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FERTILIZERS AND PESTICIDES ABUSE IN AGRICULTURE: ECONOMIC REPERCUSSIONS IN CENTRAL EASTERN EUROPE

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Since the Second World War the agricultural sector in the technologically advanced western countries has seen a fast development in terms of overall food output and productive efficiency. The technological achievements made have benefited the whole population of those states, while in the eastern part of the European continent the difficulties experienced by the farming sector constituted an heavy burden for the people. The collective system of farms and the lack of transparency slowed the agricultural production, leaving millions of people without enough food supplies and a spoilt environment. In the meantime the western industrialization of factories led to the disproportionate enlargement of properties, the abandonment of the countryside, unemployment, cultural impoverishment and a sharp drop in the quality and taste of food. On an international level, the liberalization of agricultural markets achieved

under WTO agreements, has led to falling prices for the producers of food and an increase in costs for the consumers. Apart from all the consequences on the social and economy levels, the modernization of the agricultural economy and landscape in Europe was supported by research and discoveries in the chemical field. The innovations brought to light by scientists and private companies allowed the expansion of the food output to a size never experienced before. Some of the worst plant diseases and parasites were defeated by new kinds of herbicides and pesticides. This led to the long awaited food security in the countries of western Europe and an improved productivity of cultivated land in Eastern Europe. In the last twenty years, through all the political and economic changes occurring in the ex-soviet and Yugoslav space, this trend deepened to the extent that situations are almost equivalent with the agricultural market of the European Union (with twenty-seven members). Since 1991, Eastern and Balkan Europe experienced a quick jump towards the productivity level of the west and thus the western industrialized agriculture model spread to the whole continent. Currently, it is generally assumed that the widespread use of chemical products in agriculture is the only way (or at least crucial) to maintain a satisfactory production to compete on the national, continental and international markets. This is true for eastern European states included in the EU as well as the countries which are looking forward to entering the EU in the short, middle or long term (for example Croatia, Ukraine and Moldova). As for today, in the region considered, the chemical agents in agriculture are not only a key trait of present day farming (Slovakia, Romania etc..), but are also seen as a vital part of the strategy to enhance the agricultural sector in those nations which are still lagging behind their potential yearly harvest amount (Ukraine, Macedonia etc..).

The total number and quantity of chemical substances used in agriculture has continued to increase since the post-war period on and it is growing still. This trend is

causing many side effects to the economy, humans, nature, climate, ecosystems and animals in the region. The analysis of the detrimental factors connected to herbicides and pesticides in the intensive farming model is important to assess a sustainability and financial balance for the states involved in this phenomenon now and, most of all, for the years to come.

In first place, the issue of water is essential because of the role it plays in every human activity. The chemical agents sink through the fields and into canals towards the underground water reserves and rivers. In this way the water-bearing stratums are slowly polluted and a vital element is ruined in an almost permanent manner. On the other hand, the same agents are carried downstream by rivers, poisoning life and natural balance along their course, with a significant effect on the oceanic areas where the rivers end. In particular the nitrogen present in the fertilizers is causing big problems to the rivers, lakes and costal areas in the region by making easier for seaweeds to prosper beyond their natural capacity and so greatly impoverishing the ecosystems. The price to pay for this kinds of pollution can be enormous, the monthly Nature value it at tens of billions euro, since the water reserves in all countries are becoming scarcer and more precious while the recovering time for polluted lakes and costal areas is long. The reduction of water quality and clearness, as a consequence of the exaggerated use of fertilizers and other agents, will result in a series of social crises in the future, carrying unbearable costs for the countries and people involved, both in Eastern and Balkan Europe.

Another fundamental concern is represented by the impoverishment of soil and the diminishing fertility of industrially cultivated fields. The common use fertilizers is the main reason behind the loss of productivity of the earth, which in turn must be artificially enhanced with growing amounts of chemical products. Inside this vicious circle the soil is loosing its natural properties which must be constantly compensated

by an artificial improvement of the efficiency of fertilizers at the expense of health and economic costs. In this case, the impending risk for the economies of Eastern Europe is of endangered the security of supplies and the safety of food produced in agriculture. The reduction of the land fertility is frightening but now almost ignored by the competent institutions of the area. However, the long term effects on economy, future production of food and sovereignty of every state can be disastrous if not treated appropriately in advance.

