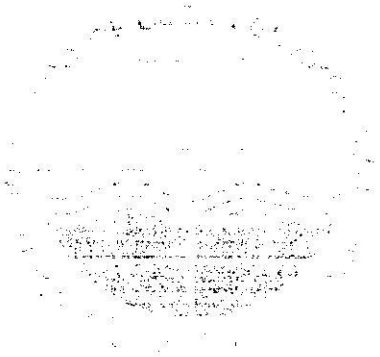
Environmental Guidelines for Poultry Farms



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CONTENT

1.0 Background

Guidelines for Poultry farms were developed in the year 2015, which was applicable to poultry farms handling above 1.0 lac birds. As per CPCB classification of industrial sectors, 'Poultry, Hatchery and Piggery' are categorized into 'Green'.

In the matter of O.A. No. 681 of 2017, Hon'ble NGT, passed the following order on 16th September, 2020:

> *'...'Accordingly we allow this application and direct CPCB to revisit the guidelines for categorizing the poultry farms as Green category and exempting their regulation under Air, Water & EP Act. CPCB may issue fresh appropriate orders within three months and in if no further order is issued, all the State PCBs/PCCs will require enforcement of consent mechanism under the above acts after 01.01.2021 for all Poultry Farms above 5000 birds in the same manner as is being done for farms having more than one lac birds. Till then, even without such consent mechanism, the state PCBs/PCCs may strictly enforce the environmental norms and take appropriate remedial action against the any violation of water, air and soil standards statutorily laid down."*

Subsequent to the aforesaid order, Hon'ble NGT (PB) in the matter of O.A. No. 320/2021 (Gauri Maulekhi Vs. Union of India &Ors) passed the following order on 10.12.2021

> *"...Accordingly, we direct that while the impugned guidelines be immediately enforced, all poultry farms above 5000 birds will also be covered by the said guidelines latest from 1.1.2023. The siting criteria should apply to all consents/renewals hereafter for the above size of the poultry farms. CPCB may issue revised guidelines to all the State PCBs/PCCs in terms of the above order within one month."*

2.0 Poultry farming

Poultry farms refers to breeding, hatcheries, layer and broiler farms. Poultry farming is the rearing of domesticated birds such as chickens, turkeys, ducks, goose etc. for the purpose of farming meat or eggs for food. Chickens raised for eggs are usually called laying hens or layers while chickens raised for meat are often called broilers. Chicken are most numerous and popular domesticated poultry species, while other species, e.g. duck, goose form a very small proportion of activities in comparison. Poultry farming in India has witnessed a spectacular growth and transformed itself into a vibrant agri- industry. The leading states having poultry farms are Tamil Nadu, Andhra Pradesh, Telangana, West Bengal followed by Maharashtra, Karnataka, Assam, Haryana, Kerala and Odisha.

As per the 20thlivestock census carried out by Department of Animal Husbandry & Dairying, Ministry of Fisheries, Animal Husbandry & Dairying, the state-wise number of poultries (birds) are given below:

Sl.No.	States/UTs	Nos of Poultries (birds) in millions
1	Andhra Pradesh	107.863
2	Arunachal Pradesh	1.599
3	Assam	46.712
4	Bihar State	16.525
5	Chhattisgarh	18.711
6	Goa State	0.349
7	Gujarat	21.773
8	Haryana State	46.24
9	Himachal Pradesh	1.341
10	Jammu & Kashmir	7.366
11	Jharkhand	24.832
12	Karnataka State	59.494
13	Kerala State	29.771
14	Madhya Pradesh	16.659
15	Maharashtra	74.297
16	Manipur	5.897
17	Meghalaya	5.379
18	Mizoram	2.047
19	Nagaland	2.838
20	Odisha	27.439
21	Punjab	17.649
22	Rajasthan	14.622
23	Sikkim State	0.580
24	Tamil Nadu	120.781
25	Telangana State	79.999
26	Tripura	4.168
27	Uttar Pradesh	12.515
28	Uttarakhand	5.018
29	West Bengal	77.322
30	Andaman & Nicobar Islands	1.289
31	Chandigarh	0.048
32	Dadra Nagar Haveli	0.089
33	Daman & Diu	0.018
34	Delhi	0.043
35	Lakshadweep	0.226
36	Pondicherry	0.236
Total		**851.809**

3.0 Poultry Farming Process

The poultry farming consist of the following unit operations.

