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Factory Farming Versus Environment and Society. The Analysis of Selected Problems

Przemysłowa hodowla zwierząt a środowisko i społeczeństwo. Analiza wybranych problemów

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Abstract

The thesis examined in the article is the argumentation against a popular belief that industrialised agricultural systems and intensive agriculture are beneficial. Objective facts, reports and commonly available data confirm such argumentation. Intensification in animal farming – in a long-term and multi-faceted approach – turns out to be a practice which not only abuses ecosystems and livestock, but also our health. When we consider all moral, medical and ecological controversies, it seems is meaningful and necessary to express doubts regarding the economic value of factory farming.

Key words: factory farming, intensive agriculture, monocultures, fishmeal industry

Streszczenie

Treścią niniejszej pracy jest argumentacja przeciwko popularnemu przekonaniu o dobroczynnym skutku przemysłowych upraw i chowu zwierząt. Wskazują na to obserwowane fakty, sprawozdania oraz powszechnie dostępne informacje. Polityka rolna zalecająca intensyfikację chowu – w ujęciu długoterminowym i wieloaspektowym – okazuje się praktykami nie tylko skrajnie eksploatującymi naturalne ekosystemy oraz żywy inwentarz, ale również działaniami szkodliwymi dla naszego zdrowia. Biorąc pod uwagę wszystkie moralne, medyczne, ekonomiczne i ekologiczne kontrowersje, wyrażanie wątpliwości odnośnie gospodarczej wartości przemysłowej hodowli zwierząt wydaje się być istotne i konieczne.

Słowa kluczowe: hodowla przemysłowa, intensywna agrokultura, uprawy monokulturowe, przetwórstwo rybne

Introduction

According to Hans Jonas, technology used to be tantamount to looking after Nature and caring about it, so an inherent value within Nature had been recognized, and thus respected. Nowadays, Nature is only seen instrumentally as a means to satisfy our needs and habits, including the culinary ones. Sustainable usage of natural riches has been superseded by extreme exploitation, which involves using advanced technology that is centered around the rule of *maximizing profits with minimum time and effort*. Jonas formulates a thesis on a changing nature of human action, and this change evokes a serious ecological crisis in the natural environment and economic crisis in the social environment. However, first and foremost, the change of our action brings about an ethical and even a medical crisis. *The source of the crisis is the increase of human power, which enables such a deep interference in the nature (...) that it can cause – if it had not caused them already – irreversible changes leading to the erasure of human existence both in physical, and specific sense* (Ciążela, 2006, p. 108). Without doubt, mechanized interference in the natural environment in the form of factory farming is an example of such change of human action,

which may serve as the evidence of the increasing human technological power.

There is a common opinion that factory megafarms are reportedly the only profitable form of dairy and meat production, and battery farming is the most effective method of feeding the constantly rising population of people. This belief exploits a naive way of thinking that *more means better*, and on a model of corporate social irresponsibility. In the history of factory farming the first serious mistake was made with the creation of the theory of farm automation. Prior to its introduction, no tests which could enable risk management, forecasting of threats, avoiding them and to performing effective forms of counteraction against unwelcome results (water, air and soil pollution; disease epidemics etc.) were performed. The existence of megafarms in a global and long-term perspective – with regard to ecology, economics or medicine – has not been considered either. The aftermath of these mistakes is seen today, in the form of significant influence of intensive agriculture on natural environment, the health of all consumers and people all around the world. The fact that the method of food production influences its quality is disregarded. The knowledge that the used means and the method of production determine the final value of a product – as the author of *The Poverty of Philosophy* taught us – has been forgotten.

Critical analysis of factory farming is the subject which should be constantly brought up, because *the way that meat, eggs and milk are produced is surrounded by one of our great silences, in which most people collaborate, it's time to wean ourselves off the fairytale version of farming* (Monbiot, 2015).

In the present article we are going to demonstrate that the idea of positive results derived from mass monoculture and farm animal industry is false. Tangible facts, everyday observations and publically available data provide certain pieces of evidence. Agri-politics, which promotes intensive farming, is a harmful practice for people and animals from the point of view of *corporate community and environment involvement*[1]. Taking into account all doubts, the criticism of factory farming indeed becomes a moral necessity. What is also necessary, is continuing the discussions about the future of megafarms and undermining the thoughtless trust of consumers regarding their imagining of animal husbandry. In the article we have intentionally omitted the problem of the unfathomable suffering of animals in factory farming. Such decision is dictated by the fact that a lot of data regarding farm animals cruelty is readily available, whereas there is insufficient information about some other negative aspects characteristic of factory farming[2].

The main thesis of the present investigation is the statement, that factory farming leads to the extinction of entire species of animals, pollution of soil, air and water pollution (Panagiotis, 2004), epidemics of lifestyle diseases, as well as food wastage. The aim of the article is to question a contemporary myth that factory farming is the best way of feeding the constantly rising human population number of people in the world. Another purpose is the attempt to answer the questions of how to avert the ecological disaster; how to avoid the food wastage; how we can – and should – protect ecosystems, and finally: how to ensure the welfare of farm animals.

First, we must explain that such terms as *factory farming, animal raising and breeding, monoculture and monocropping* or *megafarms* are the central catchwords of industrial revolution, which has encroached upon rustic areas, bringing numerous dangers and real losses. The core of factory farming is gaining the maximum quantity of meat by means of the least outlay of money, work and time. This situation concerns poultry, cattle, aqua-farming and dairy farming. It can be done by concentrating a great number of animals in a disproportionately small space (battery, boxes), where entire meat or dairy production (fattening, milking) aims for the full automation of some processes at the expense of natural activity and functions of animal organisms. Maximized dairy production consists in a radical diet with antibiotics and growth hormones in order to force upon cows and hens a drastic exceeding of their natural limits in milk and eggs production. The hallmark of factory farming is a massive disappearance of poultry, swine and cattle from grasslands and pastures. The natural way of animal nutrition consisting in unhampered grazing is time-absorbing, and thereby unprofitable for agribusiness. Hence the reaction of livestock farmers, which can be described as a commodification of farm animals, i.e. moving animal husbandry into halls, cages and pools, where animals become utterly objectified, and their physiology is under mechanical control. Therefore, the second distinctive feature of factory farming is the horribly low level of farm animals welfare. Monocultures and monocroppings – specialized in growing and supplying only one single plant or crop species in large amounts – which are closely related to megafarms will be discussed in the further part of the text.

Selected facts concerning factory farming

Food wastage is the issue which we seldom think about as we buy *grade 3* eggs or chicken in a supermarket. In their publication, Isabel Oakeshott and

[1] The point is about the consequences of so-called *ecological imperialism*, an idea formulated by Alfred W. Crosby (2004). We write about this concept more broadly– see: I.S. Fiut (2003, p. 185-200).