The repercussions of pesticides and herbicides on human health are globally recognized as huge, and are roughly divided in three categories: cancers, reproductive health and other various and recurrent diseases. They are caused by the accumulation of dangerous agents throughout human life and by exposure to high levels of chemical substances in a definite period of time (mostly peasants and agricultural workers). The resulting monetary costs for public healthcare systems (that is, indirectly for taxpayers and directly for private citizens) are vast because the illnesses to be treated are expensive and long lasting. Furthermore, they are growing steadily as a consequence of the rising quantity of chemical agents used in agriculture and dispersed in the air and water. Various diseases and poisonings are more and more frequent although not always detected and brought to the fore. Apart from the human tragedies behind the side effects of chemicals on health, a lot of money is spent every year to cure people affected by the direct and subsequent consequences of herbicides and pesticides on health. It is impossible to measure the exact amount of money which is spent on this every year, but it’s likely a heavy burden in the tens of billions of euro (which will grow further in the future) in the public finances of Eastern European nations and for the whole EU as well.

Herbicides and pesticides are also taking their toll on animals, especially insects. Biodiversity is declining in the countryside of Eastern Europe and the Balkans, in this

way quickly following the pattern of western Europe, most of all because of the escalating quantity of chemical agents present in the air and soil. Moreover the species whose habitat is the countryside are decreasing in number, endangering some of them with extinction. Included in this list are bats, bees and frogs. They are essential to the natural balance of the region as well as for any future human activity. The possible loss of money deriving from this trend results from a range of difficulties such as the pollination of fruit trees because of the lack of bees, to the diffusion of crop-damaging insects due to the disappearance of animals on the upper side of the food chain. In the whole region these problems will have an impact of billions of euro every year. This will hit the entire population: from producers down to consumers, from adults down to children. The collapse of bio-diversity in the region is a threat comparable only to climate change in terms of public and private financial losses.

The diffusion of pesticides and herbicides in Eastern Europe is causing two other kind of troubles. By promoting the pervasive utilization of chemical products in farming, new parasites and invasive plants resistant to the agents currently used, are appearing and developing. In the near future the farmers will need stronger pesticides and herbicides, which in turn will have a heavier impact on human health, biodiversity and nature. The other rising problem is the export of outdated pesticides from eastern Europe to poorer countries which do not have to respect the EU set of laws established for the protection of environment. Moreover the loosened inspection systems on this subject in the Balkans and in Eastern Europe may lead to the use of illegal products or prohibited quantities of legal agents to bring down farming operations costs.

In this context the side effects described can’t be properly detected in their scope and dissemination in the societies of the area, mostly because of the lack of funds and the impossible task to check every farming enterprise. Furthermore the laws in force are

not fit to connect directly the use of chemical agents in agriculture with the human diseases and environmental damages which derive from them. A long time is needed to trace out the toxicity of a product. Often the results of authorization bodies does not take into account, as a priority, human and nature health before allowing the marketing of a chemical agent. In this way legal products can circulate and enter the food chain notwithstanding their damaging characteristics in the medium and long term.

The exaggerated use of chemical products in agriculture is responsible for another four phenomenon, which can be ultimately harmful to the environment and health in the area and thus generating more financial charges for people and national administrations. The first is the spreading of the intensive and extensive agriculture model, allowed by the large use of herbicides and fertilizers, which is responsible for 30% of world climate change emissions and 70% of the consumption of water. The second element is represented by the strong urbanization, centred on the city outskirts that is partially caused by the expansion of vast plantations in the countryside; a process in which chemical products are decisive. The third point is the big quantity of greenhouse gas emissions produced by the chemical substances for the farming market during their manufacture, transport, use and disposal. Finally the possible and quite frequent cases of contamination of foodstuffs following the abuse of pesticides, requires a lot of money in terms of administrative and active countermeasures by various public institutions. All these problems are rising to the attention of governments and international organizations and they are already causing hard consequences to the environment, societies and public finances of Eastern and Balkan Europe.

The issue of measuring more precisely the financial costs to be faced by the public finances and the private citizens, for compensating the losses caused by the use of

fertilizers, herbicides and pesticides on humans and environment, remains thorny. Rated yearly in tens of billions of euro throughout the region, these costs should be measured in every separate field of research (healthcare, reclamations, loss of habitats, depletion of strategic natural supplies etc…), taking into consideration the direct and non directs effects, both in the short and long term. It is an extremely complicated task, which has not proportionate means to succeed, especially in the eastern part of Europe. The gain-losses ratio of the abundant use of chemical agents in agriculture can only be evaluated by knowing better and more accurately the second term of the relation.

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