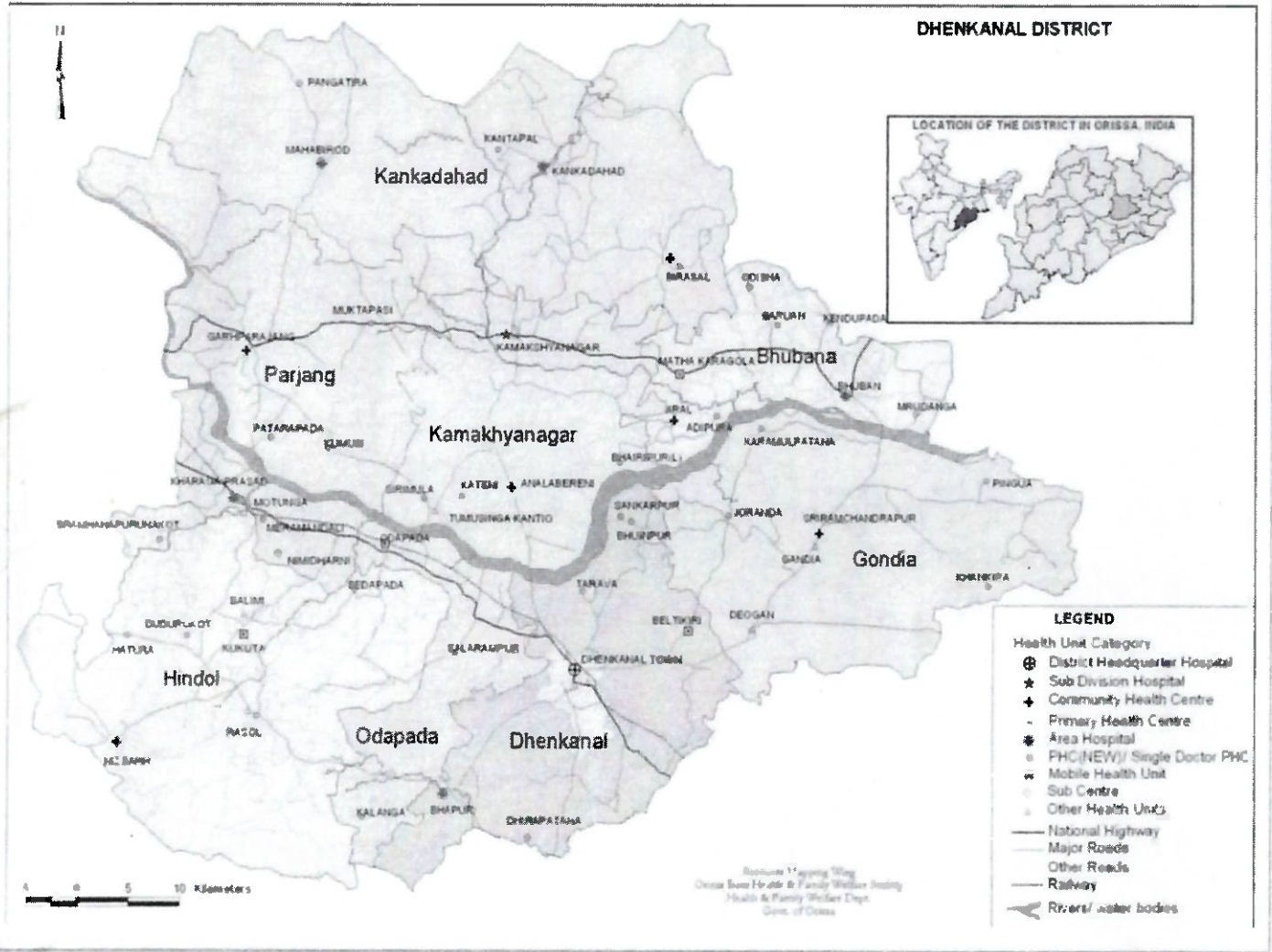


DISTRICT ENVIRONMENT PLAN FOR DHENKANAL DISTRICT, ODISHA

o/c



OFFICE OF THE COLLECTOR & DISTRICT MAGISTRATE, DHENKANAL

Office: Collectorate, Dhenkanal

**Address: Office of the Collector and District Magistrate, Collectrate,
Dhenkanal, PO-Dhenkanal, Dist-Dhenkanal, Odisha PIN- 759001**

E-Mail : dm-dhenkanal@nic.in

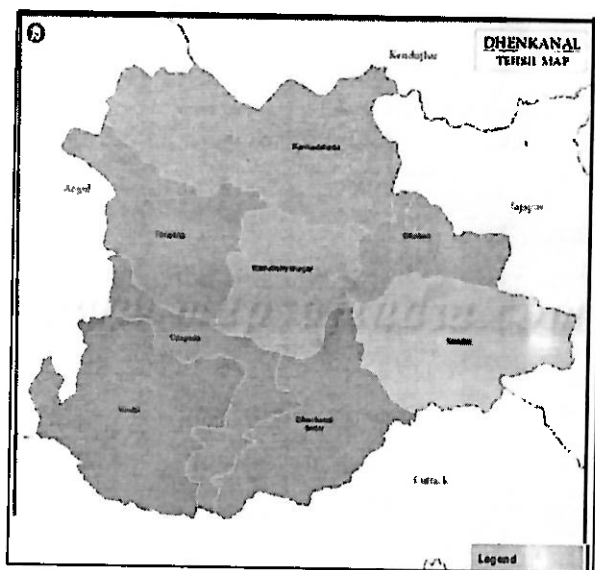
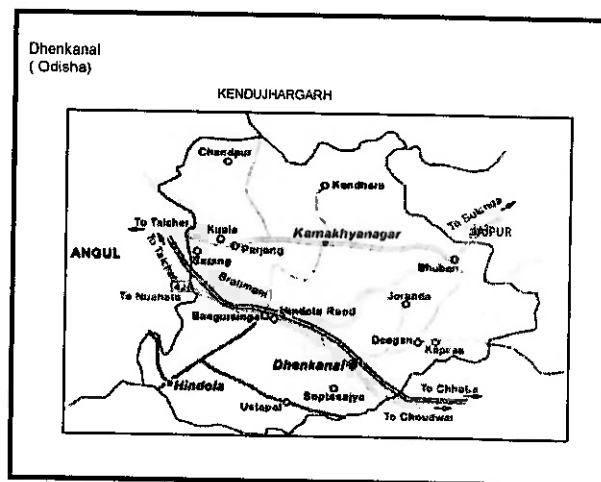
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HISTORICAL PERSPECTIVE:

The pre-historic habitations of the district can be seen from the Nasik Rock inscription which shows that, during 2nd Century, Dhenkanal was a part of the Satvahana Empire. In the 3rd and 4th Century, it was a part of the Gupta Empire. And during the 6th and 7th Century, it was occupied by the Bhauma Karas. The Sulki Dynasty ruled over some parts of Dhenkanal in 8th and 9th Century. The Somavansis ruled over

the part of this region followed by the Gangas. By the time the Suryavamsis had demerged in the political arena of Odisha, Dhenkanal was scattered in many small kingdoms. By 16th AD, a tribal chief namely 'Dhenka' was ruling over Ghumuranali, Dudianali and Kantanali.



He was Shabara by caste and a fierce fighter. However, Sridhar Bhanja of Besalia defeated and killed him in a battle. He named the kingdom thus acquired as "Dhenkanal" after the Shabarachief 'Dhenka'. Subsequently, Hari Singh Vidyadhar, the Commander of Gajapati Prataprudra Deva defeated the Bhanjakings and occupied Dhenkanal and Karamul, its capital in 1529 AD and ruled up to 1590 AD.

Subsequently, other kings ruled over the district by Loknath Ray Singh Bhramarbar (1594-1615), Balabhadra Ray Singh (1615-1641), Nilakantha Ray Singh (1641-1682), Rusingha Bhramarbar (1682-1708), Kunja Behari Bhramarbar (1708-1728), Braja Behari Bhramarbar (1728-1741), Damoodar Bhramarbar (1741-1743), Trilochan Singh (1743-1785), Dayanidhi Mohindra Bahadur (1785-1796), Ramachandra Mohindra Bahadur (1796-1807), Krishna Chandra Mohindra Bahadur (1807-1822), Shyama Chandra Mohindra Bahadur (1822-1830), Bhagiratha Mohindra Bahadur (1830-1873), Pitambar Deo (1873-1877),

Dinabandhu Mohindra Bahadur (1877-1885), Surya Pratap Mohindra Bahadur (Minor: 1885-1905), Surya Pratap Mohindra Bahadur (1905-1918), and Shankar Pratap Mohindra Bahadur (1918-1947). After independence in 1947, the Princely State of Dhenkanal merged into the state of Odisha. In later periods, their capital was shifted from Karamul to Dhenkanal and the kingdom was named Dhenkanal.

(Source-Dist. Planning and Monitoring Unit, Dhenkanal)

LOCATION OF DISTRICT:

Dhenkanal is one of the centrally located districts headquarter of Odisha with a cluster of temples and archeological remains is the gateway to one of the most ancient forest covers of Odisha which shelters the elephants, tigers and numerous species of birds and beasts. The district is spread over an area of 4452 square kilometers that stretches across the geographical. Dhenkanal is bounded on the north by the Keonjhar District, on the south by Cuttack District, on the east by Jajpur District and on the west by Angul District. The district is predominated by agrarian. Dhenkanal District is situated on the Cuttack-Sambalpur Road (NH 55) and the Cuttack Sambalpur East Coast Railway Line.

(Source-Dist. Planning and Monitoring Unit, Dhenkanal)

a. District Administrative Set-up

The district has a geographical area of 4452 sq. kms and having 4 towns. This district has got a total population of 11,93,000 comprising 6,12,593 males and 5,80,218 females as per 2011 census. The total SC population of the district is 2,34,079 and ST population is 1,62,056 as per 2011 census. The Dhenkanal district is divided into three administrative Sub-Divisions namely (i) Dhenkanal Sadar Sub-Division with head quarters at Dhenkanal, (ii) Hindol Sub-Division with head quarters at Hindol (iii) Kamakhyanagar Sub-Division with head quarters at Kamakhyanagar. The average literacy rate of the district is 78.8 percent against which the male literacy is 86.2 percent and 71.0 percent female literacy. Dhenkanal district has three Sub-Division, 8 Blocks, 8 Tahasils, 1076 inhabited villages, 198 Gram Panchayats and 12 Police stations functioning in the district.

District Environment Plan [Dhenkanal]

Table 1, Administrative Set-up of Dhenkanal District

Geographical Area	4452 Sq. Kms.
Number of Sub-Division	3 [Sadar, Hindol and Kamakhyanagar]
Number of Tehsils	8 (Dhenkanal Sadar, Gandia, Odapada, Hindol Sadar, Bhuban, Kamakhyanagar, Kanakdahada and Pariang)
Number of C.D Blocks	8 (Dhenkanal Sadar, Gandia, Odapada, Hindol Sadar, Bhuban, Kamakhyanagar, Kanakdahada and Parjang)
Number of NACs	3 (Bhuban, Kamakhyanagar and Hindol)
Number of Municipalities	1 (Dhenkanal)
No. of Police Stations	15
No. Fire Stations	10
No. of Grampanchayat (GP)	212
No. of Villages	1208
No. of Inhabited Villages	1081
No. of Uninhabited Villages	127
No. Assembly Constituencies	4

Source: The District Portal of Dhenkanal, District Statistical Handbook, Dhenkanal and provided by Dist. Planning and Monitoring Unit, Dhenkanal

b. Local institutions

Dhenkanal District consists of 1237 Villages, 212 Gram Panchayats, 8 Tehsils, 3 Notified Area Councils or NACs & and 15 Police Stations. Northern Revenue Division is the controlling authority controlling the administration of Dhenkanal District and DIG of Police, Northern Central Range at Talcher controls this District & law and order.

Major Administrative Set up

- No of Sub-Divisions-3
- No of Blocks-8
- No of Tahasils-8
- No of ULBs-4
- No of RI Circles-50
- No of Police Stations-15

c. Natural Resources

• **Water bodies**

Brahmani-The river Brahmani is the life line of Dhenkanal District. It originates from Chotnagpur plateau of Jharkhand in the names of Koel and Sankh. Both the rivers join together at Panposh in Sundargarh District and the downstream is named Brahmani till it meets the Bay of Bengal in Kendrapada District. The river Brahmani touches Dhenkanal District at extreme western end near Jaka of Kamakhyanagar Sub-Division and flows in the middle of the District up to border of Dhenkanal and Jajpur District near Nihalprasad. On its way in Dhenkanal District it is supplemented with the runoff from the catchments of both sides. The following are tributaries and feeders of Brahmani. There is also a tributary of Mahanadi.

