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**Economics, organization and management  
of environmental engineering in farms and  
rural individual entrepreneurs of  
environmental orientation**

**We propose a model for managing environmental engineering of agricultural farms with an ecological orientation, which organically combines state and public control, and is carried out in convenient remote (electronic, interactive, mobile) forms.**

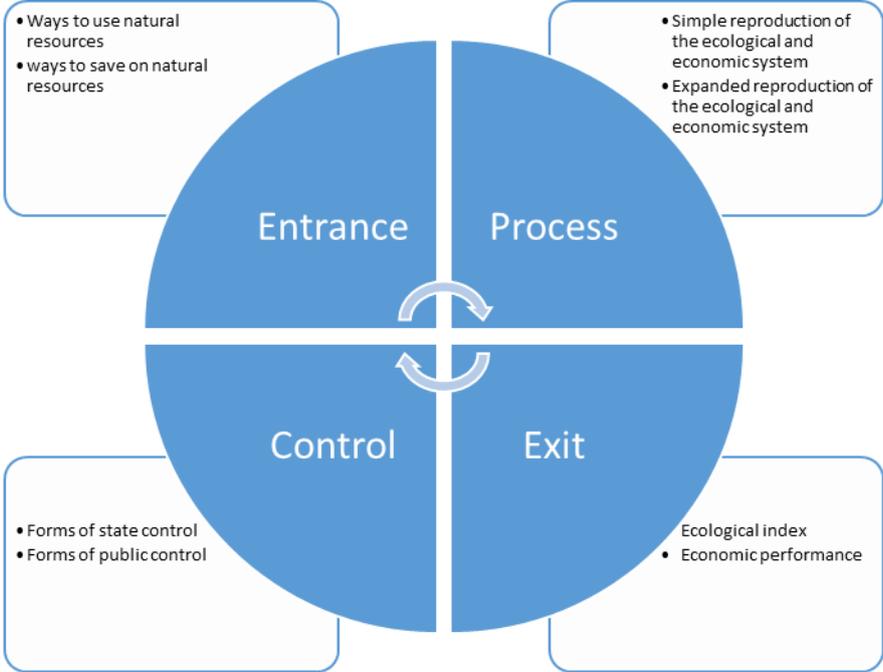


Fig. 1 Model of remote control of ecological engineering of agricultural farms of ecological orientation

**At the same time, we refer to the main environmental indicators in the "Exit" block:**

- 1. Revival of the ecological system.**
- 2. Maintaining the existing balance of the ecological system.**
- 3. Improvement of the ecological system.**

**The main forms of state remote "Control" include:**

- 1. Fines.**
- 2. Grants.**
- 3. Tax benefits.**

**- issued and received in one of the forms acceptable to the farm:**

- 1. Email address.**
- 2. Mobile message.**
- 3. Message on a special website of "state Services".**

**The main forms of public remote "Control" include:**

**1. Report on violation of environmental legislation and state and international environmental standards.**

**2. Warning about violations of the economy.**

**3. Sending a request to the state authorities about the violation.**

**- issued and received in one of the forms acceptable to the farm:**

- 1. Email address.**
- 2. Mobile message.**
- 3. The message on a special website of the environmental public organizations.**

The given model of remote control of environmental engineering, using the experience of Prof. Lemesheva M. Ya., can be represented as a problem of linear programming of a remote control system for environmental engineering:

$$\sum_{i=1}^m a_{ij} b_i \geq c d_{0j}, j = 1 \dots n \quad (1)$$

$$k_l : \sum_{i=1}^m m_{il} b_i \geq c p_l d_{0l}, l = 1 \dots s \quad (2)$$

$$c \rightarrow \max \quad (3)$$

$$b_i \geq 0, i = 1 \dots m \quad (4)$$

where  $b_i$  is the intensity of possible technologies,

$k_l$  number of resources  $l$ -th species,

$a_{ij}$  production of regulatory factors,

$m_{il}$  regulatory loss factors (deterioration of) quality of a certain kind of natural good as a result of the production activity of the economic system,

$c$  measure of the maximum possible amount of economic and environmental options that you can get in this situation,

$p_l$  control parameters that characterize the comparative importance of environmental components  $d_{0l}$  in the economic and environmental set. At the same time,  $p_l$  is usually 0 in modern economic practice – i.e. it is not taken into account.

So, for example, if as a result of using land near ecological farms (ecological settlements "Serebryany Bor" and "Korenskie Rodniki") for open-pit mining, the environmental engineering formulas given by us show that economic and environmental indicators in the mining area will deteriorate at least 8 times: land degradation, water and air pollution, death of flora and fauna, and a sharp deterioration in the health of the territory's population—a closed (mine) mining method should be considered more effective, although at the first stage it is more expensive (capital-intensive) – both encouraging (tax benefits, subsidies) and restraining (fines) signals should be transmitted remotely from state bodies to economic entities.

## **Conclusion**

**The main tasks of environmental engineering at the level of ecological agricultural farms of various types include:**

- 1. Determination of the volumes of natural and economic resources available in the economy in physical and monetary terms.**
- 2. Identification of the level of pollution and degradation of available resources in physical and monetary terms.**
- 3. Analysis of the causes of pollution and degradation of resources [24-25].**
- 4. Research of the main sources of pollution and degradation of the resources available in the economy.**
- 5. Finding ways to minimize pollution and resource degradation [10-11].**
- 6. Study of ways of simple and extended reproduction of natural and economic resources of agricultural economy of ecological orientation [23].**
- 7. Determining the cost of work to minimize pollution and reproduce the resources of the economy.**
- 8. Identification of ways of state regulation of reproduction of natural and economic resources of agricultural farms of ecological orientation [18-19].**

**At the same time, the proposed model of remote control of environmental engineering of agricultural farms of an ecological orientation can and should be applied at enterprises that make up their eco-environment.**

**The General principle for calculating the positive efficiency of economic modernization, organization and management of any type of economy should be the calculation of the complex economic and environmental effect of any industrial modernization.**