Rental Payments for Aqua Bio-resources

Part 2: The history of rental payments in Russia

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BEFORE THE RUSSIAN REVOLUTION, rental fees were levied for the right to extract fish resources. In 1912, public income from these fees totalled 4m golden rubles, or 5% of the total value of the registered catch. This sum did not reflect the full rental revenue from fish, because many Cossack troops that owned and guarded fishing areas were either exempt or were charged less than the full rent for their catches.

Public revenue from fish auctions in 2002 are projected at R7 billion. The economic ministry forecasts a R3bn rise in revenues from auctions. These funds are expected to be allocated to regional governments as subsidies to compensate for incomes lost from the introduction of an auction system for the sale of quotas. Fishing companies from the Magadan region and Chukotka and Koryak autonomous areas are reported to have lost the most from the introduction of the auction system. Russian Economic Development and Trade Minister German Gref told State Duma deputies on February 13 that the government intended to adjust the 2002 budget so that 30% of revenues from the sale of aquatic natural reserves would be channelled into regional budgets.

But Dr Titova argues that a great deal more work needs to be undertaken, if the full rental value of the fishing industry is to be reinvested in public services for the benefit of everyone in Russia.

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RUSSIAN COMMUNITIES used to issue licenses that granted a leasehold right of access to inland water areas. The fees for these licenses were market rents, differentiated according to the potential catch from reservoirs. For example, at the beginning of the century, public income from the lease of one verst (3,500 ft.) of fishing area in the upper reaches of the river Kura (in the Caucasus) equaled 61 rubles, in the middle course, 827 rubles, and in lower course, 4,632 rubles. The rent for the verst of the worst area equaled 9 rubles; the rental yield for the best area was 26,436 rubles (*see table 1*).

Table 1
Public income from the payments for lease of fishing areas on river Kura (1890)

Fishing areas	Length of the area, verst	Annual income from the lease of the area, rubles	Income from one verst rubles
Lower Course			
Bankovsky	12.5	330450	26436
Bozhepromyslovsky	12.5	101000	8080
Hillinsky	76.0	36360	478
Total	**101.0**	**467810**	**4632**
Middle Course			
Nickolaevsky	16.0	17200	1075
Salyansky	18.0	12276	682
Gendzhalinsky	27.0	93375	3458
Zubovsky	33.0	6230	189
Kovratlinsky	35.0	1336	38
Djevatsky	30.0	1166	39
Total	**159.0**	**131583**	**827**
Upper Course			
Narrychsky	23.0	12420	540
Hodgalinsky	23.0	630	27
Fethalinsky	42.0	1550	28
Zardobsky	33.0	1150	35
Kurpikentsky	85.0	1120	32
Emirsky	76.0	660	9
Mangechaursky	87.0	2158	25
Total	**318.0**	**19293**	**61**

Source: Fishing industry herald magazine, 1890

The government issue one-year and long-term fishing leases in coastal zones of the Baltic, Caspian and Far-Eastern seas. In the Caspian Sea there were also special license fees for fishing boats differentiated depending on the time, place and even the methods used for catching fish. Such fees from single boats and fishing nets (the number of nets was regulated) were

also implemented in the Aral Sea. In the Far East a duty was imposed on every pood (16 kg) of caught fish. The sum of that duty was 5 kopecks for Russians and 7 kopecks for foreigners.[1]

Nowadays American scientists P. Dasgupta and G. Heal suggest similar methods for the economic administration of fishing. In their opinion tax rates for the right to catch aquatic bio-resources ought to be determined taking into account the kind and volume of catch, the location of the catch, and the types of vessels.[2]

Despite public sympathy, governmental authorities face problems when dealing with rent and rights of access to natural resources. That is because rent is determined by the scarcity of these resources, the irregularity and different quality of supply, and so on – that is, by factors determined by nature.

Rent theory in the Soviet era

THE ANALYSIS of rent theory that originated before the revolution was continued into the early Soviet era. That period was marked not only by economic dislocation after the Civil War but also by the fruitful development of economic theory. In April 1927, the Economic Council of the USSR decided to shift from payments for the right to fish (which took the form of deductions from the value of catches) to an advanced system of rental relations. This resulted in the publication of a monograph by M.I. Chesnokov entitled *Rent and rental relations in fishing*.[3] Unfortunately the author was a Marxist. That explains why he provided a slightly superficial review of the problem of fish rents. Soon after, however, research into that problem was prohibited, with unfortunate consequences that are visible today.