Ramial-It is the biggest tributary of the river Brahmani originating from Benamunda Reserve Forest of Keonjhar District. Flowing through Kamakhyanagar, Kankadahad Bhuban Block it meets the river Brahmani at Bhuban. Ragadinala- This nala is a feeder of Ramial originating from Ranjagada Reserve Forest and meets Ramial near Ranjagarh.

Pichhuli- This is a feeder of Ramial. It originates from Rebena Forest Block of Keonjhar District and joins Ramial near Ranjagarh. Doliajora- This is a feeder of Ramial. It originates from Keonjhar and joins the river Ramial near Anantpur RF.

Lingarajora- This is a feeder of the Brahmani on its right. It originates from Similipathar of Angul District and flowing through Hindol Sub-Division meets Brahmani at Meramundali. Badajora- This is a feeder of the Brahmani. It originates from forest area of Kantapal of Hindol Sub-Division and joins the rivers Brahmani at Bangurisingha.

Daunsinala- This is a feeder of the river Brahmani. It originates from Aswakhola Forest Block; flowing through Matiasahi it joins the river Brahmani at Kathapal.

Deulinala- This is a feeder of the river Brahmani. It originates from Kapilash Forest Block. Passing through Ramai Forest Block it joins Brahmani at Joranda, Kathapal.

Other Dams like-Dandhadhar Dam, Sapua Dam, Dadaraghati Dam are also important part of this District against Water bodies.

• **Forest Cover**

The climatic variations influence the formation of floral types occurring in the forest. The northern side has tropical moist deciduous forests which tend to become semi evergreen towards the south and southeast. In the dumper pockets evergreen forests are seen. The hill ranges stretch over a length of about 32 kilometres constituting mostly of Anantpur and Ranjagarh RF blocks. The highest peak in this range is Sarai Parbat (734.568 metres) in Ranjagarh RF. Out of 4452 square kilometres geographical area of the district, 1399 square kilometres is covered with forest. The forest cover includes 172 square kilometers very dense Forest, 346 square kilometers of moderately dense forest, and 881 square kilometers of open forest which is 31.4 per cent of the geographical area. Total DLC forest area in the district is 1737.62 square kilometres.. The Forest wise breakup details as below.

FOREST AREA	
Type of Forests	Area as per Notification/Govt. record (in ha.)
(1)	(2)
1. Reserve Forest (65 Blocks)	1,16,363.31
2. D.P.F. (47 Nos.)	13,008.17
3. Village Forests (217 Nos.)	1,478.18
4. Protected Forests (04 Nos)	124.46
6. Debottar Forests	5,261.00
7. Unclassed Forests	4.00
Total	1,39,873.12

The forest area of Dhenkanal Forest Division as per DLC report is as under

Sl.No.	Category of Forests	Area (in Ha)
(1)	(2)	(3)
1.	Reserve Forest	1,14,101.8200
2.	Village Forest	1,378.9672
3.	Forest as per Revenue Records including DPF	58,277.8840
4.	Un-classed Forests	4.0000
5.	Area not recorded as forest but which are sizable compact areas of natural Forest Growth and Plantations of Forest Species both on Government and Private land.	5,057.9181
	Total	1,78,820.5893 Ha. or 1788.20 Sq.Km.

District Environment Plan [Dhenkanal]

Top Canopy trees are deciduous and remain leafless for a shorter period of time but the middle story is mostly evergreen having species like shoriarobusta, Madhuca Indica, saraca indica, cane, mangifera indica, etc. The forests are confined to the damper pockets in valley, and nallah banks with a few expectations on the hill slopes.

The vegetation in the valley comprises drier type of crop whereas higher slopes contain semi evergreen species. Thus, unusual phenomenon may be due to availability of moisture by way of heavy moist occurring upto late morning hours. Sal and Kangada are the usual associates in the higher altitude, which are gradually replaced by Bamboo at the foothills. Good forests of Dhenkanal like Ranjagarh, Anantpur, Kandhara, Hitinda, Bumpa, and Patala are contiguous to the Forests of Satkosia of Angul, Keonjhar division and sukinda belt of Cuttack district. Thus, it functions as a corridor for terrestrial migratory animals. So, the forests are rich in the fauna species. The district covers 30% forest cover of the total area.

d. Geography & Demography

As per 2011 census, Dhenkanal has a population of 1,192,811 of which male and female are 612,593 and 580,218 respectively. In 2001 census, Dhenkanal had a population of 1,066,878 of which males were 544,001 and remaining 522,877 were females. Population of Dhenkanal District constitutes 2.84 percent of total Odisha in 2011 against 2.90 in 2001. The population growth in the district in 2011 over 2001 was 11.80 percent as compared to 12.56 percent in 2001.

The 2011 census shows that population density of Dhenkanal district is 268 per sq km against 240 in 2001. Dhenkanal district administers 4,452 square kilometers of areas. With regards to Sex Ratio in Dhenkanal, it stood at 947 per 1000 male compared to 2001 census figure of 961. The average national sex ratio in India is 940 as per latest reports of Census 2011 Directorate. In 2011 census, child sex ratio is 877 girls per 1000 boys compared to figure of 925 girls per 1000 boys of 2001 census data.

In regard to child under 0-6 age, there are 139,096 children in the district in 2011 against 145,857 in 2001. Of the total of 139,096, male and female were 74,093 and 65,003 respectively. Child Sex Ratio as per census 2011 was 877 compared to 925 of census 2001. In 2011, Children under 0-6 formed 11.66 percent of Dhenkanal District compared to 13.67 percent of 2001. There was net change' of -2.01 percent in this compared to previous census year.

Table 2, Population Characteristics 2011 and 2001.

Description	2011	2001

DistrictEnvironmentPlan[Dhenkanal]

ActualPopulation	1,192,811	1,066,878
Male	612,593	544,001
Female	580,218	522,877
PopulationGrowth	11.80%	12.56%
AreaSq.Km	4,452	4,452
Density/km2	268	240
ProportiontoOdishaPopulation	2.84%	2.90%
SexRatio(Per1000)	947	961
ChildSexRatio(0-6Age)	877	925
AverageLiteracy	78.76	69.42
MaleLiteracy	86.18	80.57
FemaleLiteracy	71.00	57.89
TotalChildPopulation(0-6Age)	139,096	145,857
MalePopulation (0-6Age)	74,093	75,765
FemalePopulation(0-6Age)	65,003	70,092
Literates	829,910	639,363
MaleLiterates	464,093	377,237
FemaleLiterates	365,817	262,126
ChildProportion(0-6Age)	11.66%	13.67%
BoysProportion(0-6Age)	12.09%	13.93%
GirlsProportion(0-6Age)	11.20%	13.41%

Table3, Rural and Urban Characteristics of the Population in 2011.

Description	Rural	Urban
Population(%)	90.15%	9.85%
TotalPopulation	1,075,305	117,506
MalePopulation	551,326	61,267
FemalePopulation	523,979	56,239
SexRatio	950	918
Child SexRatio(0-6)	877	883
ChildPopulation(0-6)	127,334	11,762
MaleChild(0-6)	67,847	6,246
FemaleChild(0-6)	59,487	5,516

District Environment Plan [Dhenkanal]

Child Percentage (0-6)	11.84%	10.01%
Male Child Percentage	12.31%	10.19%
Female Child Percentage	11.35%	9.81%
Literates	735,523	94,387
Male Literates	412,767	51,326
Female Literates	322,756	43,061
Average Literacy	77.59%	89.26%
Male Literacy	85.37%	93.28%
Female Literacy	69.49%	84.89%

Out of the total population, 9.85 percent live in urban regions of district. In total 117,506 people live in urban areas of which males are 61,267 and females are 56,239. Sex Ratio in urban region of Dhenkanal district is 918 as per 2011 census. Similarly, child sex ratio in Dhenkanal district was 883 in 2011 census. Child population (0-6) in urban region was 11,762 of which males and females were 6,246 and 5,516. This child population figure of Dhenkanal district is 10.19 % of total urban population. Average literacy rate in Dhenkanal district as per census 2011 is 89.26 % of which males and females are 93.28 % and 84.89% respectively. In actual number 94,387 people are literate in urban region of which males and females are 51,326 and 43,061 respectively.

As per 2011 census, 90.15 % population of Dhenkanal districts live in rural areas in villages. The total Dhenkanal district population living in rural areas is 1,075,305 of which males and females are 551,326 and 523,979 respectively. In rural areas of Dhenkanal district, sex ratio is 950 females per 1000 males. The sex ratio of Dhenkanal district is 877 girls per 1000 boys. Child population in the age 0-6 is 127,334 in rural areas of which males were 67,847 and females were 59,487. The child population comprises 12.31 % of total rural population of Dhenkanal district. Literacy rate in rural areas of Dhenkanal district is 77.59 % as per census data 2011. Genderwise, male and female literacy stood at 85.37 and 69.49 percent respectively. In total, 735,523 people were literate of which males and females were 412,767 and 322,756 respectively.

(Source- District Planning and Monitoring Unit, Dhenkanal)

DISTRICT DEVELOPMENT INDICATORS:

In 2011, the average literacy rate of Dhenkanal is 78.76 percent as compared to 69.42 percent in 2001. If things are looked out at gender wise, male and female literacy are 86.18 and 71.00 respectively. For 2001 census, same figures stood at 80.57 and 57.89 in Dhenkanal district. Total literate population of Dhenkanal district is 829,910 of which males and females are 464,093 and 365,817 respectively. In 2001, Dhenkanal District literate population was 639,363 in the district. Selected Development indicators of Dhenkanal district are presented in the following table.

Table 4, Comparative Development Indicators of the District Vis-à-vis the State					
Sl	Item	Ref. Period	Unit	Dhenkanal	State
1	Geographical Area	Census 2011	Sq.Km.	4452	155707
2	% Share of Geographical area to State area	Census 2011		2.86	100
3	Population Male Female Total	Census 2011	'000No. '000No. '000No.	613 580 1193	21212 20762 41974
4	% share of Population to State Population	Census 2011		2.84	100
5	SC Population	Census 2011	No	234079	
6	ST Population	Census 2011	No	162056	
7	SC Population	Census 2011	% of TP	19.6	17.10
8	ST Population	Census 2011	% of TP	13.6	22.80
9	Overall Sex Ratio (Female per '000 population)	Census 2011	No.	947	979
10	Sex Ratio among SC (Female per '000 population)	Census 2011	No.	971	987
11	Sex Ratio among ST (Female per '000 population)	Census 2011	No.	100	1029
12	Child Sex Ratio (0-6 years)	Census 2001	No.	925	953
13	Child Sex Ratio (0-6 years)	Census 2011	No.	877	941
14	Density of population per sq.km. area	Census 2011	No.	268	270
15	Decadal Growth Rate of Population	2001-2011		11.8	14.0
16	% of Urban Population	Census 2011		9.9	16.7
17	% of SC Population	Census 2011		19.6	17.1
18	% of ST Population	Census 2011		13.6	22.8

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19	% of population in the age group 0-6 to total population Male Female Total	Census 2011		12.1 11.2 11.7	12.8 12.3 12.6
20	Literates Male Female Total	Census 2011	000No. '000No. '000No.	464 366 830	15090 11653 26743
21	Overall Literacy Rate Male Female Total	Census 2011		86.2 71.0 78.8	81.6 64.0 72.9
22	% of total workers to total population	Census 2011		36.5	41.8
23	% of main workers to total population	Census 2011		23.2	25.5
24	% of marginal workers to total, population	Census 2011		8.0	7.4
25	% of non-workers to total population	Census 2011		63.5	58.2
26	% of main workers to total workers	Census 2011		63.7	61.0
27	% of marginal workers to total workers	Census 2011		28.0	26.1
28	% of cultivators to total workers	Census 2011		16.4	23.4
29	% of Agriculture labourers to total workers	Census 2011		37.6	38.4
30	% of household industry workers to total workers	Census 2011		4.0	4.5
31	Average size of operational holding	2000-01	Ha.	0.16	1.25
32	Yield Rate of Rice Kharif Rabi Total	2011-12	Kg./Ha.	2099 2142 2103	1360 1455 1472
33	Yield Rate of Wheat	2011-12	Kg./Ha.	1750	1686
34	Yield Rate of Maize	2011-12	Kg./Ha.	1544	2321
35	Yield Rate of Ragi	2011-12	Kg./Ha.	592	895
36	Yield Rate of Groundnut	2011-12	Kg./Ha.	1741	1707
37	Cropping Intensity	2011-12	%	187	166
38	% of net irrigated area to net Area sown	2011-12		51.13	57.24
39	Rate of fertilizer consumption	2011-12	Kg./Ha.	32.07	62.25
40	% of forest area of geographical area	2007-08		39.03	37.34
41	% share of forest area to State Forest area	2007-08		2.99	100
42	% of villages electrified	2011-12		97.1	82.8

District Environment Plan [Dhenkanal]

