



## IRRIGATION MANAGEMENT UNDER NEW ECONOMIC CONDITIONS IN RUSSIA

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### ABSTRACT

Under conditions of developing market economy in Russia budgetary appropriations of ameliorate system operation can be maintained only temporary. Therefore it is necessary to settle the reform problem for the operation service of the ameliorate systems and to find the new source of supply and financing of the ameliorate activity.

In the conditions of market economy the different types of the ownership for the inter-farm network are assumed (for example government, joint stock, etc.). The only one requirement is to provide the normal operation in the frame of collective usage. Measures, providing more efficient operation of the inter-farm network, are required. The construction of inter-farm irrigation and drainage network as well as inner farm systems is carried out using government budget.

In our judgment management pattern reorganization must be carried out in practice at the local level in the first place: ameliorate system bureaus; tractor forces; operation service bureaus; specialized plants and enterprises by their integration.

According to the irrigation systems' inventory data (2002) federal part of property of Ministry of Agriculture of Russia includes: more than 60 thousands hydraulic structures including 250 water reservoirs (30 water reservoirs with capacity more than 10 mln.m<sup>3</sup>); 6 thousands of intake structures; 1,8 thousands pumping structures; about 56 thousands km of canals; 5 thousands km – barrels and protecting dams. Book value of these structures and systems is 43,5 billion rubles (28% of the total book value of structures and systems belong to the Ministry).

As the result of reclamation service reorganization carried out in 2002 special regional management bodies have been reorganized into the federal government institutions. Finally 75 federal government institutions named "Agency on reclamation and agricultural water-service" have been created in 75 subjects of Russian Federation.

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Federal government institutions on land reclamation implement state surveillance, management and maintenance of reclamation systems and hydraulic structures belong to the federal property.

As a whole, hydraulic structures belong to the federal property being in charge of Ministry of agriculture of RF the following activity is implemented annually: water intake and transport, including irrigation purposes; water-supply of populated localities and other purposes.

Reclamation and water organization department of the Ministry of agriculture of Russia implements complex of measures including: to put in order reclamation fund; to implement reclamation systems' operation; to develop material and technical base of reclamation systems.

Situation in the reclamation is being slowly improving now. Federal financing of reclamation measures becomes more stabilized, at the same time more rural commodity producers take part in reclamation financing.

Federal government unitary enterprises, regional authorities on land reclamation and agricultural water-service, providing inter-farm reclamation systems' maintenance, obtain budget financing which is not sufficient.

During the last years the most part of the agricultural enterprises has lost both internal funds and investment sources. And this is provided that retirement of the fixed capital stock fourfold exceeds fixed capital investments. Planned destruction both production and non-production spheres of agribusiness takes place.

The government level has to be responsible for policymaking, decision making, legislation development, and control and regulation development.

Regional authorities have to determine regional priority, to regulate inter-relations between federal subjects, to provide monitoring and control on the accepted decisions.

Local level laws realization is carried out as well maintenance and operation of the irrigation network and water economy management is provided.

Scientific-research institutes carry out the strategy of development, create scientific and standardization basis, approach on management transfer in irrigation, fulfill the scientific-research works.

Actors of irrigation sector reforms and their activity for the different stages and levels of irrigation management transfer are shown in the table 1.

**Table 1.** Role of actors and stakeholders at definite stages of IMT process

Actors and stakeholders	Policy setup	Policy development	IMT implementatic	Monitoring and evaluation of IMT
Government	Law "Concerning land reclamation". Law "Concerning arable land rotation". "Land Code". "Water Code". Law "Concerning hydraulic structures safety (reliability)".	Conception on complex ameliorations development. Conception "Concerning soil fertility safety and rehabilitation". Government statement "Concerning hydraulic structures declaring". Standardization basis formation. Financial regulation (Federal budget).	Federal Program "Soil fertility improvement in Russia in 2002-2005". Rules on putting objects into operation.	Main economical parameters on economical activity of agricultural institution (annual repots of the Ministry of agriculture Russian Federation).
Regional authorities	Regional Laws "Concerning land reclamation". Regional Laws "Concerning irrigation development".	Financial regulation (Regional budget).	Regional Programs.	Ameliorative condition of irrigated lands and technical condition of irrigation systems (monitoring).
Local authorities	Laws realization	Land rotation organization.	Systems on arable lands cultivation.	Estimation on ameliorative condition of lands and technical condition of irrigation systems.
Local water management organizations	Statement "Concerning Federal state institution accept"	Statement "Concerning ameliorates objects operation". Statement "Concerning hydraulic structures supervision". Instruction on pumping stations and hydraulic structures. Schedules on water utilization development.	Water management activity.	Initial information collection.
Water users associations				
Scientific institutes	Science research institutes accreditation. Rules on institute's activity.	Conception "Concerning management transformation in irrigation. Standardization-methodical basis creation on IMT process.	Science research planning and implementation.	Authorized supervision implementation.
National government organizations	Irrigation implements perfection.	Staff training.	Participation in documents' development standardization-methodical basic.	Purpose oriented parameters implementation.
International cooperation	Experience exchange on new institutions and organization creation on irrigation management and agricultural activity in the conditions of market economy.			

