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## **Balneological clusters of Ukraine: scientific substantiation, standardization, development of treatment and resort areas**

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### **Summary**

The article presents an analysis of the existing normative methodological base of balneological resorts and the health potential of Ukraine. The strategic goal of development of tourist and resort industry of Ukraine is access to the world level of tourist and resort services. In this regard, work is underway to harmonize Ukrainian legislation and regulatory documents and European requirements in this area.

The presence of natural medicinal resources, the state of infrastructure of sanatorium-resort institutions is the basic potential on the basis of which the attitude to recreational

possibilities of resort territories is formed, that causes further Development of balneological clusters and the most sanatorium-and-spa sphere of Ukraine.

### **Резюме**

В статье представлен анализ существующей нормативной методологической базы бальнеологических курортов и оздоровительного потенциала Украины. Стратегической целью развития туристической и курортной индустрии Украины является выход на мировой уровень туристических и курортных услуг. В этой связи идет работа по гармонизации украинского законодательства и нормативных документов и европейских требований в этой сфере.

Наличие природных лечебных ресурсов, состояние инфраструктуры санаторно-курортных учреждений составляет тот базовый потенциал, на основе которого формируется отношение к рекреационным возможностям курортных территорий, что обуславливает дальнейшее развитие бальнеологических кластеров и самой санаторно-курортной сферы Украины.

**Key words: Balneological clusters; treatment; resort areas.**

**Ключевые слова: Бальнеологические кластеры; лечение; курортные зоны.**

Today Ukraine is successfully implementing reforms. and sustainable development of the country's economy is impossible without the sustainable growth of resorts. At 2017 the Ukraine has adopted the strategy of tourism and resorts development up to 2026 year [1], one of the priorities of which is the complex modernization of resort areas [2].

One of the resort-forming factors are natural healing resources. According to the Law of Ukraine "on resorts" [3] natural therapeutic resources include mineral waters, curative muds (peloids) Ozokerite, Ropa estuaries and lakes, sea water, natural objects and complexes with favorable climatic conditions for treatment. The effectiveness and

safety of natural medicinal resources, the possibility of their use with health and medical purpose is substantiated by the results of their biomedical assessment of quality and value [4]. In Fig. 1 The scheme of stages of work on medico-biological estimation of natural medicinal resources in Ukraine on the example of mineral waters is presented [5].

Balneological clusters of Ukraine: Scientific justification, the development of treatment and resort areas

Tourism and resorts

Strategy for the development of tourism and resorts until 2026

↓  
Priority Strategy implementation :

↓  
development of the tourist infrastructure of Ukraine through the complex modernization of resort areas

↓  
natural territory → resort

Natural healing resources of Ukraine

*Art. Sixteen Law of Ukraine «About resorts»:*

- ✓ mineral water
- ✓ therapeutic mud (peloids)
- ✓ ozokerite
- ✓ brine estuaries and lakes
- ✓ climatic conditions
- ✓ sea water

For today in the State cadastre natural medicinal resources are available data on 388 natural medicinal resources (according to the state Institution "Ukrainian Research Institute of Medical Rehabilitation and balneology of the Ministry Health of Ukraine "). In Fig. 2 The map of natural medicinal resources of Ukraine is presented.

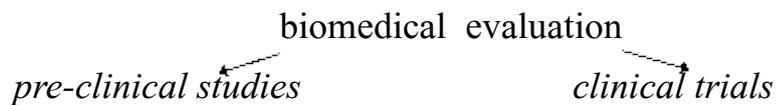
## Natural healing resources of Ukraine

Today, the State Center for the Conservation of the Cadastre of natural Medical resources has information about 388 natural healing resources