43	Road Length per 1000sq.km of area	2011-12	Km.	1219	1448
44	Govt. Medical institutions per lakh of population	2011-12	No.	8	7
45	Govt. Medical institutions per '000sq.km of area	2011-12	No.	21	20
46	No. of primary schools per lakh of population	2011-12	No.	121	131
47	No. of primary schools per 100-sq.km. of area	2011-12	No.	32	31
48	Teacher Pupil Ratio in Primary School		No.	1:25	1:33
49	% of BPL population (1997 BPL Census)	1997		62.63	66.37
50	Human Development Index	2001		0.591	0.579
51	Gross District Domestic Product (GDDP) as percentage Share of Gross State Domestic Product (GSDP) at current Prices	2009-10		2.55	100.00
52	Gross District Domestic Product (GDDP) as percentage Share of Gross State Domestic Product (GSDP) at 2004-05 Prices	2009-10		2.56	100.00
53	Per Capita Net District Domestic Product at current prices	2009-10		95	100
54	Per Capita Net District Domestic Product at 2004-05 prices	2009-10		96	100
55	Per capita Egg Consumption	2011-12	No.	6	5
56	Per Capita Milk Consumption	2011-12	Gm.	45	41
57	Infant Mortality Rate	2011		69	57
58	Crude Birth Rate	2011		20.9	19.8
59	Crude Death Rate	2011		10.6	8.2

(Source- District Planning and Monitoring Unit, Dhenkanal)

e. Land-use pattern**Land Use Pattern of Dhenkanal District**

Geographical Area	Area under Forest (Ha.)	NET Sown Area (Ha.)	Cropped Area (Ha.)	Area Irrigated (Ha.)	% of Net area irrigated to total area sown
430477	174000	168536	183841	93287	50.74

(Source- Chief District Agriculture Officer, Dhenkanal)

f. Climate

Centrally located on the Geo-Political map of Odisha, Dhenkanal District is surrounded by beautiful wild lives and forests. It has a vast area covered with dense forests and a long range of hills. This is the reason of calling the district as 'Home of Elephants and tigers of the country'. The district lies between 85 degree 58' E to 86 degree to 2' E longitude and between 20 degree 29' N to 21 degree 11' N latitude. Dhenkanal District has a moderate climate. The district experiences hot with high humidity during April and May and cold during the winter months, i.e. December and January. The monsoon generally breaks during the month of June with the average annual rainfall being 1421.1 mm.

2.0 Indicative Gap Analysis and Action Plans for complying with Waste Management Rules

(i) Solid Waste Management

a. Current status related to solid Waste management

S. No.	Urban Local bodies	No of Wards	No of Households	Population [as per 2011 census]	Solid Waste Generated per day
1.	Municipal corporations (Nagar Nigam or MahanagarPalika)	Nil	Nil	Nil	Nil
2.	Municipalities (Nagar Palikas)				
	Dhenkanal	23	16649	67414	25 TPD
3.	Nagar panchayats (Town area Councils)				
	Kamakhyanagar NAC	15	3965	16810	2.5 TPD
	Hindol NAC	16	3521	17387	1.5 TPD
	Bhuban NAC	15	7553	22552	6.76 MT

District Environment Plan [Dhenkanal]

b. Identification of gaps and Action plan:

S. No.	Action points for villages / blocks / town / municipalities / City corporations	Identification of gap	Action Plan	Responsible agencies	Timeline for completion of action plan
1.	Segregation				
(i)	Segregation of waste at source	Whether segregation at source practiced by households and other waste generators	Action plan to achieve segregation at source. Awareness programs, incentives, etc. may be considered	Dhenkanal Municipality Angul Municipality All NACs All Gram Panchayat	3 Months
2.	Sweeping				
(i)	Manual Sweeping	Example: - 90% Or length of road not covered for regular sweeping - Gaps in manpower - Gap in availability of sweeping tools/ equipment Availability of suitable PPEs	Handy manual drive sweeping tools (vacuum type) & small motorized equipment for transportation to main collection Points to reduce direct contact with wastes.	Dhenkanal Municipality Angul Municipality All NACs All Gram Panchayat	3 Months
(ii)	Mechanical Road Sweeping & Collection	No provision of Mechanical road sweeping systems	2 nos Truck mounted vacuum type road sweeping machines required for 4 lane/ 2 Lane roads per 50 km in urban areas. At least 1no tractor/small vehicle mounted vacuum type road sweeping machines required for single lane/ RD roads for Urban & GP areas. Supply of adequate PPEs for sweepers & workers.	Dhenkanal Municipality Angul Municipality All NACs All Gram Panchayat	6 Months
3.	Waste Collection				
(i)	100% collection of solid waste	About 70 to 80% waste collection being carried out on daily basis by ULBs & less than 50%	Deployment of mechanical transportation systems.	Dhenkanal Municipality Angul Municipality All NACs	3 Months

District Environment Plan [Dhenkanal]

		in Rural areas. Inadequate collection Bins/ community Bins	Clear Demarcation of waste collection stations. Fixing of responsibilities on Bulk generators for collection of segregated wastes	All Gram Panchayat	
(ii)	Arrangement for door-to-door collection	100% & 50% door to door collection systems provided at Angul, Dhenkanal, and Talcher respectively. No door to door collection systems in GPs.	Deployment of outsourced agencies, NGOs in rest of Urban/Semi-Urban areas & completely in Rural areas.	Dhenkanal Municipality Angul Municipality, Talcher Municipality All NACs All Gram Panchayat	3 Months
(iii)	Waste Collection trolleys with separate compartments	100% has been provided in narrow lanes & Slums in ULBs. Manual collection in most part of Rural areas	Action plan for procurement of trolley required	Dhenkanal Municipality Angul Municipality, Talcher Municipality All NACs All Gram Panchayat	3 Months
(iv)	Mini Collection Trucks with separate compartments	Check if adequate or needs Upgradation or not required. Manual Collection in most part of Rural Areas.	Phase-out of existing Diesel mini collection Trucks & switch over to 100% mini E vehicles with separate compartments All additional nos & nos mini collection Trucks required for Urban & Semi Urban (Block Headquarters,) areas respectively shall be replaced by Small E vehicles with separate compartments	Dhenkanal Municipality Angul Municipality, Talcher Municipality All NACs All Gram Panchayat	3 Months
(v)	Waste Deposition centres (for domestic hazardous wastes)	No provision has been made in Urban or in GPs.	At least 2 nos in each ULBs & one in each GP Headquarters to be declared as Waste deposition centers for	Dhenkanal Municipality Angul Municipality, Talcher Municipality	3 Months

District Environment Plan [Dhenkanal]

			domestic Hazardous wastes & to be linked with authorized recyclers for disposal.	All NACs All Gram Panchayat	
4.	Waste Transport				
(i)	Review existing infrastructure for waste Transport.	Waste Transport facilities not adequate No mechanical Transport facilities in GPs.	Additional Nos of Mini E Vehicles with separate compartments required for Dhenkanal, Angul & Talcher respectively. Tri cycle with separate compartments in each village & Mini E Vehicles with separate compartments in each GP Headquarters & for semi urban areas.	Dhenkanal Municipality Angul Municipality, Talcher Municipality All NACs All Gram Panchayat	3 Months
(ii)	Bulk Waste Trucks	No Bulk waste Trucks available	At least 01 no Bulk waste Truck (preferably E Truck) required and Mini E Trucks with separate compartments in each GP Headquarters & for semi urban areas.	Dhenkanal Municipality Angul Municipality, Talcher Municipality All NACs All Gram Panchayat	3 Months
(iii)	Waste Transfer points	No waste Transfer Points exist.	At least 01 no Waste Transfer Point is required in each ULB for recyclable materials transportation to recyclers.	Dhenkanal Municipality Angul Municipality, Talcher Municipality All NACs All Gram Panchayat	3 Months

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5. Waste Treatment and Disposal					
(i)	Wet-waste Management: On-site composting by bulk waste generators (Authority may decide on requirement as per Rules)	Identification of Bulk waste generators in ULBs & GPs yet to be done. Provision for direct supply of segregated vegetable wastes from Vegetable Markets, Mundies to Dairy farms & Gaushalas as cattle feeds.	Listing of Bulk Waste generators in ULBs & GPs. Provision of legal binding for installation & proper functioning of onsite composting facilities for Bulk waste Generators during approval of Building & other plans.	Dhenkanal Municipality Angul Municipality, Talcher Municipality All NACs Town Planning & Development Authority & Block level authority. All Gram Panchayat	3 Months
(ii)	Wet-waste Management: Facility(ies) for central Bio methanation / Composting of wets waste.	No facilities for central Biomethanation / Composting of wets waste.	Central Biomethanation / Composting of wets wastes facility needs to be installed if Population exceeds 1 Lakh.	Dhenkanal Municipality Angul Municipality, Talcher Municipality All NACs All Gram Panchayat	3 Months
(iii)	Dry-Waste Management: Material Recovery for dry-waste fraction	One MRF exists in each ULB. No MRF in GP Headquarters. No waste to Energy Plant. No tie up with authorized recyclers.	One MRF in each GP Head quarters Feasibility study of one Waste to Energy plant considering 2 ULBs, Agro wastes from local villages etc. Tie up with authorized recyclers for MRFs.	Dhenkanal Municipality Angul Municipality, Talcher Municipality All NACs All Gram Panchayat	3 Months
(iv)	Disposal of inert and non- recyclable wastes: Sanitary Landfill	No proper sanitary land fill sites exist. Parts of SW still being disposed of by open dumping.	At least one properly Designed Sanitary Land Fill site required in each ULB & GP Head quarter for disposal of compost rejects, inert materials.	Dhenkanal Municipality Angul Municipality, Talcher Municipality, All NACs, All Gram Panchayat	12 Months

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			Ensure maximum Recovery, Reuse & Recycle policy to minimize land filling.		
(v)	Remediation of historic / legacy dumpsite	Nos of legacy dump sites exist in ULBs. No remediation of legacy dump sites has been initiated.	Proper identification & Remediation plan for each legacy dump sites in ULBs needs to be prepared & implemented.	Dhenkanal Municipality Angul Municipality, Talcher Municipality All NACs All Gram Panchayat	3 Months
(vi)	Involvement of NGOs	Involvement of NGOs yet to be envisaged	Listing of NGOs & fund allocation required for management of solid waste campaign.	Dhenkanal Municipality Angul Municipality, Talcher Municipality All NACs All Gram Panchayat	3 Months
(vii)	EPR of Producers: Linkage with Producers / Brand Owners	Identification yet to be done. Lack of legal provisions for fixing responsibility	Listing of producers/Brand owners of packaging wastes. Setting up of collection centers for packaging wastes by producers/Brand owners in each ULBs & GP head quarters. Inclusion of EPR in by laws of ULBs & GPs & also fixing responsibilities on whole sellers/Vendors/ Market associations.	Dhenkanal Municipality Angul Municipality, Talcher Municipality All NACs All Gram Panchayat	3 Months
(viii)	Authorization of Waste Pickers	Yes	Detail List preparation in each ULBs, GPs & Semi Urban areas.	Dhenkanal Municipality Angul Municipality, Talcher Municipality All NACs All Gram Panchayat	3 Months
(ix)	Preparation of own by-laws to comply with SWM Rules 2016	Yes	No action required		

(Source- State Pollution Control Board, Angul, Dhenkanal Municipality,

(ii) Plastic waste Management

(a) Current status related to Plastic waste management

S. No.	Urban Local bodies	Estimated quantity of Plastic Waste Generated per day
1.	Municipal corporations (Nagar Nigam or Mahanagar Palika)	Not applicable
2.	Municipalities (Nagar Palikas)	7.5 TPD
3.	Nagar panchayats (Town area Councils)	-
	Kamakhyanagar NAC	0.5
	Bhuban NAC	5 KG
	Hindol NAC	0.5

(b) Identification of gaps and Action plan:

S. No.	Action points for villages panchayats/ blocks/ town/ municipalities / City corporations	Identification of gap	Action Plan	Responsible agencies	Timeline for completion of action plan
1.	Door to Door collection of dry waste including PW	10% gap	90 % door-to-door collection of plastic waste being done	Dhenkanal Municipality & MSG	Already ensured
		[100%] / [partial %] / [not initiated]	If not 100 %, action plan for door-to-door collection of SW	100 % for Kamakhyangar NAC	-
				Bhuban NAC	-
				100 % for Hindol NAC	-