In our judgment management pattern reorganization must be carried out in practice at the local level in the first place: ameliorate system bureaus; tractor forces; operation service bureaus; specialized plants and enterprises by their integration in the Associations on water-reclamation activity

Association is a legal party operating as a government trustee. Functional duty of Association must include intra- and inter system network maintenance including their reconstruction and development; water and land resources conservation.

Government should provide legal and financial control the Association activity.

Association confederates water-managing organizations both belong to the actual government ownership as well as separated hydro-technical structures and intra-system maintenance service. Council of water-using farms having control and coordinate functions is organized under the frame of the Association.

Due to the modern economic and economical conditions enterprises, maintaining inter-farm network, belong to government and are formed on the base of operative management and self-support principals. Local, regional a Federal organizations coordination is provided with economical management and corresponding standards.

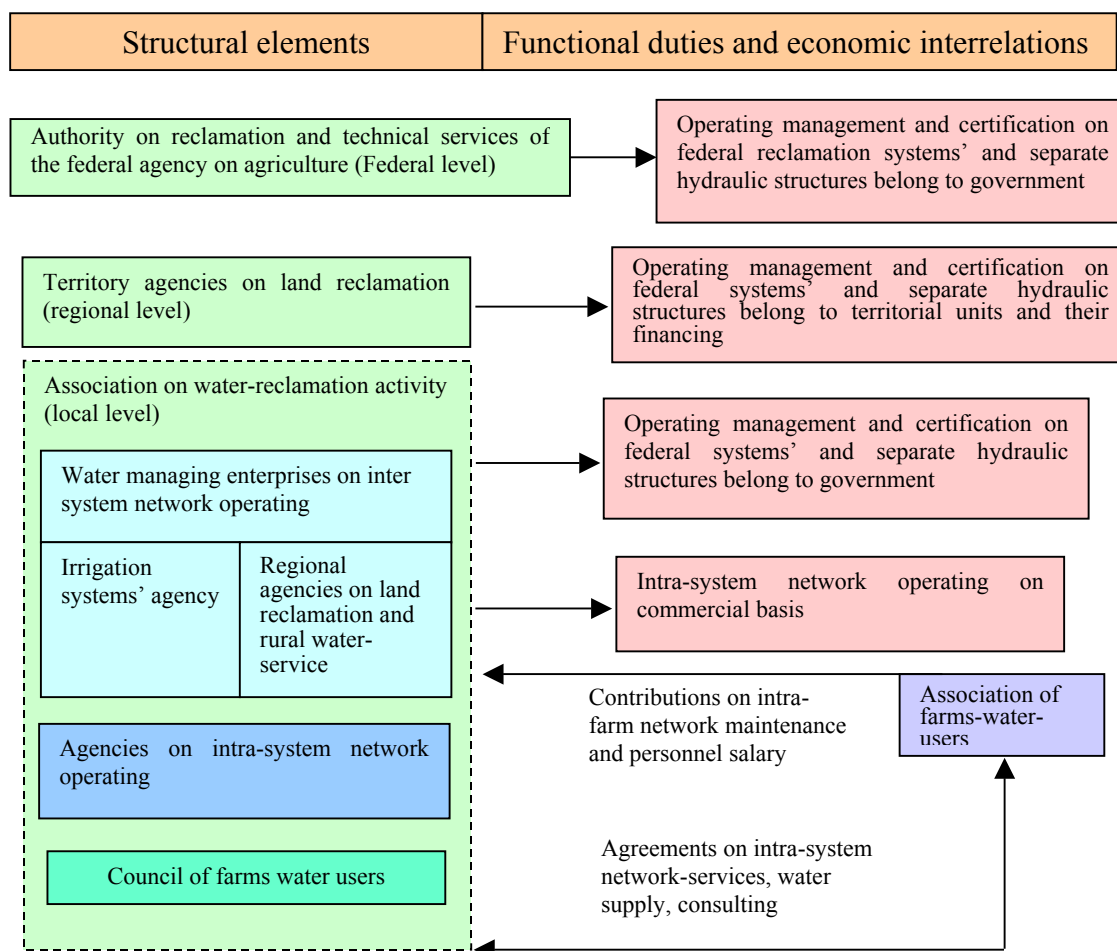
The main tasks must include:

- render the main service, governing the proper water supplying conditions, water protection and prevention destructive water effects;
- coordination of water using plans;
- water using control within the industrial enterprises including waste water discharge;
- perspective and current water management planning (repairing-operating activity within the served territory);
- maintenance and operation financed planning for water managing systems;
- technical maintenance of the state reclamation systems and separated hydraulic structures belong to the government property;
- another water managing activity.

