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ENVIRONMENTAL ISSUES IN POULTRY FARMING IN TAMIL NADU: A DESCRIPTIVE STUDY

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ABSTRACT

India has major water pollution issues. Discharge of untreated sewage is the single most important cause for pollution of surface and ground water in India. There is a large gap between generation and treatment of domestic waste water in India. The problem is not only that India lacks sufficient treatment capacity but also that the sewage treatment plants that exist do not operate and are not maintained. The majority of the government-owned sewage treatment plants remain closed most of the time due to improper design or poor maintenance or lack of reliable electricity supply to operate the plants, together with absentee employees and poor management. Fertilizers and pesticides used in agriculture in northwest have been found in rivers, lakes and Ground water. Flooding during monsoons worsens India's water pollution problem, as it washes and coves all sorts of solid garbage and contaminated soils into its rivers and wetlands. It is also observed that the non-farm activities have also responsible for the incidence of water pollution. Based on the above, the present paper tries to analyse the incidence of Water pollution and its relations to poultry farms and to suggest possible policy measures to safeguard the quality of environment in the State. To fulfill the objective the required secondary data relating to the study have been gathered from various official documents- Economic Survey, RBI Bulletin, India- Infrastructures Report, Tamil Nadu-An Economic Appraisal, State of Environment Report, web sites, etc . It has come to know that several initiatives have been taken by the government for pollution abetment in rivers and lakes besides promoting environmental consciousness among the public at large Environmental conservation requires creation of awareness and attitudinal change among the people. The magnitude of environmental impacts of poultry farms is highly dependent on production practices and especially on manure management practices. Further, this paper suggest that measures should also be initiated that balance and harmony between Economic. Social and Environmental needs of the country are very important' there is a response to our national commitment to a clean environment mad dated in the constitution in article 21. Maintaining a healthy

environment is not the states responsibility alone. But also that of every citizen public-private partnership is crucial in the spectrum of environmental management,

Key words: Water Pollution, Water Quality, Industrial Effluents, Poultry Farm

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1. INTRODUCTION

1.1. Preamble

Pollution is a serious problem that badly affects the entire earth and living organisms including man, is emerging as the most serious issue above our economic problems. Major source of pollutants is combustion of fuels, industrial waters, dust, mist, smoke, fog, fumiest, and many others (Gopinath, 2019a). Major conditions for life to exist, air and water are polluted in an unimaginable way developing country like India, where rich are the richest and poor are the poorest; pollution is a threat for our existence. In this highly populated country we must accept that industrialization and modernization are inevitable. At the same time, we must remember that problems due to pollution are result of lack of care and ignorance. Resolution of this immense problem.

India has major water pollution issues- discharge of untreated sewage is the single most important cause for pollution of surface and ground water in India. There is a large gap between generation and treatment of domestic waste water in India. The problem is not only that India lacks sufficient treatment capacity but also that the sewage treatment plants that exist do not operate and are not maintained (Gopinath, 2019b). The majority of the government-owned sewage treatment plants remain closed most of the time due to improper design or poor maintenance or lack of reliable electricity supply to operate the plants, together with absentee employees and poor management. The waste water generated in these areas normally percolates in the soil or evaporates. The uncollected wastes accumulate in the urban areas cause unhygienic conditions and release pollutants that leach to surface and groundwater. According to a World Health Organization study, out of India's 3,119 towns and cities, just 209 have partial sewage treatment facilities, and only 8 have full wastewater treatment facilities. Over 100 Indian cities dump untreated sewage directly into the Ganges River. Investment is needed to bridge the gap between 29000 million litres per day of sewage India generates, and a treatment capacity of mere 6000 million litres per day. Other sources of water pollution include agriculture run off and small-scale factories along the rivers and lakes of India. Fertilizers and pesticides used in agriculture in northwest have been found in rivers, lakes and Ground water (Usharani & Gopinath, 2020a). Flooding during monsoons worsens India's water pollution problem, as it washes and coves all sorts of solid garbage and contaminated soils into its rivers and wetlands (Gopinath & Kalpana, 2019) It is also observed that the non-farm activities have also responsible for the incidence of water pollution. Based on the above, the present paper tries to analyse the environmental issues, particularly water pollution of poultry farms in Tamil Nadu.