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2.	Facilitate organized collection of PW at Waste transfer point or Material Recovery Facility	0% gap	Already ensured Municipality has already 03 nos. of Material Recovery Facilities Centre These MRF Centres being managed by MSG & TG Groups 33 nos. Waste pickers are registered and also engaged in MRF centres. Plastic waste pickers and recyclers already been identified	TECORT Technology Pvt. Ltd & Mission Shakti Group at Dhenkanal Municipality ECORT Technology Pvt. Ltd. & Mission Shakti Groups at Dhenkanal Municipality	Already being ensured
		This infrastructure is linked to SW management. May check gaps with respect to: Availability of transfer points and material recovery facility	Within the district outline specific plans for Each village panchayat/block/ municipality / Nagar panchayat/ Corporations for plastic waste collection	Identify agencies at local and district level to implement and monitor process respectively for Kamakhyanagar NAC	Completed
		Involvement of informal sector / NGO. Registering waste pickers		Identify agencies at local and district level to implement and monitor process respectively for Bhuban NAC	Available of MRF center 03 nos Linked with SHG and MSGS
		Linkage with PW recyclers Involvement of producers and brand-owners		Identify agencies at local and district level to implement and monitor process respectively for Hindol NAC	Completed
3.	PW collection Centres	Local Bodies may set-up own centres and also involve producers and brand-owners or their PROs to facilitate setting up of collection centres.	There are 3 nos. of Material Recovery facilities centre-cum-collection centres have been constructed as per the Estimated waste quantity in different locations i.e. Kathagada in ward no. 01, Mahisapat in ward no. 08 & Hata Road in ward no. 22 of Dhenkanal (M), and also plastic shredding and bailing machine installed in these three MRF centres to manage the plastic waste	Dhenkanal Municipality & Mission Shakti Groups	Already ensured

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			Plastic waste collection centre should be established in adequate numbers. Coordination with State Urban Department may be necessary	Kamakhyanagar NAC	MRF
				2 nos. yes Bhuban NAC	-
				Hindol NAC	MRF
4.	Awareness and education programs implementation	Review existing gaps in creating awareness among public for minimizing and recycling PW	<p>Ward sanitation committee constituted in every ward to aware the public in their community.</p> <p>City brand ambassadors have been given responsibilities for creation of awareness in household level and commercial level as well.</p> <p>Awareness campaigns are being conducted in household area, market area and in school.</p> <p>Leaflet distribution and awareness hoarding are being placed in prominent places of the town.</p> <p>Digital awareness also being conducted through billboard</p>	Both Dhenkanal Municipality & WMSGs	Already ensure
			Education through mass media, schools, Producer/ brand owner campaigns and other channels	Kamakhyanagar NAC	All type of Awareness has been done
				Awareness through Ss and sss Bhuban NAC	-
				Hindol NAC	All type of Awareness has been done
5.	Access to Plastic Waste Disposal Facilities	Check if District has access to PW recycling / utilization or disposal facilities.	Yes, already been identified and MoU made with waste recycler for plastic waste as well as Transporting of waste to cement plant for co processing.	ECORT Technology Pvt. Ltd. & Mission Shakti Groups at Dhenkanal Municipality	Already being ensured

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			Check if PW recycling facilities available at reasonable distance; Channel for sending PW collected to cement plants for processing; Availability of waste plastic oil producing facilities; Linkage with PWD for usage of PW in road making. Action plan at district should involve Urban and Rural Local bodies	Kamakhyanagar NAC	Not yet any action has been taken
		Yes Bhuban NAC			
		Hindol NAC		Not yet any action has been taken	

(Source- State Pollution Control Board, Angul, Dhenkanal Municipality, Kamakhyanagar NAC, Bhuban NAC & Hindol NAC)

(iii) C & D Waste Management

a. Current status related to C & D Waste

Details of Data Requirement	Present Status
Total C & D waste generation in MT per day (As per data from Municipal Corporations / Municipalities)	NO reports received by the concerned SPCB, Municipality and NAC.
Does the District have access to C&D waste recycling facility?	

b. Identification of gaps and Action plan

S. No.	Action points for villages panchayats/ blocks/ town/ municipalities / City corporations	Identification of gap	Action Plan	Responsible agencies	Timeline for completion of action plan
1.	Arrangement for separate collection of C&D waste to C&D waste deposition point.	Check gaps w.r.t. -Separate collection point of C&D Waste Identification of common C&D waste deposition points- Zero gap	C&D waste collection centre already been established at Banjhakusum in ward no. 08	Mission Shakti Groups at Dhenkanal Municipality	Already being ensured
		Check gaps w.r.t:	Arrangement for separate collection of	Kamakhyanagar NAC	Necessary arrangement

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			C&D waste to C&D waste deposition point.		has been done for C&D Waste
				Bhuban NAC	-
				Hindol	Necessary arrangement has been done for C&D Waste
2.	Whether local authority have fixed user fee on C&D waste and introduced permission system for bulk waste generators who generate more than 20 tons or more in one day or 300 tons per project in a month?	<p>Check gaps with respect to: Local by-laws to pay user fee- Zero gap</p> <p>Implementation of a system to permit bulk generators (> 20 tons in one day or 300 tons per project) No buck wastes Generator</p>	<p>User fees have been fixed for lifting and transportation of C&D waste</p> <p>Notification has been published in local News Paper</p> <p>Wall Painting with toll free number has been made for public awareness</p>	Dhenkanal Municipality & WMSG	Already ensured
		<p>Check gaps with respect to: Local by-laws to pay user fee</p> <p>Implementation of a system to permit bulk generators (>20 tons in one day or 300 tons per project)</p>	<p>Common by-laws may be implemented in District.</p> <p>Local C&D waste management plans can be integrated to develop common collection and recycling facilities</p>	Kamakhyanagar NAC	-
				Bhuban NAC	-
				Hindol	-
3.	C&D recycling Facility	<p>Check whether district has any C&D waste recycling facility</p> <p>This facility is under process</p>	<p>Infrastructure available with Dhenkanal Municipality for recycling</p> <p>Identification of recycler is under process</p>	Dhenkanal Municipality	Already ensure
		<p>Check whether district has any C&D waste recycling facility</p>	<p>Action plan for setting up C&D recycling facility in the district or tie-up with any</p>	Kamakhyanagar NAC	Re-cycle facility for C&D is not available

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			other district or ULB for setting up common facilities. Plan should ensure viable operation of C&D plant including assured market for C&D products.	Bhuban NAC	No
				Hindol	Re-cycle facility for C&D is not available
4.	Usage of recycled C&D waste in non-structural concrete, paving blocks, lower layers of road pavements, colony and rural roads	Is there any policy on usage or promotion on usage of C&D waste? - - Zero gap	The C & D waste being collected from the Town and being used in lower layers of road pavement only.	Dhenkanal Municipality	Already being ensured
		there any policy on usage or promotion on usage of C&D waste?	local authority may make give appropriate incentives on usage of C & D waste. A % of usage in public works may be specified / any other scheme.	Kamakhyanagar NAC	-
				Bhuban NAC	No
				Hindol NAC	-
5.	ICE on C & D waste management	Is there any sustained system of creating awareness created among local communities? - Zero gap	Continuous awareness and wall painting already been done for C & D waste	Dhenkanal Municipality	Already being ensured
		Is there any sustained system of creating awareness created among local communities?	tion plan for awareness and education	Kamakhyanagar NAC	Awareness has been done
				Bhuban NAC	-
				Hindol NAC	Awareness has been done

(Source- State Pollution Control Board, Angul, Dhenkanal Municipality, Kamakhyanagar NAC, Bhuban NAC & Hindol NAC)

IV. BIO MEDICAL WASTE MANAGEMENT

Sl No.	Action Points	Gaps	Action plan	Responsible agency	Timeline for completion of action plan
1.	Inventory and identification of health care facilities	SPCB, Odisha has granted authorization to 44 Nos. of bedded HCFs and 64 Nos. of Non-bedded HCFs including, clinics, hospitals, veterinary hospitals, Aayush hospitals, animal houses, etc. (List of all bedded and non-bedded enclosed as Annexure-2(iv))	Complete list of all HCFs (bedded & non-bedded) listed at CDMO shall be sought. Action as deemed fit will be initiated against defaulters.	SPCB	On going
		Check whether all HCFs including clinics, hospitals, veterinary hospitals, AYUSH hospitals, Animal houses etc generating biomedical waste area identified and authorized by SPCBs/PPCs	Action plan for completing / updating of inventory and authorization of HCFs by SPCBs/PPCS	Maa Biraja Traders	All Govt. Health Care Facilities is having a valid authorization Certificate from the SPCB
2.	Adequacy of facilities to treat bio medical waste	There is no gap in quantity of Biomedical Waste generated per day and quantity of Biomedical Waste treated and disposed in the district. HCFs either has captive BMW disposal facility or disposed through CBWTFs or has both.	Although there is a CBWTF within 75Km from most of the HCFs in the District but it fails to collect BMW from registered / linked HCFs. Setting-up of a new CBWTF in the District is required action plan for the same will be submitted.	SPCB	24

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		<p>Check if there are any gaps between Quantity of Biomedical waste generated per day and quantity of waste treated and disposed in the district?</p> <p>In case of no access to CBWTFs, adequacy of existing disposal of BMW</p>	<p>Action plan for setting up CBWTF of providing access to CBWTF with 75 KMs from places waste generation including identification of site for setting up such facility.</p> <p>Action plan for management of BMW through captive facilities in cases of no access to CBWTF</p>	<p>Concerned Medical Officer in charges</p>	<p>All the Govt. Health Facilities are having deep burial pits for their waste disposal</p>
3.	Tracking of BMW	<p>Bar code system has not yet been implemented.</p>	<p>Action plan will be prepared.</p>	<p>SPCB</p>	<p>6</p>
		<p>Check Whether barcode system is implemented by all HCFs and CBWTFs?</p>	<p>Plan for implementation of the barcode system by all the HCFs and CBWTFs in the district</p>	<p>Maa Biraja Traders</p>	<p>Barcode system is already implemented by the agency</p>
4	Awareness and Education of health care staff	<p>Whether training has been organized for all stakeholders?</p>	<p>Action plan for awareness programs and training to healthcare staff and ULB officials</p>	<p>HCFs / SPCB</p>	
		<p>Whether training has been organized for all stake holders?</p>	<p>Action plan for awareness programs and training to the healthcare staffs and ULB officials</p>	<p>Concerned Medical Officer in charges</p>	<p>Completed</p>
5.	Adequacy of funds	<p>Whether adequate funds are allocated to Government health care facilities for bio-medical waste management by state Govt.</p>	<p>Action plan for ensuring adequate funds to Govt health care facilities for bio-medical waste management by state Govt.</p>	<p>Concerned accounts section</p>	<p>Adequate funds are available and being utilized.</p>
6.	Compliance to Rules by HCFs and CBWTF	<p>HCFs are being monitored by the Board on regular basis to verify the compliance of conditions stipulated in authorization.</p>	<p>SOP for inspection has already been prepared by the SPCB, Odisha.</p>	<p>SPCB</p>	<p>On going</p>

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		Is there any district level mechanism to monitor compliance by Hospitals/HCFs	Draw action plan to monitor compliance of the HCFs and CBWTF through SPCB/PCCs	District Public Health Officer for all institution and DMO cum MS for DHH	Compliance is done in coordination with other departments
7.	District Level Monitoring Committee	Check whether District Level Monitoring Committee has been constituted and meeting are being organized	Action plan to w.r.t Periodicity of views and follow -up by DLMC. Identified health department to monitor compliance	DLMC (District Level Monitoring Committee)	DLMC is monitoring (3 months)
8.	Waste Water Treatment	06 Nos. of HCFs are needed to install ETPs for the treatment of wastewater generated from their premises. (List Enclosed as Annexure-2(iv))	Letter issued to HCFs for installation of ETPs, action plans are yet to be submitted by HCFs.	SPCB / HCFs	12
		Check if HCFs are required to install ETPs for waste water generated	Action plan for installation of ETPs by HCFs where applicable	DMO MS cum Medical Superintendent DHH	Under process

(Source- State Pollution Control Board, Angul, Chief Dist. Medical & Public Health Officer, Dhenkanal)

a. Current Status related to biomedical waste

Inventory of BMW in the District	Quantity
Total no of Bedded Health care Facilities	17
Total no of non-bedded HCF	34
No. of HCF authorized by SPCBs/PPCs	For CDM & PHO :51 For SPCB-Bedded:44 Non-bedded:64
No of Common Biomedical Waste Treatment and Disposal Facilities (CBWTFs)	Not Available
Capacity of CBWTFs	Not Available
No. of Deep burials for BMW if any	Total 151
Quantity of Bio medical waste generated per day	Approximately 55-75 kg per day
Quantity of Bio Medical waste treated per day	Approximately 55-75 kg per day

b. Identification of gaps and Action plan:

S. No.	Action points	Gaps	Action Plan	Responsible agency	Timeline for completion of action plan
1.	Inventory and Identification of Healthcare Facilities	Check whether all HCFs including, clinics, hospitals, veterinary hospitals, Aayush hospitals, animal houses, etc generating biomedical waste area identified and authorised by SPCBs/PCCs	Action plan for completing / updating of inventory and authorisation of HCFs by SPCBs/PCCs		
2.	Adequacy of facilities to treat biomedical waste	Check if there is any gap between Quantity of Biomedical Waste generated per day and quantity of Biomedical Waste treated and	Action plan for setting-up CBWTF or providing access to CBWTF with 75 Km from places waste generation Including identification of site		