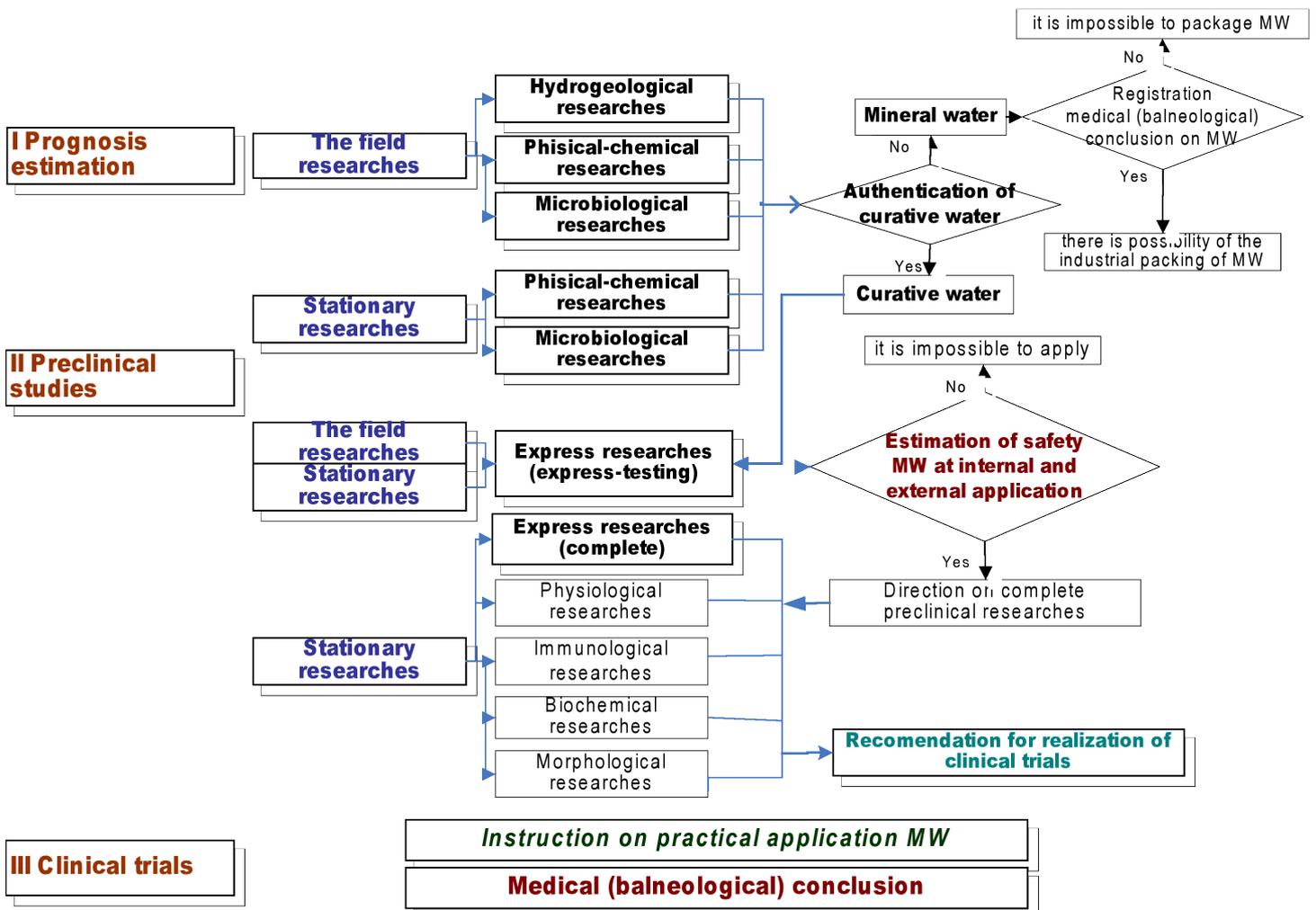
*The Order of the Ministry of Health care of Ukraine No. 243 of June 2, 2003 «On approval of the procedure of the medical and biological evaluation of the quality and value of natural medicinal resources, determination of methods of their use»*

### Special medical (balneological) statement

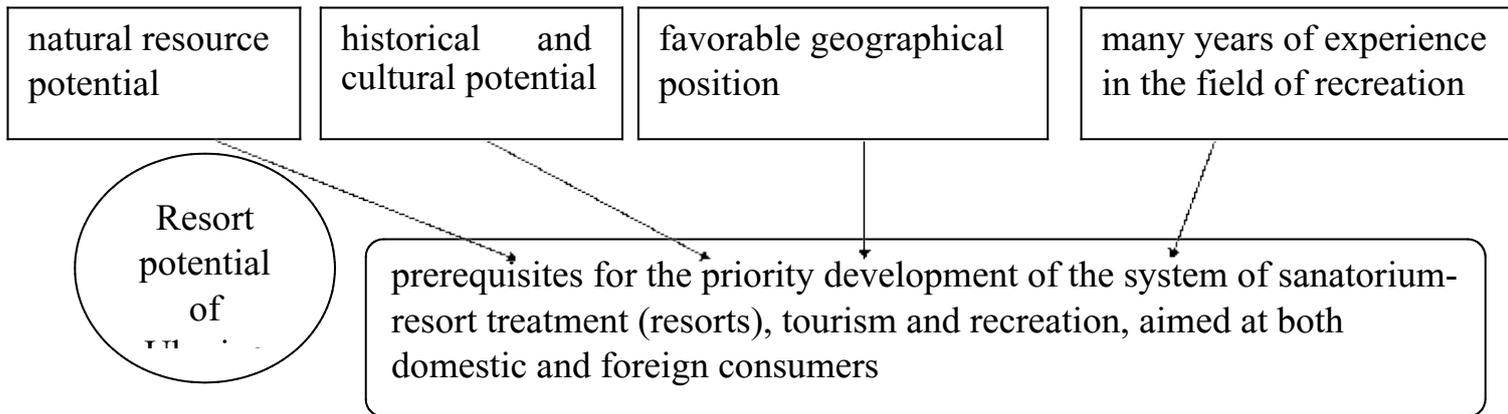
issued by the Ministry of Health of Ukraine



