Town	C.T	6616	0.169	13232	0.338
Khatiguda	C.T	6398	0.163	12796	0.327
Dungamal	C.T	6206	0.159	12412	0.317
Jhumpura	C.T	5265	0.135	10530	0.269
Chandapur	C.T	5260	0.134	10520	0.269
Khaliapali	C.T	5257	0.134	10514	0.269
Charbatia	C.T	5232	0.134	10464	0.267
Bangura	C.T	5168	0.132	10336	0.264
Note : for class -v cities demand 70 lpcd					
Class - vi (less than 5,000)					
		24671	0.630	49342	1.261
Makundapur	C.T	4974	0.127	9948	0.254
Gachhia	C.T	4610	0.118	9220	0.236
Dadhapatna	C.T	4415	0.113	8830	0.226
Daitari	C.T	4239	0.108	8478	0.217
Tensa	C.T	4236	0.108	8472	0.216
O.c.I industrial township	I.T	2197	0.056	4394	0.112

Note : for class -vi cities demand 70 lpcd

Notes: population of 2051 is assumed to be double of the present population (2001)

Source: DoWR

M.Corp – Municipal Corporation, M- Municipality, N.A.C- Notified Area Council, IT- Industrial Township,
CT- Census Town, UA – Urban Agglomeration, OG – Out Growth.

TABLE 29 Demand of Food Grains (lakh tons)

Basin	Cereal		Pulses		Oil seeds		Vegetables	
	2001	2051	2001	2051	2001	2051	2001	2051
Mahanadi	40.91	52.84	3.89	5.02	7.29	9.42	11.34	14.65
Brahmani	12.90	19.00	1.23	1.81	2.30	3.39	3.58	5.27
Baitarani	9.67	14.17	0.92	1.35	1.72	2.53	2.68	3.93
Rushikulya	7.43	9.77	0.71	0.93	1.32	1.74	2.06	2.71
Indravati	3.21	4.61	0.31	0.44	0.57	0.82	0.89	1.28
Kolab	3.42	5.02	0.33	0.48	0.61	0.89	0.95	1.39
Vansadhara	2.58	3.80	0.25	0.36	0.46	0.68	0.72	1.05
Nagavali	1.39	1.92	0.13	0.18	0.25	0.34	0.38	0.53
Budhabalang	3.47	4.84	0.33	0.46	0.62	0.86	0.96	1.34
Bahuda	0.68	0.78	0.07	0.07	0.12	0.14	0.19	0.22
Subernarekha	2.46	3.30	0.23	0.31	0.44	0.59	0.68	0.91
Area directly Draining to sea 3731 sq.km.	4.54	16.22	0.43	1.54	0.81	2.89	1.26	4.50
Total	92.67	136.27	8.81	12.95	16.52	24.29	25.69	37.78

Source: DoWR

TABLE 30 Land Utilisation Pattern (Area in thousand hectares)

Year	Geographical Area	Forest Area	Misc. Trees	Permanent pastures	Culturable Waste	Land put to non agri. use	Barren & unculturable land	Current Fallow	Other Fallow	Net Area Sown
1990-91	15571	5476	859	726	597	746	499	150	214	6304
1991-92	15571	5482	855	726	572	748	499	168	184	6337
1992-93	15571	5478	857	663	538	781	532	215	203	6304
1993-94	15571	5534	867	635	487	781	541	180	243	6303
1994-95	15571	5722	715	514	435	858	553	197	298	6279
1995-96	15571	5722	715	514	435	858	553	241	323	6210
1996-97	15571	5606	764	534	445	858	570	483	343	5968
1997-98	15571	5606	774	534	445	866	590	298	336	6122
1998-99	15571	5606	774	534	445	866	590	372	336	6048
1999-00	15571	5606	774	534	445	838	618	345	336	6075
2000-01	15571	5813	482	443	392	999	843	430	340	5829
2001-02	15571	5813	482	443	392	999	843	320	434	5845
2002-03	15571	5813	482	443	392	999	843	485	434	5680

