

Mineral Waters in Slovakia, Legislation and Their Use

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Abstract: Slovak spas legislation in current conditions has great history. Since the establishment of the Slovak Republic until 2006, a separate law is in effect that regulates the conditions for recognized sources. There have been set out the conditions for the recognition of sources, such as natural healing sources and natural mineral sources. Natural healing waters are preferably used for a spa treatment. Natural mineral water is packed in consumer packaging. Since water is mineral wealth of the state, the Act sets out the obligations of the user towards the state. At present, Slovakia there are registered 21 existing statutes for spa locations with 31 licenses issued for the operation of natural health spas.

Key words: mineral water, legislation, monitoring, balneology, history, present

4.1 Introduction

Mineral and thermal springs and sources in Slovakia are a generally known fact. Their diversity is conditioned by the unique geological setting. Of the many recorded mineral resources it is allocated a separate part of the resources that are recognized as natural mineral waters and natural healing waters. The existence of this national wealth has historically conditioned the emergence of spas in areas with healing waters. Mineral waters have been already for two centuries filled into packages and distributed to consumers.

Regulations that provide a legal status to the use of these waters have a historical basis. A separate law regulating the basic conditions for characterizing the properties of water, its recommended use, and the relationship between the beneficiary and the national wealth – the water, has been in practice for 10 years. The Act is comprehensive legislation on the recognition and use of natural healing resources and natural mineral waters, spa areas and announcing their status and issuance of natural health resorts. It is in accordance with the Slovak Constitution and international commitments of the Slovak Republic.

4.2 Legislation

4.2.1 History of provisions

The first regulations on protection of sources of mineral water in our area are from the second half of the 19th Century and they concerned Spas Piešťany, Trenčianske Teplice, Dudince, Bojnice and Sliač. The issue treated was

in the territory of Hungary (and thus Slovakia) historically for the first time brought in legislation by the Hungarian Health and Water Act of 1876, section no. 1 XIV – no. 1 XXIII and by Edicts of the Hungarian Ministry of the Interior from 1893 no. 44404 implementing ministerial provisions (e.g. Regulation no. 45689/1885 on the protection of natural springs). Protection zones and expropriation for the purpose of water sources protection was treated by Act section no. XLI/1881. The Act of 1885 determined protection zones, which secured the owners that nobody could dig or drill in them without a particular permission

- in relation to groundwaters, mineral springs and mineral waters under the Act Art. XXIII/1885 on Water Law (as amended by Act Art. XVIII/1913),
- and in relation to the springs of healing, therapeutic bath and medicinal waters under the Act Art. XIV/1876 on the organization of public health and the implementing ministerial regulations (e.g. Regulation no. 44404/1893 on the supervision of spas and medical places; Vandrová et al., 2002).

Of these laws is derived the basic legislation in force until now. They relate to the use of water resources for treatment, spa treatment in spas and operating medical spas, spa environment protection, etc., and for drinking purposes. While the legislation dealing with water was comprehensive and of high quality, the issue of exploitation of natural resources, mineral waters and health spa was not comprehensive. It formed a part of the provisions in particular in general medical regulations. Legislative attempts of the Czechoslovak government on consolidation the law in the Czech Republic and Slovakia by the adoption of single and for the whole Czechoslovakia Uniform Act on spas and sources in 1925 was unsuccessful (Reich Law no. 68/1907 Coll. on health and provincial regulations for Bohemia Act no. No 49/1914 Coll.B., for Moravia Act no. 38/1868 Coll.M., and for Silesia the Act no. 30/1907 Coll.).

The above laws were amended in 1920 and were in force up to 1955. The decisive legal regime relating to the issues treated in the management of groundwater is substantially preserved until now. Austrian and Hungarian legislation on water law were repealed in the Czech Republic and Slovakia by December 31, 1954, and replaced

by a single Czechoslovak Act no. 11/1955 Coll. on water management (as amended by Act no. 12/1959 Coll.). This law was repealed by Law no. 138/1973 Coll. on Water (Water Act) and by the Act of the Slovak National Council no. 135/1974 Coll. on state administration in water management (Vandrová et al., 2002).

The issue of healing resources was excluded from the general health rules in the Czech Republic by Government Decree no. 223/1939 Coll. on the protection of natural healing resources. The issue of medical spas was described by Act no. 43/1955 Coll. on the Czechoslovak spas and sources. That above Act abolished government decree and also regulates the issue of protection of medicinal natural resources and natural health spas. Although this law united different legal regimes in the Czech Republic and Slovakia, but provided only stringent framework (26 paragraphs in total) leaving a wide space for the regulations of the Ministry of Health and the Inspectorate for the protection of natural health spas and natural medicinal resources.