The Soviet government declared that under socialism rent disappears because land and other natural resources cannot be sold. This prohibition was extended to fishing. By special governmental decree, fishermen were freed from paying fees for natural resources. Fees for leases to fishing areas were also terminated. Not surprisingly, the problem of differential rent became uninteresting to the public.

But no power can abolish the influence of natural factors on the consequences of fishing. Even Soviet power, which officially neglected rental relations under socialism, had to take reality into account, in practical terms. It had to create a mechanism that resembled charging rents, to level the great differences in profits among extraction enterprises that worked under different natural conditions. The regulation of enterprises with access to resources of differing rental value was performed using various price mechanisms, including storage prices for raw fish differentiated by regions, seasons and the kind of fish as well as financial instruments such as fees for fish caught based on their sale value. Certain inland fishing areas had as many as 25 regional price lists.

Research into fish rent theory resumed at the end of the 1960s. Professor V.A. Murin was one of those who tried hard to renew the interest of scientists and the regulating authorities in rent as a tool for regulating the fishing industry.[4]

The natural basis of fishing

STATISTICS from the 1980s reveal that costs of catching particular fish varied greatly from basin to basin, and often within a single basin. Sometimes these costs differed by a factor of two to four. These variations occurred even when the expenses of labour and capital were equal.

Scientific investigation proved that three-fourths of the expense and profit variations were not caused by luck or fishing skills. The main cause of the variations was to be found in natural conditions: the productivity of reservoirs, the structure of catches, the presence of species with high market prices, the locations of areas where fish were caught in relation to markets, and ecological restrictions.[5]

Considerable attention was paid to the problem of the economical division of fishing into districts and the creation of methods for optimized fishing allocation. This analysis influenced decisions on allocating the fishing fleet in the world's oceans.[6] Not so long ago when Goskomrybolovstvo (the Russian Ministry of Fisheries) was making fishing forecasts for the oceans, it divided regions into four profitability groups: highly profitable, average profit, low profit and unprofitable. Armed with this information, it made corresponding administrative decisions to optimize the deployment of the oceanic fishing vessels.

Significant evidence for the existence of rental income is the variation in the natural productivity of reservoirs. In Russian storage pools and big lakes, the annual catch varies from 2 to 40 kg. per hectare; in small and medium pools and big lakes it varies from 6 to 100 kg. per hectare. Such distinctions are even greater in different areas of river systems. In Yenisei, for example, the catch per km. varies from 2 to 4 kg. in tributary streams to 350 to 400 kg. in the undercurrent and runs up to 2,500 kg. in the delta. These differences are variations in catches. If we take into account market prices, the variations become even more marked. The estuaries of some rivers contain fine-mesh fish, while the estuaries of other rivers contain sturgeon and salmon.

Similar productivity variations also occur in the oceans and seas. In the Atlantic Ocean the catch per square km. is about 260 kg., in the Pacific about 170 kg., and in the Indian ocean about 40 kg. In some areas near the coasts of Peru and Chile, in the coastal zone of the Bering Sea and the North Sea the catch goes as high as 700 to 2500 kg. per square km.

Methods for valuing aquatic resources

THE METHODS for valuing fishing areas and aquatic bio-resources have developed in two areas: the valuation of sea resources and the valuation of inland (generally freshwater) resources. These methods are formally identical to the common practice for valuing natural resources. Differential rent is taken as the criterion for the comparative valuation of aquatic biological resources in both areas.

Scientists have shown that, under market conditions, the valuation of these resources is one of the most important issues in relation to their protection and use. This is why the solution of the valuation problem has a high priority, both theoretically and practically.

While the general approach to the assessment of the taxable potential of natural resources has been based on determining differential rent, methods of assessment have varied for different kinds of natural resources. The principal difference has concerned the set of rent-creating factors. Research ascertained that these factors in fishing are: biological productivity, market prices of catches, loss of biological resources per unit catching effort, location of fishing areas in relation to markets, and ecological restrictions.[7] The functional dependence of resource rates on rent-creating factors can be expressed as:

$$r_{jt} = \varphi_t (k_{jt}, l_{jt}, m_{jt}, q_{jt}, e_{jt}),$$

where:

r_{jt} - rent for the use of aquatic biological resources in the fishing area j during the period t;

l_{jt} - potential biological productivity of a fishing area;

k_{jt} – catch per unit of area in market prices;

m_{jt} – location of fishing area in relation to markets;

q_{jt} –loss of biological resources per unit catching effort;

e_{jt} –ecological restrictions.

These factors ought to be determinants of the economic valuation of fishing areas as plotted on a public fishing cadastre.