Source: Directorate of Agriculture and Food Production, Orissa, Bhubaneswar

TABLE 31 Operational Land Holdings

Holdings size	Marginal (< 1 ha)	Small (1-2 ha)	Semi medium (2-4 ha)	Medium (4-10 ha)	Large >10 ha	Total/ Average
No of holdings	2145245	1106337	543791	155921	15195	3966489
Percent	54.084	27.892	13.709	3.930	0.383	100.00
Area ha	1064074	1521681	1454254	864336	242521	5143866
Percent	20.686	29.582	28.271	16.803	4.714	100.00
Area per holding	0.496	1.375	2.674	5.543	15.960	1.296

Source: Economic Survey – 2002-03

TABLE 32 Yield and Production of Food Grains

Year	Area	Yield (kg/ha)	Production (‘000t)
1970-71	5781	883	5104
71-72	5950	732	4354
72-73	5915	822	4860
73-74	6218	881	5480
74-75	5992	663	3971
75-76	6484	848	5500
76-77	6038	675	4075
77-78	6519	853	5561
78-79	6680	863	5765
79-80	6455	600	3872
80-81	6909	865	5977
81-82	6738	822	5538
82-83	6417	731	4688
83-84	7323	956	7001
84-85	6652	843	5609
85-86	7043	989	6968
86-87	7010	910	6378
87-88	6728	752	5058
88-89	6856	1021	7002
89-90	6972	1144	7974
90-91	7089	992	7031
91-92	7252	1141	8273
92-93	6946	993	6898
93-94	7208	1140	8216
94-95	7120	1122	7986
95-96	7194	1101	7923
96-97	6360	841	5347
97-98	6616	1105	7311
98-99	6516	965	6288
99-00	6687	937	6266
00-01	5193	958	4975
01-02	6682	1232	8232
02-03	5991	675	4045

Source: Orissa Development Report & Orissa Agricultural Statistics

TABLE 33 District Irrigation Potential* (June 2003)
(Area in Thousand Hectares)

District	Cultivated area	Major & Medium	Minor Flow	Minor Lift	Total	%
Balasore	244	25.882	7.179	35.747	68.808	28.20
Bhadrak	178	88.183	1.267	17.489	106.939	60.08
Bolangir	338	7.690	17.584	8.728	34.002	10.06
Sonepur	111	58.590	6.182	7.149	71.921	64.79
Cuttack	177	89.070	16.964	21.586	127.62	72.10
Jagatsinghpur	110	34.270	0	8.329	42.599	38.73
Jajpur	166	61.530	5.316	28.966	95.812	57.72
Kendrapara	152	65.470	0.159	31.965	97.594	64.21
Dhenkanal	193	24.575	19.836	9.432	53.843	27.90
Angul	219	13.330	19.457	9.778	42.565	19.44
Ganjam	395	125.060	98.726	23.304	247.09	62.55
Gajapati	80	0.000	20.761	5.006	25.767	32.21
Kalahandi	371	84.200	21.065	11.553	116.818	31.49
Nuapara	178	16.140	8.772	4.225	29.137	16.37
Keonjhar	302	28.400	26.515	15.43	70.345	23.29
Koraput	302	44.030	6.33	9.468	59.828	19.81
Malkangiri	141	69.492	1.341	1.449	72.282	51.26
Nawangpur	216	4.250	6.515	6.86	17.625	8.16
Rayagada	194	8.800	21.222	13.171	43.193	22.26
Mayurbhanj	441	38.410	36.711	15.495	90.616	20.55
Phulbani	134	2.390	8.337	3.025	13.752	10.26
Boudh	89	21.720	10.123	5.452	37.295	41.90
Puri	150	110.180	0.18	11.531	121.891	81.26
Khurda	140	43.830	16.241	7.1	67.171	47.98
Nayagarh	134	10.930	16.644	7.004	34.578	25.80
Sambalpur	194	31.510	17.048	6.136	54.694	28.19
Baragarh	345	91.220	20.651	8.644	120.515	34.93
Deogarh	72	8.100	4.181	1.431	13.712	19.04
Jharsuguda	86	0.000	4.546	2.784	7.33	8.52
Sundargarh	313	13.460	24.631	9.151	47.242	15.09
TOTAL	6165	1220.712	464.484	347.388	2032.584	32.97

