

# THE MAIN PROBLEMS CONNECTED WITH INDUSTRIAL ANIMAL FARMING IN POLAND

## 1. INTRODUCTION

Intensive animal farming causes a number of hazards, which may have a negative impact on the Baltic Sea Region environmental conditions. The possible impact concerns all components of the environment: air, soil and – what is most important for the Baltic Sea – water (surface water, subsoil water, rainwater). Negative effects of industrial animal farming have also social, economical and legal connotations.

The most inconvenient sources of pollution are big factory farms, in which even a few thousands of animals are kept. This particular kind of animal farming is called **industrial** (or **factory, intensive) animal (livestock) farming**. In the *Council Directive 96/61/EC of 24th September 1996 concerning integrated pollution prevention and control* industrial animal farms are defined as plants, that are obligated to possess **integrated permits** (which includes all pollutant emission from particular plant to all environment components), that is with livestock density for unless 40 000 individuals (poultry), 2 000 pigs over 30kg, or 750 sows.

The most disadvantageous, from environmental point of view, is litter-free breeding, which causes great amounts of liquid manure<sup>1</sup>. The manure is a natural, liquid fertilizer, which contains of feces, urine and water. This is a highly concentrated fertilizer with heavy content of mineral components, microbiologically polluted. Improperly stored, managed and utilized manure can cause many serious threats, both to natural environment and to man's health<sup>2</sup>.

In comparison, dung is less concentrated animal natural fertilizer, produced in litter rearing farms. Dung contains more organic matter, has higher temperature than liquid manure (worse development conditions for pathogenic microorganisms) and for that reasons is considered as more environmentally-friendly<sup>3</sup>.

Negative influence of industrial animal farming depends on the level of livestock density and on the other hand – on technology of the breeding and management of the produced liquid manure.

It can be said, considered all above mentioned arguments and species' (livestock's) – quantity's (density's) structure, that the less environmentally-friendly and bringing about the most serious social conflicts in Poland (likewise in whole the Baltic Sea catchment area) is industrial pigs farming, which will be considered by present paper<sup>4</sup>.

## 2. LEGAL STATUS OF INDUSTRIAL ANIMAL FARMING IN POLAND

The industrial animal sector (business) is being regulated by number of European Union's legal acts, from among which the most important are *Council Directive 96/61/EC of 24th September 1996 concerning integrated pollution prevention and control (IPPC Directive)* and *Council Directive 91/676/EEC of 12th December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources (Nitrates Directive)*.

There are also some general recommendations, like *Reference Document on Best Available Techniques (BAT) for Intensive Rearing of Poultry and Pigs*, European Commission, July 2003 (**BREF**), *BS EN 13725:2003 Air quality. Determination of odour concentration by*

<sup>1</sup> Wojewódzki Inspektorat Ochrony Środowiska w Szczecinie. Analiza oddziaływania rolnictwa na środowisko wodne w województwie zachodniopomorskim. Potencjalne ograniczenia w rozwoju produkcji zwierzęcej. Szczecin 2005, Łysko A. Phd, Cyglicki R. Report on agricultural pollution from industrial hog Raising farms In Poland. Szczecin 2004

<sup>2</sup> Wojewódzki Inspektorat Ochrony Środowiska w Szczecinie. Analiza oddziaływania rolnictwa na środowisko wodne w województwie zachodniopomorskim. Potencjalne ograniczenia w rozwoju produkcji zwierzęcej. Szczecin 2005, Łysko A. Phd, Cyglicki R. Report on agricultural pollution from industrial hog Raising farms In Poland. Szczecin 2004

<sup>3</sup> Łysko A. Phd, Cyglicki R. Report on agricultural pollution from industrial hog Raising farms In Poland. Szczecin 2004

<sup>4</sup> Skorupski J. (red.). Report on industrial swine and cattle farming in the Baltic sea catchment area. Uppsala 2007

*dynamic olfaktometry* (standard of odour air quality of European Committee of Standardization), **Good Agricultural Practice Code, Best Environment Practice (BEP)**, as well as international conventions and agreements, e.g. *Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area*, 1992, entered into force on 17 January 2000 (**The Helsinki Convention**), an *Agenda 21 for the Baltic Region* (an agricultural sector activities).

