

## Organizational and Economic Mechanisms for Monitoring of Processes Ensuring Sustainable Development of the Forest Sector

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DOI: <http://dx.doi.org/10.13005/bbra/1790>

(Received: 11 March 2015; accepted: 19 April 2015)

The management function being a system of monitoring and inspection of controlled subject's operation in time with the purpose to assess reasonability and effectiveness of managerial decisions, check the degree of their realization, any variations and unfavorable situations for timely making of adequate managerial decisions is an important task. The dynamics of feasible management of organizational system's financial resources seem possible due to the application of mathematical and instrumental methods and models in optimizing socio-economic infrastructure of a region accounting for potential and real opportunities of forest sector. Therefore, in the course of dynamic management of corporate organizational systems' economy, control should act as a feedback element and according to its data previously made managerial decisions should be corrected. Continuous control allows for not only finding variations from planned economic parameters but foreseeing them and assessing the causes of errors, promptly making reasonable managerial decisions. Schemes of managerial decisions made are submitted for basic situations of production and commercial activity with in the frame work of exact calculation allowing for finding factors of predictability in connection with economic consequences of various situational moments and making managerial decisions.

**Key words:** Economy, forest sector, innovations, investments, small business, ecology, economic systems, management algorithms.

Management efficiency improvement in economic systems<sup>1</sup> of forest sector, development and use of new methods, models, algorithms of numerical performance estimate of organization's economic situations and working out of reasonable managerial decisions aimed at corporate profit growth is gaining special relevance in the development of the contemporary market economy of the Russian Federation.

### Methodology

Methodologies in connection with management efficiency in economic systems of

forest sector are usually spontaneous and imply subjective reactions of their executive teams without numeric estimates of economic performance in arising production and economic situations and economic parameters of the consequences of decisions made.

Development of methods, models in connection with efficiency improvement of economic management systems operation in forest sector allows to obtain a range of numeric estimates of economic situations. An important factor in developed methodologies and models is finding the most reasonable managerial decisions and estimate of economic consequences of those decisions using computer software<sup>2</sup>, which eliminates spontaneity and biased management in economic system.

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It is deemed possible to put managerial decisions in basic production and economic situations of forest harvesting and timber sawing in exact calculation limits, predictability of economic consequences of situational managerial decisions.

## RESULTS

Forest sector is a branch of physical output mainly related to the generation of forest products and utilities accounting for national economic significance of forests. For that purpose, it is required to do regular forest inventory, arrange rational use of forests, do rehabilitation after cutting, and forest cultivation including protective afforestation, handling of forests, protection from fires and pest control, control of forest and forest lands use, optimizing socio-economic infrastructure of a region accounting for the potential and real opportunities of forest sector<sup>3</sup>.

In compliance with Forest Code of the Russian Federation, forest reserves are federally owned, which suggests budgetary financing of forest management via subventions assigned from the federal budget to constituent entities of the Russian Federation for forestry activity in connection with forest regeneration, conservation and protection<sup>4</sup>.

The ratio of such funds of forest agencies reached 50% industrywide, in some regions coming to 70-80%. The share of Federal Forestry Agency in the total production output of timber exceeded 17% and made it one of the core forest operators.

Forestry production is a production branch in connection with timber processing after intermediate use felling, secondary timber and forest by-products.

Here it should be noted that forestry is often a structural division in a governmental autonomous enterprise (GAE), usually small and medium forestry enterprises. The government manages that link of forestry and timber production only via the taxation system. Commercial divisions of forestry do not report their performance results to higher territorial bodies for forest management as they are self-funded as distinct from other structural divisions of the

forest agency. GAE (forest agency) is entitled to sell its commercial products at transfer prices, i.e., prices reflecting product transfer within the ownership of the same organization<sup>5</sup>.

Meanwhile the profit earned from commercial activities of GAE (forest agency) production divisions is by decision of forest agency's executive person either spent on economic development of GAE or becomes a source of own funds<sup>6</sup>.

Forest-deficient (sparsely forested) areas of the Russian Federation currently occupy 220 million ha of the total area, including 122 million ha of forested area. Nowadays, in sparsely-forested areas some 100 million cubic meters of forest are underused. Broad-leaved forest areas are featured by intensive agriculture and forestry and a lot of population. Along with meeting timber demands, those forests have high significance for water conservation, field and soil safeguarding as well as sanitary and hygienic importance. Oak forests are prevailing, coniferous forests mainly consist of pine-trees followed by fir-trees.