[2] Such organisations, as *Animal Equality* http://www. animalequality.net/, *The Nonhuman Rights Project* http:// www.nonhumanrightsproject.org/ are concerned with regular reporting about the suffering and inhumane treatment of farm animals.

Philip Lymbery report that 70 billion of animals in the world are slaughtered every year in order to be consumed; within this number as many as 11.6 million chickens, 270 million pigs and 59 million cows are wasted. *At the same time billion of people starves, and farming seizes more and more area of forest to produce even more food* (Lymbery, 2015, p. 325). Moreover, according to *Food and Agriculture Organization*, as many as 30% of world's crops of grain are allocated for farm animal fodder regularly, which seems to be squandering of work and money. If these crops were allocated directly to social consumption as food, it would be possible to feed about 3.5 billion people, especially in the Third and Fourth World (FAO, 2011). 28% of world's farmlands serve to produce wasted food, which costs about 750 billion of USD, and outstrips GDP of Switzerland in 2014 – almost 40 billion of dollars. On the other hand, industrially mass-produced meat contains plenty of fat and some quantity of steroids, preservatives and antibiotics, which farm animal had to eat while being nourished.

In public media there is an opinion that factory farming is the good way to fight with farmers' poverty. Certain rules of economics state that the best way to maintain profits when the farm gets into trouble because of increasing expenses of production is to increase the amount of caged animals, and to keep low price of produced meat for the liquidity of sale. The situation resembles a vicious circle – *tragedy of the commons* – for three things increase at the same time: the farm operation charges, the amount of production waste and the amount of damage done in the ecosystem (spent water, polluted air and ground). Factory farming is the symbol of initiative, but simultaneously it requires a huge outlay of money and permanent exploitation of natural environment. The Western European model of intensive farming is willingly copied by the Far and Near East. Meanwhile, the promotion of factory farming in developing countries is irrational and immoral insofar as it exploits the naivety of farmers, who do not have any experience in applying strong chemicals, and particularly – they do not have the required capital for successive investments. Thus, it often leads to even bigger debts of the poorest, ending up with *insolvency*, and even suicide contagion (Jędrysik, 2011).

Regarding megafarms as job places for local dwellers – as Lymbery reports – both intensive animal farming in the USA and Asia, as well as intensive crop farming in Latin America not only *did nothing for inhabitants*, but additionally it *ruined roads*, natural environment and the health of inhabitants by intense air polluting, *destroying water sources and polluting ground waters* with toxic chemicals and animal excreta (Lymbery, 2015, p. 295).

The next fact that is worth noticing is the issue of pollution. Global factory farming produces 14.5% of greenhouse gas emitted by human activity – more than by all cars, planes and trains altogether (*ibidem*, p. 266). On the other hand, mass overuse of pesticides and fertilizers, in connection with factory farming, constitute the most lethal factor for the consumers health, local dwellers and for local environment. Farming seems to be one of the biggest emitters of chemical substances, which penetrate into food, soil, air, waters, flora, fauna, as well as farmed and consumed animals. Dairy megafarms, together with battery caged poultry, generate large amounts of soil, water and air pollution, which wreak havoc in local wildlife. As far as soil is concerned, in California alone *there are 1.75 million dairy cattle farmed* which yield *milk worth around 6 billion of dollars every year and produce as much dung and urine, as 90 million people* (*ibidem*, p. 25). Toxic dung produced by one cow is several dozen times bigger than human faeces, which ought to be multiplied by about 10 000 cows found in a farm of an optimal size. These excrements are collected in underground tanks, which – for the mentioned quantity of cows – are around 50 metres long and 25 metres wide, where *preventing the leak of faeces is impossible* (*ibidem*, p. 35). Similar problems are connected with poultry faeces, which – in large amount – contain lethal doses of phosphorus and nitrogen. This brings about chemical contamination of the region and it is a serious pathogenic factor, contributing to diseases among the local residents.

Another problem consists in the air being polluted by stench and smog. It is a combination of the *reek of excrements* connected with toxic fumes of manure, herbicides, insecticides and fumigants. The abovementioned chemicals are used in order to produce fodder faster and more efficiently for an enormous quantity of concentrated animals. Obviously, such amount of toxins poisons not only local air, but it infiltrates through soil, ending up in ground waters and local watercourses – rivers, streams, brooks and other surface waters. It should be kept in mind that dairy farms, alongside with the whole production of pollution, are often placed nearby factories producing cheese and other dairy goods, which are afterwards consumed by us.

This is how the tangible reality of factory farming methods looks like, where – by means of machines and computers – vegetable fodder is turned into animal meat and dairy, as Ruth Harrison wrote in her book *Animal Machines* (Harison, 1964).

Factory farming in ecological perspective

As it can be drawn from observations, the arrival of the industrial revolution in farming caused irreversible devastation of ecosystems. In the mild version it involves the destruction of meadows and pastures for huge, sterile monoculture plantation of, for instance, cereal, soya or corn. In the extreme version, it involves expanding lands of infertile soil – which are already vast enough – by pouring out huge amounts of dung there. Previous experience shows that

crowding animals in one closed place quickly causes the problem with storing large amounts of animal faeces. Although, dung is valuable manure, far too much of it is produced in factory farming – the surplus of dung is a serious ecological danger for natural watery areas, watercourses and ground waters surrounding farms. Lethal quantities of ammonia, potassium, hydrogen sulfide or other damaging chemical substances penetrate to ground waters and rivers with rain, thus poisoning them. Additionally, farm faeces include certain quantities of pesticides, hormones and antibiotics (administered to living animals), which makes a toxic combination after infiltrating both into natural environment, and into human body. As one can read in the 4th chapter of the book *Livestock's long shadow* (Steinfeld, 2006, p. 136): *Livestock excreta contain a considerable amount of nutrients (nitrogen, phosphorous, potassium), drug residues, heavy metals and pathogens. If these get into the water or accumulate in the soil, they can pose serious threats to the environment*. In the same book, there is a statistical analysis which concludes that pig's dung poisons water several times stronger than domestic sewage. It should be considered that faeces left on barren vegetation exude poisonous fumes when there is no rain for a long time. All local inhabitants of nearby barren fields are endangered by chronic diseases of the airways and cardiac rhythm abnormalities due to the inhalation of ammonia and hydrogen sulfide.