On the national level intensive livestock rearing is regulated by number of legal acts. The rules of manure application (as natural fertilizer) are defined in the *Fertilizer and Fertilization Act, Good Agricultural Practice Code*, and in *Ministry of Agriculture Decree on application of fertilizers and education in fertilization* (Dz. U. Nr 60, poz. 616 of June 1st, 2001). According to the legislation spreading of manure is not allowed: between 1st December and 28th February, during poor weather conditions (flooded, frozen, or snow covered ground), near the water intake protection zone, water reservoirs, watercourses or seaside resorts, on slope fields without plant cover, nor directly on crops intended for food and fodder production. There are also specific regulations on fertilization methods, e.g. order of ploughing the fertilized soil after the fertilization, technical solution of manure spreading, etc.

Fertilizing in the Nitrate Vulnerable Zones is restricted through the *Water Law Act* (Dz. U. Nr 115, poz. 1229 of July 18th, 2001), the *Environmental Protection Act* (Dz. U. Nr 62, poz. 627 of April 27th, 2001) and through two Ministry of Environment Decrees regarding Nitrate Vulnerable Zones (Dz. U. Nr 241, poz. 2093 of December 23rd, 2002 and Dz. U. Nr 4, poz. 44 of December 23rd, 2002).

According to the *Fertilizer and Fertilization Act* the minimum level of capacity for storing of manure should allow for 4 months storing or 6 months in the Nitrate Vulnerable Zones. *Annex III to Helsinki Convention*, concerning the 6 months period of storing manure, is not obeyed. Also *Good Agricultural Practice Code* recommends such storage period.

Polish law requires enclosed reservoirs for manure. *The Good Agricultural Practice Code* contains a number of non-obligatory recommendations for reducing ammonia emission from manure storage.

Owners of IPPC-farms in Poland are obliged to dispose 70% of produced manure on their fields in accordance with fertilization plans, which have to be approved by Regional Agricultural Station.

It is noticeable that above mentioned legal acts are not common obeyed, as it is said in a document of the Polish Supreme Chamber of Control's, published after the newest control of industrial animal farms in Poland<sup>5</sup>.

### 3. STATISTICAL DATA

There are 18 812 200 pigs in Poland (November 2006)<sup>6</sup> and the livestock density is equivalent to 100 pigs per 100ha of farmland<sup>7</sup>. The stocks of pig in the whole Baltic region counts around 50 000 000 animals<sup>8</sup>.

In the end of 2006 there were 117 industrial farms obligated to possess integrated permits in Poland (the overall number of such farms in the Baltic catchment area is around 300<sup>9</sup>), and the largest number was localized in Zachodniopomorskie (23) and Wielkopolskie (19) voivodships<sup>10</sup>.

<sup>5</sup> Informacja o wynikach kontroli sprawowania nadzoru nad wielkoprzemysłowymi fermami trzody chlewnej. Najwyższa Izba Kontroli. Warszawa 2007

<sup>6</sup> Pogłowie trzody chlewnej w dniu 30 listopada 2006 roku. Central Statistical Office. [http://www.stat.gov.pl/dane\\_spolgosp/rolnic\\_lesnict\\_srodowi/poglowie\\_trzody/2006/30\\_XI/index.htm](http://www.stat.gov.pl/dane_spolgosp/rolnic_lesnict_srodowi/poglowie_trzody/2006/30_XI/index.htm)

<sup>7</sup> Wojewódzki Inspektorat Ochrony Środowiska w Szczecinie. Analiza oddziaływania rolnictwa na środowisko wodne w województwie zachodniopomorskim. Potencjalne ograniczenia w rozwoju produkcji zwierzęcej. Szczecin 2005

<sup>8</sup> Skorupski J. (red.). Report on industrial swine and cattle farming in the Baltic sea catchment area. Uppsala 2007

<sup>9</sup> Skorupski J. (red.). Report on industrial swine and cattle farming in the Baltic sea catchment area. Uppsala 2007