### Algorithm for assessing the natural therapeutic resources of Ukraine



## Resort potential of Ukraine



At the legislative level the status of the seven resorts of the state (Kuyalnik, Khmelnik, Slavovsk, Skadovsk, Saki, Berdyansk, Myrgorod) and three resorts of local (Solotvino, Kossiv, Znamenskoe mineral Radon water deposit) values is legalized. A number of natural areas can also claim the status of Spas. In such areas usually concentrated a certain number of balneological facilities, which are located near natural healing resources (mineral water sources, near estuaries with brine and dirt).

Recently, the clustering of the national economy is considered by many scientists as a way of providing the most flexible forms of coordination of joint efforts of economic actors. The formation and development of balneological clusters can be a powerful mechanism to address issues related to the socio-economic development of the regions and the country as a whole.

The development of the medical tourism industry has recently been ensured by an increase in the cost of treatment, the preference to combine treatment and tourism, queues for medical care in Europe, the lack of quality medical care and Treatment technologies.

In Ukraine due to the presence of a large number and diversity can be singled out a number of such balneological clusters. Naturally, they are confined to certain geographical areas where natural healing resources are located. Often in these natural areas are natural healing resources in a unique combination and developed sanatorium-resort complex [2].

Powerful balneological clusters are available in the southern region, in particular the Sea coast area, which uniquely combines the marine and steppe climate, sea water, sandy beaches

and numerous natural healing resources, in particular, Medicinal mud, mineral water, rapa of estuaries. This gives an opportunity for the development of balneotherapy and rehabilitation, including patients with the defeat of the central nervous system. balneological clusters of the southern region of Odessa, Kuyalnik, Sergeevka (balneological, climatic balneological clusters – use mineral waters, Rapu and curative muds (silt sulphide) Kuyalnitskogo and Shabolatskiy estuaries), Zatoka , Karolino-Bugaz, Lebedievka (sea balneological Clusters-use sea water, medicinal beaches and favorable climatic conditions).

In the Kherson region, in addition to the climatic resort Skadovsk, where the climate, sea water and medicinal beaches, there are several balneological clusters, where the basis of the medical base are mineral waters-Arabatskaya Strelka and Geniška Hill. These balneological clusters use thermal healing water (iodine bromine boron high-mineralized). The brine and silt sulphide peloids of the lake Solnoe and the Gulf of Sioda are used in the Balneologic balneological cluster of Gowhen.

Central Ukraine is characterized by the presence of balneological clusters with radon waters and peat muds. The city-resort Khmelnik Vinnytska region has 8 sanatoriums. Their profile-diseases of the genital organs, metabolic disorders, skin; Rehabilitation of patients with cerebral vascular pathology, who underwent acute myocardial infarction, after traumas and patients with diabetic angiopathy. The Khmilnyk uses the famous radon mineral waters and the peat mud of the Voitovetsky deposit. Peat mud is also used in the balneological cluster of the Nemirov (Avangard) in Vinnitsa region. Treatment after Burns is carried out.

Balneological Cluster Mirgorod Poltava region is characterized by the presence of medicinal low-mineralized sodium chloride mineral waters for the treatment of digestive organs and peat mud of Semirenkovsky field. The balneological cluster has 6 sanatoriums. On the balneological cluster, Psel also uses low mineralized mineral water and climate.

The western region is rich in natural medicinal resources, which caused the presence of a large number of balneological clusters. The unique balneological clusters are truskavets and Skavnitsa of Lviv region with curative mineral waters (mainly. Low mineralized) with high content of organic substances. In addition to the developed infrastructure in Truskavets there are 25 sanatoriums, which treat diseases of the urinary, hepatobiliary systems and biliary tract.

Balneological Cluster Morshin Lviv region has 7 sanatoriums and uses high-mineralized LV (RAPU) chloride-sulfate sodium-magnesium.