The users of water managing enterprises are agricultural farms belong to the different forms of property and private individuals. The relationships between water managing organizations and water users are regulated by agreements. The government finances water-managing enterprises. Besides the government landowners, commercial Russian and foreign organization can invest water-managing enterprises

Enterprises on intra-system ameliorate network operating are commercial, providing paid services on network repairing and maintenance according to water users' requests under Water-users Council control. They provide consultation services for landowners on land reclamation problems in on-line regime (irrigation rates, terms of water application, fertilizers and chemicals ameliorates application).

(Table 2).

**Table 2.** Organizing structural scheme on reclamation system

Water-users Council is formed on common terms with the deliberative vote providing control and coordination for the water managing enterprises at intra-system technical maintenance according to reclamation measures requirement. Water-users Council includes landowners located within the reclamation system territory.

Economic integration is built on the principle that it is necessary to provide all measures applying within the Association responsibility with financial recourses. To provide both sources of incomes, compensation for expenses and activity financing sales proceeds (production, services, and labor) are used. Drawing income provides both expenditures and tax rates covering and reserve for extensions.

In Russia strategy selection at water managing enterprises commercialization must include valid getting up for agricultural production costs in the irrigated lands and ways of payment realization for agricultural enterprises.

Property status of irrigation structures and canals, the ratio of own and government property, the terms of their usage require government regulation. Perspective optimum is the variant of such association where complex of constitutive works will be

completed with the total privatization of water managing enterprises, serving farms – the members of the association.

Paid water using application must be preceded with several problems solving:

1. Water resources management perfection including inconsistency dissolution between legal and legislative base for Russia and its federal subjects: common application of informative technologies.
2. Irrigation systems' equipment with water-measuring facilities.
3. Make odds even difference in prices for agricultural and industrial production.
4. Government participation in agricultural expenditures' compensation belongs to payment for water using.
5. Perfection of promotion and crediting systems in agricultural and water managing activity.

Under actual circumstances budget financing retention both for water-using systems and inter-farm systems operation are suggested to be saved. Concerning financing at intra-farm network maintenance and operation contract basis is the most useful. On this water-users are given the state credit on the base of easy terms.

Design and construction works organization (customer functions) for water-using objects within the farm and infrastructure creation is under regional local organization responsibility.

Government participation in such kind of works is provided with the following:

- adjustment activities: state financing state financing; soft loan; preferential tax treatment;
- activities' stimulation, basing on the commercial activity of water-using organizations: water-using and conservancy works on the base of paid services; hydraulic structures and hazards risks insurance due to accidents.

At the same time taking into account capital-output ratio of water managing, it is necessary to provide for purpose-oriented budget financing. Government financial resources can be given for hydraulic structures construction and reconstruction, water supply of rural population, irrigation, water bodies' monitoring, flood control, water bodies' protection.

The groups of water users should to be given association status as legal water users. It is efficient to create territorial associations providing control and discussion of agreement between farms and Association implements.

Water using system can include authority on water reservoirs and dams operation including their activity on the base of industrial and domestic payments; canals, pumping stations and irrigation systems authorities; separated enterprises realizing water intake from water using system directly. So as the rate for water intake is evaluated as the mean value for the water using system, water reservoir and dams' authorities have to evaluate individual calculating rates. They serve for rearrangement financial assets incoming as water intake payments. They are redistributed between water reservoir operation authorities having their individual

calculating rates below or above the mean specified rate for the water using system. The total sum of budgetary revenues from water intake rates will decrease by the financing rates, which is necessary for reservoirs and dams authorities operation.

At the operation stage it is most rational to determine preferences at irrigation water delivery rates specifying. Compensation measures mean water delivery rates decrease excluding some expenditure elements for example depreciation deductions, profit tax.

At the water using stage compensation means total or partial water users costs recovery by the government. In this case compensation sum is given directly to the water users by the purpose-oriented decision. Today the above mentioned belong to the payment for water intake from the water source. Water Code of the Russian federation and Law “Concerning payment for water bodies usage” agriculture grant temporary discounts for free water intake.

Water intake rate is determined by effecting expenditures for water recourse regulation and distribution, its rehabilitation and reproduction. The above measures today provide on the base of government financing and by government organizations. Under circumstances of market economy it is unavoidable to establish water intake rates for all water users including agriculture. Water intake rates record at water delivery rates is determined with accurate and proper water losses accounting at water delivery. Water intake rates establishment leads to economical relations with water users having irrigated lands without operation service from water using organization but occupying up to 25% of the available irrigated lands. Water intake for these lands irrigation equals 10% of the total water intake into the inter-farm irrigation network. Water intake rate for irrigation purposes must be collected using uniform tariff for all water users, having been established for the given water source (water using system). In agriculture the above water intake rate must be introduced stage by stage in concurrence with the other type of rate – for water delivery. The Federal or local budget must cover imperfection amount of financing recovery. Water intake rate value must increase together with agricultural production profitability growth.