* Area irrigated from 'other' sources not included

Source: DoWR

TABLE 34 Irrigation Provided 2001-2002 (Area in lakh ha)

Crop	Kharif			Rabi			Total			
	Total Area	Area irrigated	%	Total Area	Area irrigated	%	Total area	Area irrigated	%	% to total area irrigated
Paddy	42.28	15.45	36	2.72	2.72	100	45.00	18.17	40	71
Other cereals	4.04	0.26	6	0.35	0.34	97	4.39	0.60	14	2
Pulses	5.52	0.19	3	11.91	0.86	7	17.43	1.05	6	4
Oilseeds	4.24	0.15	3	4.25	0.97	23	8.49	1.12	13	5
Fibres	1.15	0.05	4				1.15	0.05	4	-
Vegetables	2.88	1.31	45	3.37	2.11	63	6.25	3.42	55	14
Sugarcane				0.30	0.30	100	0.30	0.30	100	1
Tobacco				0.06	0.01	20	0.06	0.01	20	-
Spices	0.70	0.11	16	0.62	0.62		1.32	0.73		3
Fruits							3.60			
Total	60.81	17.52	29	23.58	7.93		87.99	25.45		100

Source: Agricultural Statistics 2001-02

TABLE 35 Level of Industrialisation of Indian States

State	Share (%) in value added in factory sector									
	1960-61		1970-71		1980-81		1986-87		1997-98	
	Share	Rank	Share	Rank	Share	Rank	Share	Rank	Share	Rank
Maharashtra	26.7	1	26.8	1	25.0	1	23.8	1	21.7	1
Tamil Nadu	7.9	4	9.8	4	10.3	3	10.4	2	8.7	4
Gujarat	10.5	3	9.1	3	9.5	4	10.2	3	9.2	2
West Bengal	20.5	2	13.6	2	11.5	2	7.8	5	6.2	6
Uttar Pradesh	6.3	6	6.6	5	6.3	5	9.1	4	9.2	3
M.P.	2.4	12	3.6	9	5.0	7	4.3	9	5.5	9
A.P.	3.1	8	4.0	8	4.9	8	5.4	7	7.4	5
Bihar	6.5	5	5.5	7	4.2	9	5.6	6	6.0	7
Karnataka	3.2	7	5.7	6	5.1	6	5.0	8	5.5	8
Punjab	3.0*	10*	2.3	11	3.2	11	3.1	11	3.0	12
Haryana	-	-	2.2	12	2.9	12	2.9	12	3.0	11
Kerala	2.7	11	2.9	10	3.3	10	2.7	13	2.1	14
Rajasthan	1.0	13	2.1	13	2.8	13	3.3	10	3.5	10
Assam	3.0	9	1.4	14	1.1	15	1.9	14	Neg.	15
Orissa	0.9	14	1.9	15	1.7	14	1.6	15	2.4	13

Source: Orissa Development Report.

TABLE 36 Industrial Structure of Orissa

NIC Code	Industry	Employment		Net value Added	
		1966-89	1997-98	1966-89	1997-98
20-21	Food products	9.19	8.14	3.95	4.10
22	Beverages	1.28	1.05	0.71	0.27
23	Cotton Textiles	9.43	6.51	4.68	0.55
25	Jute Textiles		1.67		0.22
26	Textile products	0.13	0.59	0.03	0.10
27	Wood Products	3.72	1.13	1.25	0.21
28	Paper Products	13.38	6.91	12.42	2.52
29	Leather & Prod		0.05		0.64
30	Chemical & Prod	3.48	5.60	2.48	0.89
31	Rubber, Petrol etc	0.26	2.90	0.16	3.97
32	Non-met, Mineral	11.58	9.02	11.67	6.06
33	Basic Met & alloy	36.53	27.25	50.89	19.82
34	Metal Products	1.94	2.66	1.18	0.56
35-36	Ele. Non-ele mach.	3.24	2.65	4.67	2.09
37	Transport equip	0.70	0.17	0.29	0.05
38	Other Manu	5.13	0.14	5.60	0.01
39	Repair cap goods		1.63		0.52
40	Electricity		19.67		56.97
74	Store & Warehouse		0.14		0.05
97	Repair Services		0.66		0.28
All industries		100.00	100.00	100.00	100.00