2. METHODS AND MATERIALS

The present study aims to analyse the form wise incidence of Water Pollution in the State; to know the driving forces to the incidence and the management measures of Water Pollution in the State; to study the Water pollution and Poultry Farms relations; and to suggest possible policy measures to safeguard the quality of environment in the State (Usharani & Gopinath,

2020b). To fulfill these objectives the required secondary data relating to the study have been gathered from various official documents- Economic Survey, RBI Bulletin, India-Infrastructures Report, Tamil Nadu-An Economic Appraisal, State of Environment Report, web sites, etc

3. ANALYSIS AND DISCUSSION

The groundwater development is reported more than 100 per cent in several districts including Chennai, Salem, Perambalur, Krishnagiri, Dharmapuri, Tiruppur, Dindigaul, Coimbatore, Vellore, Thanjavur, Villupuram and Nagapattinam, highlighting the seriousness of overexploitation in the State (Unnamalai & Gopinath, 2020).

Coimbatore tops the list of districts reporting severe water contamination, with over 40 per cent of its tested sources turning out to be contaminated in terms of fluoride, nitrate, iron and faucal contamination in 2011

Further, the water supply shortfall in the state has been recorded as 29.5 per cent across the urban areas in the State. Similar shortages are observed with regard to other amenities such as housing and drainage. In addition, Tamil Nadu accounts for nearly 9 per cent of the slum population of the country, with the five major cities (Chennai, Madurai, Tiruppur, Tiruchirapalli and Coimbatore) accounting for one-third of the total slum population in the State (Karthick et al.,2020a).

An estimated 40 million liters per day of water is transported from the peri-urban areas o cities drawing ground water from the riverbed aquifer. Sand mining also adds to the problems of the riverbed (Rajalakshmi et al., 2020a). The conflict of interest in the use of water presents a changing picture of transportation of urban environmental problems into peri-urban areas.

A large majority of the common effluent treatment plants established in tanneries and textile dyeing processing units have implemented zero liquid discharge system in Tamil Nadu.

The rainwater harvesting program in the state ensured that by 2013-14, 96 per cent of the buildings in town panchayats are provided with rainwater harvesting facilities.

Two desalination plants have been established in the state to meet water requirements in Chennai, while three more have been planned to boost drinking water supply in Chennai, Thoothukudi and Ramanathapuram districts. Environmental Hotspots

Though the intention of this study is not to aggregate various indicators to arrive at comprehensive indices such as environmental performance index, or environmental sustainability index of a region, the report summarized the findings from such exercises carried out recently for Tamil Nadu.

A recent study constructed Environmental Sustainability Index (ESI) for the districts of Tamil Nadu using 2011-12 as the baseline year. The ESI consists of 45 indicators spread across nine thematic areas including, population, land-use, agriculture, transport, water, forests, solid waste, energy, and output. The study identified Vellore, Karur, Perambalur, Virudhunagar, Krishnagiri, Dharmapuri and Tiruppur as the least sustainable districts (Karthick et al., 2020b).

Another recent study assessed the agricultural vulnerability of the districts of Tamil Nadu to climate change. The study chose the growth and instability of certain performance indicators to capture the relative vulnerability of the districts of Tamil Nadu. The Agricultural Vulnerability Index (AVI) has been estimated as a weighted index based on growth and instability in south west and north east monsoon; growth in crop diversification; growth in net cultivated area; and growth in crop intensity. The study identified Tiruchirappalli, Karur, Perambalur and Ariyalur as agriculturally most vulnerable districts of Tamil Nadu from climate change perspective.