<sup>10</sup> Informacja o wynikach kontroli sprawowania nadzoru nad wielkoprzemysłowymi fermami trzody chlewnej. Najwyższa Izba Kontroli. Warszawa 2007

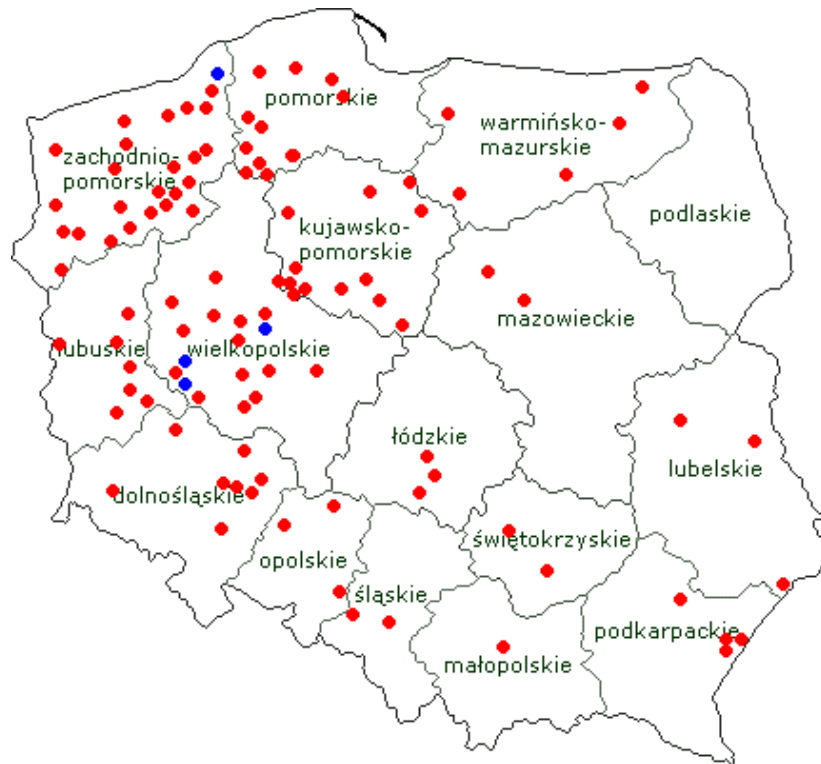


Fig. 1. Location of existing (red dots) and planned (blue dots) industrial large-scale pig farms in Poland.

40 of those farms did not possess integrated permits and 18 have never applied to get it<sup>11</sup> (according to Environmental Protection Law Act large-scale industrial pig farms are obliged to obtain integrated permits before 30<sup>th</sup> October 2007). Nowadays 4 more factory farms are being set<sup>12</sup>.