Source : Orissa Development Report

TABLE 37 Important Iron Ore Mines

Mine	Reserve (million ton)	Ownership
<i>Captive Reserve</i>		
Barsua	100.5	RSP
Kalta/Taldih	93.0	RSP
Bolani	302.0	RSP
<i>Non-Captive Reserve</i>		
Daitari	45.0	OMC
Gandhamardan	254.0	OMC
Malangotl	608.0	Private & Others
Banspani/Barjamod	215.0	-do-
Thakurani	285.0	-do-
Dubuna	6.5	OMC
Khandadhar	72.0	OMC

Source: Pollution Control Board

TABLE 38 Steel Production and Water Demand Forecast

Year	Steel Production In Orissa	Brahmni Basin		Baitarani Basin		Rusikulya Basin	
		Annual Production	Annual Water Requirement	Annual Production	Annual Water Requirement	Annual Production	Annual Water Requirement
2001	5mTPA	4mTPA	180 m m ³	1mTPA	44.9 mm ³	X	X
2010	15mTPA	10mTPA	200 mm ³	3mTPA	60 mm ³	2mTPA	40 m m ³
2050	25mTPA	15mTPA	300 mm³	5mTPA	100mm³	5mTPA	100 mm³

Note- water requirement has been considered as 20 m³/ton
Source: DoWR

TABLE 39 Alumina and Aluminum Metal Production

Name of Company	Mining Areas	Alumina Production		Metal Production	
		Present	expansion	Present	expansion
NALCO Anugul	Ponchapatmali Koraput	0.8 mTPA	1.575 mTPA	0.22 mTPA	0.345 mTPA
INDAL Hirakud	-	-	-	0.03 mTPA	0.06 mTPA
Proposed Projects					
Utkal Alumina	Baphilimali Koraput	1.00 mTPA		-	
L&T	Sijimali & Kuturmali (Rayagada)	1.00 mTPA		-	
Sterlite	Lanjigarh (Kalahandi)	1.00 mTPA		-	

Source: DoWR

TABLE 40 Existing Thermal Power Plants

Name of Power Plant	Location	Installed Capacity (MW)	Water Consumption m ³ (million m ³ /yr)	Waste water M ³ /day
NTPC (TTPS)	Talcher	470	14.23	3900
NTPC – Kaniha (*)				
Phase- I	Kaniha	1000	146	44,730
Phase – II	-do-	2000		
NALCO-Captive	Angul	720	17.52	65,000
Ib Thermal,OPGC	Banaharpalli	420	33.28	65,000
Rourkela Steel Plant-Captive	Rourkela	245	7.15	
Indian Charge Chrome	Choudwar	108	4.22	1,776
INDAL CO	Hirakud	67.5	1.81	96
Total		5030.5		

(*) NTPC Kaniha, Thermal Plant phase II is nearing completion. It is proposed to set up further 3 units of 660 MW i.e. 1980 MW in Phase III, thus raising the total capacity to 4980 MW as **World's largest Thermal Power House**.

Source: DoWR

TABLE 41 Proposed Thermal Power Plants

Name	Location	Capacity (MW)	Water Source
Ib Thermal OPGC	Banaharpalli	420	Mahanadi Basin
AES Transpower	-do-	1000	Mahanadi Basin
CEP Asia	-do-	1320	Mahanadi Basin
CEP Asia	Herma	3960	Mahanadi Basin
Samalei Power & Co	Lapanga	500	Mahanadi Basin
Kalinga Power Co.	Jajpur	500	Brahmani Basin
	Duburi		
OPGC	Naraj	1000	Mahanadi Basin
Bamlaii Power Plant.	Rengali (Sambalpur)	1000	Mahanadi Basin
Total		9,700	