- Breeder Farms (Breeding)

- Hatchery Farm (Hatching)
- Layer farm &
- Broilers

3.1 Breeder Farms(Breeding)

Breeder farms specialize in the production of fertilized eggs for either broiler or egg production. Specific ratios of male/female breeders are used to ensure the fertility of hatching eggs. In India both layer and broiler breeders are predominantly housed in cages and the fertile eggs are obtained by artificial insemination. The eggs are collected daily, assessed for quality and stored in plastic / pulp trays in a controlled environment before being transferred to the hatchery for the production of commercial chicks. At the end of their productive phase, breeders are removed and sold for meat processing or byproducts.

3.2 Hatchery farms (Hatching)

The eggs collected from Breeder farms are hatched at special hatcheries. These are centralized facilities and receive fertilized eggs from its own or several other breeder farms. The eggs are stored for a period of 4 to 10 days before being placed in incubators that control temperature and humidity to stimulate embryonic development. Hatching typically takes 21 days. The chicks are vaccinated, graded for uniform quality and dispatched to destinations for further rearing. The day-old broiler chicks are delivered to broiler farms straight run (un-sexed). Chicks from egg laying stock are gender sorted and the female chicks alone are delivered for egg production while male chicks are killed and disposed-off.

3.3 Layer (Egg production)

In the layer farms, egg laying hens are reared for egg production. Typical egg laying cycle starts around 18 weeks age of the bird and continues upto 72–75 weeks of age and thereafter diminished gradually to become uneconomical. Birds less than six months of age are termed as pullets and are raised either on floor or on the cages little away from adult farms located in the same or at different premises. The birds are kept and raised in three different houses based on its age i.e. a) Chick house: 0 to 45 days, b) Grower House: 45 days to 18 weeks and c) Layer House: 18 weeks to 72 to 75 weeks. The birds start laying eggs from 18 weeks onwards.

There are two phases of growing period i.e. brooding and growing phase. The brooding phase extends from day one to three to four weeks depending upon the season of rearing. During this period, the birds are provided extra warmth in an enclosed quarter by means of gas brooders, electric hovers, infra-red bulbs or coal brooders. After this initial period, the birds are moved to growing establishments which are typically open houses. The brooding and growing houses may be deep litter type or cage type. After the completion of the growing phase, the birds are moved to laying cages where they remain there till the end of their laying cycle (72 to 75 weeks of age).

3.4 Broiler (Meat Production)

Broiler birds are raised especially for meat production for 40 to 45 days or up to weight gain of 2.5 to 3.0 Kg. Most of broiler birds gain slaughter weight (2.5 kg to 3.0 kg) within 40 to 45 days. Broilers are most commonly reared in deep litter shed, where feed and water is given by hanging feeder and watering. After cleaning of the deep litter shed, rice husk, saw dust, groundnut hulls, wood shavings, and dried leaves bed of 3" thickness is prepared by scratching. Chicks are moved in the shed freely. Depending on the weight of the bird, the birds are sold for slaughtering from 40th to 45thdays.

The rearing of birds is of two types:

3.4.1 Deep Litter System

Birds are kept on litter floor which is covered with different kinds of agro materials like rice husk, saw dust, groundnut hulls, wood shavings and dried leaves etc. depending on their availability. Initially, the depth of the agro material is approx 5 to 6 cm and then topped up by another 5 to 6 cm as the birds grow in size. The birds may remain on this system upto six weeks in case of broilers from where they go for slaughtering. In case of layer, they remain upto 18 weeks of age or may be shifted to cages. The majority of broilers are housed in deep litter sheds. Feed and water are provided manually in small farms and with automatic equipment in large farms.

3.4.2 Cage System

This is widely practiced system for housing commercial layers, breeder layers and of late even broiler breeders. The birds are generally housed in cages erected on raised platforms in open sheds. These cages are arranged in rows. Three or four birds are accommodated in each cage with provision of drinking water and feeding. The water is provided through a nipple fitted to a closed pipe running at head height of the bird. Feed is placed in a trough attached to the front of the cage and distributed often manually or by automation. The droppings of birds slip through perforations instantaneously and are collected on the floor.