(v) Hazardous Waste Management

a. Current Status related to Hazardous Waste Management

[Major source of hazardous waste (HW) is industries and facilities located in the districts, who are required to be regulated under Water (P&CP) Act 174, Air (P&CP) Act 1981 and E(P) Act, 1986 and the Rules notified thereof. Many commercial establishments like automobile repair shops, paint workshops, stores, etc. may also generate small quantities of hazardous waste. The district administration should be aware of the type of hazardous waste generation in their district and adequacy of facilities for safe handling and disposal within or outside District. Linkage of district administration with common TSDFs in the State is necessary to establish system for safe

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disposal of domestic hazardous waste]

Details of Data Requirement	Present Status
Nos. of Industries generating HW	09
Quantity of HW in the district	37442
(i) Quantity of Incinerable HW	167
(ii) Quantity of land-fillable HW	4272
(iii) Quantity of Recyclable / utilizable HW	33003
No of captive/common TSDF	None (one Common TSDF proposed at Parjang by M/s Western Integrated Waste Management Facility Pvt. Ltd., public hearing scheduled on 08.09.2021)
Contaminated Sites or probable contaminated sites	Nil

b. Identification of gaps and action plan:

S. No.	Action points	Identification of Gaps	Action Plan	Responsible agency	Timeline for completion of action plan
1.	Regulation of industries and facilities generating Hazardous Waste	SPCB, Odisha has granted authorization to 09 Nos. of hazardous waste industries. (List of industries enclosed as Annexure-2(v))	All HW generating industries have been authorized by the SPCB, Odisha. Authorization is granted after verifying compliance of conditions stipulated in Rules/ Previous Authorization	SPCB	On going
2.	Establishment of collection centres	No HW collection centre has been established in the district.	Local authority should ensure that adequate number of collection centres should be established and are linked to Common TSDFs.	ULB / Dist. Admin.	12 months
3.	Training of workers involved in handling / recycling / disposal of HW	There are 09 industries engaged in handling/ recycling / pre-processing / disposal of hazardous waste in the district.	Action plan to train the workers on safety aspects through Department of Industries as per provisions under HOWM Rules, 2016	Industry dept.	On going
4.	Availability / Linkage with common TSDF or disposal facility	03 Industries have access to common TSDF in the State. (List of industries	All generators who are required to be linked to TSDF have been already been linked.	SPCB	On going

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		enclosed as Annexure-2(v)			
5.	Contaminated Sites	There is no site in the district where soils / sediments/ groundwater contaminated due to dumping of industrial wastes	Not required	SPCB	Completed

(Source- State Pollution Control Board, Angul)

(vi) E-Waste Management

a. Current Status related to E-Waste Management

Details of Data Requirement	Present Status
Inventory of E-Waste in MT/year	MT/Year (to be inventoried)
Collection centers established by ULBs in the District	01
Collection centers established by Producers or their PROs	Nil
No authorized E-Waste recyclers / Dismantler	Nil

b. Identification of gaps and action plan

S. No.	Action points	Identification of Gaps	Action Plan	Responsible agency	Timeline for completion of action plan
1.	Inventory / Generation of E-Waste / Bulk-waste generators	Inventory of E-waste generated from the industries has been completed. Inventory of bulk waste generators who doesn't come under consent administration of the SPCB and other E-waste generated from other sources is yet to be done.	Completion of inventory	SPCB / ULBs	06 months
2.	E-Waste collection points	There is no of E-Waste collection points / call centres / kiosks in villages - Blocks / /towns / cities. However, there are 10 Nos. of authorized E-Waste recyclers / Dismantler and 24 Nos. of EPR E-Waste Collection Centers in the state (List annexed as Annexure-2 (vi))	Identification / registering E-Waste collection centres in association with Producers - their PROs or Recyclers	SPCB / ULBs	On going

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3.	Linkage among Stakeholders to channelize E-Waste	Check whether District administration has information on collection centres established by Producers / PROs? Administration should also identify authorized E-Waste recyclers in the district or in State to channelize E-waste collected in District.	Action plan to establish linkages between ULBs / Collection Centres of Producers and PROs / SPCBs / Bulk waste generators / Recyclers / SPCBs / District Administration / Public To be done	SPCB/ Dist. Admin./ ULBs/ E-waste Generators	06 months
4.	Regulation of Illegal E-Waste recycling / dismantling	Prevalence of informal trading, dismantling, and recycling of E-waste is in district	Action plan in coordination with SPCBs/PCCs and District Administration to check this activity. To be done	SPCB/ Dist. Admin./ ULBs	06 months
5.	Integration of informal sector	Whether mechanism exists for bringing informal sector into main stream in collection and recycling of E-Waste	Evolve mechanism by involving producers / PROs. To be done	SPCB/ Dist. Admin./ PROs	06 months
6.	Awareness and Education	Are there any programs at district level for awareness about E- waste management? To be done	Plan special workshops and awareness campaigns through Producers / PROs	SPCB/ Dist. Admin./ PROs	06 months

(Source- State Pollution Control Board, Angul)

3.0 Air Quality Management

a. Current Status related to Air Quality Management

Details of Data Requirement	Present Status
Number of Automatic Air Quality monitoring stations in the district Operated by SPCB / State Govt / Central govt./ PSU agency: Operated by Industry:	Nil 18
Number of manual monitoring States operated by SPCBs	01
Name of towns / cities which are failing to comply with national ambient air quality stations	None
No of air pollution industries	298
Prominent air polluting sources [Large Industry] / [Small Industry] / [Unpaved Roads] / [Burning of Waste Stubble] / [Brick Kiln] / [Industrial Estate] / [Others] (Multiple selection)	Large Industry Small Industry Public Transport Transportation through Road Road Condition & Traffic

b. Identification of gaps and action plan:

S. No.	Action points	Indicative Action Plan	Responsible agency	Timeline for completion of action plan
1.	Identification of prominent air polluting sources?	Carry out inventory of air pollution sources in District including hotspots or areas of concern pertaining to air pollution in association with SPCBs/PCCs List of air polluting industries/ mines has been prepared by the SPCB, Odisha. Hotspot's areas are yet to be identified.	SPCB/ Dist. Admin	01 month
2.	Ambient Air quality data?	Plan to get access to available air quality monitoring stations in the district operated by both Public and private agencies. All CAAQMS installed in the industries have been linked with SPCB and CPCB Servers.	SPCB	Completed
3.	Setting up of Continuous Ambient Air Quality Monitoring Station	Like weather station, District may also have ambient air quality monitoring at major urban settlements or populated areas. Action plan may propose setting up at least one CAAQMS in District. Also access data generated by CAAQM stations installed by other pvt/public agencies. District authority in association with local office of SPCB/PCC should also ensure that at least one manual Air Quality monitoring station is available in each city. [District admin may set-up its own network of CAAQMS or manual stations] 01 manual ambient air quality monitoring station has been established by the SPCB. There is no CAAQMS established in the major urban settlements or populated areas of District.	Dist. Admin./ SPCB	18 months
4.	District Level Action Plan for Air Pollution	Action plan should be prepared for both improvement of existing air quality as well as for non-attainment days to national ambient air quality standards. [Measures may include multi sectoral approach for air pollution control such as promotion of public transport, use of green fuels, E-mobility; LPG based cooking, carpeting open areas/kerbs, etc. Action plans envisaged in NCAP project initiated by MoEF& CC may be referred]. District specific action plan has not yet been prepared.	Dist. Admin./ SPCB	12 months

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5	Hotspots of air pollution in District	Hotspot with respect to air pollution (such as stubble burning, illegal waste burning, unauthorized operations, cluster activities, forest fires etc.) should be identified and localised action plan for mitigation of the same should be prepared. Hotspots are yet to be identified.	Dist. Admin./ SPCB	12 months
6	Awareness on Air Quality	Plan for dissemination of information on local air quality in towns and cities located in District. May consider developing Mobile App / Online portal for dissemination of air quality as well as to take complaints on local air pollution. SPCB has already developed Mobile App / Online portal for dissemination of air quality data received from the CAAQMSs. After installation of CAAQMS in district, it will be linked with the Board Server and App. A digital display will be installed in the District Headquarter to display air quality data received from manual monitoring conducted by SPCB.	Dist. Admin./ SPCB	18 months

(Source- State Pollution Control Board, Angul)

4.0 Water Quality Management

4.1 Water Quality Monitoring

a. Current Status related to Water Quality Management

Details of Data Requirement	Present Status
Rivers	[Names and Length of each river in Km] To be obtained from DoWR
Length of Coastline (if any)	Nil
Nalas/ Drains/Creeks meeting Rivers	[Nos] To be obtained from Dist. Admin
Lakes / Ponds	[Nos] and [Area in Hectares] To be obtained from Dist. Admin
Total Quantity of sewage from towns and cities in District	[MLD] To be inventoried
Quantity of industrial wastewater	[MLD]
Percentage of untreated sewage	[%] To be inventoried
Details of bore wells and number of permissions given for extraction of groundwater	[Nos] To be obtained from CGWA
Groundwater polluted areas if any	There is no groundwater contaminated area declared/ identified by the Board in the District.
Polluted river stretches if any	[Length in Km] As per CPCB identification, there is one (01) number of Polluted River stretches (Brahmani - Rourkela to Biritola) in Dhenkanal District. Details to be obtained from River Rejuvenation Committee

b. Identification of gaps and action plan for water quality monitoring:

S. No.	Action points	Gaps and Action Plan	Responsible agency	Timeline for completion of action plan
1.	Inventory of water bodies	An environmental monitoring cell shall maintain data of all water bodies (rivers / canals / natural drains / creeks / estuaries / groundwater / ponds / lakes / etc.) in district including its water quality	Dist. Admin./ DoWR	
2.	Quality of water bodies in the district	Check availability of data on water bodies. Create a district level monitoring cell for periodic monitoring of water bodies for specific parameters in association with SPCBs. SPCB is monitoring water quality of rivers/ natural nallahs at 09 locations and 03 ponds on monthly and six monthly (pre-monsoon and post monsoon) basis respectively.	SPCB /DoWR	On going
3.	Hotspots of water contamination	Check trends of water quality and identify hotspot of surface water and ground water. Establish a system or separate cell to monitor water quality. Implement action points for restoration of water quality in association with SPCBs and department of environment. As per CPCB identification, there is one (01) number of Polluted River stretches (Brahmani - Rourkela to Biritola) in Dhenkanal District. Action Plan for Restoration of Polluted River Stretch of River Brahmani has been prepared by River Rejuvenation Committee. SPCB is monitoring groundwater quality six monthly (pre-monsoon and post monsoon) at 02 locations in the district.	Dist. Admin/ DoWR/ CGWA SPCB/	
4.	Protection of river / lake water front	Action plan should be prepared for control river side open defecation, dumping of Solid waste on river banks, for idol immersion etc. Temporary ponds constructed for immersion of idols, lime and alum dosing facility provided. Post immersion water quality monitoring has been conducted by SPCB.	Dist. Admin/ ULBs/ SPCB	
5.	Inventory of sources of water pollution	Check whether inventory of all sewage and wastewater discharge points into water bodies in the district. Action plan to complete inventory. Identification of source of water pollution has been completed by the SPCB detail inventory has to be done.	SPCB / ULBs	

District Environment Plan [Dhenkanal]

6.	Oil spill disaster management (for coastal districts)	Whether district oil spill crisis management group and District Oil Spill Disaster Contingency Plan has been created? If not, create District Oil Spill Crisis Management Group and District Oil Spill Disaster Contingency Plan for the district.	Dist. Admin./ F & B/ Oil Marketing Companies	
7.	Protection of flood plains	Check whether there is regulation for protection of flood plain encroachment? Action plan should be prepared for protection flood plain and prevention of encroachment	Dist. Admin./ DoWR	
8.	Rejuvenation of groundwater	Check availability of groundwater and if required prepare action plan to rejuvenate ground water in selected areas. Action Plan for Restoration of Polluted River Stretch of River Brahmani has been prepared by River Rejuvenation Committee.	CGWA	
9.	Complaint's redressal system	Check whether there is any complaint redressing system based on Mobile App / Online, is available? If not, a complaint redressing system based on Mobile App / Online should be available at district level Following portals are available for complaints redressal system SPCB: http://ospcboard.org/complaint/ Govt. of Odisha: e-Abhijoga, https://cmgcodisha.gov.in/	Dist. Admin/ SPCB	

(Source- State Pollution Control Board, Angul)