The investment projects available in connection with establishment of forest enterprises in the Russian Federation are export-oriented while the quality of timber produced in forest-steppe zone suggests meeting only domestic market requirements.

That is why the availability of sufficient finance held by governmental autonomous forestry enterprise determines the commercial success and enterprise's business reputation<sup>7</sup>.

Making prognosis by months and quarters is the most important part of management much affecting the real result of production. However, without any numeric estimate of the opportunities of any decision and control over its implementation, planning is ineffective.

Monthly/quarterly system of managing financial resources of corporate organizational system suggests for active and targeted action, which puts in the first place the goal of cash-flow dynamics in time, allowing for timely decision making to ensure correct direction flow of financial resources. However the making of such decisions is as a rule impossible without reliable and full information based on numeric

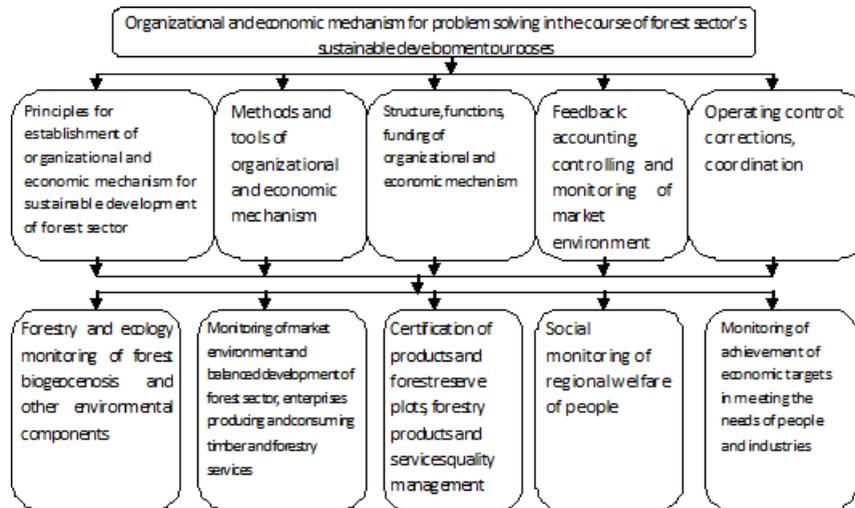


Fig.1. Elements of monitoring of forest sector's sustainable development regulation parameters (indicators)

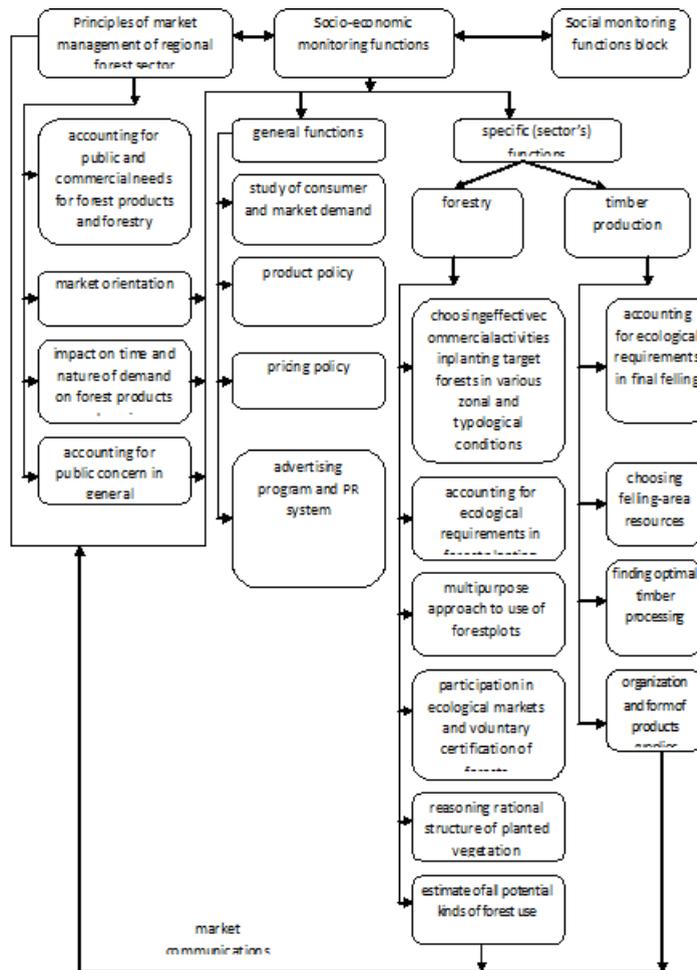


Fig. 2. Interrelation of basic principles of market management in forestry and regional socio-economic monitoring functions

estimates of monthly and quarterly financial analysis<sup>8</sup>.