4.0 Classification of Poultry Farms

Backyard poultry is typically owned by small and marginal farmer and comprises of few birds, largely for self-consumption and very small quantities get commercially sold. The poultry farming practiced by the rural and tribal farmers under free range or backyard or semi-intensive systems is usually referred to as rural poultry farming.

Based on the number of handling of birds, Poultry farms may be classified into three categories.

- Small (5,000-25,000 bird)
- Medium (above 25,000-1,00,000 birds).
- Large (above 1,00,000 birds)

The poultry farms under small category are in un-organized sector run by economically weaker farmers and are of rural background.

5.0 Environmental issues & Current practices to address the environmental issues in Poultry Farms

Environmental nuisance arising from poultry farms is due to the generation of NH_3 & H_2S gases causing odor, dust from feed mill, storage & management of Solid Waste (Manure, Dead Birds and Hatchery Waste) also causing odour & water from cleaning operations. Breeding of flies and rodents etc. are the other issues in poultry farms.

(i) Gaseous emission (NH_3 & H_2S) and Feed Mill Dust

- The gaseous emission viz Ammonia (NH_3) and Hydrogen Sulphide (H_2S) are emanated from the excreta generated from the birds causes odour. The odour is produced due to anaerobic conditions in the litter occurs due to its storage at one place for longer period. The general practice followed by poultry farms to control odour is by maintaining good ventilation and free flow of air.

- Dust is generated from the feed mill operation during mixing and grinding of various ingredients of feed. The feed mill operations are typically located inside the mill buildings. Dust extraction systems are generally used to collect the dust and to improve the shop floor environment.

(ii) Solid Waste

Sources of solid waste are (i) Poultry droppings/Manure/Litter (ii) Dead Birds & (iii) Hatchery Waste.

- In case of cage system, excreta are collected just below the bird cages directly on ground, made of stone slabs or concrete or impermeable compacted clay. Litter is collected and kept dry by maintaining good ventilation and free air flow to undergo aerobic composting. The manure is removed once in four to six months & sold to the farmers. In deep litter system, excreta are collected in bed made up of agro residue (rice husk, saw dust, groundnut hulls, wood shavings, and dried leaves) itself. Once in a day or two days the bed is scratched for mixing of litter. Once the chicken is sold for meat, the bed (rice husk, saw dust, groundnut hulls, wood shavings, and dried leaves) is removed once the cycle of 42 to 45 days gets over along with the excreta and sold as

manure. The shed is washed and lime is applied as disinfectant and allows the area for quarantine period.

- Death of the birds in poultry farms is a common phenomenon and their disposal is an issue. Dead birds cause nuisance, odor and aesthetic problems like disease, insect, rodent and predator problems if the birds are not disposed immediately. Dead birds are either burned at relatively high temperatures using different fuels which causing atmospheric pollution and also odour nuisance or buried in the burial pit in the premises.

- During hatching operation, large quantity of solid waste comprising of egg shells, unhatched eggs, dead embryos and chickens and a viscous liquid from eggs etc is generated. This waste is disposed through open burning or through rendering plant.

(iii) Waste water generation from cleaning operation

- Water in poultry farms is used for drinking of birds, sprinkling during the summer and for cleaning sheds and equipment in between batch replacement.

- As such there is no process waste water generation from the poultry farming. However, wastewater is generated during cleaning operations. The waste water is collected in holding tank and utilized in gardening in the premises.

(iv) Other issues:

- Breeding of flies and rodents, etc. are the other issues in poultry farms

6.0 Environmental Guidelines for Poultry Farms farms:

Following are the revised guidelines addressing environmental issues of Poultry Farms.

6.1 Gaseous emission (NH_3 & H_2S) and Feed Mill Dust

(i) *Minimization of odour/gaseous pollution*

- Proper ventilation and free flow of air over manure collection points to keep it dry shall be ensured.
- Manure should be protected from Run-off water and from unwanted pests/insects.
- Well-designed storage facilities should be provided to contain manure /litter.
- Carcasses of dead birds shall be promptly collected on regular basis and disposed appropriately without damaging the environment as per the prescribed methods under section 6.2 (iii) of the guidelines.

(ii) Dust from Feed Mills

- Feed mill and Go-down should be located on a well elevated ground preferably near the entrance of the farm and isolated from other poultry sheds.
- Dust collector system should be installed to control emissions from mixing and grinding section of the feed mill.
- Workers in the feed mill shall be provided with dust masks to protect them from dust.
- Provision for vehicle tyre dip shall be made at the entrance to remove impurities/dust carried by vehicle tyres;
- Floor of the feed mill and Go-down shall be concrete and raised above the ground level by a minimum of 2 feet.