Chris Mead, who died in 2003, warned about the tragic results of intensive farming (Mead, 2000). As an ornithologist, he observed that using enormous amounts of chemicals (phosphates and nitrates) – for such purpose as soil fertilization and vermin extermination – spreads wastes in natural ecosystems. The direct effect of an excessive usage of, for example, insecticides is not only the eradication of all invertebrates in the biotope, but also death of birds, which feed on some insects. In other words, the destructive outcome of farming, which conforms to the intensification plan, is the critical decline of population number of such birds, as grey partridge, house sparrow, yellowhammer, common reed bunting or corn bunting. Rural areas, natural habitats of the above-mentioned species, become too sterile and impoverished, deprived of cereal grains, weeds or insects. Chemical fertilizers strengthen the acidification of ground which kills oligochaeta, a certain species of earthworms that are natural prey for birds. While looking for grains or invertebrates on arable lands, birds die of starvation or due to the inhalation of high concentrations of chemicals found in the air. According to Leake, *populations of seed-eating bird species have fallen 70% below their natural levels. Modern farming has simply become too efficient: it leaves almost nothing for birds to eat* (Leake, 2012). A report by Lymbery can also be mentioned here. According to his observation, the air and soil in the western part of the USA are so polluted, due to chemical spraying, that not even a centimetre of grass grows over the area of thousands acres and not one animal – including insects – lives there. Nothing can be found there apart from genetically immuned soya, corn and wheat, growing in perfectly arranged lines.

The reason of mass extinction of invertebrates, birds or fish is poisoning the wildlife by unbelievable amounts of pesticides that are used by modern farming. The problem of biocoenosis disappearance, as a result of intensive usage of chemicals and leaks from factory farming objects, is well known since about 1960. We owe the publicity of the problem to some publications by the pioneers of contemporary ecology – Rachel Carson and Conor Mark Jameson, and in Poland – Antonina Leńkowa (Leńkowa, 1961). Despite almost a half of century went by, the problem still increases – as it is shown in some reports, for example the one by John Krebs, an ornithologist from Oxford University (Krebs *et al*., 1999, s. 611-612), who indicates industrial intensification of farming as the main cause of danger of extinction of 20% species from all European birds. Furthermore, *Birdlife International* alerts: *Europe-wide monitoring schemes highlight declines in widespread farmland birds* (Birdlife, 2013). The conclusion is clear – intensification of modern farming and transformation of grasslands into agricultural areas have caused aterrifying decline of birds number in the USA and Europe: *the European farmland bird index declined by 52% covering the period 1980–2010, representing a loss of 300 million birds, with decline rates greatest in the late 1970s and early 1980s* (PECBMS, 2012). A comparison of new and old EU Member States shows that although farmland birds were performing better in new EU countries, their trends appear to be worsening in recent years, now mimicking the trends in old EU countries PECBMS, 2012).

As far as invertebrates from rural areas are concerned, the natural population of wild honeybees and butterflies decreases too as a result of farming industrialization. This phenomenon is so dangerous and advanced that a special term was coined – *Colony Collapse Disorder*. Such massive dying out of bees generates huge economical loss, because the abundance of vegetable, fruit and food plant harvests depend on pollination done by bees. The reproduction of wild plants also relies on the pollination, therefore the extinction of bees is highly dangerous from ecological perspective. Monocultures, from orange groves to rose and cotton-plant fields, are based on large amounts of chemicals that destroy the organisms of bees and butterflies. Plants become lethally toxic for all insects, and *weather conditions make pesticides move to nearby areas, influencing the bees work* (Lymbery, 2015, p. 81). Researches published in 2012 in *Science* prove that pesticides destroy bees' ability of navigation, which makes it impossible to return to a hive (Whitehorn *et al*., 2012, p. 351-352).

According to Bernhard Warner, *For food science researchers, finding the culprit for bee colony collapse disorder has become the equivalent of discovering a cure for cancer. (...) The use of certain pesticides by farmers, the agricultural industry, and gardeners has also long been suspected of possibly killing bees, or at the very least fouling up their foraging instincts, confusing them to a point at which they cannot be relied upon to pollinate acres of almond groves or cherry orchards* (Warner, 2013). Additional reason of the dying out of insects is decreasing the area of land covered by forests and meadows in order to extend the agricultural areas and build large megafarms. Wood cover is necessary for birds and insects to survive, eat vermin or pollinate. For butterflies, trees are the natural protection against changing weather conditions like heat or gales. Dying out of the natural biodiversity, which consists of insects and birds, is the direct symbol of the fatal state of natural environment. And the condition of Nature reflects the way we manage this biodiversity. Because the condition of ecosystems and the whole biodiversity is dramatically bad, the conclusion regarding human activity is one: it leads to the destruction of Nature.

As for overdosing of pesticides, the agrichemical industry often sponsors research, which constitutes the basis for norms and legal regulations on the safe usage of chemicals. Such sponsoring makes to be statistics rounded up or down slightly to the advantage of farming, but with deadly effect for natural environment, including insects and birds. The certification system of the farm *welfare* looks similar. Agricultural business defends factory farming while referring to the standards which are established by hired experts. However, these publications do not have any value – they are used to lull consumers' moral sense by getting another certificate, for they describe standards just a little bit above the legal minimum. The actual situation of animals and environment does not improve (Monbiot, 2015). Furthermore, the production of pesticides and synthetic fertilizers requires lots of petroleum, and *some amount of petroleum that is absorbed by the crop treatment is overshadowed by the amount of petroleum needed to product meat from factory farming* (Lymbery, 2015, p. 245). Though traditional farming is based on physical work, the intensive farming is based on fossil fuels – petroleum and gas. The involvement of petroleum companies in modern agribusiness is so deep, that Albert Bertlett expressed it using a metaphor of transformation of not only crops into meat, but *petroleum into food*: *modern agriculture is based on petroleum-powered machinery and on petroleum-based fertilizers. This is reflected in a definition of modern agriculture: 'Modern agriculture is the use of land to convert petroleum into food'* (Bartlett, 2015).

The wildlife devastation by factory farming runs through the fishing industry in the form of indoor, underwater fish farms. Intensive aquaculture bases on the use of toxic chemicals, which pollutes the natural environment, contributes to the spread of disease and parasite epidemics and also to the pollution of coral reef. Outdoor and indoor fish farms not only poison the environment, but they also lead to the extermination of small species of wild fish – which serve as food for bigger farm fish. Unfortunately, feeding the bigger species leads to intensive fishing of small species, thus seriously disturbing the balance of a marine ecosystem. *Large negative effects of fish farms on wild salmon indicate that as the industry continues to grow, aquaculture management practices must be improved to reduce impacts on wild salmon*, it is the quotation from research report *Lenfest Ocean Program* (2008). However, it cannot be denied, though, that fish farms exploit the limited fish stocks of seas and oceans. In order to feed a ton of farm fish, one must fish out few tons of wild, small species – it indicates, that fish farms exploit stocks of wild water organisms, which are unable to regenerate in such short period of time and in such huge amounts, as they are caught. About 20% of fish from the entire world's fishing industry is not meant for people to be eaten, but they are given to other fish species as fodder or – in triturated form (fishmeal) – added to hen's and pig's fodder in factory farming. *Food and Agriculture Organization* informs, that excessive exploitation of oceans and seas drove to extinction of anchoa and Alaska pollock population in Pacific and herrings in Atlantic (FAO, 2014).