4.2 Domestic Sewage

a. Identification of gaps and action plan for treatment of domestic sewage

Details of Data Requirement	Present Status
No of Class-II towns and above	1 Dhenkanal
No of Class-I towns and above	Nil
No of Towns STPs installed	Nil
No of Towns needing STPs	04 (Dhenkanal, Kamakhyanagar, Hindol & Bhuban)
No of ULBs having partial underground sewerage network	[Nos] To be obtained from ULBs
No of towns not having sewerage network	01 in Bhuban NAC
Total Quantity of Sewage generated in District from Class II cities and above	[MLD] To be inventoried
Quantity of treated sewage flowing into Rivers (directly or indirectly)	[MLD] To be inventoried
Quantity of untreated or partially treated sewage (directly or indirectly)	[MLD] To be inventoried
Quantity of sewage flowing into lakes	Nil, there is no lake nearby any of the ULBs
Total available Treatment Capacity	[MLD] Nil

District Environment Plan [Dhenkanal]

b. Identification of gaps and action plan for treatment of domestic sewage:

S. No.	Action points	Gaps and Action Plan	Responsible agency	Timeline for completion of action plan
1.	Sewage Treatment Plants (STPs)	Check whether existing capacity of STPs is adequate for treatment of sewage? If no, action plan for additional treatment capacity required should be prepared in association with ULBs / department of UD. There is no STP installed in any of the ULBs. However, Fecal Sludge Treatment Plant has been established by the Dhenkanal and Kamakhyanagar ULBs	HUDD/ ULBs (SPCB)	24 months
		Dhenkanal Municipality have one Faecal sludge Treatment Plant of capacity 27 KLD giving service to both Urban & 49 GPs area STPs is adequate for treatment of sewage? YES	Dhenkanal Municipality & MSGs	Already being ensured
		Check whether existing capacity of STPs is adequate for treatment of sewage? If no, action plan for additional treatment capacity required should be prepared in association with ULBs / department of UD.	Kamakhyangar NAC	S.T.P. is available capacity-10 KLD As directed by HSUD treatment plan has been done
			Hindol NAC	S.T.P. is available capacity-10 KLD As directed by HSUD treatment plan has been done
2.	Underground sewerage network	Check available sewerage network and prepare Action plan for laying of sewerage network in town and cities. The project may be executed through ULBs and Department of UD.	HUDD/ ULBs (SPCB)	-

(Source- State Pollution Control Board, Angul)

5.0 Industrial wastewater management

a. Current Status related to Industrial Wastewater Management

Number of Red, Orange, Green and White industries in the district	Red industries: 95 Orange industries: 203 Green industries: 14 White industries: To be inventoried (list to be obtained from RIC, Dhenkanal)
No of Industries discharging wastewater	No. of industries generating wastewater: 38
Total Quantity of industrial wastewater generated	8.646 MLD
Quantity of treated industrial wastewater discharged into Nalas / Rivers	Nil (Except excess surface runoff in monsoon)
Common Effluent Treatment Facilities	Nil
No of Industries meeting Standards	38
No of Industries not meeting discharge Standards	Nil

b. Identification of gaps and action plan for industrial wastewater

S. No.	Action points	Gaps and Action Plan	Responsible agency	Timeline for completion of action plan
	Compliance to discharge norms by Industries	Identify gaps w.r.t industries not meeting the standards. Necessary action be initiated through SPCBs against the industries not meeting the standards. During inspection and monitoring of industry, if it found that industry is not meeting discharge norms, action as deemed fit is taken by the SPCB. In previous quarter one unit had been issued Show Cause Notice for defunct ETP.	SPCB	On going
	Complaint redressal system	Check if there is any complaint redressing system based on Mobile App / Online, is available? If not, a complaint redressing system based on Mobile App / Online portal may be prepared at district level. Following portals are available for complaints redressal system OSPCB: http://ospboard.org/complaint/		

(Source- State Pollution Control Board, Angul)

6.0 Mining Activity Management plan

a. Current Status related to Mining Activity Management for SPCB

Details of Data Requirement	Existing Mining operations
Type of Mining Activity	Name of mines - [list may be enclosed]
[Sand Mining] / [Iron Ore] / [Bauxite] / [Coal] / Other [specify]	List of mines registered under SPCB enclosed as Annexure-6
No of licensed Mining operations in the district	[Nos] List of mines registered under SPCB enclosed as Annexure-6
% Area covered under mining in the district	% To be obtained Revenue Department
Area of Sand Mining	[Sq Km] To be obtained Revenue Department
Area of sand Mining	[River bed] / [Estuary] / [Non -river deposit] To be obtained Revenue Department

b. Identification of gaps and action plan for water quality monitoring for SPCB:

S. No.	Action points	Gaps and Action Plan	Responsible agency	Timeline for completion of action plan
1.	Monitoring of Mining activity	<p>District Level Task Force has already been formed for monitoring of theft and illegal mining.</p> <p>District level sub-divisional committee has been formed to verify feasibility of the quarries/mines.</p> <p>SPCB monitor mines periodically to verify environmental compliances. However, district level task team has not yet been formed to identify mining activity and to monitor status wither respect to environmental compliance</p>	SPCB/ Revenue Department/ Mines Department	02

District Environment Plan [Dhenkanal]

2.	Inventory of illegal mining if any mining	Action plan to identify illegal sand and other mining activity in the district through surveillance, patrolling and enforcement. District Level task Force may be constituted for control of illegal mining activity. District Level Task Force has already been formed for monitoring of theft and illegal mining.	Dist. Admin.	Completed
3.	Environment compliance by Mining industry	Action plan for periodic verification of compliance to environmental conditions stipulated by SPCBs/PCC, MoEF&CC department of mines etc. SPCBs/PCC may be involved in this activity. SPCB monitor mines periodically to verify environmental compliances.	SPCB/ Dist. Admin.	02

Mining Activity Management plan for Revenue Department

a. Current status related to Mining Activity Management

Details of Data Requirement	Existing Mining operations
Type of Mining Activity	Name of mines – [Sand Mining]
No of licensed Mining operations in the district	23 Nos. In operational condition (List enclosed)
% Area covered under mining in the district	0.012%
Area of Sand Mining	1.08178 SqKm
Area of sand Mining	[River bed]/[Estuary]/ [Non -river deposit]

District Environment Plan [Dhenkanal]

b. Identification of gaps and action plan

Sl. No.	Action points	Gaps and Action Plan	Responsible agency	Timeline for completion of action plan
1	Monitoring of Mining activity	A district level task team may be identified to identify mining activity and to monitor status with respect to environmental compliance. Installation of online Effluent Quality Monitoring Systems (OEQMS) with Real Time Data Transmission facilities to SPCB/CPCB server for Large Industries	The OMMC Rules, 2016 have empowered the Tahasildars as Competent Authority for the quarry leases located within village boundaries. However, Tahasil level Teams have been formed for regular inspection of minor minerals sources in the district in pursuance of instructions communicated vide Govt. in R&D.M. Deptt., Odisha L.No.20303/R&DM/ Dt.22.06.2020.	
2	Inventory of illegal mining if any mining	Action plan to identify illegal sand and other mining activity in the district through surveillance, patrolling and enforcement. District Level task Force may be constituted for control of illegal mining activity	Regular enforcement is being conducted to check illegal mining activity of minor mineral sources as per provisions under rule 51 of the OMMC Rules, 2016.	1 month
3	Environment compliance by Mining industry	Action plan for periodic verification of compliance to environmental conditions stipulated by SPCBs/PCC, MoEF&CC department of mines etc. SPCBs/PCC may be involved in this activity.	District Administration, Dhenkanal Mining Department, Dhenkanal	Continuing

List of operational Laterite sources in respect of Dhenkanal District

Sl. No.	Name of the Laterite Stone Sources	Name of the Tahasil
1	Padmalavpur Laterite Stone Quarry	Dhenkanal Sadar
2	Katakamadakhmar Laterite Stone Quarry	Dhenkanal Sadar
3	Kamaning Laterite Stone Quarry	Dhenkanal Sadar
4	Kaimati Laterite Stone Quarry	Dhenkanal Sadar
5	Chhatia Laterite Stone Quarry	Gondia
6	Chhatakumba Laterite Stone Quarry	Gondia
7	Chandrasekharpur Laterite Stone Quarry No.I	Gondia
8	Chandrasekharpur Laterite Stone Quarry No.II	Gondia
9	Nihalprasad Laterite Stone Quarry	Gondia
10	Badasari Laterite Stone Quarry	Kamakhyanagar
11	Dandaragadi Laterite Stone Quarry	Kamakhyanagar
12	Balarampur Laterite Stone Quarry	Odapada
13	Gundurapasi Laterite Stone Quarry	Odapada
14	Indipur Laterite Stone Quarry	Odapada

Mining Activity Management plan

a. **Current Status related to Mining Activity Management**

Details of Data Requirement	Existing Mining operations
Type of Mining Activity	Name of mines - [Road Metal]
No of licensed Mining operations in the district	25 Nos. In operational condition (List enclosed)
% Area covered under mining in the district	%
Area of Mining	0.382926 SqKm
Area of sand Mining	---

District Environment Plan [Dhenkanal]

b. Identification of gaps and action plan

Sl. No.	Action points	Gaps and Action Plan	Responsible agency	Timeline for completion of action plan
1	Monitoring of Mining activity	A district level task team may be identified to identify mining activity and to monitor status with respect to environmental compliance	The OMMC Rules, 2016 have empowered the Tahasildars as Competent Authority for the quarry leases located within village boundaries. However, Tahasil level Teams have been formed for regular inspection of minor minerals sources in the district in pursuance of instructions communicated vide Govt. in R&D.M. Deptt., Odisha L.No.20303/R&DM/ Dt.22.06.2020.	
2	Inventory of illegal mining if any mining	Action plan to identify illegal sand and other mining activity in the district through surveillance, patrolling and enforcement. District Level task Force may be constituted for control of illegal mining activity	Regular enforcement is being conducted to check illegal mining activity of minor mineral sources as per provisions under rule 51 of the OMMC Rules, 2016.	
3	Environment compliance by Mining industry	Action plan for periodic verification of compliance to environmental conditions stipulated by SPCBs/PCC, MoEF&CC department of mines etc. SPCBs/PCC may be involved in this activity.		

List of operational Road Metal sources in respect of Dhenkanal District

Sl. No.	Name of the Road Metal Sources	Name of the Tahasil
1	Katakamada Road Metal Quarry	Dhenkanal Sadar
2	Bhapur Road Metal Quarry	Dhenkanal Sadar
3	Babandha Black Stone Quarry No.4	Hindol
4	Karanda Black Stone Quarry No.10	Hindol
5	Karanda Black Stone Quarry No.03	Hindol
6	Karanda Black Stone Quarry No.05	Hindol
7	Ranjagol Black Stone Quarry No.01	Hindol
8	Ranjagol Black Stone Quarry No.02	Hindol
9	Kukuta Black Stone Quarry No.02	Hindol
10	Bedapada Black Stone Quarry No.02	Hindol
11	Amantipada Road Metal Quarry No.II	Odapada
12	Amantipada Road Metal Quarry No.III	Odapada
13	Bachhuribank Road Metal Quarry No.II	Odapada
14	Bachhuribank Road Metal Quarry No.III	Odapada
15	Badalo Road Metal Quarry	Odapada
16	Badalo Road Metal Quarry No.II	Odapada
17	Bautiragada Road Metal Quarry No.IV	Odapada
18	Brahmanabasa Road Metal Quarry No.II	Odapada
19	Brahmanabasa Road Metal Quarry No.VI	Odapada
20	Ghodadian Road Metal Quarry No.II	Odapada
21	Kamalanga Road Metal Quarry	Odapada
22	Naraharipur Road Metal Quarry No.III	Odapada
23	Nimidha Road Metal Quarry No.I	Odapada
24	Nimidha Road Metal Quarry No.II	Odapada
25	Barihapur Stone Quarry	Parjang

District Environment Plan [Dhenkanal]

Mining Activity Management plan

a. Current Status related to Mining Activity Management

Details of Data Requirement	Existing Mining operations
Type of Mining Activity	Name of mines – [Morrum]
No of licensed Mining operations in the district	23 Nos. In operational condition (List enclosed)
% Area covered under mining in the district	%
Area of Sand Mining	0.084054 SqKm
Area of sand Mining	---

b. Identification of gaps and action plan

Sl. No.	Action points	Gaps and Action Plan	Responsible agency	Timeline for completion of action plan
1	Monitoring of Mining activity	A district level task team may be identified to identify mining activity and to monitor status with respect to environmental compliance	The OMMC Rules, 2016 have empowered the Tahasildars as Competent Authority for the quarry leases located within village boundaries. However, Tahasil level Teams have been formed for regular inspection of minor minerals sources in the district in pursuance of instructions communicated vide Govt. in R&D.M. Deptt., Odisha L.No.20303/R&DM/ Dt.22.06.2020.	
2	Inventory of illegal mining if any mining	Action plan to identify illegal sand and other mining activity in the district through surveillance, patrolling and enforcement. District Level task Force may be constituted for control of illegal mining activity	Regular enforcement is being conducted to check illegal mining activity of minor mineral sources as per provisions under rule 51 of the OMMC Rules, 2016.	
3	Environment compliance by Mining industry	Action plan for periodic verification of compliance to environmental conditions stipulated by SPCBs/PCC, MoEF&CC department of mines etc. SPCBs/PCC may be involved in this activity.		