We have noted that the value of fishing areas is determined by the mobility of biological resources, seasonality and the technological uncertainties in catching conditions. It is natural, therefore, that the rental tax base should be equally flexible. But rent-creating factors influence value in different ways. That is why dynamic models of rent with a variable (floating) system of correction coefficients for each rent-creating factor suits aquatic biological resources the best. With the help of dynamic models, initial resource tax rates can be revised annually after creation and

approval of resource forecasts. Their more precise definition can be made with competitive distributions of quotas.

The modern development of information technologies permits the solution of quite complex ecological and economical problems on the basis of new methodological approaches and principles of fast response. Information technologies can facilitate the translation into economic terms of a great number of indicators of differing quality and applying to different periods of time. These indicators belong to natural resource cadastres and other inter-disciplinary information systems and are used for administration of large socio-economic and ecological systems.[8]

One of the arguments employed by opponents of rental fees is that pure economic rent is difficult to determine. Excessive rental fees can impair profits. This is true, but those who appropriate rent by obtaining rights to use the best resources by means of bribes have an accurate means of measuring rent!

At the beginning of the 20th century, Alfred Marshall wrote that "economists learned to reveal the diverse nature of the complicated notions which in our everyday life are called rent, profit, wages etc." And just like chemists they are able "to discover real properties of each element".[9] It's impossible to disagree with that opinion. By the end of the 20th century the theory of rent represented a well-defined circle of knowledge with its analytical apparatus, which made it possible to start practical implementation on a wide scale. Today rent is defined with indirect methods, using physical characteristics of natural objects: output per unit of area, distances, methods of extraction etc. As a rule, modern valuers resort to the help of expert judgements.

At the same time we hardly need extra exactness when we calculate rent. Another goal is important: the ability to pay taxes without undermining extended production. The Government should take upon itself obligations to: define the budgetary potential of fishing areas that are in use; perform comparative economic valuation of fishing areas within basins; define starting rates of payments for auctions and for quotas to catch any resource. The Government should also take measures to avoid extraordinary growth of taxes, to make them fair and understandable to fishermen.

The transition to rent-oriented taxes would enable government to lower or completely abolish profit taxes in fishing and therefore free profits to encourage new investment in modernised fishing fleets and in nature-protecting activities.

Second wave of reforms

AT THE BEGINNING of economic reforms, Russia was not confronted by conceptual, methodological, administrative and legal barriers to prevent it from choosing the optimal approaches to

public appropriation of rent. A second wave of reforms is now needed, to implement the rental theory with the help of a considerable scientific reserve and the information technologies that enable us to solve complicated ecological and economic problems on the basis of principles of quick response.

One can suppose that if research into methods of economic valuation of natural potential and rental tax rates continues to develop as fast as before 1992, there could be a public system of dynamic valuation of Russian natural potential under world prices. That would allow correction of starting levels of rental tax rates annually in relation to the market situation.

But this did not happen. Scientific resources on problems that were extremely important for Russia went unused. As a result of the "shock treatment" of the Russian economy, information resources were destroyed. These were needed to define starting rates of payments for resources. Informational chaos that favoured rent-seekers appeared. But the disappearance of the statistical dynamics of a long period was not the only loss. Scientists who work on problems of valuation of natural resources were denied financial support. Many of them changed the direction of their research.

Opponents of rental payments for aquatic biological resources of the seas do say, in discussion, that these can be implemented for inland reservoirs, but they claim that little can be done for the oceans and seas because it is necessary to change rules of international law.

The question of uniting fees for biological resources with international law doesn't seem insoluble. All that is needed is appropriate initiative. This initiative belongs to Russia. Russia isn't an ordinary sea country. It has scientific resources that can be used by the world community.

Algorithm of transition to rental charges

THE PRACTICAL realization of the transition to rental fees requires proper reforms in the functions of the Russian Ministry of Fisheries. Along with approval for limits to catches, and the distribution of quotas, it should analyse changes in the fishing rent component in the revenue of fishermen.

The proposed scheme of rate formation of rental fees presupposes not only continual renewal of cadastre information with regard to changes in economic, geographic and ecological conditions, but also the creation of a special service aimed at studying the market situation and monitoring prices for fish within the industry. The Ministry of Fisheries must on the one hand follow budgetary requirements of society, and on the other hand it must not tax that part of profits that is needed for investments in fleet modernization when it defines rates of rental payments.