Table 1 District Wise Poultry Population in Tamil Nadu

S.NO	District	2004	2007	Rate of Change	2012	Rate of Change	2016	Rate of Change
1	Channai	33345	70853	112.48	37889	-46.52	5031	-86.72
2	Kancheepuram	353844	1232833	248.41	808218	-34.44	319015	-60.52
3	Thiruvallur	654317	1104539	68.81	879712	-20.35	441706	-49.78
4	Cuddalore	333043	527338	58.34	950457	80.24	209845	-77.92
5	Villupuram	772090	2521839	226.63	2514332	-0.30	1010303	-59.81
6	Vellore	1155183	3997465	246.05	4315772	7.96	396024	-90.82
7	Tiruvannamalai	252314	501552	98.78	455733	-9.14	86292	-81.06
8	Calem	2678324	4166713	55.57	10631500	155.15	3712479	-65.08
9	Namakkal	19273185	42400952	120.00	35193135	-17.00	125677241	256.25
10	Dharmapuri	1549232	34457990	1`22.42	3789005	9.96	3851735	1.65
11	Krishnagiri	1293388	0	_	4499997	_	1137722	-74.71
12	Erode	5270334	6716207	27.43	5976115	-11.02	12028528	101.27
13	Coimbatore	42028686	43509719	3.52	11568835	-73.41	2091623	-81.92
14	The Nilgiris	75599	59380	-21.45	120560	103.03	37302	-69.05
15	Tiruchirappalli	940619	2580897	174.38	2486815	-3.65	222797	-91.04
16	Karur	498470	740372	48.53	3105144	319.40	3764731	21.24
17	Perambalur	262330	279645	6.60	448563	60.40	161667	-63.95
18	Ariyalur	_	586869	100.00	191527	-67.36	81476	-57.45
19	Pudukkttai	476110	1079233	126.68	1001354	-7.22	806372	-19.47
20	Thanjavur	634546	1092654	72.19	784623	-28.19	28784	-96.33
21	Nagapattinam	402045	668818	66.35	288654	-56.84	130577	-54.76
22	Thiruvarur	339253	311487	-8.18	225143	-27.72	112553	-50.00
23	Madurai	685529	1140170	66.32	998396	-12.43	305373	-69.41
24	Theni	517155	1715304	231.68	484151	-71.77	92461	-80.90
25	Dindigul	2037985	2945087	44.51	2229627	-24.29	216204	-90.30
26	Ramanathapuram	330309	413183	25.09	360215	-12.82	130967	-63.64
27	Virudhunagar	890571	1491477	64.47	782473	-47.54	201368	-74.26
28	Sivagangai	720831	1504605	108.73	1011055	-32.80	765146	-24.32
29	Thirunelveli	1218583	934191	-23.34	3048085	226.28	216152	-92.90
30	Thoothukkudi	450229	21973678	388.12	512427	-76.68	163123	-68.16
31	Kanniyakumari	463824	1317838	184.12	643845	-51.14	211187	-67.19
32	Tiruppur	_	_	_	17005537	0	371978	-97.81
	STATE TOTAL	86591273	131254688	51.58	117348894	-10.59	158987762	35.48

Table 2 Area wise Quality of Water Distribution in Tamil Nadu

S.No.	District	% of water Contamination
1	Ramanathapuram	13
2	Dharamapuri	12.7
3	Virudhunagar	10.8
4	Sivaganga	10.7
5	Salem	10.1
6	Karur	5.8
7	Nagapattinam	4.5
8	Madurai	3.7
9	Perambalur	3.6
10	Namakkal	2.7
11	Thiruvallur	2.4
12	Erode	1.8
13	Thanjavur	1.5
14	Vellure	1.4
15	Thiruvarur	1.3
16	Krishnagiri	1.1
17	Tiruppur	1.1
18	Ariyallur	1.0
Mean = 5		
SD= 4.27		
C.V = 85		