Source: DoWR

TABLE 42 Distribution of Mines in Orissa's River Basins

Basin	District	Location	Mines.
Subarnarekha Basin	Mayurbhanj	Gorumahisani	(a) Iron Ore (b) Quartzite (c) Vanadiferous Magnetite (d) Gold-prospects
Budhabalanga	Mayurbhanj	Nuasahi	(a) Soapstone (b) Cromium
Baitarini Basin	Keonjhor	Thakurani Banspani Badampahad	Iron Ore Manganese China Clay
	Sundergarh	Barsuan Molangotoli Gandhamardan	Iron Ore Bauxite
Brahmani Basin	Keonjhar Sundergarh	Daitari Birmaharajpur Rourkela	Iron Ore Lime Dolomite Quartzite
	Angul Jajpur	Talcher Sukinda	Coal Cromium Nickel Fire clay
Mahanadi Basin	Sundergarh Jharsuguda	Jharsuguda	Fire clay Coal Quartzite
	Sambalpur	Dungri	Lime Stone China Clay
	Sonepur	Sonepur	Precious Stone Graphite
	Boudh	Boudh	Precious Stone Manganese
	Phulbani	Phulbani	Manganese Precious Stone
	Cuttack	Choudwar	Fire Clay
	Bargarh	Bargarh	Graphite Lead Ore Bauxite
	Bolangir	Bolangir	Graphite Lime Stone
		Titilagarh	China Clay Lead Graphite Precious Stone
	Bhawanipatna	Bhawanipatna	Bauxite Quartzite
Indravati Basin Kolab	Nawarangpur Koraput	Boriguma Jeypore	China Clay Quartzite Bauxite (Panchapatimali)
	Malkangiri	Sunki -	Lime Stone Soap Stone Lime Stone
Nagavali Basin Vansadhara Rushikulya Bahuda	Rayagada - - -	Kasipur - - -	Bauxite - - -

Source : Economic Survey – 1998-99

TABLE 43 Estimated Industrial Water Demand

Basin	Demand in million m ³	
	Demand (2001)	Demand(2051)
Mahanadi	267.50	521.40
Brahmani	84.40	187.50*
Baitarani	63.20	139.90
Rushikulya	48.60	96.40
Vansadhara	16.90	37.50
Nagavali	9.15	18.92
Kolab	22.40	49.5
Indravati	21.00	45.50
Bahuda	4.70	9.40
Subarnarekha	7.03	14.69
Budhabalang & Jambhira	22.70	47.70
Total	568	1168

Source: DoWR

* Likely to Grow to 562 million m³

TABLE 44 Water Quality Criteria

Parameter	Quality criteria				
	Class-A	Class-B	Class-C	Class-D	Class-E
pH	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.0-8.5
DO(mg/l) Minimum	6.0	5.0	4.0	4.0	-
BOD(mg/l)Max.	2.0	3.0	3.0	-	-
TC(MPN/100ml) Max	50	500	5000	-	-
Am-N (mg/l) Max	-	-	-	1.2	-
EC(micro mhos/cm) Max	-	-	-	1000	2250
SAR Max	-	-	-	-	26
B (mg/l) Max	-	-	-	-	2.0

Source: Orissa State Pollution Control Board

TABLE 45 Water Quality of River Mahanadi (Annual Average Data of 2002)

Location	Value of Parameters			
	pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100ml)
Sundergarh	7.81	8.07	2.11	975.00
Jharsuguda	7.89	7.91	2.35	3104.17
Brajrajnagar U/S	7.84	7.99	2.32	1025.83
Brajarajnagar D/S	7.88	7.5	2.92	2825.00
Hirakud Reservoir	7.89	8.5	1.95	510.00
Sambalpur U/S	7.85	8.0	2.39	2889.17
Sambalpur D/S	8.09	7.16	4.04	10758.00
Sonepur U/S	7.88	8.0	1.75	987.5
Soneplur D/S	7.94	7.43	3.0	2725.00
Tikarapada	7.84	7.85	2.48	632.5
Narasinghpur	8.17	8.07	1.77	1420.00
Cuttack U/S	7.89	8.43	2.36	1556.67
Cuttack D/S	7.96	7.62	3.59	10860.00
Kathajodi D/S	7.89	7.06	4.25	14760.00
Kuakhai U/S	7.87	8.15	2.59	4857.5
Kuakhai D/S	7.91	6.96	3.91	10293.64
Choudwar D/S at Birupa	8.03	7.3	2.13	2700.00
Paradeep D/S	8.1	6.53	4.95	25875.00
Acceptable	6.5-8.5	4 and above	3 or less	5000 or less

Source: State Pollution Control Board.