The Lviv region also has a balneological cluster of non-worlds, a squall and a great lover, which carry out treatment of vascular system, skin diseases (psoriasis, eczema, dermatitis). They use sulphide low-mineralized medicinal waters for external use, low mineralized sodium chloride, low mineralized with high content of organic substances, peat, ozokerite (mountain wax).

Volyn Oblast has a balneological cluster of the Šatsky lakes, where the sanatorium "Lesnaya song" is acting. It uses low-mineralized medicinal waters, medicinal muds (Sapropel) of Shatsky Lakes.

The largest number of balneological clusters is located in Zakarpatskaya region. Profile of balneological cluster Polyana, Solochin (Svalyava), Shayan – treatment of digestive organs. Balneological clusters are characterized by a large number of sanatorev, developed infrastructure and the presence of small-, medium-mineralized boron hydro-carbonate sodium medicinal waters.

In the balneological cluster Solotvino Transcarpathian region use brine salt lakes and mines, climate. Profile of the resort – treatment of musculoskeletal system, skin (psoriasis, eczema, dermatitis).

Profile of balneological clusters of Transcarpathian region – Beregovo, Kosino, Zolotaya Hora (Barvilok), Teplice, Velyatino, Mukachevo – treatment of diseases of musculoskeletal, vascular systems, skin. Low-, medium-, high-mineralized thermal medicinal waters are used.

In the balneological cluster of Kasa (mountain Tisza) are treated diseases of the musculoskeletal, peripheral nervous system. Kvass has the only arsenic healing water.

In the east of Ukraine there is a balneologic cluster Slavovsk with 4 sanatoriums. In the balneological cluster are treated and rehabilitated patients with injuries and diseases of the spine and spinal cord, support and movement, central and peripheral system. High-mineralized medicinal Waters (brine), silt sulphide muds (Lakes Repnoe and Solnoe, etc.) are used.

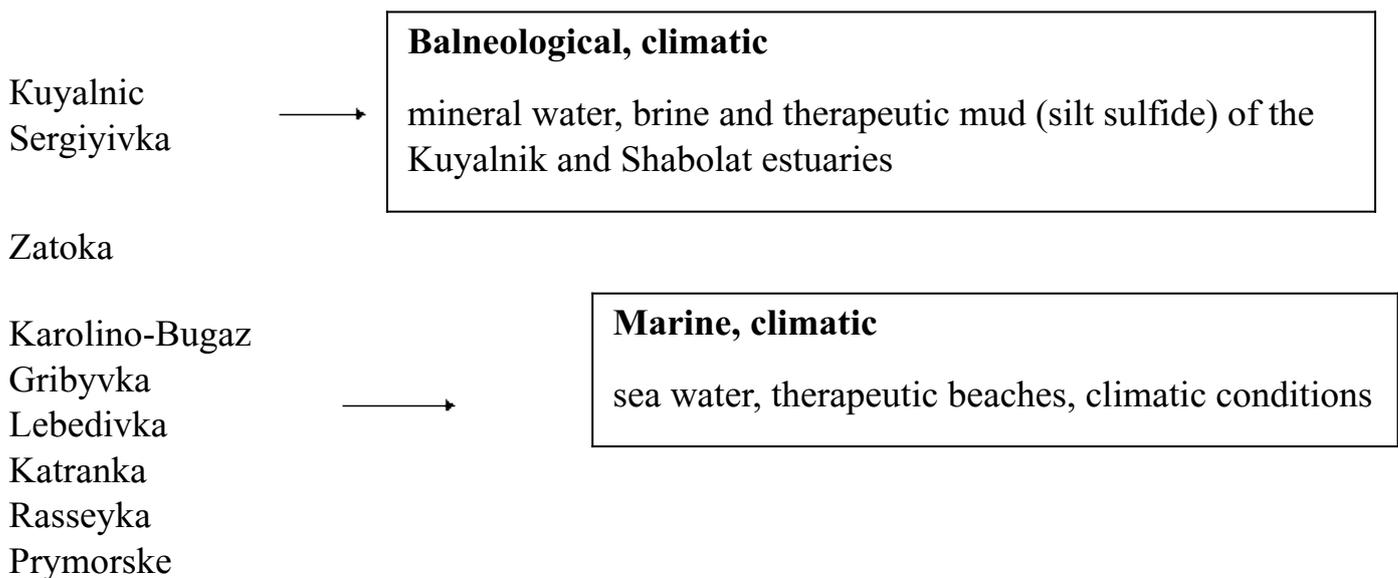
It should be noted that national legislation of Ukraine allows to use national natural Parks for the organization of rehabilitation centers. Thus, according to the law of Ukraine "on Natural Reserve Fund" and the Order of the Ministry of Environmental Protection of Ukraine from

22.06.2009 № 330 in the boundaries of territories and objects of Natural Reserve Fund, recreational activities may be implemented . According to the results of research of National Natural parks it is possible to organize the center of medical and social-psychological rehabilitation for children and adults or the center of Sanatorium treatment for children and adults.