Likewise, Mark John Costello, a professor of aquaculture and water science proved – taking outdoor salmon farm as an example (Costello, 2009, p. 115-118) – that parasite epidemic, like sea lice, seriously disturbs economical profitability of fish farms. Fish farming, as a breeding ground for some highly infectious fish diseases, becomes a severe danger for wild species. Parasites get out of farms to natural environment, change the host and decimate marine stock of wild fish. Due to disease epidemics, the sources of which are often factory farms, wild salmons, cods and halibuts became endangered species (Rosenberg, 2008, p. 23-24). Furthermore, ill farm fish undergo intense chemical bath, which kills parasites, but also is infiltrate into the fish organism, and is subsequently eaten by us. Infected fish from aquafarms are not the sole danger in natural biotopes. Interbreeding of farm and wild salmons gives genetically weaker offspring, which has lower adaptability in natural environment. In short, the offspring of farming and wild fish dies more often as a result of fading instinctual behaviour.

Thus, fish farming is a real threat for the equivalent species living in the wild. As if this wasn't bad enough, fish farming poses yet another risk for fauna: marine farms allure birds, seals and otters. These predators are shot by farm owners just like foxes are shot while they are poaching hens. Killing an otter or a seal is a cheaper and faster solution than

buying and setting up some security measures against predators, such as fence. In this way, according to Lymbery's calculation (Lymbery, 2015, p. 107) several thousand seals die annually by farm owners' hands. In other words – by eating a trout or a salmon from the fish farm, a consumer supports indirectly the process of seal killing. Every purchase of fish from the farm means the money will partly be spent for the ammunition, which is going to be used to shoot sea mammals.

Fishmeal is used to feed farm fish, poultry, cattle and swine. It consists of ground and compressed tons of small species of fish, with some of the oil and water removed from the meat. Dry fodder prepared in such way is exported from Latin America to factory farms in Europe and Asia. The problem is that producing fishmeal constitutes a real ecological disaster, for it relies on regular fishing of huge amounts of small fish species – like anchovy – from seas and oceans. In this way, the wild fish, birds and sea mammals are deprived of their natural food, and predators die of starvation. The population of cormorants, gannets or pelicans by the shore of South America diminishes dramatically, because these wild species, normally eaten by birds, are fished too intensely. *In the middle of 20th century 40 millions of marine birds used to live on 28 islands by the shore of Peru. Now, only 1.8 million remains. This decline of amount is connected with the increase of fishmeal production* (*ibidem*, p. 112). Feeding farm animals with fishmeal contributes directly to the decline of the amount of wild water animals living in the opposite part of the world. Pelicans or cormorants are trophically far from hens and pigs, but due to factory farming they all are tragically connected by the shared source of food.

Unfortunately, this is only the first half of entire ecological disaster. The other half is a large number of fat wastes, which are generated during fishmeal production. These wastes pollute seashore waters creating vast dead zones, and also poison the air around fishmeal industry factories. Lymbery reports – as an eyewitness – that during fishmeal production he observed the production companies discharge all sewage straight to seashore water creating strands of toxic slime. The slime consists of different chemical substances (such as caustic soda) mixed with discarded parts of fish: blood, fat, bowels and scales. This greasy and caustic ooze, is pumped back into a gulf of the sea or ocean. In effect, so-called dead zones, completely devoided of life, expand. One could say, that the life of terraqueous wildlife is destroyed to satisfy a need of farming *macdonaldisation*. The general conclusion is one: factory farming drastically disturbs ecological sustainability.

Forage and fodder industry

Genetically modified, high-protein fodder used to speed up the fattening of animals is a central, very profitable element of factory farming. Simultaneously, it seems to be the element that is often overlooked in discussions concerning factory farming. Speaking more precisely, factory farming in Europe and Asia requires proper amount of fodder for animals. For this reason crops are imported from – often transgenic – monocultural cultivations and plantations placed in some poorer parts of South America and Africa, because importing from the distant continent is still cost-effective. Such cultivations provoke a number of questions and doubts.

Physical establishment of the plantation is connected with the reclamation of large forest areas and exploitation of local natural resources (soil, wood, water). Not only woodlands disappear, but also potential croplands, where individual farmers could sow for their own and regional use. Meanwhile, it often happens that local authorities of the Third World countries forcefully deprive poor owners of grounds, and then sell these grounds to some wealthy investors to grow soya monocultures, for example. *These poorest and the most powerless people in the world are pushed on the margins of society, to constantly provide people who live thousands kilometers away with cheap and poor quality chickens, pork and beef. For this reason the soybean meal is produced: to serve as the fodder for factory farmed animals* (*ibidem*, p. 218).

Such phenomenon can be described as *colonialism* of farmlands. This paradox consists in associating the intensification of farming with saving the usable area, which is normally used by grazing animals. However, intensive farming requires much greater area of land than free range raising in an open space. As Thomas K. Rudel with his team demonstrated (Rudel *et al*., 2009), the intensification of animal farming goes hand in hand with profits from fodder factories, and enormous areas of ground are used for intensive growing monocultural crops. If crops from these grounds were not manufactured, the whole area could be used, for example, for vegetable growing. As Lymbery wrote, *In reality, if all meat chickens in the UK had the free-range access, they would cover the area of approximately 1/3 of Isles of Wight surface – so it is not a ridiculous idea after all. The entire world's population of meat chickens – about 55 billion – would fit in the area of Hawaii Islands (…). The farmlands used for growing fodder for farm animals are so extensive that they would occupy the area of whole UE or a half of the USA (…). Every year the area of woodland equal to a half of the UK is being cut down, mainly for farm animal fodder monocultures* (Lymbery, 2015, p. 213). Factory farming rapidly extends the area of land used for the GMO intensive growing, destroying the balance of ecosystems, devastating forests, meadows and pastures. Transgenic soya is the perfect food for human regarding nutritional values, but nevertheless it is intended for fodder production. If it was possible to allocate crops directly for consumption – instead of

fodder, which is going to be turned into meat in megafarms and subsequently end up in shops – then it would also be possible to feed much more people by lower costs and lesser ecosystem devastation. Unfortunately, quite the opposite happens because of the substantial financial gains from the factory farming – going against logic, ecology and economics. Rajendra Pachauri elaborates on the problem in his lecture (2015).

The whole situation is even more dramatic, for the greatest damage of wildlife related to monocultural growing happens in Africa and South America – the countries which are poorest financially, but richest in respect to the number of nature reserves, bioreserves or species biodiversity.

