MODELING OF ENVIRONMENTALLY DANGEROUS PHENOMENON OCCURRENCE FROM RIVER WATER'S POLLUTION WITH SLAUGHTER BLOOD

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The purpose is to model the occurrence of environmentally dangerous phenomenon due to contamination of Danube river with slaughter blood waters along the coast of Russe. Four tasks to be solved are:

1) Situational modeling of the dangerous phenomenon,

2) Creation of a scenario of the danger from pollution and the effects of the slaughter blood on the river populations,

3) Mathematical modeling of impacts,

4) Assessment of dangers, risks, criticalities and environmental security.

The situational modeling is done on the basis of ten variable circumstances, conditions and events:

I) *Space of the situations*. Environmentally dangerous events are generated by slaughter manifacture. Polluter – slaughter blood has 79-82% moisture content,16,5 to 18,9% protein, 1,0 to 2,0% minerals. The amount of blood of slaughter animals is about 4,5% in pigs, around 8% in small ruminants, around 7,7% from cattle. It was issued in the amount of blood sewage according to the daily production of meat. Major pollutants of wastewater are proteins and fats, which quantity varies widely. Basic inorganic pollutants in wastewater are chlorides, nitrates and phosphates. Part of the insoluble substances and fats are emulsified and colloidal condition which affects the conditions of breeding and development of fish populations.

II. Hronology The environmentally dangerous events occur chronologically on the chain-"slaughter→blood→ mixing with the flush water→emission of water-blood mixture into sewer drains → distribution in the sewer of the economic structure→ dilution with additional sewage → entering the water treatment plant → mechanical treatment→dilution→purification from suspended solids and materials→discharge into river water"

III) *Ordinariness*. For the first time, it was studied the influence of slaughter blood on aquatic ecosystems, in particular – fish populations that were first investigated. A successful attempt was made to protect the river from pollution by waste technology, which was developed in technological and technical research [1].

IV) *Metrics*. The values of dissolved oxygen, transparency, chemical oxygen consumed and active response were set [2].

V) *Fixation*. The process is interrupted. Monthly cycles are formed with

identical load.

VI) *Causality*. The reason is meat production, which production parameters vary in changing limits.

VII) *Vulnerability*. It is determined by lethal effects occurred, considered as a random variable [2].

VIII) *Envelopment*. Each situation exists in relation to certain external systems environment. Is is revealed by the structure of environmentally dangerous events. The situation is precisely defined and understood in order to be modeled the genesis, the mechanism of its development, the process of damage characteristic of the emerging dangerous phenomena, impacts and effects.

IX) *Situation*. The atmosphere of situations of contamination in slaughter blood is physically modeled. Samples of river water are investigated. The indicator has been referred to the group of controllable factors of the situation. A taxonomy and risks identifion is made.

X) *Harmfulness*. Models of the probability of lethal effects and lethal risk among bioindicators describe the harmfulness as a function of the degree of water pollution with slaughter blood and the exposure of the bioindicators. The harmfulness for the three bioindicators is determined by the differential and integral risks. The danger scenario of the lethality indicators in the survey fish under the influence of slaughter blood is developed by graph models. They are hypothetical. The transition to the threat of danger is done by defining the indicators and their corresponding risks.

When the risks for each element of scenario's morphology occurrence are presented in vector format they are determined by using probability and time of appearance. Mathematical models of risk scenarios of pollution of river waters with slaughter blood, the impact of blood on the slaughter fish indicators and lethality among fish were composed.

Quantitatively were evaluated the dangers, risks and criticalities from pollution of river water with slaughter blood. The environmentally dangerous events were compared, ranged and prioritized on the base of the risk degree.

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2. Vladimirov, L. Bioindication risk of contamination of river water with slaughters blood. Varna University of Economics, Symposium "Challenges of Agribusiness and Rural Development", 2010. p 126-136.

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