TABLE 46 Brahmani River: Range of SI and DI values observed in 2002 and 2003

Monitoring Station	SI – Range		DI -Range	
	2002	2003	2002	2003
Panposh (U/S)	5.0 – 9.0	4.2 – 6.0	0.33 – 0.74	0.38 – 0.66
Panposh (D/S)	4.3 – 5.3	3.6 – 4.9	0.31 – 0.47	0.32 – 0.42
Rourkela(D/S)	5.0 – 5.8	5.2 – 5.6	0.42 – 0.68	0.44 – 0.56
Bonaigarh	5.6 – 6.3	5.3 – 5.8	0.47 – 0.54	0.46 – 0.62
Rengali	5.0 – 5.8	5.1 – 5.8	0.38 – 0.60	0.46 – 0.60
Samal	5.0 – 5.8	5.0 – 5.6	0.42 – 0.49	0.58 – 0.68
Talcher (U/S)	5.1 – 5.6	5.3 – 5.7	0.42 – 0.80	0.46 – 0.46
Talcher (D/S)	4.8 – 5.6	4.8 – 5.1	0.33 – 0.48	0.30 – 0.44
Bhuban	5.3 – 5.6	5.1 – 5.8	0.32 – 0.60	0.49 – 0.56
Dharmasala	5.8 – 6.3	4.9 – 5.4	0.47 – 0.74	0.47 – 0.60
Pattamundai	5.2 – 6.3	5.1 – 5.8	0.36 – 0.66	0.40 – 0.62

Source: DoWR

TABLE 47 Brahmani River: Violation of Fecal Coliform Norms

Monitoring Station	Percentage Violations from 2000 MPN / 100 ml (Range of FC Values in '000 MPN/100ml)			
	2000	2001	2002	2003
Panposh (U/S)	0 (0.2 - 1.1)	25 (0.07 – 2.10)	33 (0.07 – 3.00)	27 (0.34 – 3.30)
Panposh (D/S)	67 (1.5 – 24.0)	92 (0.93 – 11.00)	92 (0.50 – 60)	100 (2.20 – 30.00)
Rourkela (D/S)	17 (0.07 – 6.30)	42 (0.21 – 11.00)	92 (0.20 - 13.00)	91 (0.90 – 8.00)
Bonaigarh	0 (0.05 – 0.33)	0 (0.23 – 1.10)	0 (0.11 – 0.80)	0 (0.23 – 0.70)
Rengali	0 (0.002 – 0.28)	0 (0.04 – 0.90)	0 (0.04 – 0.90)	0 (0.06 – 0.28)
Samal	0 (0.05 – 0.18)	0 (0.03 – 0.93)	25 (0.04 – 2.20)	0 (0.11 – 0.79)
Talcher (U/S)	0 (0.08 – 0.64)	0 (0.07 – 1.50)	0 (0.08 – 0.50)	0 (0.21 – 1.70)
Talcher (D/S)	0 (0.07 - 1.10)	50 (0.50 – 4.60)	50 (1.10 – 2.40)	60 (0.26 – 7.90)
Bhuban	0 (0.09 – 0.49)	13 (0.07 – 2.40)	50 (0.28 – 11.00)	40 (0.70 – 2.20)
Dharmasala	8 (0.22 – 11.00)	0 (0.09 – 0.93)	25 (0.20 – 2.20)	0 (0.22 – 0.79)
Pattamundai	0 (0.03 – 0.70)	17 (0.23 – 9.3)	8 (0.09 – 2.40)	27 (0.26 – 3.50)

Source: DoWR
MPN: Maximum Probable Number.