In the article *Land grab in Africa* Marta Messa presents example of Ethiopia – *government offered three million hectares of virgin land to foreign corporations. At a first glimpse, this could sound like good news: large investments, improvement in infrastructures, technology transfers, higher food supplies, improvement in food security. (...)* [But] *the contracts, behind land deals, are often short, unspecific and grant long-term rights to extensive areas, with no guarantee of local investments and jobs. They do not regulate access to water or even ground priority rights over its use. What is grown by foreign companies are cash crops (e.g. cotton, sugar cane, rice) and biofuels to be exported. These deals are in fact land grabs driven by increasing demand for cheap food drops* (Messa, 2012). Usually, minors are employed in private plantations, exploitation thrives, and local dwellers themselves admit that they have no control of the soil, which once belonged to their families, nor their own destiny. Similar situation concerns, among others, Ghana, Sudan, Zambia Mali, Magadascar, Botswana, Malawi, Mozambique, Kenya, Tanzania, and also parts of Brazil, Argentina or India. What is more, some methods of growing transgenic soya are highly dangerous for the health of local inhabitants. Huge factories of soybean meal pollute local rivers with sewage from mills to such degree that the rivers turn into lifeless, chemical bogs. Even more dangerous are the soybean farmlands, which are sprayed with enormous amounts of carcinogenic chemicals. And the irony is that weeds get more and more resistant to herbicides which are used in increasing amounts. Quoting Paul Brown, environment correspondent for *The Guardian – a report in New Scientist magazine says that because of problems with the crops, farmers are now using twice as much herbicide as in conventional systems. (...) The control of soya has led to a number of disasters for neighbouring small farmers who have lost their own crops and livestock to the drift of herbicide spray* (Brown, 2004). Horrifying statistics regarding Argentina is delivered by. Medardo A. Vazquez and Carlos Nota. The *Report from the 1st National Meeting of Physicians in the Crop-Sprayed Towns* published in 2010 in Faculty of Medical Sciences in National University of Cordoba informs: *It is crucial to acknowledge the fact that, together with the increase in cancer and birth defect cases in the mentioned areas, the use of pesticides also increased exponentially since the introduction of transgenic crops. This type of crop requires the use of more and more pesticides. In 1990, 35 million liters were used during the crop year. In 1996, the introduction of transgenic biotechnology accelerated the use of pesticides to the extent that 98 million liters were used, and in 2000, it increased to 145 million liters. Last year 292 million liters were used, and this year we will be spraying the fields with over 300 million liters of herbicides, insecticides, acaricides, defoliants and other poisonous substances* (Vazquez, Nota, 2010, p. 14-15). Chemical sprays reach houses, schools, parks, workplaces or drinking water resources easy; thus, the risk of miscarriage, hypothyroidism, allergy and cancer of stomach, testicles, liver, pancreas and lungs increase seriously. Inhabitants of such polluted areas are incapable of standing up successfully to the subjects responsible for this tragic state of health and environment devastation, and by *subjects* we mean international concerns like Monsanto (p. 16). It seems really obvious that this situation does not concern Argentina only, but thousands of contaminated regions found all over the world.

It is not difficult to predict that the prevalent stereotype of eating meat, as the indicator of luxury, will still be increasing the global hunger for meat. It implicates permanent need to have more and more farmlands to produce cheap meat and fodder. The sad consequences of such a need are reported in the *Science* magazine by Virginia Morell – our diet, rich in meat from factory farming, is bad for our health and for Earth's biodiversity. It is the matter of human carnivory impact on land use and how terribly it affects the environment. *You eat a steak, you kill a lemur in Madagascar. You eat a chicken, you kill an Amazonian parrot. That's because species-rich habitats are being converted to pasture and feed crops as the human appetite for meat grows* says Gidon Eshel, a geophysicist at Bard College in New York (Morell, 2015). The conclusion which can be drawn, is: craving for meat connected with lust for financial profit leads to the marginalization of the interests of poor people and natural environment, off the public debate. The consequence of the need for cheap meat and high-protein fodder is the destruction of local biotopes, rich biodiversity and health of local inhabitants.

Factory farming as a danger for society

Diseases

Factory farms base their activity on using huge amounts of pesticides, synthetic fertilizers and antibiotics, which threatens the health of workers and dwellers from the areas surrounding a farm, as well as the health of consumers, because it is one of the

main sources of oncological diseases, circulatory system diseases, diabetes and obesity. The outbreaks of these diseases occur especially in the countries of *core states*, more seldom in the countries of *semi-peripheral areas* – using the terms of Immanuel Wallerstein. As we can read in the American Report of the Pew Commission on Industrial Farm Animal Production, *one of the most serious unintended consequences of industrial food animal production is the growing public health threat (...) Industrial food animal production facilities can be harmful to workers, neighbors, and even those living far from the facilities through air and water pollution, and via the spread of disease* (A Report…, 2008).

Farms and barns housing thousands of animals crowded in a closed area are often the habitat of serious diseases, which leads to the administration of irrational, preventive amounts of antibiotics, which are to stave off a disease, not to heal animals. Farmers *discovered, that adding a small amount of antibiotics to fodder for pigs significantly affects the tempo of their growth* (Lymbery, 2015, p. 148). As a result pigs are fed with huge doses of penicillin – which may lead to the progression of new type of bacteria resistant to this drug. In some indefinite point of future, the tuberculosis infection, pneumonia, typhoid or sexually transmitted disease can cause an epidemic on the scale of the 14th century extermination, which was triggered by the bacteria of bubonic plague. All the worse, the afore-mentioned plague bacteria became immune to newer antibiotics in last twenty years (see: Welch *et al*., 2007), while salmonella bacteria constantly immunizes against remedies, posing a lethal danger for people. Although megafarms are the place of disease incubation, and *preventive larding of farm animals all over the world with antibiotics implicates fatal effects for the public health, (…) factory farming supports pharmaceutical industry, for which more pigs mean more earned money* (Lymbery, 2015, p. 306).