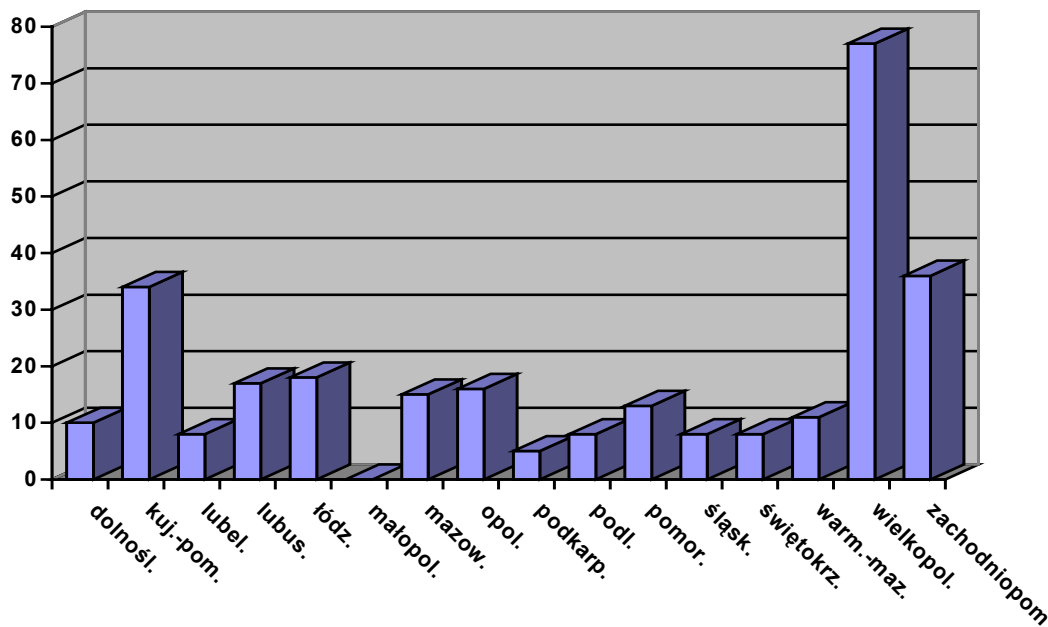


Fig. 2. The number of integrated permits given to industrial pigs and poultry farms located in particular provinces of Poland (<http://ippc.mos.gov.pl/preview/pl/wnioski.html>).

<sup>11</sup> Informacja o wynikach kontroli sprawowania nadzoru nad wielkoprzemysłowymi fermami trzody chlewnej. Najwyższa Izba Kontroli. Warszawa 2007

<sup>12</sup> Skorupski J. (red.). Report on industrial swine and cattle farming in the Baltic sea catchment area. Uppsala 2007

In 2006 there were 8 686 farms holding 200 or more pigs. The total number of animals breed on those farms was 3 694 211<sup>13</sup>.

In 2004, the organic production included 1 169 500 tons of pork, 1 551 sows, 10 453 porkers and 5 914<sup>14</sup>. According to the Centre of Agricultural Consultancy there are 57<sup>15</sup> organic pig farms accordant with Organic Farming – EC Control System (*Regulation (EEC) No 2092/91*) (in comparison, in Denmark the overall number of such farms is approximately 364<sup>16</sup>).

#### 4. 3 GROUPS OF THE MAIN PROBLEMS CONNECTED WITH INTENSIVE ANIMAL REARING

##### A) ENVIRONMENTAL PROBLEMS

- **water pollution** – the main danger related to agricultural usage of liquid manure is leakage of the nutrition microelements (like nitrogen and phosphorus) to the ground water and surfaces water, connected with **overfertilization** of fields<sup>17</sup>;
- **eutrophication** – “overfertilization” of inland and sea waters (algal blooms, decrease of fish population, , ecosystems modifications, loss of bottom fauna, lack of oxygen in waters);
- **microbiological pollution** – *Staphylococcus sp.*, fecal streptococci, *Escherichia coli*, rubella bacilli, tubercle bacilli, foot-and-mouth disease viruses, various fungi and parasites are microbes connected to the liquid manure produced by pig farming; this kind of microbiological water pollution constitutes a sanitary danger<sup>18</sup>;
- indirect and secondary effect that contributes to formation of **acid rain** and increased **greenhouse effect**. (greenhouse gas emission harming the ozone layer)<sup>19</sup>.

##### B) SOCIAL AND ECONOMICAL PROBLEMS

- **air pollution** – the anoxic (without oxygen) fermentation of manure, produces such gases as ammoniac, hydrogen sulfide, carbonyl compounds, amines, mercaptans, dinitrogen monoxide etc. These gases causes offensive **odours**, danger for human health (e.g. pernicious effect on air-stream mechanism transformation of haemoglobin into hematine, plugged nose, lacrimation, headache, stress<sup>20</sup>);
- **loss of recreation places** – for example, the liquid manure from farms in the Goldap’s health resort neighborhood caused massive fish oxygen starvation in nearby lakes (2006)<sup>21</sup>;
- **high costs of drinking water purification**;
- **degradation of cropland** – improper storage and usage of liquid manure;
- farms’ location in direct neighborhood of **Natura 2000** areas and different protected or valuable areas and the **Nitrate Vulnerable Zones**<sup>22</sup>.