Source: State of Environment Report, Department of Environment, Tamil Nadu

Table 3 Water Quality of River Thamiraparani

Sl. No.	Station	PH Range	DO mg/l	BOD mg/l	CI mg/l	SO4 mg/l	TDS mg/l	NO3 mg/l	TH mg/l	FCMPN /100 ml	TCMPN / 100ml
1	Cheranmadevi	6.9-7.5	7.1	1.9	14	13	63	0.04	31	50	110
2	Kokirakulam	7.0-7.9	7.3	2.0	16	16	75	0.02	37	85	102
3	Papanasam	7.1-7.7	7.0	2.3	17	17	62	0.40	17	45	100
4	Murappanadu	7.1-7.9	7.2	2.3	20	15	96	0.15	52	35	65
5	Ambasamudram	6.8-7.4	6.9	2.6	13	7	47	0.02	14	60	85
6	Thiruvadaimarudur	7.0-7.7	7.2	2.0	15	12	57	0.01	24	65	100
7	Arumuganeri	8.0-8.2	7.1	2.1	172	36	516	0.80	202	75	130
	I.S.I. Standards	6.5-8.5	4.0	3.0	600	400	1500	0.50	-	-	5000

Source: State of Environment Report, Department of Environment, Tamil Nadu

Table 4 Area Wise Water Quality of River Cauvery

Sl. No.	Station	PH Range	DO mg/l	BOD mg/l	CI mg/l	SO4 mg/l	TDS mg/l	NO3 mg/l	TH mg/l	FCMPN /100 ml	TCMPN / 100ml
1	Pathrakaliyammankoil	7.32-7.73	7.3	1.0	38	11	206	0.21	643	1130	67981
2	Trichy U/S	7.54-8.70	4.1	3.3	55	15	372	0.31	172	3125	13343
3	Grand Anicut	7.55-8.61	6.2	1.3	90	15	370	0.28	180	255	1940
4	Sirumugai	7.15-8.01	6.5	1.1	45	14	201	0.28	68	85100	204000
5	Bhavani	7.49-8.51	6.3	1.4	35	15	356	0.24	162	3180	40100
6	Karathattankudi	8.17-8.76	8.4	1.6	50	26	365	0.24	158	220	1300
7	Madathukulam	7.72-8.91	8.9	1.2	45	33	251	0.24	98	440	270
8	Erode	6.69-8.34	6.1	1.4	37	30	380	0.34	154	3100	26843
9	BhavaniSagar	7.34-8.26	7.0	1.1	28	35	336	0.35	114	1000	1500
10	R.N.Pudur	7.50-8.52	6.4	1.4	35	41	360	0.90	1401	801	3600
11	P.Vellur	7.80-8.60	6.9	1.0	25	19	336	0.20	1501	320	3340
12	Mahavur	7.87-8.58	7.9	1.1	28	14	328	0.28	1361	600	5600
13	Trichy	7.66-8.62	6.8	1.4	48	12	364	0.41	192	450	1100
14	Coleroon	7.84-8.57	6.8	1.4	130	48	438	0.21	175	800	1800
15	Pitchavaram	7.73-8.44	6.0	1.6	53	135	405	0.38	305	2700	9730
16	Thirumukkudal	7.82-8.56	7.8	1.0	48	40	370	0.20	174	312	800
	I.S.I. Standards	6.50-8.50	4.0	3.0	600	400	1500	50	-	-	5000

Source: State of Environment Report, Department of Environment, Tamil Nadu

Table 5 Water Quality in Palar and Vaigai Basin Distribution

Sl.No	Parameter	River Palar		River Vaigai Basin	
		Value	Tolerance limit for Surface Water(Class 'C')	Value	Tolerance limit for Surface Water (Class 'C')
1	PH	7.0 - 8.3	6.5 - 8.5	7.0 – 8.2	6.5 – 8.5
2	DO-mg/I	6.2	4	6.7	4
3	BOD-mg/I	2.7	3	2.4	3
4	Chlorides-mg/I	91	600	127	600
5	Sulphate-mg/I	42	400	20	400
6	Total Coliform -MPN/100 ml	195	5000	95	5000
7	Faecal Coliform-MPN/ 100 ml	120	---	54	---
8	Nitrate Nitrogen-mg/I	BDL	50	0.06	50
9	Total Hardness -mg/I	170	---	226	---