Keeping uncountable amount of hens in battery caged farms results in the outbreaks of newer and newer mutations of avian flu. On the other hand, estrogen and xenoestrogen are used for poultry fatting, increasing the bulk of chicken meat by accumulating in their breasts. Later, these juicy chicken breasts are served in millions restaurants and sold in shops all over the world. The problem is that estrogen brings about men's infertility. *The consequence of increasing estrogen concentration to the suprapsychological level can be changing functions of many systems, including the male reproductive system* (Czupryńska, 2007, p. 323). The author goes on: *Reportedly, certain pharmaceuticals with estrogen or testosterone are still being used during beef cattle growing in the United States, and the percentage of big farms, which use hormones to boost the gain of muscle mass of animals, is described as 99%. Part of hormones, which was not metabolized in tissues, get through the soil along with the faeces, and then to rivers as well, inducing hormonal changes among living organisms, especially fish. Xenoestrogens found in meat are also connected with farming. (…) Meat contains estrogen esters of fatty acids, which are metabolites of estrogens and can be the source of hormonally active substances, especially after oral administration* (Czupryńska, 2007, p. 325). Owners of megafarms in China discovered a similar way to quickly increase the pig size and keeping the meat lean. This method involves the use of a body-building steroid klenbuterol; however, when it is consumed with pork, it causes serious cardiological side effects. Thus, eating meat which was bought in a supermarket or fast-food restaurant carries a high level of risk that we consume either meat infected by viruses and immunized bacteria, or meat laden with chemicals at the level which is detrimental for health.

The clear example of danger resulting from the consumption of factory farmed meat from are previous epidemics of bovine spongiform encephalopathy (BSE) and the attacks of *super-resistant* bacteria MRSA in pig farms. The neurodegenerative cattle disease BSE appears in the situation, when plant-eating cows are fed with meat and bone meal (MBM) containing prion proteins. Unfortunately, bovine spongiform encephalopathy is contagious among different species – beef consumers constantly risk infection, for lethal prions are not destroyed during cooking or heat treating the beef. MRSA bacteria, which are extremely dangerous and invulnerable to most of the known antibiotics, are now found outside hospitals – a situation different from the one several years ago. The *Soil Association* report shows certain unknown strains of this bacteria have been found in factory pig farms over a decade ago (and also in cow, sheep, hen and horse meat), though pigs are administered with the biggest amounts of antibiotics (Nunan, Young, 2007). We know factory megafarming is the basic, extramural source of MRSA proliferation in Western Europe and North America, but we do not still have the full knowledge of health dangers, which are carried by MRSA bacteria and its new mutations. Although it seems that the concentration of animals in closed rooms should theoretically protect poultry and pigs against diseases, in practice the closed space, together with enormous amount of excrements and chemicals create a suitable environment for the development of new, aggressive strains of bacteria and viruses. *The full scale of the threat to human health from MRSA on farms is clearly not yet known (...) for the general population there remains uncertainty about the scale of the danger, although Dutch scientists, including Government scientists, have said that pig-MRSA can also be transmitted between humans* (Nunan, Young, 2007, p. 47). Even more fearful, although fully realistic vision, is the possibility of emergence of new virus strains resulting from the combination of bird, pig and human viruses. As Aysha Akhtar rightly pointed

out, *We don't need a terrorist to wreak havoc. By confining billions of animals on factory farms, we have created a worldwide natural laboratory for the rapid development of a deadly and highly infectious form of the virus* (Aysha, 2012). Lethal epidemics remain a serious threat for us as long as factory farming exists.

To sum up, husbandry employing different methods of intensifying farming is the breeding ground for viral and bacterial diseases, which can be contracted by a man quickly and easily. By consuming meat from factory farming, we risk a contagion of drug-resistant germs, which results in longer hospitalization and a higher mortality rate of sick people.

Pollution

The development of bacteria and viruses is connected with air and water pollution by poisonous fumes and faeces from farms. Pig, poultry and dairy megafarms generate amazing amounts of faeces, which permanently pollute air, fresh and ground water available in wells. This pollution leads to serious diseases of the respiratory system, like asthma and pneumonia; diseases of cardiovascular system and equally serious diseases of digestive system connected with polluted water consumption. As *Socially Responsible Agricultural Project* informs, the main factor that makes drinking well water impossible (which is dredged in proximity of megafarms) is a high risk of *Escherichia coli* bacteria presence and huge amount of nitrates in water (Socially Responsible…, 2007). As Lymbery reports, *average life expectancy of people, who live close to factory farms, is shorter by as much as ten years* (Lymbery, 2015, p. 36). Children, pregnant women and elderly people belong to the group are particularly exposed to diseases and poisonings caused by the contact with toxic fumes and faeces. While writing about the occurrence *E. coli* bacteria in fresh water near dairy megafarms, poultry farms should be mentioned as well. According to the warnings of the British *Department for Environment, Food and Rural Affairs* – poultry farms generate not only huge amounts of faeces and ammonia, but such farms are also regularly attacked by avian flu. In the case of indoor fish farming and fishmeal industry, large amounts of sewage – which poisons not only the coastal water, but also air in the surroundings – are produced. Kilometres of toxic slime accumulated on the beaches of Latin America emit fumes, inhaled by the inhabitants living in the vicinity. *The production of fish meal is the cause of serious infections of respiratory system, asthma*, as well as *skin lesions* (Lymbery, 2015, p. 120).

Poor quality of food

The feature that distinguishes cheap food provided by factory farming, is the poor nutritional quality. The cause of poor quality of meat provided from factory farming is the horrible model of animal feeding connected with almost total immobilization of these animals. Intensive feeding of cows with grains, which are not part of their natural diet, increase the amount of noxious fats in meat, and at the same time reduce the amount of nutrients and vitamins. As William H. Dietz wrote, industrial raising of animals is rather industrial raising of damaging saturated fatty acids with negligible amount of nourishing polyunsaturated fatty acids, like ω-3 fatty acids (Dietz, 2011). Easy access to cheap and harmful fat, of which most of supermarket and fast-food customers are unaware, is the source of global pandemic of obesity and cardiovascular system diseases. Beef made of grass-fed cows contains much higher concentration of healthy fatty acids. The content of fat in meat delivered from factory farming always depends on the methods of animal nutrition. The explicit confirmation of this fact is scientific research conducted by Cynthia A. Daley and her team, published in *Nutrition Journal* in 2010. There, we can read for example that: *The amount of total lipid (fat) found in a serving of meat is highly dependent upon the feeding regimen, (...) the effect of feeding regimen is a very powerful determinant of fatty acid composition* (Daley, 2010, p. 7).

Meat, eggs or milk of the highest quality come only from animals, which look for natural – for their diet – food in an unhampered way and diversify this food with different species of grass, bush or tree bark. Therefore, the highest quality food is delivered from farms with high welfare of animal raising. All the nutritional benefits of animal products, that come from conditions of high welfare, were analysed by Heather Pickett in her report (Pickett, 2012), published for the organization *Compassion in World Farming*. Eggs from poultry farms can contain even half as much of vitamin E and three times less of beta-carotene in comparison with eggs from ecofarms. Similar differences are seen in nutrition facts of pork and cow milk. The meat of chickens which are raised in battery cages contains about 40% more harmful fat than protein needed especially by sportsmen. In report's recapitulation we may read: *Higher-welfare animal products were shown to have a number of nutritional benefits over intensively-reared animal products. Excessive fat consumption can contribute to weight gain and associated health problems. Higher-welfare animal products are often significantly lower in fat than equivalent products from intensively-reared animals. This is true of pasture-reared beef, free-range and organic chicken and chicken of slower-growing breeds and wild salmon and trout* (Pickett, 2012, p. 33).