At that time, it was issued Decree of the MoH SSR no. 151/1956 on the protection of natural health spas and natural healing resources and their exploitation. Later, in 1965, it was released ČSN 86 8000 Natural healing water and natural mineral table water, which was in force until 2006.

By the Act no. 20/1966 Coll. on the Health Care of the People entering in force by July 1, 1966, the reintegration of the issues treated in general health regulations occurred. The Act was repealed as of January 1, 1995, and its issues were divided into several laws: in the Act no. 272/1994 Coll. on the Protection of Human Health, in the Act no. 273/1994 Coll. on Health Insurance, Health Insurance Financing and in the Act no. 277/1994 Coll. on Health Care.

In the years 1972 to 1994 there were issued and effective the following regulations:

- Decree no. 15/1972 of the Ministry of Health SSR on the protection and development of natural health spas and natural healing resources, and Directive SGO SSR no. 55/1977 for obtaining documents for the determination of the protection zones of natural healing sources and natural sources of mineral table water.
- Decree of Ministry of Health SSR no. 77/1982 Coll., which amended the Decree no. 15/1972 Coll.
- ON 86 8001 Natural healing water and natural mineral water table from 1984.
- Guidelines of SGO and the Ministry of Health in 1989 on the establishment of protection zones of natural healing sources and natural sources of mineral table water.
- Slovak National Council Act no. 52/1988 Coll. on geological works and on the Slovak Geological Office (Geological Act).
- Slovak National Council Act no. 44/1988 Coll. on the protection and use of mineral resources (Mining Act), as amended by Act of the Slovak National Council no. 498/1991 Coll. and certain related provisions.
- Act no. 138/1973 on water (Water Act).

- Ministry Decree no. 116/1996 Coll. on the parameters under which climatic conditions can be declared favourable for the treatment and on the ways of their promulgating.

The aforementioned legislative measures replaced the older, outdated policies and regulations and stressed the importance of Slovak natural spas. The spas are facilities for preventive and curative health care of the people.

In subsequent years, some legal provisions and legislative standards abolished and replaced with new ones – e.g.:

- Act no. 313/1999 on geological works and on state administration (Geological Act).
- Decree of the Ministry of the Environment no 141/2000 implementing Geological Act.
- Act of Parliament SR no. 184/2002 on waters and on amendment of certain laws (Water Act).
- Decree of the Ministry of Agriculture, the Ministry of Health no. 2313/2000 – 100, issuing the chapter of the Foodstuffs Code SR, providing for drinks.

After 2000, there were issued new laws and other binding rules related to the preparation of the first legislative separate adjustment for natural mineral waters and natural healing waters:

- New Water Act no. 364/2004 Coll., Act no. 569/2007 Coll. on geological works (Geological Act) and health laws;
- Act no. 576/2004 Coll. on healthcare, services related to health care and on amendments to certain laws;
- Act no. 577/2004 Coll. on the scope of health care covered by public health insurance and on payments for services related to health care;
- Act no. 578/2004 Coll. on healthcare providers, health workers and professional organizations in the health and on amendments to certain laws.

4.2.2 The current legislation

Act no. 538/2005 Coll. on natural healing waters, natural healing spas, spa sites and natural mineral waters as amended; hereinafter Spa Act is the first separate legislative regulation in force for Slovak Health Spa. It entered into force on January 1, 2006, some parts as of March 1, 2006. The Spa Act comprises six general legislative provisions. Natural healing resources and natural mineral waters as part of the groundwater are state-owned. This follows from the Constitution of the Slovak Republic and these types of water are not part of the plots. The Act lays down the conditions under which natural healing water and natural mineral water are removed from the natural healing resource or natural mineral sources list, and become the property of a natural or legal person.

Work on the new draft of so-called Spa Act began in March 2003, i.e. before May 1, 2004, when the Slovak Republic was accepted as a member of the EU. On that date it was necessary to approximate the EU Directive into our legislation. Government Ordinance no. 263/2004 Coll. on the conditions for the recognition of natural mineral waters transposes the following legislation of the European Communities and the European Union:

1. Council Directive 80/777/EEC of 15 July 1980 on the approximation of the laws of the Member States relating to the exploitation and marketing of natural mineral waters, as amended by Council Directive 85/7/EEC of 19 December 1984 and of the European Parliament and of the Council 96/70/EC of 28 October 1996.
2. Commission Directive 2003/40/EC of 16 May 2003 establishing the list, concentration limits and labelling requirements for the constituents of natural mineral waters and the conditions for using ozone-enriched air for the treatment of natural mineral waters and spring waters.