District Environment Plan [Dhenkanal]

List of operational Morrum sources in respect of Dhenkanal District

Sl. No.	Name of the Morrum Sources	Name of the Tahasil
1	Sankarpur Morrum Quarry-II	Dhenkanal Sadar
2	Chandrasekharpur Morrum Quarry	Gondia
3	Kankadasoda Morrum Quarry	Parjang

(Source- Touzi Section, Collectorate, Dhenkanal)

Noise Pollution Management plan

a. Current Status related to Noise Pollution Management

Details of Data Requirement	Measurable Outcome
No. of noise measuring devices available with various agencies in district	[Name of agency] SPCB: 01

b. Identification of gaps and action plan:

Sl. No.	Action Points	Gaps and Action Plan	Responsible Agency	Timeline for completion of action plan
1	Availability of Sound/Noise Level Meters.	Need to check whether concerned agencies that is ULBs, SHOs, Traffic police and SPCB/PCC have noise level meters. District administration may ensure through an action plan that concerned agencies and environmental cell under district administration have adequate number of portable noise level meters. SPCB has 01 noise meter. Requisition sent to HO to procure one additional noise meter.	ULBs, SHOs, Traffic police and SPCB	03
2	Ambient Noise Level monitoring.	ULBs shall ensure that ambient sound levels comply with notified standards for residential, sensitive zones. An action. Apart from portable analyzers, fixed ambient noise level monitoring stations may be installed in major cities and towns, such stations may be installed by ULBs and SPCB/PCC. No fixed type noise monitoring devices has been installed by the Board. Noise monitoring during festival seasons is being conducted by the SPCB using portable noise meter.	ULBs / SPCB	12
3	Signboards in Noise zones	District administration may ensure that adequate number of sign boards installed at sensitive zones in towns / cities in towns and cities. An action plan may be prepared by district authority.	Dist. Admin./ ULBs/ Police/ RTOs	
4	Complaint redressing system	Action plan may envisage implementing a public complaint redressal system for noise pollution. Such application may be used by SHOs, Traffic police ULBs and SPCBs in the district. Following portals are available for complaints redressal system OSPCB: http://ospcboard.org/complaint/ Govt. of Odisha: e-Abhijoga, https://cmgcodisha.gov.in/	Dist. Admin./ ULBs/ Police/ RTOs/ SPCB	

(Source- State Pollution Control Board, Angul)

STATUS OF WETLANDS IN DHENKANAL DISTRICT AND ITS CONSERVATION

1. Defination of Wetland

As per the Ramsar Convention, a wetland is defined as 'areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tides does not exceed six meters. In addition, to protect coherent sites, Article 2.1 of the Convention provides that 'wetlands may include riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six meters at low tide lying within the wetlands.

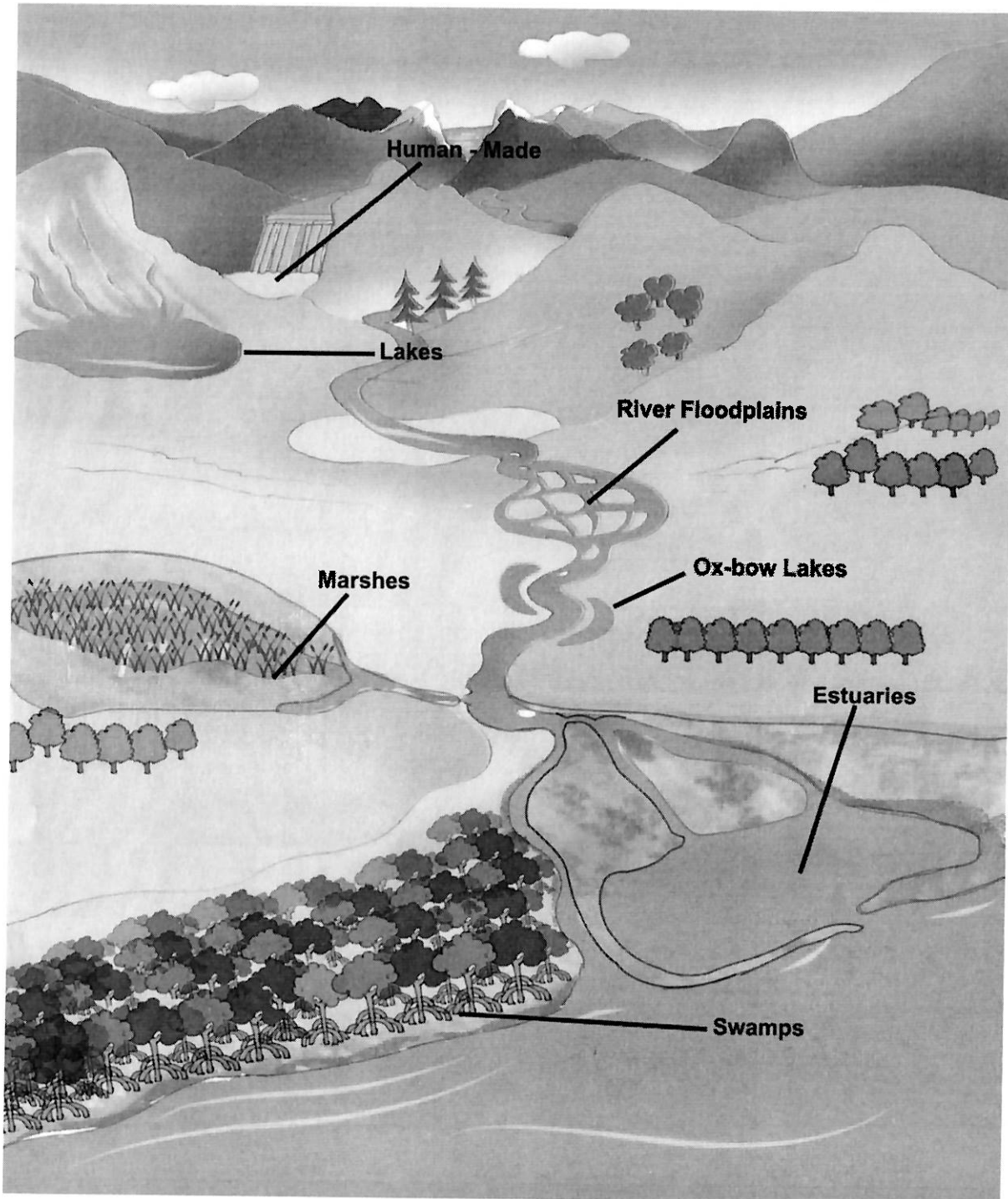
There exist marine and coastal wetlands such as open coasts, coral reefs, estuaries, tidal flats, mangroves and coastal lagoons; Inland wetlands such as permanent and seasonal rivers, inland deltas and floodplains, permanent and seasonal lakes and ponds, marshes, freshwater swamps and peatlands as well as Human-made wetlands such as reservoirs, barrages and dams, aquaculture ponds, excavations and burrow pits, wastewater treatment ponds, irrigation canals, ditches, irrigation ponds and rice fields. Often these wetland types are interlinked hydrologically and ecologically, merging into one another and the larger landscapes. Wetlands should, therefore, be considered as part of the river basin or coastal zone.

Ministry of Environment, Forest and Climate Change (MoEF&CC) has notified Wetlands (Conservation and Management) Rules, 2017 (hereinafter Wetlands Rules) under the provisions of the Environment (Protection) Act, 1986 as regulatory framework for conservation and management of wetlands in India.

All wetlands, irrespective of their location, size, ownership, biodiversity, or ecosystem services values, can be notified under the Wetlands Rules, except:

- a) River channels;
- b) Paddy fields;
- c) Human-made waterbodies specifically constructed for drinking water purposes;
- d) Human-made waterbodies specifically constructed for aquaculture purposes;
- e) Human-made waterbodies specifically constructed for salt production purposes;
- f) Human-made waterbodies specifically constructed for recreation purposes;
- g) Human-made waterbodies specifically constructed for irrigation purposes;
- h) Wetlands falling within areas covered under the Indian Forest Act, 1927; Forest (Conservation) Act, 1980; State Forest Acts and amendments thereof;
- i) Wetlands falling within areas covered under the Wildlife (Protection) Act, 1972 and amendments thereof;

j) Wetlands falling within areas covered under the Coastal Regulation Zone Notification, 2011 and amendments thereof.[Ref. Rule 2 (g) and Rule 3 of Wetlands Rules]



1.1.Types of wetlands

Human - made wetlands

These are wetlands built for a purpose, such as storing water for irrigation and drinking, or for producing fish or for recreation. Reservoirs, aquaculture ponds, salt pans, dams, barrages, and impoundments are some examples of human-made wetlands.

Lakes

Lakes and ponds (also known as lentic systems) are a diverse set of inland freshwater habitats that exist across the globe and provide essential resources and habitats for both terrestrial and aquatic organisms.

River Floodplains

These are lands adjacent to river or stream which is subject to periodic inundation by water overtopping the channel. Brahmanifloodplains are the primary source of water for Dhenkanal.

Ox-bow Lakes

Oxbows are formed when the meander of a river is cut off due to silt deposition, or river changing course, isolating a crescent-shaped waterbody.

Marshes

These are dominated by herbaceous plants and are sustained by water sources other than direct rainfall like surface runoff, groundwater or tidal flow

Estuaries

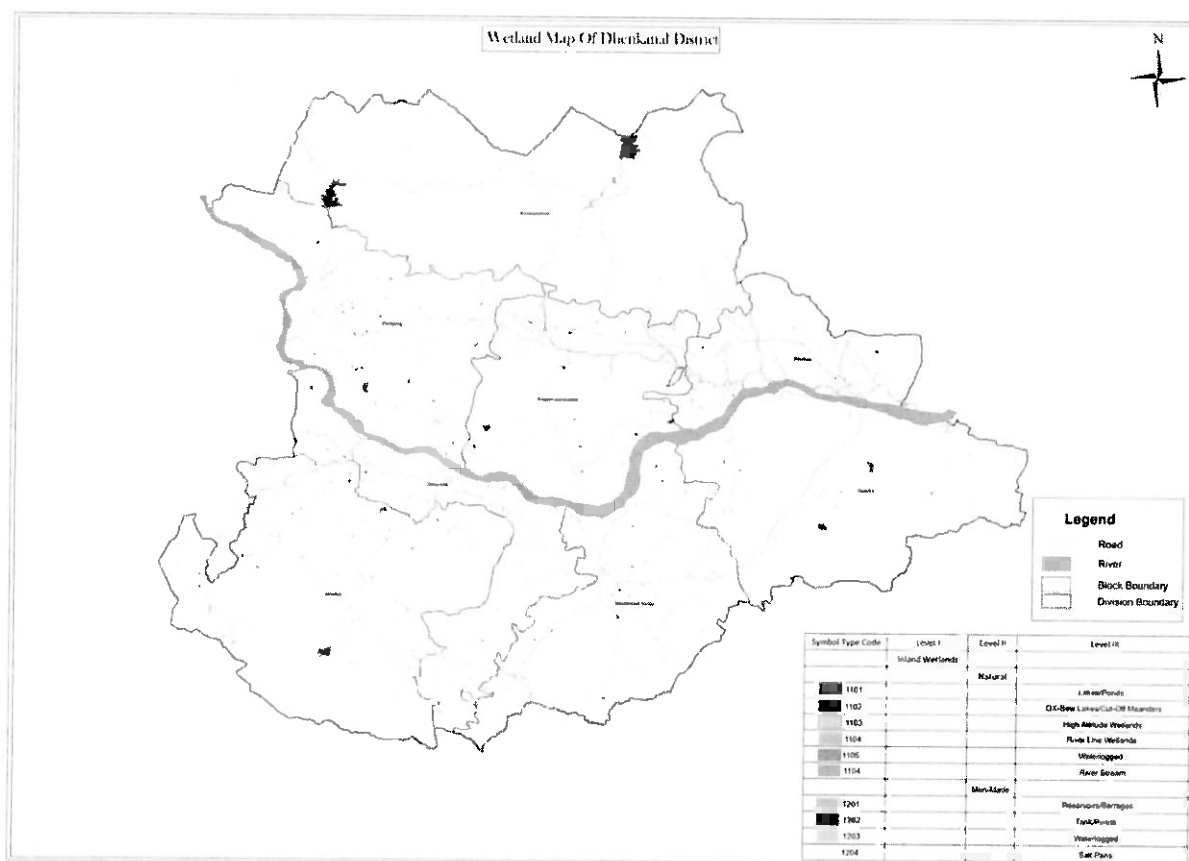
An estuary is a partially enclosed coastal body of brackish water with one or more rivers or streams flowing into it, and with a free connection to the open sea. Estuaries form a transition zone between river and maritime environments. A coastal lagoon is a bar-built estuary, formed when offshore barrier sand islands develop above sea-level and extend in a chain, broken by one or more inlets.