3.1. Fertilizer and Pesticide Use

With the objective of increasing productivity, the agriculture sector in the state has heavily relied upon ncreasing use of fertilizers and pesticides. However, this leads to deterioration in soil uality and significant water pollution through leaching and renders water resources unfit for other uses. In the year 2013-14 the total consumption of fertilizer was 13.8 lakh tonnes compared to 10.8 lakh tonnes in 2007-08. Over the years, not only fertilizer consumption has increased significantly, but also the composition of various nutrients has under one change. Nitrogenous nutrients in 2013-14 accounted for more than two-thirds (nearly 66 per cent) of the total fertilizer consumption compared to 51 percent in 2007-08 increased use of nitrogen-containing fertilizers therefore has particularly adverse consequences in terms of water pollution, given that much of the nitrogen that s not taken up by the plant is transformed into nitrate which is easily leached into groundwater (Rajalakshmi et al., 2020b)

During the years 2013-14 and 2014-15 the consumption of pesticide dust was 3,211 and 3,088 tonnes, respectively, in Tamil Nadu. The consumption of liquid pesticide was 4,99,353 litres in 2013-14 and 4,98,604 litres in 2014-15 in Tamil Nadu. The trend in the top three districts in the State with the highest consumption of pesticides (both dust and liquid) in 2012-13 also continues for the years 2013-14 and 2014-15 (Department of Agriculture, GoTN). Over the five-year period between 2007-08 and 2012-13, fertilizer consumption increased in almost all districts of Tamil Nadu, increasing the most in the Nilgiris (by over 400 per cent), however the same declined by close to 20 per cent in Kancheepuram . On the other hand, pesticide (dust) consumption declined in a majority of the districts, declining the most in the districts of Vellore and Karur (by over 90 per cent in each), however increasing significantly in the districts of Salem, Krishnagiri, Tirunelveli, Coimbatore and Kancheepuram (by over 200 per cent in each). Moreover while liquid pesticide consumption also declined by more than 30 per cent in a majority of districts, it increased significantly (in excess of 100 per cent) in the districts of Cuddalore, Theni, Coimbatore, Krishnagiri and Vellore. In general, districts that have recorded a small increase or a decline in fertilizer consumption over the past five years have also recorded big increases in pesticide consumption over that period, and vice versa. There are some exceptions however, in Krishnagiri and Virudhunagar both fertilizer and pesticide consumption increased drastically over the past five years.

3.2. Domestic and Industrial Effluents

Environmental degradation due to polluting wastewater discharges from both domestic and industrial sources is an important concern. In 2011, Tamil Nadu had 92 lakh households with no wastewater drainage facility compared to 78 lakh households in 2001. Rural households account for nearly 75 per cent of the total households having no drainage. Without proper drainage of wastewater the domestic effluents generated by these households can directly pollute the nearby water bodies (e.g., rivers, lakes, etc.) and therefore put significant pressure on available water resources for other use.

Industrial effluents are the other major source of water pollution in the state. It is summarized that the changes in the activity of two industries relevant from water pollution perspective. Total number of textile mills creased by roughly 8 per cent in Tamil Nadu between the period 2005-06 and 2010-11. Production of yarn increased y about 33 per cent, however the production of fabrics reduced dramatically by about 1 per cent, mainly due to the decline in cotton fabric production, over that same time period. Fertiliser production n the other hand has been on the decline in Tamil Nadu; reducing about 29 per cent over the time period 2004-05 to 2012-13. Tamil Nadu’s share in all-India fertiliser production was only 5 per cent in 2012-13In Tamil Nadu, there are 16724 industries generating effluent from their operations of which 1363 units fall under red-large category. 16656 units have provided Effluent Treatment Plants ETP).

The remaining units are directed o provide ETP. None of the units are however permitted to operate without providing ETP

3.3. Status and Impacts of Water Contamination

It is shown the percentage of contaminated water sources tested across districts of Tamil Nadu in 2011. The sources were tested for fluoride, nitrate, iron and fecal contamination. Coimbatore tops the list with over 40 per cent of its tested sources turning out to be contaminated followed by Ramanathapuram, Dharmapuri, Virudhunagar, Sivaganga and Salem districts – each reporting about 10 per cent of their tested sources as contaminated (Unnamalai & Gopinath, 2020).

