The Impact on the Environment Generated by the Arranging of the Livestock Complexes

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Abstract

Arranging livestock farms can influence favorably or conversely, the development of production process, animal health or comfort of the population. Because the election of the site and indoor systematization of the farms show effects over a long period, these must be carefully analyzed in the perspective of the farms development. Moreover arranging an livestock farm, involves execution in advance of an impact study on the environment, which takes into account providing the distances from inhabited areas, because these objectives are generators of odors, harmful gases, dust and microorganisms. Of course the polluting potential of farm animals can be very much reduced, through respecting the hygiene rules inside the farms and using filters to retain dust and microorganisms. In the present paper, we aimed to analyze the sources of pollutants and the impact on the environment generated both during construction phase of livestock farms and in their operational phase.

Keywords: environmental factors, the impact on the environment, livestock, sources of pollutants.

1. Introduction

One of the major challenges in case of modernization of livestock production is the need to balance the reduction or elimination of the effects of pollution on the environment with the growing demand for living of animals, and in the same time maintaining the profitability of the business [1-5].

Intensive farming activities of animals can lead to a number of environmental phenomenon [6-9]:

- acidification (NH_3, SO_2, NOx)
- eutrophication (N, P)
- reducing the ozone layer (CH_3Br)
- increasing the greenhouse effect (CO_2, CH_4, N_2O)
- desiccation (groundwater)
- local nuisance (odor, noise)
- spread of heavy metals and pesticides.

Identification of different sources responsible for these environmental phenomenon, has led to increasing of the attention for a number of environmental aspects associated with intensive increase of animals. The key aspect of intensive increasing of animals is related to the natural processes, because the animals metabolize the feed and excrete almost all nutrients through manure. [10-14]

2. Materials and methods

In order to realize this work, we analyzed the legislation in the field of environment protection from Romania, European Directives, the Code of Good Agricultural Practice, Best Available Techniques for Intensive increasing of Poultry and Pigs, and Reports on studies of assessment of the environmental impact, generated by the establishment of some livestock complexes.

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3. Results and discussion

After the analysis of the Reports on the studies of assessment of the impact, we found that it was assessed the impact on the environment factors both in the realization stage of livestock complexes rearing and also during their operation phase.

A. The impact on the environment in the product in the phase of achieving the objectives

The complexity of the works, the work volume, and the multitude of equipment involved, in activity, and the modalities execution of works: excavation, concrete, metallic assembly, welding, involves a high degree of involvement of environmental factors, unless are not respected the mandatory requirements.

In the conditions in which the objectives will be located at a distance greater than 1 km, by the inhabited areas, the population will not be affected by the noises emitted during the works.

Regarding **the impact produced on water**, we find that during the execution of works, if is respected the work technology, it is not emit pollutant substances witch affect the quality of water from groundwater and of the surface ones. It can be appreciated that the impact of this activity on surface water and groundwater is insignificant.

As for **the impact produced on the air,** the emissions resulted from the tailpipes of machinery used to realize the investment will determine an increase of the concentration of air pollutants, by site. Intensification of transport activity, within lands to the implementation of the objective, will not determine the damage of the air quality, as long as it is carried away from the habitable areas.

So we can conclude that the negative effects on air during the execution of the works are insignificant.

Choosing the locations for arrangement of livestock breeding complexes it will be taken into consideration the fact that it should not lead to the **destruction or modification of plant species habitats, not alter birds populations, mammals, fish**, etc. During the execution period of the investment, the vegetation will be affected exclusively in the work area. On this land area, the vegetation will be removed entirely, but will be done on the entire surface, uncovered by construction – through the rehabilitation of affected areas, after the vegetation period.

In the execution phase of the works, it can be recorded a **minimal impact on the soil**. Green cover will be stripped and preserved, for restoring the uncovered area or other adjacent areas, less fertile. Period of achievement of constructions will be characterized through intensifying the traffic on access roads, to the land concerned.

The works on implementing drilling and compacted fillings will determine the increase of noise level from the area, **thing which will not determine also the affecting the comfort degree of the population**, as long as the constructions are at a distance greater than 1 km from the habitable zones.

B. The impact of the environment, produced after putting in function of the objectives

Farms or growth, respectively fattening of the animals do not emit, then when the working technology is respected, pollutants affecting **water quality from groundwater and the surface ones.**

However, possible sources of water pollution could be:

- uncontrolled discharge of manure, which can appear only in some accidental situations;
- occurrence of cracks on the route of pipelines of discharge residual fluid;
- leakage of some connecting areas;
- exceeding the storage capacity of the storage basin, having as result the discharge of wastewater, witch through infiltration into the soil, can reach groundwater.

In the present, we can say that swine farms (because they were a sensitive subject) are no longer a major threat of pollution of surface waters or ground water, due to performant constructive solutions and advanced technologies applied to the isolation of the manure storage basin.

From the technological process of growing and fattening the animals **result gas emissions** which may olfactory disturb, in case in witch are not used suitable additives in order to reduce this discomfort condition. In order to stop any releases of odors from livestock complexes, in the perimeter of site, it will constitute curtains plant (acacia preferably, having a fast rhythm of growing). Activity of livestock complexes is carried out only inside the approved locations, not affecting the surrounding areas, **the impact produced on aquatic and terrestrial vegetation and fauna** is insignificant.

Operating activities of the farm of growth/fattening of animals have not have as effect the **destruction or changing the habitats and plant species and does not alter the populations of birds, mammals, fish**, etc.

In case of a normal operating, without failure, there will be no guided sources **of pollution of soil and underground**. Potential effects of the investment on soil environmental factor may arise from:

• the process of growing-fattening of animals, which can lead to pollution of soil, with various fluids: the fluid from manure basin;

• various household waste;

• scattering - careless or unprofessional – of manures, on agricultural lands is the responsible activity for emissions of numerous compounds in the soil and subsoil. The manure is a good fertilizer, but there where it is applied in excess toward the capacity of the soil and crop requirements, it becomes a major source of polluting emissions.

If is properly done, appliance of manures on lands that comes to be fertilize, has the advantage of saving mineral fertilizers, to improving the quality of soils as a consequence of the addition of organic matters and reduce the soil erosion.

Given the fact that machineries used to limit the hall are estimated the equivalent levels of noise up to the limit of 65 dB (A) – according to STAS 10009/1988, for the level of equivalent continuous sound pressure.

4. Conclusions

We can conclude the fact that in the conditions in witch are respected the technological processes of exploitation of livestock complexes, the proper disposal of droppings and their use on agricultural lands, the proper management of all resulted waste, the permanent checking of conditionings from BAT, the negative impact on the environment can be reduced to a minimum

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