##### C) LEGAL PROBLEMS

- **fertilization plans are not taken into account when issuing integrated permits**;

<sup>13</sup> Pogłowie trzody chlewnej w dniu 30 listopada 2006 roku. Central Statistical Office. [http://www.stat.gov.pl/dane\\_spolgosp/rolnic\\_lesnictw\\_srodowi/poglowie\\_trzody/2006/30\\_XI/index.htm](http://www.stat.gov.pl/dane_spolgosp/rolnic_lesnictw_srodowi/poglowie_trzody/2006/30_XI/index.htm)

<sup>14</sup> Rolnictwo ekologiczne w Polsce w 2004 roku. Agricultural and Food Quality Inspection . Warszawa 2005

<sup>15</sup> [http://www.odr.net.pl/rolnictwo\\_ekologiczne/](http://www.odr.net.pl/rolnictwo_ekologiczne/)

<sup>16</sup> Danish Plant Directorate, 2002 [http://www.sinab.it/sezioni/sint/allegati\\_sint/22/StatsDK2.pdf](http://www.sinab.it/sezioni/sint/allegati_sint/22/StatsDK2.pdf)

<sup>17</sup> A Strategy for Ending Eutrophication of Seas and Coasts. Swedish Environmental Advisory Council Memorandum 2005:1. Stockholm 2005 Antonowicz A.. Report on polish industrial farming as a source of pollutions for the Baltic Sea. Szczecin 2006

<sup>18</sup> Łysko A. Phd, Cyglicki R. Report on agricultural pollution from industrial hog Rising farms In Poland. Szczecin 2004

<sup>19</sup> Łysko A. Phd, Cyglicki R. Report on agricultural pollution from industrial hog Rising farms In Poland. Szczecin 2004

<sup>20</sup> <http://www.halat.pl/meatfactory.html> , Steinheider B. Environmental odours and somatic complaints. Zentralblatt für Hygiene und Umweltmedizin 202. 1999, Nimmermark S. Odour influence on well-being and health with specific focus on animal production emissions. Annals of agricultural and environmental medicine.11. 2004

<sup>21</sup> <http://elk.wm.pl/?&main=17&c=110,3,21317,,>

<sup>22</sup> Król K., Sokol A. Poskramianie azotu. Ekoprofit. 82. Katowice 2006

- fertilization plans are the only document, which can prevent excessive nitrogen input; unfortunately, they do not contain detailed **fertilization programmes** nor do they oblige the owner to conduct detailed nitrogen balance twice a year in order to define the current capacity of the soil (**the lack of permanent monitoring of the soil quality**);
- the Polish Ministry of Agriculture refuses public access to information about fertilization plans claiming that this is market sensible, private information; local communities around big farms have been entirely deprived of the possibility of controlling proper manure management; present situation shows that **Aarhus Convention principles regarding access to environmental information not are followed in Poland**;
- **deficiency of the Helsinki Convention implementation** – common failure to observe the Annex III;
- **the lack of correspondence between EU law and national law, with regard to the definition of installations** – the Polish definition attributes the obligation of possessing integrated permits to the owner of the system, not to the installation itself (the latter is clearly stated in EU *IPPC Directive*);
- **Poland does not have any regulations concerning air odour quality** (the *Limitation of Odour Emission Act* is being discussed); in this situation there are no legal procedures that can be used if a farm causes odour emissions, which is often troublesome for local societies;
- since the nineties last century there has been several examples of **infringements of the law connected to activities of the pig farms** belonging to the Smithfield Foods concern (American enterprise) and the Poldanor Company (Danish enterprise)<sup>23</sup>;
- **problems with inspection authorization of Regional Environmental Protection Inspectorates and local authorities**, which in some cases has powers, but do not make use of it;
- despite the fact that the *Reference Document on Best Available Techniques for Intensive Rearing of Poultry and Pigs (BREF)* is available in polish language, it is **not commonly applied**;
- **ineffectiveness of industrial farms controls** run by the Veterinary Inspection, the Environmental Protection Inspection and Sanitary Inspection<sup>24</sup>;
- **insufficient cooperation and coordination** of activities, connected with industrial animal farms control, between institutions mentioned above<sup>25</sup>;
- **disregard of building regulations** by factory farms, stated during Main Office of Architectonic Supervision's controls<sup>26</sup>;
- **not taking local community voice** under consideration during IPPC license process and farms localization.