Analysis of publications on the problem of definition of rental rates proves that this is possible, even without an advanced market.[10] In the initial phase of valuation it is possible to get satisfactory guidelines for administrative decisions using even the simplest data on the natural characteristics of fishing areas. The process of improving valuations would in the long run lead to increases in their precision through the experience of monitoring market signals and using auctions to correct payment rates.

Legal guarantees for the supply of raw fish play a big part in the creation of conditions for the sustainable functioning of fishing. They can be provided by the current system of annual dialogues. Fish-processing enterprises and wholesale organizations should take part in these dialogues along with representatives of the Ministry of Fisheries and agencies of executive branch of the Russian Federation. Basin fishing councils could take upon themselves not only the more precise competitive definition of rates of rental payments, but also the signing of contracts that provide legal guarantees for interested parties. Decisions of basin councils should be secured by Governmental decrees. That would allow their use in the process of budget formation and would increase the responsibility of parties to fulfil their obligations.

Open access to information on distribution and monetary valuation of quotas is necessary for successful transition to the new system of taxation. The process of quotas distribution must take place on a competitive basis. Mass media should cover the results of these competitions.

To avoid theft and poaching, it is reasonable to charge payments for aquatic biological resources as advance payments. Taking into account the difficult financial position of fishermen, the payment can be made through credits and loans extended by State banks and fish-selling organizations. Banks can also extend loans on the security of vessels, catching tools and equipment.

Variations in seas and reservoirs

SINCE THE ECONOMIC system and technical equipment for catching fish vary greatly from sea to inner reservoirs, it is reasonable to study the influence of rent-creating factors on output separately in these two areas. One must expect even greater difficulties with creating and implementing rental taxation in inland reservoirs. This is explained not only by differences in catching schemes in different reservoirs and by the great variety of natural conditions, but also by the need to account for the increased influence of human factors and artificial reproduction activities on the economic value of fishing.

I do not exclude the possibility of implementing different methods of determining rent for aquatic biological resources and different schemes of

charging fees within fishing basins. This is supported by historical experience.

We also must take into account the reaction of strong supporters of free fishing. As a measure that promotes their painless implementation, it is reasonable to undertake experiments of transition to rental payments for aquatic biological resources in single fishing basins. It is also necessary that for the first several years, rental payments should not exceed the profit taxes and VAT that they replace. Under such an approach, the state would have the power to improve rental taxation by using increases in fishing rent to replace all the other taxes, and in future, all payments for research, protection and reproduction of resources. The accumulation of knowledge would surely lead to more precise specifications of proposed models and would remove many practical restrictions on their enforcement.

The final answer on the question of how the system of rental taxation will be realized – as rates of fees differentiated by fishing region or as differentiated purchasing prices for fish and other aquatic products – can be answered only after a thorough study of their advantages and disadvantages. But we can surely say that rental taxation that envisages excises and insurance payments along with rental fees allows the creation of a system of intra-industry financial transfers between highly profitable and less profitable enterprises. It also encourages privileged loans, credits and subsidies that form logical sequels to tax policy and therefore to significantly improve the investment climate in the industry.

I should emphasize that the problem of rental taxation is one of the most complex questions of economic theory. Therefore it can hardly be solved at once. Russia has suffered from a highly irresponsible imposition of market reform theories. Taking into account the substantial time lag of administrative systems, it is important to start working on a methodical system of comparative economic valuation of fishing areas, to accelerate the transition to rental taxation.

It is also necessary to provide a stepwise solution of the problem. In the first phase it is reasonable to concentrate mostly on determining methods to calculate base rates of payments. Other things to concentrate on are: study of the influence of rent-creating factors on economic output; specification of rules of wage adjustment with the help of adustment factors; approval of proposed tax models within a single fishing basin.

The second phase should begin with analysis of results of experimental testing of a proposed fish taxating model. The efforts of developers of the model should be focused on a more precise definition of rental payments and on creation of an information database for implementing rates of payments within other fishing basins. Other things to concentrate on are: coordination of cadastre valuations of fishing areas, not only with taxes but also with the system of loans, credits and ecological insurance.

It seems reasonable to solve this problem within the federal program "Tax policy in fishing". In this program it would be possible to substantiate goals, tasks and the logic of shifting the tax burden to rental charges.

The principles of fish taxation stated above and the logic of shifting the tax burden of fishing from profits and VAT to rental payments are specified in the draft law "Concerning payments for aquatic biological resources". This law was drafted by the author together with C. M. Nikiforov, deputy of the second State Duma. It is a small law that consists of 12 clauses, but the authorities have revealed no interest in it so far.

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