Fish farming, besides the corruption of wild fish gene pools and the increase of fish mortality, poses one more serious danger.

Meat from factory farmed fish does not contain equally high nutritional values, as the meat of fish living in the wild. According to some reports, that were published by American *National Nutrient Da-*

tabase, the meat of indoor-raisedtrouts and salmons contains several times more fat, than wild fish meat and, what is worse – meat of indoor-raised fish additionally contains very high concentration of toxic chemical compounds, which are subsequently consumed by us. These chemicals found in fish organism are the remains of chemical baths connected either (1) with the elimination of diseases and parasites, which often decimate indoor-raised populations, or (2) with using chemicals to give fish body a pretty, *healthy* colour. The general conclusion arises that megafarms – regardless whether of cattle, poultry or fish – are the source of not only animal suffering, but also the suffering of social environment, and meat consumers because of the real danger of serious somatic disease emergence.

Recommendations and predictions

When we observe the activity of proecological organisations and scientific authorities, who proclaim and coax us into realizing the sustainable development idea, what strikes us quite firmly is the fatal independence among the work of theoreticians and raising practices. The lack of knowledge flow among theoreticians and practitioners seems to be the waste of a big intellectual capability. Thus, the first recommendation is the call for more direct complementarity of actions. It would consist in a close cooperation; exchange of experience, reflections and ideas among activists, theoreticians and groups – often hermetic – connected with industrial livestock producers. The efficiency of this recommendation can be testified by the cooperation of Polish Ethical Society and social initiatives, like Gaia Club or Viva! Organization – it results in wide-scale popularization of activities connected with animal welfare and environmental protection, where practice is supported by prominent scientists. Promotion of knowledge about the state of natural environment and animals takes such different forms, as: preparing manifestations and protests; taking part in conferences and congresses; frequent coverage in mass media; education of future staff; independent expert opinions; modernization of law; pushing forward necessary regulations. Cooperation of theoreticians and practitioners definitely intensifies the impact on public opinion and shapes the awareness of consumers. Raising the consumers' awareness concerning shopping decisions appears to be justified action, for it can significantly impact the awareness of implementing the idea of sustainable development. If a recommendation may be formulated regarding what should be done, then it would certainly involve the process of increasing the aware consumption in the society. The knowledge about the influence of factory farming on the condition of our health and natural environment should have a direct translation into the kind of products we prefer and buy. Hence, publicizing facts about factory farming becomes necessary, which is easier in our contemporary time of mass multimedia.

Simultaneously, there is the consumers' need to open the access to cheaper, healthy, organic and sustainable food as the proecological alternative for the meat from industrial farms. It would be the action compatible with assumption that looking (at facts) evokes comprehending seeing (of dangers, devastation, suffering). The adherent of such attitude was, among others, Jacques Derrida, a French philosopher who claimed, in the conversation with Élisabeth Roudinesco, that *visiblity* of a situation makes it to be known and understood a lot better (Derrida, 2015, p. 40).

Considering the European tradition of consuming meat in large amounts – which nowadays has often got a very low nutritional value – the next recommendation is striving for the modification of culinary habits. What we mean is the promotion of a diet deprived of damaging saturated fatty acids (found in overwhelming amounts in the meat from megafarms), which requires an easy access to diversified, ecological food. This is a very tall order, because ecological food is an expensive and – to a certain extent – luxurious product. Additionally, there is a lingering stereotype that regular meat consumption is the indicator of a high social status. Yet, lowering the meat-eating norm would be profitable both for consumers (lower risk of carcinoma and heart diseases, less overweight risk), for natural environment and animals themselves. The results of studies conducted by Willem Brandenburg and Rene Wijffels constitute solid evidence in favor of this theory. In their opinion, the ideal alternatives for meat are sea algae – easily digested, healthy, and – in respect of the protein contents – much more nutritious than meat. Regarding possibilities of growing seaweeds on the sea farms, this solution would relieve exploited soil and save fresh water. Theoretically, the idea seems to be brilliant in its simplicity. All we gain is health, environment and animal welfare and the price to pay is the change of anachronistic customs and cultural stereotypes. The problem lies in the issue of taste and our cultural habits. However, if the change of beliefs and customs exceeds the current possibilities of consumers, there is still a new hope in the *in vitro* meat production. Unfortunately, the conventional meat production influences not only the global climate changes, water pollution and oncological diseases, but also the profits in pharmaceutical, petrochemical or technological business, which is well known by stakeholders and shareholders and they are not going to abandon their financial customs.

Another recommendation, supported by economic facts and financial statistics, is the proposal of modernization of animal husbandry model and food production model. What is *de facto* meant is the contemporary return to the old type of agriculture – the reanimation of traditional mixed farming. In practice such model means:

