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**UKRAINIAN PHYSIC-GEOGRAPHICAL REGIONS:
COMPONENT ORGANIZATION OF NATURE-RESOURCE
POTENTIAL**

**REGIONY FIZYCZNOGEOGRAFICZNE UKRAINY:
KOMPONENTY ORGANIZACJI POTENCJALNYCH
ZASOBÓW NATURALNYCH**

Zarys treści: W artykule podjęto próbę analizy podstawowych terytorialnych zależności zasobów naturalnych z punktu widzenia cech fizycznogeograficznych na poziomie różnych układów przestrzennych (województw, podstref, stref, krajów i krain) Ukrainy. Ponadto określono dominanty i subdominanty zasobów naturalnych regionów przyrodniczych, co jest przesłanką zrównoważonego rozwoju i racjonalnego wykorzystania zasobów przyrodniczych na Ukrainie.

Słowa kluczowe: potencjalne zasoby naturalne, regiony fizycznogeograficzne Ukrainy

Key words: nature-resource potential, Ukrainian physic-geographical regions

Basic Material Interpretation

The materials of the cost re-estimation of nature-resource potential published in represent a basis for the quantitative analysis of Ukrainian physic-geographical regions' NRP component structure as in new (2003) scheme of zoning (S.V. Rudenko 2010).

Land resources as a central and most important component of Ukrainian nature-resource complex, or the land as a basic element of national wealth that would help bring the whole national economics on an external level, are put on the base of estimation.

We believe that among the scope of scientific approaches to define the value of land potential, or, to be more precise, the potential of agrarian lands of Ukraine (V.P. Rudenko 2010, Baranovski, Shyshchenko 2005, *Nature-Resource Potential...*

1999), the *Price of Land* (2002) by I. Yukhnovsky, Academician, and G. Loboda, Candidate of Economic Sciences, deserves special attention. The authors' definitive idea is that it is essentially important in conditions of unstable economics that "a natural yielding capacity of Ukrainian lands, i.e. the one that could be gained with crop rotation and application of only mechanical processing of plough land with addition of none fertilizers" must be made a basis for normative estimation (Yukhnovsky, Loboda 2002).

According to data available with the Institute of Soil Science and Agro-Chemistry at the Ukrainian Agricultural Academy of Sciences, the natural yielding capacity of grain crop in Ukraine is 26 metric centner/hectare, i.e., it is the evidence of essential advantage that this country has on the world level. At the same time and taking into account the fact that average indices of yielding capacity in 1995-2000 were lower than those of natural yielding capacity, I. Yukhnovsky and G. Loboda suggest that, temporarily and before the reduction of natural yielding capacity, the average normative costs be estimated at the level of 21 metric centner/hectare. The authors specially insist that the land tax value must not depend upon the agricultural producer's real income, but be estimated proceeding from normative income, i.e., the one that would be gained from each separate plot provided that certain standards of economy are observed. Said principle would stimulate the farmer to improve its land use, since fixed tax will not depend upon economic results.

As calculated by scientists of the Institute of Agrarian Economics at the Ukrainian Academy of Agrarian Sciences, average normative cost price of 1 ton of grain in Ukraine amounts to \$62, whereas its costs \$97. Hence, the value of average normative revenue will be \$73.5/hectare. Having taken this level as a basis at 23.5% interest rate on deposits for physical persons and the value of absolute rent amounting to \$16/hectare, I. Yukhnovsky and G. Loboda have had the normative starting price of plough land to be \$381/hectare (Yukhnovsky, Loboda 2002). At the same time, "having in mind the high interest rate on bank deposit, the estimated average normative price for Ukrainian land in present-day conditions is approximately 10 times lower than its real cost" (Yukhnovsky, Loboda 2002). That is, the present-day price of plough land in Ukraine amounts to \$3810/hectare.

Taking into account the fact that the estimate of 1 hectare of lands under perennial planting in Ukraine is approximately 3 times higher, and the same of natural feed land – 2 times lower than the price of the plough land, the normative starting price of the country's potential of all agricultural lands must be at the level of \$159.3 billions.

We can not but indicate that we speak about the so called capitalized estimation of the potential of agricultural lands. With Ukrainian economics' average normative coefficient of capital investment efficiency equaling to 0.15, the value of land potential in this country in yearly proportion will amount to \$23.9 billions.