Of course, the political situation in Ukraine, especially military actions on some part of its territory have made corrections to the statistics of the development of the resort industry and the dynamics of availability of sanatoriums [6].

**Balneological clusters of Ukraine: (southern region)**  
*Odessa region*

**Resorts**



**Balneological clusters of Ukraine: (southern region)**

Odessa region

The medical profile of the resorts - climate and balm. A number of sanatoriums specialize in the treatment and rehabilitation of patients with injuries of the locomotor functions (including after a stroke)

**Balneological clusters of Ukraine: (southern region)**  
*Kherson region*

**Resorts**

Arabatska strylka



**Balneological (thermal), climatic**  
thermal medicinal waters (iodine bromine boric highly mineralized)

Clinic of rehabilitation treatment of Dr. Kozyavkin

Skadovsk



**Climatic**  
sea water, healing beaches, climate

Gopry,

Genitcheska Girka



**Balneomud**  
brine and silt sulfide peloids of Salt Lake and Sivash Bay

**Balneological clusters of Ukraine: (central region)**  
*Vinnytsia region*

**Resorts**

Khmilnyk

Nemyriv (Avangard)



**Balneomud**  
radon medicinal waters, peat mud from the Voitovetsky deposit

Khmilnyk - 8 sanatoriums. Profile - diseases of the genital organs, metabolic disorders, skin; rehabilitation of patients with cerebrovascular disease after acute myocardial infarction after injuries and patients with diabetic angiopathy.

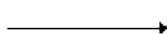
Nemiryv - treatment after burns

**Balneological clusters of Ukraine: (southern region)**  
*Poltava region*

**Resorts**

Mirgorod

Psol



**Balneomud, balneological, climatic**  
sodium chloride slightly mineralized medicinal waters, peat mud from the Semirenkovskoye deposit, climate

Spa profile - treatment of diseases of the digestive system, rehabilitation after a stroke

Mirgorod - 6 sanatoriums

**Balneological clusters of Ukraine: (western region)**

***Lviv region***

***Resorts***

Truskavets  
Shidnitsya



***Balneological***

*low-mineralized medicinal waters with a high content of organic substances ("Naftusya"); ozokerite*

Truskavets – 25 sanatoriums; Morshyn - 7 sanatoriums. Treatment of urinary diseases hepatobiliary system and biliary tract

Morshyn



**Balneological**

highly mineralized medicinal water (brine) chloride-sulphate sodium-magnesium

**Balneological clusters of Ukraine: (western region)**

***Lviv region***

***Resorts***

**Nemiryv  
Lubyn Veliky  
Shklo**

**Balneological**

sulphide low-mineralized medicinal water for external use, low-mineralized sodium chloride, slightly mineralized with a high content of organic substances, peat, ozocerite

Resorts profile - treatment of vascular organs, skin diseases (psoriasis, eczema, dermatitis)

**Balneological clusters of Ukraine: (western region)**

***Volyn region***

***Resort***

**Shatsk**



**Balneological, climatological**

low-mineralized medicinal waters, medicinal mud (sapropel) of the Shatsky Lakes

Sanatorium «Lisova pisnya» - treatment of the respiratory system, cardiovascular system, ENT-organs, digestion.

Shatsky Lakes - 24 lakes

**Balneological clusters of Ukraine: (western region)**  
***Zakarpatian region***

***Resorts***

**Polyana, Solotchin  
(Svalyava), Shayan**



**Balneological**  
low, medium mineralized boric sodium bicarbonate  
treatment waters

Resorts profile - treatment of digestive organs

**Solotvyno**



**Balneological, climatic**  
brine of salt lakes and mines, climate

Resorts profile - treatment of the musculoskeletal system, skin (psoriasis, eczema, dermatitis)

**Balneological clusters of Ukraine: (western region)**  
***Zakarpatian region***

***Resorts***

**Beregovo, Kosino,  
Zolota gora (Barvinok),  
Teplitsa, Velyatino,  
Mukachevo**



**Balneological (thermal)**  
low, medium, highly mineralized thermal  
healing waters

Resorts profile - treatment of diseases of the musculoskeletal, vascular systems, skin

**Kwasy (Girska Tysa)**



**Balneological**  
arsenic medicinal water (external use)

Spa profile - treatment of diseases of the musculoskeletal, peripheral nervous system