A report by the Blacksmith Institute included Ranipet in Tamil Nadu among the top ten worst polluted places of the world (Blacksmith Institute, 2006). While the state government has ordered closure of Tamil Nadu Chromates and Chemicals Limited a decade ago, the legacy of the same still continues with no solution still in sight for the safe disposal of 1,500,000 of solid waste generated y the factory over two decades before its closure. Blacksmith Institute and Asian Development Bank estimate 3.5 million people as potentially affected people due to ground and surface water contamination. The same report also highlights the effects of effluent discharge from the tanneries. Within five km distance around 68 tanneries operate in Dindigul leading to severe ground water pollution. Tannery effluents are reported to have left only 16 out of 56 wells in Kamatchipuram village uncontaminated which forces people to walk long distances or water and soil pollution from the tannery effluents has the potential to affect about 450,000 people. The impact of tannery pollution on agriculture land was analysed by Loss of Ecology Authority, Government of India. About thirty six thousand individuals were identified by the Authority for paying compensation to the tune of Rs. 35 crores by the tanneries. Similarly the impact of pollution from textile units on agricultural pollution as analysed through several studies at Madras School of Economics and significant losses were reported Following strict directives from the High Court that polluting industries should not release their treated effluent into the water ways, it has become somewhat common practice to use the treated and semi-treated water for irrigation purposes. This has resulted in significant contamination of ground water and resulted not only in loss to agricultural output but also made the ground water not suitable for drinking. Further it has also been estimated that the loss in yield of paddy and sugarcane crops in Vellore district and attributed more than 90 per cent of the loss to the water pollution.

3.4. Water Pollution and Poultry Farms- Nexus

Poultry is one of the fastest growing segments of the agricultural sector in India today, while the production of agricultural crops has been rising at a rate of 1.5 to 2 percent per annum that of eggs and broilers has been rising at a rate of 8 to 10 percent per annum. As a result, India is now the world's fifth largest egg producer and the eighteenth largest producer of broilers. Driving this expansion resulted from combination of factors - growth in per capita income, a growing urban population and falling real poultry prices.

Over recent decades the poultry industry has made tremendous adjustments to meet the increasing demand for inexpensive and safe supply of meat and eggs and this growth has been accompanied by structural changes within the sector, characterized by the emergence and growth of “land-independent” (industrial) farming establishments, and the intensification and concentration of poultry operations. The driving forces behind structural change in poultry production are no different than those that affect other livestock commodities: market pull, innovation and economies of scale.

Local disturbances and landscape degradation are typical local negative amenities in the surroundings of poultry farms. Pollution of soil and water with nutrients, pathogens and heavy metals is generally caused by poor manure-management and occurs where manure is stored. Manure is either recycled on cropland belonging to the animal farm or marketed.

Poultry facilities are a source of odor and attract flies, rodents and other pests that create local nuisances and carry disease. Odor emissions, caused by a large number of contributing compounds including ammonia (NH3), volatile organic compounds (VOCs), and hydrogen sulphide (H2S), from poultry farms adversely affect the life of people living in the vicinity.

Flies are an additional concern for residents living near poultry facilities. Research conducted by the Ohio Department of Health indicated that residences that were located in close proximity to poultry facilities (within half a mile) had 83 times the average number of flies and mosquitoes which can transmit diseases, such as cholera, dysentery, typhoid, malaria, filaria and dengue fever. Their presence is mainly related to animal-feed management and especially to storage and losses from feeding systems.

Water pollution; pesticides used to control pests (e.g. parasites and disease vectors) and predators have been reported to cause pollution when they enter groundwater and surface water. Improper disposal of poultry carcasses can contribute to water-quality problems especially in areas prone to flooding or where there is a shallow water table.