## 5. THE WAYS TO ACT AGAINST NEGATIVE EFFECTS OF INDUSTRIAL ANIMAL FARMING

Efficient ways to act against negative effects of the factory fattening, recommended many times by Green Federation GAJA, Coalition Clean Baltic, HELCOM and also enclosed in Baltic Action Plan or the Polish Supreme Chamber of Control conclusions and recommendations, are<sup>27</sup>:

<sup>23</sup> [http://www.gajonet.pl/rubrique.php3?id\\_rubrique=76](http://www.gajonet.pl/rubrique.php3?id_rubrique=76), <http://www.ppr.pl/artykul.php?id=120843>

Lysko A. Phd, Cyglicki R.. Report on agricultural pollution from industrial hog Rusing farms In Poland. Szczecin 2004

<sup>24</sup> Informacja o wynikach kontroli sprawowania nadzoru nad wielkoprzemysłowymi fermami trzody chlewnej. Najwyższa Izba Kontroli. Warszawa 2007

<sup>25</sup> Informacja o wynikach kontroli sprawowania nadzoru nad wielkoprzemysłowymi fermami trzody chlewnej. Najwyższa Izba Kontroli. Warszawa 2007

<sup>26</sup> Informacja o wynikach kontroli sprawowania nadzoru nad wielkoprzemysłowymi fermami trzody chlewnej. Najwyższa Izba Kontroli. Warszawa 2007

<sup>27</sup> [www.gajonet.pl](http://www.gajonet.pl), [www.ccb.se](http://www.ccb.se), [www.helcom.fi](http://www.helcom.fi), HELCOM Baltic Sea Action Plan. HELCOM Ministerial Meeting. Kraków 2007, Informacja o wynikach kontroli sprawowania nadzoru nad wielkoprzemysłowymi fermami trzody chlewnej. Najwyższa Izba Kontroli. Warszawa 2007

- considering factory farms as HELCOM'S POINT HOT SPOTS;
- detailed inspection of abiding legal standards in regards to the deadline of 30<sup>th</sup> October 2007 – until then factory farms were obliged to get integrated permits;
- increasing local authorities participation in control and law enforcement process, connected with industrial animal sector;
- information about IPPC-plants should be published and common available (actualization and expanding of the Ministry of Environment's internet database and European Pollutant Emission Register (EPER), which contains information only about 13 factory fattening farms, 2 poultry farms and 4 farms with mixed way of production)<sup>28</sup>;
- promotion and increase the number of ecological livestock farms;
- using of biotechnological ways of liquid manure treatment (decrease foul smell emission, biological disinfection and sanitization, organic matter mineralization, biogas production, purification in farm's biological refineries – controlled fermentation, making use of “efficient microorganisms”)<sup>29</sup>;
- setting efficient law regulations on air's smell quality;
- full implementation of ratified Helsinki Convention and its Annex III
- increasing the meaning and popularization of the *Reference Document on Best Available Techniques for Intensive Rearing of Poultry and Pigs* (BREF), *Good Agricultural Practice Code* and works of Agenda 21 in sector of industrial farms production;
- using of well balanced fodder for animals, to prevent animals from excretion a high number of nitrogen and phosphorus compounds.

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<sup>28</sup> <http://ec.europa.eu/environment/ippc/eper/index.htm>

<sup>29</sup> Szymański M. Wykorzystanie fermentacji beztlenowej do unieszkodliwiania gnojowicy przed jej rolniczym wykorzystaniem. Warszawa 1998, Engler C.R., Jordan E.R., McFarland M.J., Lacewell R.D. Economics and Environmental Impact of Biogas Production as a Manure Management Strategy. Dallas 1997, Chantsavang S., Sinratchatanun C., Ayuwat K., Sirirote P. Application of Effective Microorganisms for Swine Waste Treatment Bangkok 1991