Agribusiness development is admitted to be one of the main priorities of the government economic policy. The strategic tasks of this policy are the following:

- in the field of economy – to form effective production in agribusiness promoting food safety of the country and economic integration to the world market;
- in the field of social system – to improve pattern of life for rural population, to develop rural infrastructure;
- in the field of ecology – to product safety food goods; natural recourses conservation on the base process improvement.

Executive offices of the Federal authority must provide general rules for agribusiness markets operating and their unity within the territory of the country. The following directions are very important:

- to maintain stable food support of population;
- to pursue the structural policy;

- to pursue effective foreign economic and financial activity;
- to pursue integrated technological policy (to support land reclamation; to set integrated norms in agribusiness; to realize purpose-oriented programs; to form and to finance basic and priority applied researches in agriculture);
- information support improvement (to create and support government information support system for agricultural market; monitoring on results of agricultural policy-making);
- methodical and organizational support of structural drastic alterations in agribusiness;
- governmental supervision.

To restore the health of rural economy restructuring of farmers' credit indebtedness is necessary. Objects having been incorporated into purpose-oriented programs so as budgetary organizations and nature conserving objects requiring construction or reconstruction must be financed on the base of federal budget.

One of the chief directions of the government credit policy will be attraction of private investments into the agribusiness. Specific character of farming and other forms of rural enterprising should be taken into account.

As agriculture intensification causes pollution both crop yield and environment, government will implement measures on agricultural production adjusting up to ecological standards to reduce contaminate pressure on the environment.

Russian agribusiness analyses, having been carried out in "Conception of agricultural reclamation development in Russia" (2004), have shown that the irrigated lands in Russia should be increased up to 10-12 mln. hectares, drained areas should be expanded up to 7-8 mln. hectares to provide stable development of the Russian agriculture. The biggest irrigated region must become the following: Povoljje which can develop up to 3,2 mln. hectares in prospect; Western-Siberia region – 2,2 mln. hectares; the southern Federal region (SFR) – 2,1 mln. hectares. So the share of reclaimed area can be increased by 8-10% from the existing agricultural area.

The main financial resources for reclamation development should be budgets both federal and local. In these latter days, budgetary funds are reduced, budget funds redistribution in favor of local budgets (Budgets of Federal subjects) taking place. Supposed volumes and costs of hydro-ameliorative, cultivation, soil erosion protection works are shown in the table 3.



**Table 3.** Supposed volumes and costs of hydro-ameliorative , cultivation, soil erosion protection works

Types of works	Financing requirements		Suggestions for future period 2006-2010	
	Area, thous.hec.	Costs (2005), mln. rubles	Area, thous. hec.	Costs (2005), mln rubles
Irrigation systems reconstruction and restoration	952	147560	500	77500
Drainage systems reconstruction and restoration	957,6	68158	300	21334
Irrigation	200	24800	25	6200
Drainage	80	8928	20	2232
Cultivation and territory preparation	1000	18600	300	5580
Destroyed soils rehabilitation	300	5580	200	3720
Construction of soil erosion protection structures		1240		868
Development of operation service for water using enterprises		4960		3720
Inter farm ameliorate network and structures repairing		8680		6101
On farm ameliorate network and structures repairing		24800		15500
Construction according to investment program and hydraulic structures safety		12400		6989
Operational costs		14880		14496
Total		347234		164240

Today “Conception of soil fertility and agri-landscapes conservation and restoration for agricultural lands as the national property of Russia for the period 2006-2010” where the volume of the future works on land reclamation is determined (table 16).

Draft conception “Soil fertility preservation and reestablishment for agricultural lands and agro-landscapes of Russia in 2006-2010” has been developed by order of government of Russian federation. This conception contents approach basing on the complex, ecologically safe and economically rational combination of all types of reclamation measures to improve productivity of agricultural lands.

One of the most important factors of soil fertility reproduction is irrigation and drainage measures together with contra-erosion measures, agro-chemistry and afforestation and other reclamation measures. Proper combination of above mentioned erasures provides complete utilization of potential soil fertility without soil degradation.

Within the reform conception for the budget process in The Russian Federation in 2004-2006, being approved by the Russian Federation government dated May, the 22<sup>nd</sup>2004 N 249, is said that purpose-oriented programs must be devoted to large-scale investment, scientific research and structural problems solving. These problems belong to the sphere of the Federal authorities of Russia.

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