6.2 Management of solid wastes (Solid Wastes contains Manure/litter, Hatchery Debris and Dead Birds)

(i) Manure handling and disposal

- Proper ventilation and free flow of air over manure collection points to keep it dry (by blowing dry air over it or by conveying ventilation air through the manure pit) shall be ensured to prevent obnoxious odour in the area.
- Poultry housing shall be ventilated allowing sufficient supply of fresh air to remove humidity, dissipate heat and prevent build-up of gases such as methane, carbon dioxide, ammonia, etc.
- Excreta shall be scratched at least once in two days as needed for mixing of litter and to keep bedding material (rice husk, saw dust, wood shavings etc.) dry in case of deep litter houses the waste material. This waste shall be utilised for composting after completion of the cycle.
- Manure collected under cages on high raised platforms shall be stored for further processing and utilized by using following options:

Sl. No.	Poultry Farms	Methods for Disposal/Utilization of manure
1.	Small Poultry Farms	• Composting
2.	Medium & Large Poultry Farms	• Composting or Biogas production for disposal/utilization of manure/litter • Combination of any of the methods for disposal/utilization of manure/litter
3.	Poultry Farms in Cluster	• Common facilities for Biogas production or Composting or their combination

- Land application of manure to the nutritional requirements of soil and crop shall be balanced.
- The litter / manure storage facilities shall be minimum 2 m above the water table and of adequate size based on type and number of birds handled. Its base should be constructed with stone slabs or concrete or impermeable compacted clay.

- Manure shall be protected from run off water and cover it to avoid dust and odours in storage pits. The dry manure dump shall be covered with permanent roof or with plastic / similar material to prevent air emissions and the precipitation falling on it.
- Mortalities on farm by proper animal care and disease prevention program shall be reduced.
- Proper facilities (Burial Pit/Composting/Incineration) shall be provided for Collection, storage, transport and disposal of dead birds
- Domestic hazardous wastes (vaccines, vails, medicines, syringes, etc.) shall be disposed as per provisions of "Solid Waste Management Rules, 2016".

Composting *of Manure*:

- Proper mixing the waste with a carbon rich material (e.g., paddy straw / husk, wood shavings) should be done in the pits. Carbon to nitrogen ratios of 20-25:1 is usually recommended. Pure manure can also be composted following the procedure and monitoring all parameters. The composting facilities may be designed through expert institutions in the field as per the size of poultry farms.
- Periodic stirring of compost material should be done for its proper mixing.
- Moisture levels should be maintained between 35 to 50%.
- Temperature monitoring should be done to determine composting conditions.

(ii) Hatchery Waste

- Efforts shall be made in converting the shells to animal feed to supply as a source of calcium, especially for poultry feeds.
- Extrusion with soya bean meal can be used to make a shell/hatchery meal.
- Un-hatched eggs shall be disposed of by composting or rendering.

(iii) Dead Birds Disposal

The dead birds arising from day to day farm activity shall be separated from other live birds promptly and stored in closed containers and disposed off within 24 hours by following any of the disposal methods.

A) Burial Method:

- The dead birds arising from day to day farm activity should be separated from other live birds promptly and should be stored in closed containers \ disposed off within 24 hours
- The dead bird burial pit shall be of minimum 3 to 4 m in depth and 0.8 to 1.2 m diameter and this size may vary as per the capacity of poultry farm and shall be located above minimum 3 m from the ground water table.

- The dead bird burial pit shall be provided with a vermin/fly proof cover made up of wooden / metal / concrete having a central operable lid of proper size for day to day dropping of carcasses.
- Carcasses shall be covered by a thin layer of soil (at least 40 cm deep) along with calcium hydroxide.
- When the pit is full, a compacted soil cover of 0.5 m shall be provided with the top of the covered soil well above the ground level.
- The distance between any two burial pits should not be less than 1 m.