1. Free range farming, keeping animals outdoors, out of cages, with full access to grass and natural food. By saying *traditional mixed farming* we understand the mixing arable farming with the raising of at least two species of domesticated animals, ranging from bees and hens to cattle and sheep. Such return causes *animal liberation* both literally and figuratively – the liberation happens on our mental level, for we liberate ourselves from post-Cartesian paradigm of perceiving animals as *machines*, which provide us with milk, eggs, meat, fur and leather. Giving up factory farming is the only one natural, but also traditional way of soil regeneration which does not necessitate using ridiculous amounts of synthetic, chemical fertilizers. One could say that sustaining the rustic tradition of respect for nature, we liberate ourselves from the Cartesian shackles of tradition to reify and objectify this nature.
2. Giving up intensive, monocultural crop farming, which means weakening the demand for soya bean and cereal intended for animals. The reduction of demand would require using smaller areas of the most fertile soils, where food for farms is being grown. *Currently, 1/3 of cereals and 90% of world soybean crops serve as the feed for intensive animal farming (…). If the whole grain, that currently serves as fodder for factory farmed animals, was consumed directly by people, and not after converting into meat, it would be able to feed an astonishing number of people – as much as 3 billion. For sure, it would be much more productive use of resources, considering, how much plant protein is needed to raise a chicken, a pig or a cow* (Lymbery, 2015, p. 257-258). *In order to produce one kilogram of meat that is really fit for consumption by industrial methods, as much as 20 kilograms of fodder is required* (*ibidem*, p. 259).
3. The traditional mixed farming model also leads to the limitation of pesticide use, and generally – the limitation of intensive farming which requires huge amounts of fuel and water. What can we gain thanks to this solution?
   a) The number of breeding habitats of water wildlife, mammals and birds increases. In American *The State of the Birds Report 2014* we can find some hints which enable us to save thousands of birds in the USA each year, for example by: *Limiting the broadcast spraying of pesticides and insecticides and introducing integrated pest management practices (which reduce or eliminate chemical applications) in agricultural areas* (Rosenberg, 2014, p. 6).
   b) The necessity of using limited reserves of petroleum decreases. According to *Oil Depletion Analysis Centre*, we have already exploited about 50% of natural oil reserves reaching the maximal level of oil output, what augurs the so-called *peak oil crisis* (higher petrol prices in the face of decreasing reserves). In the meantime, leading animals out of farms onto pasture implicates a decline of the fossil fuels exploitation. Similarly, the traditional growing of cereal, vegetables and corn or traditional animal raising is more energy-efficient than intensive meat and dairy production. Giving up feeding farm animals with imported soybean meal or fishmeal, and allowing free range grazing of animals, enables us to save energy. Economic calculation is simple: megafarms use up energy, health and resources in the form of pesticides, fertilizers, machines and fuel, in inadequately high amounts in comparison to the financial profits. Subsequently, organic cultivations together with traditional animal farming generate not only material profits and savings, but also compensate for the environmental losses successfully.
   c) The amount of used drinking water that is a scarce resource today, declines. Giving water to animals and clearing farms requires enormous amount of fresh water and particularly lots of it is wasted during the industrial meat and dairy production[3]. In addition, factory farming, from fish to beef, together with intensive crop farming, severely pollute every watercourse and ground waters. Moreover, using water from underground resources lowers the ground water level. *World Economic Forum* described watering of large monocultivated fields and intensive animal farming as the main source of water waste in agriculture (World Economic Forum, 2009). We may also read in formerly cited *Livestock's Long Shadow* that the agriculture itself, especially intensive and industrial, uses 70% of world's drinking water resources. Hence, debates regarding saving drinking water have to consider the future shape of global agriculture. Here the calculation is also simple: the bigger the megafarm, the bigger the pollution and waste of water. As Peter Cullen from Australian *National Water Commission* claims: *the amount of money*

[3] In 1961 Antonina Leńkowa warned us already, that *more and more emphasis is placed on the agricultural intensification, and the greater need of water is joined integrally with it. Only presently (!) the husbandry uses as much as 50-70 thousands of water cubic metres more per square kilometre, than formerly (…). We want larger harvests, so where can we get enough water from*? (Leńkowa, 1961, p. 165).

farms make for every million litres of water they use varies dramatically between states, from roughly $300 in New South Wales to $600 in Victoria and $1,000 in South Australia. (...) In the long run, the irrigation of pasture for livestock, which currently consumes about half of the basin's agricultural water, will not make sense (Mouth, 2007). Increasing the demand for meat and dairy products from farms seriously depletes – though indirectly – global shortage of drinking water.

All the above-mentioned facts indicate that water, soil and all biosphere would be used better – in a sustainable way – if we returned to natural grazing, farming and traditional cultivation, which is smaller, and operates on a local scale. These recommendations seem to be difficult to implement, for factory farming is the area of very strong financial relations, which generate high incomes for different stakeholders and shareholders. These include not only farm owners, but also producers, transporters, and distributors of fodder, pharmaceutical and petrochemical concerns, producers of agricultural gear and outfit, and even scientific institutions doing authorized evaluations and researches in order to provide evidences that legalize business *socially involved* and *environmentally responsible*. However, the main stakeholders that particularly care about the existence of factory farming, due to enormous incomes, are international chains of hypermarkets and fast food restaurants. Global chain of units selling huge amounts of cheap meat develops and thrives on industrial agriculture and carnage of animals.

The last recommendation, probably the hardest to implement, is the propagation of esteem for nature, animals and people. Unfortunately, not the esteem, but the fear of pathogenic food from megafarms, delivered via fast-foods and supermarkets, can make consumers demand healthy, slow food coming from ecological farms more often. Such propagation may impact on the current situation in a twofold way:

1. International corporations, like McDonald's or Burger King, will recognize healthy, ecological food as a profitable source, and vegetarian/vegan dishes or dishes based on humanitarian slaughter will become overwhelming content of the menu. It is impossible to stop global giants by request or threats, but their activities can be modified by reaching a compromise. Approaching the problem, not from an idealistic perspective but pragmatic one, the cooperation with fast food restaurants is the real chance for reforms in the entire eco-agri-food field, from choosing the types of growing crops and raising animals to the consumption in a bar. *If these giants make a decision to implement a change, for example to sell the milk only from free-range cows or eggs only from free-range hens, they can do it much faster and more definitely, than governments* (Lymbery, 2015, p. 317; Cao, Piecuch, 2012). Therefore, this is the tactics of increasing the demand and consumers' pressure connected with the work over diversifying our eating habits. The power of consumer boycotts and pressure is limited mainly by being uninformed, by staying unaware and by the lack of social sensitivity. That is why the exposure of problems, or even *the strategy of rumour* (*buzz anti-marketing*), are presently deemed to be rational recommendation in the media society.
2. Aware consumers directly influence the conditions, and also the health, of animals intended for consumption. Paraphrasing Lymbery, *unhappy pig, hen or cow is an unhealthy animal, and unhealthy animals give us unhealthy food* (*ibidem*, p. 308). We should remember that a real change in megafarm functioning is possible in the situation of consumer grassroots movements with, at the same time, the top-down decisions, taken at the highest level of Government, and in the end – at the Members of Parliament level.

Concluding remarks

We already know, what links the situation of cows from dairy megafarms, fish from indoor fishfarms with wild butterflies and bees: all these animals, as the whole ecosystems, are the real victims of industrialization of rural areas. Birds feeding with vertebrates and pollinating insects are the natural systems that prop up the husbandry. This is how ecologically sustainable agriculture looks like, which can actually implement the idea of sustainable development. Meantime, killing some elements of biocoenosis, which help out to hold on such sustainability, is a clear evidence that industrial intensification of farming may flaw the agriculture in a long-term perspective. In the long-term approach it is profitable for the whole society to resign from radical industrialization, but it needs to transcend our egocentricity and take a collective and long-range perspective, where the profit will be deferred for much further in the future. The idea that methods of intensive farming are the key to social prosperity and wealth is clearly false.

The result of sustainable development of food industry is the protection of farm animals and promotion of animal welfare all over the world. Farm animal welfare can arise:

1) from the modification of law, which regulates the raising conditions of poultry, pigs and cattle and
2) from the modification of eating habits and patterns among consumers of meat and dairy products.

The second reason of welfare seems much more meaningful, because it would be caused not by ex-

ternal constraints and the fear of penalty, but by internal beliefs based on the aware and free choice and acceptance of our own hierarchy of values.

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