Swamps

Swamps are wetlands dominated by trees. These have poor drainage and sufficient water supply to keep the ground waterlogged, and level of minerals to stimulate decay of organisms and prevent accumulation of organic materials.

2. Wetland in Dhenkanal District: -

The total geographical area of Dhenkanal district is 4597 sq km with an estimated area under wetlands of 13663 ha. The area is segregated in 3364 wetlands with 288 being > 2.25 ha while 3076 being < 2.25 ha shown as point features. The major wetland types are River/Stream (7756 ha) comprising about 57 per cent followed by Reservoir/Barrage (1736 ha). The small wetlands (< 2.25 ha) account for a significant percent of wetlands (about 23). Open water has shown a decrease of 1264 ha from 9736 ha in post-monsoon to 8472 ha in pre-monsoon. Aquatic vegetation doubled from post-monsoon (853 ha) to pre-monsoon (1870 ha). Turbidity was largely low (5206 ha) followed by moderate (3038 ha) and high (1492 ha). In case of pre-monsoon, moderate turbidity singularly dominated the open water with 7976 ha followed by low (496 ha). High turbidity was not observed in pre-monsoon.



Area estimates of wetlands in Dhenkanal district

Sr. No.	Wetcode	Wetland Category	Number of wetlands	Total wetland area	% of wetland area	Area in ha	
						Open Water Post-monsoon area	Pre-monsoon area
	1100	Inland Wetlands - Natural					
1	1101	Lakes/Ponds	-	-	-	-	-
2	1102	Ox-bow lakes/ Cut-off meanders	1	10	0.07	-	-
3	1103	High altitude wetlands	-	-	-	-	-
4	1104	Riverine wetlands	3	26	0.19	-	-
5	1105	Waterlogged	8	81	0.59	6	-
6	1106	River/Stream	26	7756	56.77	7756	7509
	1200	Inland Wetlands -Man-made					
7	1201	Reservoirs/Barrages	25	1736	12.71	1585	610
8	1202	Tanks/Ponds	225	978	7.16	389	353
9	1203	Waterlogged	-	-	-	-	-
10	1204	Salt pans	-	-	-	-	-
		Total - Inland	288	10587	77.49	9736	8472
	2100	Coastal Wetlands - Natural					
11	2101	Lagoons	-	-	-	-	-
12	2102	Creeks	-	-	-	-	-
13	2103	Sand/Beach	-	-	-	-	-
14	2104	Intertidal mud flats	-	-	-	-	-
15	2105	Salt Marsh	-	-	-	-	-
16	2106	Mangroves	-	-	-	-	-
17	2107	Coral Reefs	-	-	-	-	-
	2200	Coastal Wetlands - Man-made					
18	2201	Salt pans	-	-	-	-	-
19	2202	Aquaculture ponds	-	-	-	-	-
		Total - Coastal	-	-	-	-	-
		Sub-Total	288	10587	77.49	9736	8472
		Wetlands (<2.25 ha)	3076	3076	22.51	-	-
		Total	3364	13663	100.00	9736	8472

Area under Aquatic Vegetation	853	1870
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Area under turbidity levels		
Low	5206	496
Moderate	3038	7976
High	1492	-

National Wetlands Atlas prepared by Space Application Center under the National Wetlands Inventory and Assessment project, is available as spatial data on wetlands for each State and UT. According to the National Wetland Atlas: Orissa created by Space Application Centre, Ahmedabad in the year 2010 revealed that Dandadhara Dam, Dadraghati Dam, Sapua Dam, Nua Reservoir, Haripur Dam are the major wetlands of the Dhenkanal District. There is no coastal wetland situated in this district. The major percentage of wetlands are the man-made wetlands in forms of reservoirs/ponds and river flood plain areas.

2.1. Preparing a list of wetlands

2.1.1 List of wetlands identified using GIS platforms: -

As a part of compliance to Hon'ble NGT ORDER DATED 22.07.2021 IN O.A. NO. 351/2019 IN THE MATTER OF RAJAMUZAFFAR BHAT VS. STATE OF J&K & ORS identification of various wetlands. Area estimates of various wetland, categories have been carried out using GIS layers of wetland boundary. The identification of the 3364 Nos. of wetland as per the National Wetland Atlas is being identified by using Google Earth, Arc GIS tool, Toposheet and found that total 3465 nos. of wetlands. (Annexure-2)

District Environment Plan [Dhenkanal]

There are 213 Nos. of wetlands which size is > 2.5 Ha and 3185 wetlands are <2.5 Ha.

SINo.	Types of Wetlands identified in 2022	Numbers of wetland
1	Dams/Reservoirs	16
2	River/Streams	51
3	Waterlogged areas	71
4	Ponds	3352
	Grand total	3490

The detail list of all the identified enclosures is enclosed. (Annexure-3)

Sl No	Action Plans	Gaps and Action Plan	Responsibility agency	Timeline for completion of action plan
1	Sewerage discharge	Inadequate knowledge on water and aquatic land pollution. Load based assessment of Sewerage and additional STP for treatment of Sewerage.	ULB	6 months
	Disposal of solid & Other Waste	Unscientific disposal of solid waste into wetland. Load based assessment of Solid waste & other waste. Identification of additional land-fill sites and promotion of SLF	ULB	12 months
	Water quality testing	Any such initiative of monitoring of water quality of wetland is not yet been taken up by OSPCB. Sampling in every quarter for ytesting and provision for mobile klab for on-site testing, Empanelment of private testing labs.	SPCB	Half -yearly

2.2. Threats to Wetland: -

Most of the wetland present in the district are man-made wetland in forms of ponds inside town area, reservoirs, abandoned quarries and the percentage of natural wetland like waterlogged area, ox-bow wetlands are subsequently vanished due to various threats which has contributed vanish of the natural wetland in the district. The waterlogged areas and river streams are the most affected by the following threats.

1. Alteration of natural hydrological regimes

Water regimes govern biodiversity and ecosystem services of wetlands. Alteration of natural hydrological regimes often leads to reduced water availability, altered hydro-period, loss of connectivity with biodiversity habitats, impeded nutrient exchange and other processes which significantly enhance their degradation. The loss of biodiversity habitats nearby the

2. Catchment degradation

The water holding capacity of wetlands plays a crucial role in determining its ability to regulate flow regimes, cycle nutrients and support biodiversity. Being depositional in nature, wetlands act as sediment traps, which in the long run plays a key role in their succession. However, catchment degradation accelerates sedimentation rates, thereby, risking sustenance of ecosystem processes and services. Similarly, the run off from cropped area of the catchment loads nutrient, resulting in eutrophication.

3. Pollution

Wetlands are polluted through agricultural runoff and discharge of untreated sewage and other waste from urban areas. Under normal conditions, wetlands do retain pollutants from surface and sub-surface runoff from the catchment and prevent them from entering into streams and rivers.

However, because of increased urbanization and land use changes, the nutrient loading in wetlands far exceed their capacity to retain pollutants and remove them through nitrification, sedimentation, adsorption, and uptake by aquatic plants. This adversely affects the wetland water quality and its biodiversity. Such wetlands show drastic changes in nutrient cycling rates and species loss.

4. Invasive species

The invasive species like Water Hyacinth (*Eichornia crassipes*) mainly encroaches the wetland especially in ponds where the rate of eutrophication is higher in the ponds. The rate of

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multiplication in the pond leads to the death of aquatic biodiversity. The inventories of the all the possible IAS can be prepared along with the health card and during preparation of management plan for the conservation of the wetlands. The reduction of the native species leads to encroachment of the invasive alien species.

5. Over-harvesting of resources

Owing to high livelihood dependence, wetlands are often subjected to over-harvesting of resources and modification for enhancing provisioning services such as wood, fish, water, etc. at the cost of regulating and cultural services. Uses of harmful fishing practices, such as small mesh size nets, are prevalent in a majority of inland wetlands. Often sustainable yield for a particular wetland is not known and at times ignored by stakeholders. Wetland biodiversity and wider food webs are also put under stress by loss through by catch. Varying inundation regimes are often modified to suit agriculture and aquaculture uses. All the man-made reservoirs which are designated as wetland of importance in the district is being over harvested due to community fishing.

6. Climate change

Global climate change has emerged as an important driver of loss and degradation of wetlands especially high altitude and coastal wetlands. Inland wetlands are at risk from alteration in hydrological regimes, eutrophication, and algal blooms that are likely to result from increasing temperatures.

7. Encroachment

Encroachment of the wetland mainly swampy and water-logged areas resulted in the shrinkage of the wetlands in the district. Encroachment in and around the wetland has resulted in the wipe out of many species.

8. Siltation

Most of the reservoir man-made wetlands are located adjacent to the forest area and the catchment derives maximum run offs from the neighbouring forests and that's results in the siltation of the wetlands.

9. Illegal Fishing

Loss in wetland area results in adverse impact on the key functions (ecosystem goods and services) performed by wetlands. Worldwide, the main causes of wetland loss have been: urbanization; land use changes; drainage to agricultural use; infrastructure development; pollution from industrial effluent and agricultural runoff; climate change and variability. Some of these factors which led to significant alterations in India's wetland ecosystems have been discussed in the subsequent sub-sections.

10. Poaching

Poaching is another factor which has can produce threat to the diminishing of the wetland and its biodiversity (Flora and Fauna).

3. Compliances taken by the Dhenkanal District district

In compliance to the direction of the **HON'BLE NGT ORDER DATED 22.07.2021 IN O.A. NO. 351/2019 IN THE MATTER OF RAJA MUZAFFAR BHAT VS. STATE OF J&K & ORS** these following steps have been taken up by this District.


- 1) The Guidelines for implementing the Wetlands (Conservation and Management) Rules, 2017 were published in January 2020 to support the State Governments/UT Administrations in the implementation of the Rules by providing guidance on various aspects like identifying wetlands for notification under the Rules, delineating wetlands, wetland complexes and zones of influence, preparation of Brief Document, developing a list of activities to be regulated and permitted, constitution and operational matters of the Wetlands Authorities among other issues which are circulated among all the stakeholders.
- 2) Identification of wetland using vector data of Space application centre, Ahmedabad and by use of GIS application is completed in this district. Ground truthing of the identified wetland is yet to be done.
- 3) Preparation of brief documents by using the format of the Guidelines for implementing the Wetlands (Conservation and Management) Rules, 2017 is completed for two wetlands i.e. Dadraghati, Nua Reservoir, Sapua-Badjore Dam, Dandadhar Dam and Brahmani river stretches have completed. (**Annexure-4**)
- 4) Health card of Dadraghati and Nua reservoir has been prepared and it too uploaded in the Indiawetland.org. (**Annexure-5**)

4. Road map to achieve the compliance:

- 1) The district administration is trying to prepare health card of the other identified wetlands and its needs the help and expertise of Chilika Wetland Authority for preparing the health status and other inventories related to the wetland.
- 2) The administration needs the expertise of the Chilika Wetland Authority in preparation of Integrated Management Plan of the Wetlands of the Dhenkanal.

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- 3) Wetland Ambassador or Wetland mitras Wetland Ambassadors identified - Wetland Ambassador is an iconic species, habitat, or cultural heritage that demonstrates the uniqueness of the particular wetland.
- 4) Etland pledge in English and Hindi was drafted centrally will be translated the pledge into regional language. This will done create an instill a psychological & moral commitment for restoration of wetlands in people.
- 5) Threats and Values signages will be installed at significant wetlands across the district. Boards were installed for local awareness and remedial action. The exercise has been under taken to create awareness and flag wetland-wise threats and values to the local community and thereby create interest in the locals for the need for restoration of wetlands. The list of wetlands where the signages were to be installed, along with the actual design and content of the values and threats to each of these wetlands.
- 6) Efforts are on the reconcile the wetland inventory to identify those wetlands which may not already be covered under any other laws.
- 7) Revenue record registration of these water bodies to be explored.
- 8) It may be noted that each wetland has a different characteristic and not all may require de-weeding since some wetlands are characterized by this vegetation and serves as habitat for different species
- 9) Water Quality Assessments carried out for different wetlands; sound health indicated.
- 10) Information on the wetlands protected under various acts would be furnished.


Member Secretary, District Committee
- cum - Divisional Forest Officer
Dhenkanal Division Dhenkanal District

**Divisional Forest Officer
Dhenkanal Division**


Chairman, District Committee-cum-
Collector & District Magistrate

**COLLECTOR
DHENKANAL**