TABLE 48 Brahmani River: Summary of Water Quality Assessment Results

Monitoring Station	Use based		Biological		Degree of wholesomeness	
	Class	Parameter (s) responsible for down grading the water quality	Status of pollution	Parameter (s) responsible for down grading the water quality	Level	Parameter (s) responsible for down grading the water quality
Panposh (U/S)	C/D/E	TC	Slight to Moderate Pollution	SI, DI and BOD	Below Acceptable	FC
Panposh (D/S)	E	BOD, TC, Amm – N	Slight to Moderate Pollution	SI, DI and BOD	Below Acceptable	FC
Rourkela (D/S)	D	BOD, TC	Slight to Moderate Pollution	SI, DI and BOD	Below Acceptable	FC
Bonaigarh	C/D/E	TC	Slight to Moderate Pollution	SI, DI and BOD	Acceptable	FC
Rengali	C/D/E	TC	Slight to Moderate Pollution	SI, DI and BOD	Acceptable	FC
Samal	C/D/E	TC	Slight to Moderate Pollution	SI, DI and BOD	Acceptable	FC
Talcher (U/S)	C/D/E	TC	Slight to Moderate Pollution	SI, DI and BOD	Acceptable	FC
Talcher (D/S)	E	BOD, TC, Amm – N	Slight to Moderate Pollution	SI, DI and BOD	Below Acceptable	FC
Bhuban	C/D/E	TC	Slight to Moderate Pollution	SI, DI and BOD	Below Acceptable	FC
Dharmasala	C/D/E	TC	Slight to Moderate Pollution	SI, DI and BOD	Acceptable	FC
Pattamundai	C/D/E	TC	Slight to Moderate Pollution	SI, DI and BOD	Below Acceptable	FC

Source: DoWR

TABLE 49 Severe Storm Events

Duration of storm	Location	Maximum 3 day Precipitation (mm)	Area in km ² receiving rainfall				
			>400mm	>500mm	>600mm	>700mm	>800mm
1925 (28th-30th June)	Near Cuttack	600	12960	4160	960	0	0
1927 (28th-30th July)	Phulbani Karanja	500 700	12000	5440	3220	1760	0
1936 (13th-15th June)	Near Phulbani	800	9440	5980	2720	1535	320
1982 (28th-30th Aug.)	Phulbani	800	10400	7900	5920	1920	640
1999 (29th-30th Oct.)	Oupada Bhadrak	955 867	17463	7498	4260	2112	514

Source: DoWR

TABLE 50 Sectoral Composition (%) of NSDP (1997- 2000)

Sectors	
Agricultural and Animal Husbandry	30.75
Forestry and Logging	1.73
Fishing	2.91
Mining and Quarrying	7.16
PRIMARY	39.23
Manufacturing	6.14
(i) Registered	1.56
(ii) Unregistered	6.11
Electricity, Gas	1.03
Construction	4.22
SECONDARY	11.40
Trade, Hotels and Restaurants	19.73
Transport, Storage and Communications	3.02
Banking, Insurance, Real Estate and Business	9.31
Community Social and Personal Services	13.95
(i) Public Administration	5.90
(ii) Other Services	8.05
TERTIARY	46.03
NSDP	100.00

Source: Orissa Development Report.
NSDP: Net State Domestic Product.

Table 51 BASINWISE NUMBER OF LIVESTOCK & POULTRY

SL No.	BASIN	2001		2051	
		LIVE STOCK	POULTRY	LIVE STOCK	POULTRY
1	2	3	4	5	6
1	MAHANADI	11,722,419	5,861,210	15,475,102	7,737,551
2	BRAHMANI	3,674,971	1,837,485	4,618,280	2,309,140
3	BAITARANI	3,146,479	1,573,240	3,890,417	1,945,208
4	RUSHIKULYA	2,320,406	1,160,203	3,091,401	1,545,701
5	INDRAVATI	975,718	487,859	1,264,139	632,070
6	KOLAB	874,364	437,182	1,067,234	533,617
7	VANSADHARA	849,833	424,917	1,039,073	519,537
8	NAGAVALI	490,870	245,435	612,986	306,493
9	BUDHABALANG & JAMBHIRA	1,506,059	753,030	1,879,281	939,641
10	BAHUDA	234,122	117,061	321,310	160,655
11	SUBERNAREKHA	1,009,466	504,733	1,305,321	652,661
12	AREA DIRECTLY DRAINING TO SEA	1,284,835	642,417	2,150,708	1,075,354
	TOTAL	28,089,542	14,044,772	36,715,252	18,357,628

NOTE : live stock population is assumed to be 90% of rural population Poultry population is assumed to be 45% of rural population