**Balneological clusters of Ukraine: (eastern region)**

***Donetskaya region***

***Resort***

**Balneomud**

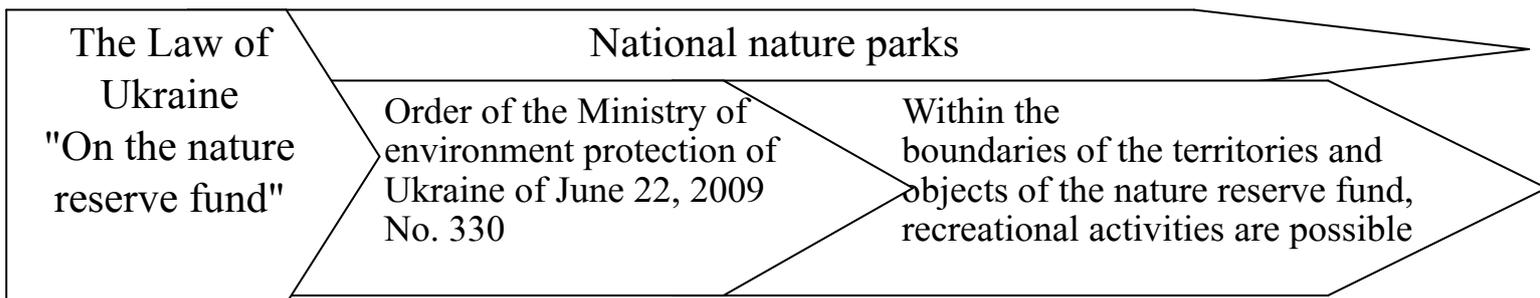
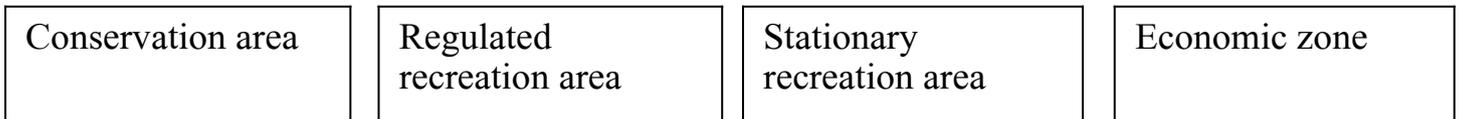
highly mineralized medicinal waters (brine), silt sulfide mud (lakes Repnoe and Slepnoye, etc.)

**Slovyansk** →

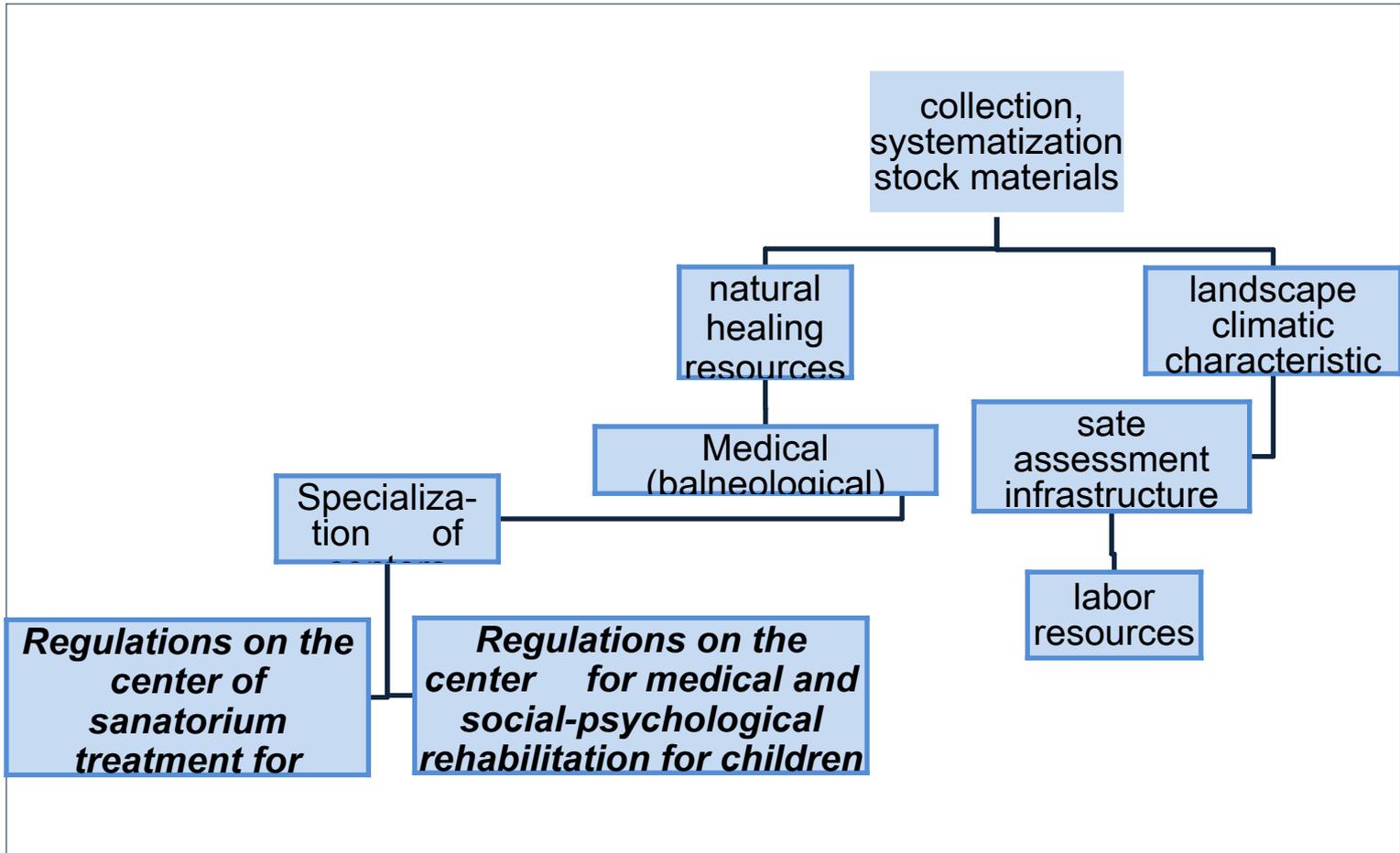
4 sanatoriums - treatment and rehabilitation of patients with injuries and diseases of the spine and spinal cord, support and movement organs, central and peripheral systems