B) Composting

- The composting facility shall not be located within 300 m from the nearest dwelling and 100 m from any well or water course.
- The capacity of the composting facility shall be sufficient to handle the average mortalities on the farm.
- The roof of the composting facility shall be permanent with concrete bottom.
- The composting facility shall be secured with link mesh all around raised to a height of 1.5 m above the ground level to avoid the predation by straw dogs etc.
- A proper mixture of smaller and larger particle sizes to obtain an optimum air exchange within the mixture and build-up of temperature.
- Moisture content of the composting pile shall be approximately 60%. More than this may result in odour problems and less than this will reduce the efficiency of the composting process.
- Carbon and nitrogen are vital nutrients for the growth and reproduction of bacteria and fungi. The carbon-to-nitrogen ratio shall be in the range of 20:1 and 25:1 for proper composting. This is obtained by carefully balancing the dead bird and carbon sources.
- The optimum temperature for composting is 54 to 66°C which pasteurizes the compost. If temperature falls below 49°C after a week or so, the material should be moved to the secondary stage unit. To facilitate the easy transfer of the first stage material to the secondary stage, the proper designing of the primary stage (first stage) facility is desirable as illustrated in figure 5.5. Failure to do so will result into poor compost. The temperature in the secondary stage unit will begin to raise as beneficial bacterial activity begins and will peak in 5 to 10 days.

6.3 Waste water Management

- The waste water generated from the cleaning operations (after each batch removal) shall be collected in appropriate holding tank and put to use in the green belt. Efforts may be made for dry cleaning of the sheds with use of disinfectant so as to avoid use of water.

- Water use and spills from drinking devices shall be reduced by preventing overflow or leakages and using calibrated, well-maintained self-watering devices;
- Improve drainage, reduce standing water and water ditches to control mosquitoes and flies
- Use of pressure pumps, hot water or steam in cleaning activities instead of cold water and plain water scrubs may be encouraged to improve sanitation and reduce the quantities of wash water.

6.4 Other issues

- *Control of Flies*: Proper treatment and disposal of manure, ventilation of sheds, control of temperature, good sanitation, swift repairs of leaks, avoidance of feed spills, prompt removal of broken eggs and dead birds shall be ensured for control of flies in the poultry farms. The farm should have provisions of wire nettings, traps, fly-repellents, insecticides etc.
- *Control of Rodents*: Methods for the control of rodents may include: i) Exclusion ii) Trapping Glue boards iii) Tracking powder iv) rodent proof doors and windows to eliminate rodents/pest infestation.
- As per Bureau of Indian Standards 1374: 2007, on poultry feed specifies that the use of antibiotic growth promoters is not recommended in poultry feed, hence use of antibiotics should not be mixed with feed or administered for non-therapeutic purposes without prescription for diseased birds. ***Regulation for use of antibiotics shall be regulated as per the advisory/directions issued by Department of Animal Husbandry, Dairying and Fisheries and Ministry of Health and the Drug Controller General of India.***

7 Siting Criteria

New Poultry Farms (Set up after issuance of Guidelines) should preferably be established

- 500 m from residential zone in order to avoid nuisance caused due to odour& flies
- 100 m from major water course like River, Lakes, canals and drinking water source like wells, summer storage tanks, in order to avoid contamination due to leakages/spillages, if any.
- 100 m from national Highway (NH) and 50 m from State Highway (SH)in order to avoid nuisance caused due to odour& flies.
- 10-15 m from rural roads/internal roads/village pagdandis
- The Poultry sheds should not be located within 10 m from farm boundary for cross ventilation and odour dispersion

8.0 Regulatory/ Monitoring Mechanism for Poultry Farms

- SPCBs/PCCs shall upload Environmental Guidelines on their website.
- Guidelines shall be applicable to all the category of Poultry Farms.
- Poultry Farms handling birds above 25,000 at single location will have to obtain consent to establish (CTE) and consent for operate (CTO) under the Water Act, 1974 & Air Act 1981 from State Pollution Control Board/Pollution Control Committee.
- As per the directions of Hon'ble NGT dated 10.12.2021 (O.A. No. 320/2021: Gauri Maulekhi Vs. Union of India & Ors, poultry farms handling above 5,000 birds at single location shall also obtain consent to establish (CTE) and consent for operate (CTO) under the Water Act, 1974 & Air Act 1981 from State Pollution Control Board/Pollution Control Committee w.e.f. 01.01.2023
- The Poultry Farms are categorized under "Green" Category, therefore validity of consent will be 15 yrs.
- Animal Husbandry Department of the State/Districts to assist the poultry farms for implementation of Guidelines.

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