It must be noted that our estimation of the value of the starting nature-resource potential of Ukraine in current USD equivalent, carried out in 1990s, allowed for evaluation of average annual potential of agricultural lands at a level of \$24.18 bilions (V.P. Rudenko 2010). And, as we see now, the Ukrainian "price of land"

by I. Yukhnovsky and G. Loboda practically coincides with our results. In this case, the scale of comparability of the potential of the most important country's nature resource seems to be very important, since it is the one that allows, to a certain extent, for application of corresponding conversion coefficients so that we could transform the Ukrainian NRP value in nature-resource prices of the 90s into the same of the present-day nature use development. We believe that the exchange rate of 1:5 of the USD and the Ukrainian hryvnia (UAH) could become such coefficient that would help converse cadastre prices of 1990s into those as of present day.

Thus, the nature resource potential of Ukraine in yearly proportion and at the present-day level of prices for nature resources amounts to UAH 269.76, or USD 53.953 billions.

As it is known, the NRP component structure discloses the composition and the proportion of major types of nature resources formed in the result of the activity of natural processes and influence of social-economic factors (V.P. Rudenko 2010). The component structure, as a rule, represents a percentage share of each of the major types of nature resources in the total NRP. The sum of the shares of all nature resources in the region amounts to 100% in the integral NRP.

Let us analyze specificity of the NRP components' structure in those physic-geographical regions that underwent the most essential changes due to introduction of the refined scheme of Ukrainian physic-geographical zoning (Marynych et al. 2003). It is, in the first place, the fifth physic-geographical zone – the Deciduous Forests Zone, the Forest-Steppe Zone, the Chernigiv Polissya Oblast, the Crimean Mountains and the Ukrainian Carpathians. The component structure of the total NRP of all other Ukrainian physic-geographical regions is rather completely presented in scientific literature (V.P. Rudenko 2010).

As is evident from Table 1, the Deciduous Forests Zone is specific for basic elements of a land-water-recreation nature-resource complex whose share amounts to 87.32% out of all region's resources. These complex components are characteristic for the zone's West-Podillya Heights Oblast (93.02%) and the Mid-Podillya Heights Oblast (94.01%). At the same time, the components of land-water-mineral complex (84.81%) prevail within the limits of the Volyn Heights Oblast, land-mineral-water (77.01%) – the Roztoky-Opillya Hilly-Mountain Oblast, and the land-recreation-water type of nature-resource complex (90.52%) – in the Prut-Dniester Heights Oblast.

It is expressly clear that the land resources are the defining component in all physic-geographical oblasts of the Deciduous Forests Zone with their highest share of 73.85% in the Mid-Podillya Heights Oblast and the lowest (37.36%) in the Roztoky-Opillya Hilly-Mountain Oblast. Water resources are the second-significant type of the zone's natural productive forces (14.72%). Their role is especially high in the Roztoky-Opillya Hilly-Mountain Oblast (18.3%), while the indices of 10.84% for the same are characteristic for the Prut-Dniester Heights Oblast.

Natural recreational resources – the third natural wealth of the zone (9.11%) – are most developed in the Roztoky-Opillya Hilly-Mountain Oblast (13.33%) and show the lowest indices (6.00%) in the Mid-Podillya Heights Oblast.

Though ranking fourth in the component structure of the NRP in the Deciduous Forests Zone (7.2%), mineral resources are the second-subdominant natural resource in the Roztoky-Opillya Hilly-Mountain Oblast and the Volyn Heights Oblast (21.35 and 7.95% respectively), while manifesting the lowest indices in the Mid-Podillya Heights Oblast (2.17%).

Forest wealth which gave the name to the zone, is the fifth economically significant type of natural resources of these lands (5.12%). The forests' share is the highest in the components' structure of the Roztoky-Opillya Hilly-Mountain Oblast (8.36%) and the Volyn Heights Oblast (7.08%), while it is the least in the Mid-Podillya Heights Oblast (3.27%).

The potential of the zone's fauna resources is insignificant in its component structure (0.53-0.21%).

The Forest-Steppe Zone's NRP component structure is specific for further aggravation of the weight of the land resources (up to 68.22%). Similarly to the Deciduous Forests Zone, there has also formed basic elements of the land-water-recreation complex which covers 88.49% in the component structure of its total NRP. Mentioned components of nature-resources complex are characteristic for the half (6 out of 12) physic-geographical oblasts of the Forest-Steppe Zone. Two more oblasts of the zone – the South-Prydniprovyia Heights and the East-Poltavian Heights – predominantly combine land-mineral-water natural resources. The land-water-mineral components – a new component type – are characteristic for the NRP component organization of the oblasts of North-Poltavian and East-Poltavian Heights. And, at last, the land-recreation-water territorial complex of natural resources which is the fourth zone's combination at the level of the oblasts is prevailing in the Kyiv Heights and the South Podillya Heights.