Meantime, control should be regarded as an independent management function being a system for monitoring and inspection of controlled subject's operation in time with the purpose to assess the reasonability and efficiency of managerial decisions made, to find the degree of their realization, check for variations and unfavorable situations for timely development of adequate managerial decisions.

Regulation of economic parameters is a special case of management and means the comparison of regulated value with given parameters which in essence is a checkout test.

Therefore, in the course of dynamic management of corporate organizational systems control should act as a feedback element and the basis for correction of previously made managerial decisions<sup>9</sup>. Continuous control allows for not only finding variations from planned economic parameters but foreseeing them and assessing the causes of errors, promptly making reasonable managerial decisions.

Upon the expiry of prescribed terms it is required to assess, to which extent the goal set was achieved, what are the reasons for any actual variation from the plan, so that to make further decision making (planning) process more realistic.

In management, it is necessary to account for not only determined parameters effecting corporate activities but also for stochastic factors being integral parts of any environment. Accounting for stochastic factors ensures adequate mathematical modeling of organizational system's operation and construction of its adaptive behavior mechanisms in random environment.

For successful realization of the conceptual scheme in connection with establishment of forest sector's sustainable development regulation mechanism (Fig.1) the system of core parameters monitoring may be represented as follows (Fig. 2).

The market impact of controlling system (demands of individuals and organizations in forestry products and utilities) enforces the controlling system to impose effect on controlled

subject.

It is typical that there is close mutual relation of basic principles of forest sector management and socio-economic monitoring functions (Fig. 2).

Controlled subject (forest agencies) perceives controlling signals and arrange their business in such a way to meet the needs of controlling system. However the actual output signal (assortment and quality of products and services provided by forest agencies) may greatly differ from the required due to various specifics and problems of forestry. Changes of the signal distinct from the reference control should be continuously watched via ecological, social and economic monitoring and be corrected with the management process of regional forest sector's socio-economic development which requires working out and introduction of effective monitoring system and controlling corrective actions<sup>10</sup>.

Meantime, the information obtained during monitoring is used for further development of forest sector's sustainable development programs and rational forest use in general system of nature use. It is the basis for attracting investments in regional forest sector, optimization and rational use of labor and material resources, implementation of innovation projects in all regional forest sector's branches.

## DISCUSSION

The economic and mathematical models submitted allow for solution of the following tasks in connection with analysis and making managerial decisions:

- a) Finding production output volume accounting for available own and borrowed funds and price of 1 cubic meter of timber;
- b) Binding break even points in timber output volume, setting minimal permissible order quantities by kinds of timber products;
- c) Calculating the required funding to ensure the production of ordered quantities, finding spare funds and their effective use;
- d) Substantiating the volume of profit required, price of 1 cubic meter of timber, accounting for order volume, fixed and variable costs, price elasticity of

- demand, breakeven result of production;
- e) Analyzing priceleaps' negative impact on energy resources, raw stock, materials, production output and enterprise's economic performance.

### CONCLUSION

Forest sector activity is based on the use of renewable natural resource – forest being an important ecological part of human environment, therefore a shift to sustainable development principles was determined as the main condition of forest sector's effective operation in the long-term run.

Therefore, for the purposes of effective use of great forestry potential, recreational and safeguarding components of forestry, it is required to have strictly operating system for monitoring and sustainable development parameters enabling to optimize the regional socio-economic infrastructure accounting for the potential and real opportunities of forest sector.

The dynamics of feasible management of organizational system's financial resources is deemed possible due to the use of mathematical and instrumental methods and models.

To improve the efficiency of corporate economic management it is required:

- a) First, to create diagnostics tool to watch the real situation in corporate economy related to planned trajectory of reaching the goal set;
- b) Second, to make the said diagnostics tool working, it is required to work out a tool for correction of the above trajectory or adaptation to internal and external factors effecting enterprise's activity;
- c) Third, in compliance with the cybernetic approach, in the course of organizational system's management, closed control loop and the impact of feedback's corrective action on controlling (setting) action should be taken into account.

### ACKNOWLEDGMENTS

This research was made with the financial support of Russian Humanitarian Fund under scientific research project #14-02-00551

on "Organizational and economic mechanisms for regulation of sustainable development of regional forest sector".

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