The most significant environmental issue resulting from slaughterhouse operations is the discharge of wastewater into the environment. Like many other food-processing activities, the necessity for hygiene and quality control in meat processing results in high water usage and consequently high levels of wastewater generation, having high biochemical and chemical oxygen demand (BOD and COD) due to the presence of organic materials such as blood, fat, flesh, and excreta which in turn may lead to reduced levels of activity or even death of aquatic life. Residues of chemicals such as chlorine, used for washing and disinfection, as well as various pathogens including Salmonella and Campylobacter may also present in the water. In addition, process wastewater may contain high levels of nitrogen and phosphorus which may cause eutrophication of the affected water bodies.

Environmental impacts of poultry production are not always confined to specific areas; they also include impacts of a global dimension. Two issues are of relevance: the production of concentrate feed and greenhouse gas production related to energy use in animal production processes and in the transport of processed products. The extraordinary performance of the poultry sector over the past four decades has partially been achieved through soaring use of concentrate feed, particularly cereals and soybean meal estimated to the poultry sector utilized a total of 294 million tons of feed.

Intensification of feed production resulted in expansion of cropland at the expense of forested land, pollution in water resources through pollution caused by the intensive use of mineral fertilizer, pesticides and herbicides to maintain high crop yields and it also contributes to air pollution from nitrogen fertilizer through the volatilization of ammonia. Greenhouse gases emission got increased up. i.e.- Carbon dioxide, produced by the burning of fossil fuels during animal production, slaughter, transportation of processed and refrigerated products and importantly from deforestation. The poultry industry produces large quantity of litter daily and improper disposal of fresh poultry litter used in agricultural farms and ponds are an environmental and public health hazard which can cause ammonia ingestion, eye irritation, leg infection, etc. special attention for health and environmental safety should be made.

4. CONCLUSION

Environmental degradation is one of the concomitants of economic development and its causes such as increase in green houses gases, degradation of land, pollution of air and water, degradation loss of bio- diversity and the fragile eco-systems pose a challenge to the country's policy makers and planners in ensuring sustainable economic growth. Several initiatives have been taken by the government for pollution abetment in rivers and lakes besides promoting environmental consciousness among the public at large Environmental conservation requires creation of awareness and attitudinal change among the people. The magnitude of environmental impacts of poultry farms is highly dependent on production practices and especially on manure management practices. A number of techniques and different management practices are available to control the environmental effects mentioned above. Odor and flies can be controlled by minimizing the surface of manure in contact with air frequent collection of litter (once a week in dry seasons and twice a week in rainy seasons), closed storage (bags or closed sheds). Water and food borne disease propagation can be prevented by: storing manure in closed buildings or bags a storage system allows producers to hold manure until a convenient and optimum time for use storing poultry manure in closed buildings reduces the emissions of gaseous compounds to the air and the risk of environmental contamination as compared to the risk associated with leaving manure exposed. Dead-bird management and disposal, which must comply with legally accepted practices including rendering, composing, incineration and burial; a contingency plan should be in place for disposal of large numbers of dead birds in the event of disease outbreaks; in addition, consideration should be given to impacts on the physical environment – e.g. burial pits should be at least 3 meters above the maximum groundwater table.

Measures should also be initiated that balance and harmony between Economic. Social and Environmental needs of the country are very important' there is a response to our national commitment to a clean environment mad dated in the constitution in article 21. Maintaining a healthy environment is not the states responsibility alone. But also that of every citizen public-private partnership is crucial in the spectrum of environmental management,

The Poultry Development Corporation should take initiative to motivate the poultry producers, especially the small farm holders for disposing the litters in proper way. So, knowledge is also required for the effective planning, implementation and operation of a good waste management system.

The environmental issues, problems, environmental attitudes, which would have significant impact on intentional ecological behavior must be emphasized that may direct people towards preservation and conservation of environment. Hence the public participation voluntary organizations, local educational institutions. Services Organizations like lion club, Leo club. Rotary club, Jaycees, junior Jaycees, Red cross societies, Exnora etc, should come forward to manage the environment effectively in the state,

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