Let us consider territorial differentiation in economic value of major natural resources, i.e., their place in the component NRP structure within the Forest-Steppe's physic-geographical oblasts.

The potential of land resources in the zone's 12 oblasts is the highest in the oblasts of Prydnistrovyia-East-Podillya Heights, the South-Podillya Heights and the North-Eastern Prydniprovyia Heights (83.1%, 82.73% and 76.13% respectively). The lowest share of land resources in the total NRP is observed in the Kharkiv Downhill Heights Oblast and the East-Poltavian Heights Oblast (49.65% and 60.03%).

The potential of water resources – a second-significant type of the Forest-Steppe's productive forces – manifests the highest indices in the East-Poltavian Heights, the North-Western Prydniprovyia Heights and the Mid-Bug Heights Oblasts (20.59%, 14.56% and 13.08% respectively). At the same time, the lowest share of water resources into the total NRP is observed in the oblasts of South-Podillya Heights (4.73%) and the Prydnistrovyia-East-Podillya Heights (6.86%), (Tab.1).

Natural recreational resources set the NRP specialization in the Kharkiv Downhill Heights Oblast and the Kyiv Heights Oblast where they are a subdominant (following land resources) type of natural wealth, while their lowest indices are observed in the oblasts of the Prydniprovyia-East-Podillya Heights and the South-Prydniprovyia Terrace Lowland (4.02% and 4.20% respectively).

Minerals are of a determinant role in the South-Prydniprovya Terrace Lowland (20.92%, a second-significant natural wealth following land resources), the Kharkiv Downhill Heights and the North-Poltavian Heights (10.9% and 10.32%). On the contrary, the oblasts of Mid-Bug Heights and the Prydnistrovya-East-Podillya Heights stand out for the least significant indices (2.12% and 2.41% respectively).

It is only two physic-geographical oblasts of the Forest-Steppe Zone – the Sumy Downhill Heights and the Mid-Bug Heights – where the indices of forest wealth in the component structure of the total NRP exceed 5% (8.15% and 5.06% respectively), while their economic value in the NRP structure falls down to 2.39% and 1.54% in the oblasts of the South-Prydniprovya Heights and the South-Prydniprovya Terrace Lowland.

As with the Deciduous Forests Zone, the potential of the fauna resources in the Forest-Steppe Zone is less than 1% in all of its oblasts excluding the one of the North-Eastern Prydniprovya Heights.

The Chernigiv Polissya Oblast of the Mixed Forests Zone is distinctive for pre-dominance of the land (40.2%), water (23.4%), natural recreational (16.22%) and forest (16.19%) resources in the total NRP component structure. As we see, the oblast's NRP component structure is characterized by a balanced combination of major natural resource types, thus forming a precondition for the stable development of productive forces.

The zoning as in the refined (2003) scheme has introduced essential changes into Ukrainian mountainous regions – the Crimean Mountains and the Ukrainian Carpathians. The Crimean Mountains are now divided into 14 physic-geographical raions instead of 9, and the Ukrainian Carpathians – into 35 raions instead of 36.

The Crimean Mountains on the whole are characterized by the basic elements of the recreational-land-mineral NRP type (86.87%). Its Peredgirno-Crimean and Girsko-Crimean Oblasts are distinctive for the combination of recreational-land-mineral resources that amount to 87.37% and 85.57% out of the total NRP respectively.

At the same time, natural recreational (45.65%), land (38.89%) and water (6.52%) resources are the prevailing resource types for the South-Coast Crimean Oblast.

The Ukrainian Carpathians possess major components of the water-land-recreational nature-resource complex with the total share of said resources amounting to 72.52% in the NRP component structure.

At the level of 7 physic-geographical oblasts of the Ukrainian Carpathians, the formation of 4 types of the resources' territorial combinations is clearly observed, namely, a water-forest-recreational type (the Zovnishno-Carpathian, the Vododilno-Verkhovynian, the Polonynsko-Chornogirska and the Marmaros Oblasts); a land-water-recreational type (the Peredkarpattya Heights Oblast); a recreational-water-land type (the Vulkanichno-Mizhgirno-Ulogovynna Oblast), and a land-recreational-water type (the Zakarpattya Lowland Oblast).