**National natural parks of Ukraine for the organization of rehabilitation centers**

***National nature park***

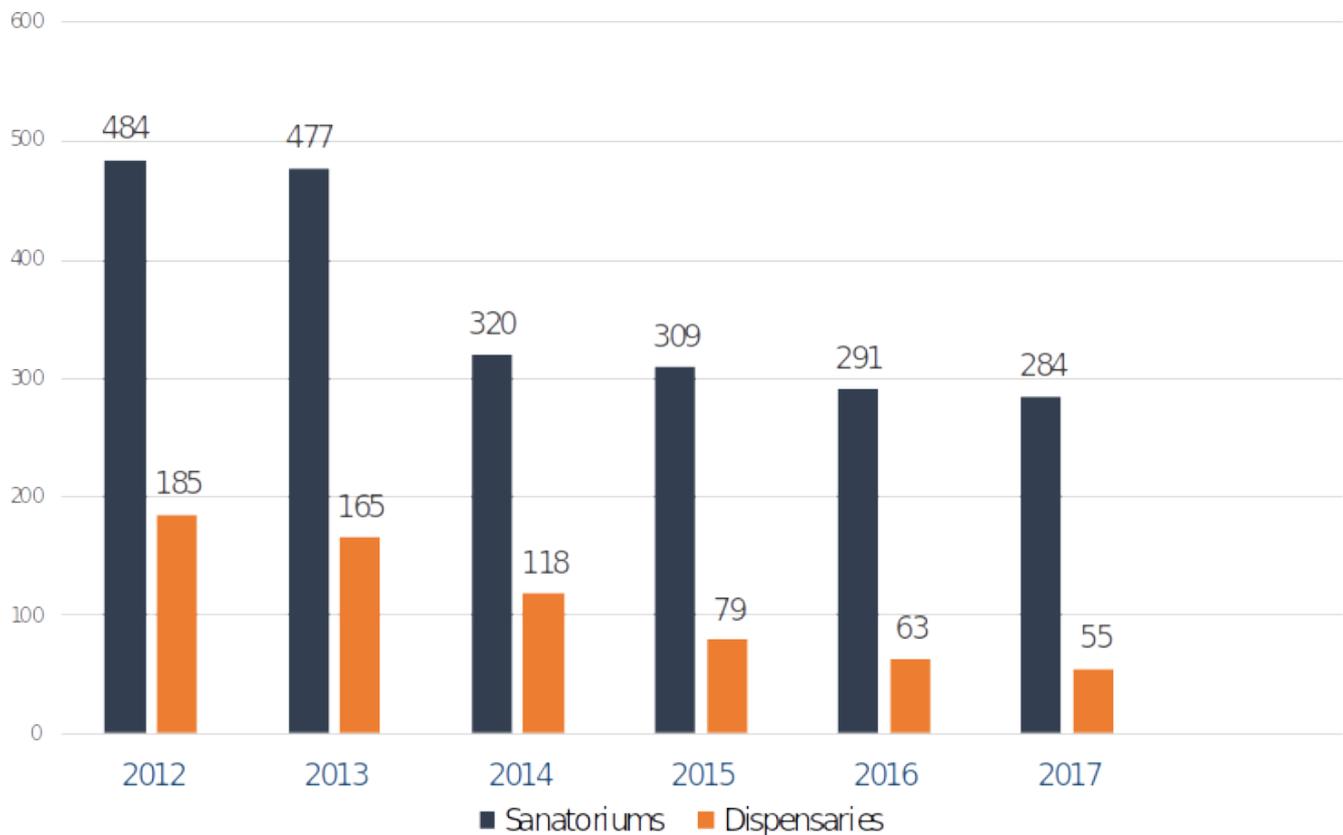


## National natural parks of Ukraine for the organization of rehabilitation centers



Note. \* - 2014-2017 - excluding occupied territories

## *Dynamics of the number of resorts in Ukraine\**



**Fig. 2 Sanatoriums of Ukraine**

International and regional standardization in the field of tourism and resorts is an integral part of the international economy. The main technical Committee dealing with standardization issues at the international level is ISO/TC 228 "Tourism and related services". Technical Committees of the Ministry of Economic Development and trade have been established and are working in Ukraine – Technical committee № 169 "Tourism and services in tourism" and technical committee № 124 "Natural and pre-formed medicinal resources". Technical Committee № 169 implements the established tasks of the State policy in the sphere of tourism and services, and the Technical committee № 124 is engaged in standardization of natural medicinal resources. Current today is the adoption in Ukraine of international standards for resort requirements, for example, ISO/DIS 28621 [8], which contains requirements for natural therapeutic resources, the system of management of sanatoriums and operational processes.

The state strategy for the development of balneological clusters (resorts) is mostly reflected in the Stretegija development of resorts and tourism until the 2026 year. An urgent

need is the introduction of international standards of sanatorium treatment; International cooperation in development of sanatorium-resort treatment, resorts and rehabilitation. It is important to develop and implement state programs on sanatorium and spa treatment and rehabilitation. Actual there is an increase of competitive capacity of sanatorium-resort establishments on the basis of effective use of recreational potential taking into account socio-economic interest and ensuring ecological stability of regions.

Perspectives development of balneological clusters (resorts) imply expansion of the nomenclature of Recreational Services (development of health tourism); Development of resort infrastructure; Establishment of resorts and rehabilitation centers (development of an extensive network of organizations and institutions that provide medical, rehabilitation and health services).

Proceeding from the above we can conclude that Ukraine has all the necessary conditions for the development of a powerful resort and recreation complex at a high level.

**State strategy for the development of balneological clusters (resorts)**

<p>Increasing the competitiveness of sanatorium-resort institutions on the basis of the effective use of recreational potential, taking into account the socio-economic interest and environmental sustainability of the regions</p>	<p>Strategy for the development of resorts and tourism until 2026</p>
<p>Development and implementation of state programs for sanatorium treatment and rehabilitation</p>	<p>The introduction of international standards for spa treatment. International cooperation in the development of sanatorium-resort treatment, resorts and rehabilitation.</p>

## Prospects for the development of balneological clusters (resorts)

### Regional Development Strategies balneological clusters (resorts)

Expansion of the range of recreational services



development of health tourism

Improving the state of recreation areas, the development of infrastructure resorts, parks, etc.



creation of national natural parks and resorts

The development of an extensive network of organizations and institutions that provide health services



creation of a network of sanatorium and health resorts and SPA centers

Impact assessment and development of measures to adapt recreational potential to climate change



indoor spa centers, climatically oriented (water parks, spa parks)

## CONCLUSIONS

Ukraine has all the necessary conditions for the development of a powerful resort and recreational complex at a high level.

The availability of natural therapeutic resources, the state of the infrastructure of sanatorium-resort establishments constitutes the basic potential, on the basis of which the attitude to the recreational possibilities of resort territories is formed, which determines the further development of balneological clusters and the sanatorium-resort sphere of Ukraine itself.

The territory of Ukraine has a high degree of balneological clustering of the territory. This requires improvement of the public administration system of the sanatorium and resort sphere and resorts for a more rational use of these territories for treatment, rehabilitation and recreation.

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