By the Act 538/2005 Coll. as of January 1, 2006, Slovak Republic Government Order no. 236/2004 Coll. on the conditions for the recognition of natural mineral waters, was cancelled. The Spa Act partially accepted parts of the Water Framework Directive 2000/60/EC establishing a framework for Community action in the field of water.

Inspectorate of Spas and Springs (ISS) was established in line with the Spa Act at the Ministry of Health (MoH) to ensure the supervision of compliance with the obligations laid down in this Act and provisions designed accordingly. The State Spa Commission (SSC), according to the Spa Act legally was established at the Ministry to carry out its tasks in the field of natural mineral waters, natural medicinal waters, natural health spas and climatic conditions suitable for medical treatment. The SSC is administrative body with ruling right at first instance. Under the provisions of the Spa Act the SSC is composed of seven members who are appointed for a five-year term. As a rule, the SSC Chairman is the Director of ISS MoH. Proposals for other candidates for the post of SSC member are submitted to the Minister of Health, Minister of Environment, civic associations and interest associations of legal persons whose activities are related to the performance of spa treatment or exploitation of natural mineral resources, and the republican association of municipalities. The conditions for the establishment of SSC are specified in the Statute. Commission members are experts in the field of balneology, hydrogeology, balneotechnique, and of course the spa praxis.

First draft of a separate so-called Spa Act, which was adopted in 2005, sets out the substantive and procedural framework legislation. It involves three interrelated but nevertheless autonomous ranges of topics. The common denominator is the protection and use of natural resources of groundwater, gas, favourable climate for the treatment or drinking for medical purposes and as food – natural mineral waters.

Natural healing resources, their recognition, protection and use create the first circuit of the law. These are all natural resources, as defined in Act on Environment, in which there has been proven by scientifically recognized methods, that their media (water, gas) are in original condition, are protected and have a proven healing effects on the human body and can be for used treatment. For their recognition method and form of use for the treatment are

not required (e.g. drinking, packs, bath), but the simple fact of therapeutic effects.

Climatic conditions are also a natural source in the spirit defined by the Environment Act. Their medium is the air quality – longevity of sunlight, ozone concentration, purity of air – at a particular site – the village or indoor climatic environment – stable temperature, chemical composition of indoor and cave air humidity. Under climatotherapy we understand treatment by means of staying in a place which has a particularly favourable climate and curative effects. It uses complex climatic parameters affecting reactivity of sick persons and thus helps them to cope with the disease on their own. It helps mobilize their own reserves. Climatic conditions favourable for the treatment have been traditionally used for the treatment in climate spas, nursing homes, etc.

Climatic conditions suitable for treatment are assessed by Decree no. 87/2006 Coll. They must be approved by the SSC of the Ministry of Health. The site must also provide spa environment and place where there are natural spas is declared a spa area. The users of the favourable climatic conditions for the treatment are obliged to ensure that they follow the provisions of health care in natural health resorts. At the same time the results of the measurement are submitted to the Ministry of Health – Inspectorate of Spas and Springs.

Natural spas are medical facilities based on the use of natural healing source or climatic conditions favourable for treatment in terms of spa treatment pursuant to provisions of health care. The issue of health spas consists essentially of two circuits:

- Issues relating to the use of medicines supply, i.e. tapping of medicinal medium, treatment of medicinal medium, protection of the healing source, spa and its status, spa area, spa environment;
- Health issues, i.e. medical care, material and technical equipment, including disposing of health professionals, indications and therapeutic procedures, requirements for medical facilities.

The issue of mineral waters is treated in a separate section of the Act. They are groundwater, which by reason of their physical properties, chemical composition and physiological effects on the human body are different from other natural waters.

The system of state administration bodies in cases stipulated by the law resides in the current legal situation, including specific competencies, namely:

- The Ministry of Health is crucial administrative authority in respect of natural medicinal resources, natural health spas and natural mineral waters continuously since the first legislation in 1876. The Act established the first-instance administrative authority – the State Spa Commission of the Ministry (SSC) and the Appellate Body is the Minister.
- Bodies of food supervision are the authorities in respect of bottling and distribution of natural mineral waters in the scope under the Food Act. These packaged marketed waters are food.

The Inspectorate of Spas and Springs at the Ministry of Health does not change over time. The Inspectorate has worked continuously since 1908; it was changed only level of competence and name. Under the current name ISS is working as a body, which was created under an agreement with the Board of Commissioners for Health in January 1, 1958. Since August 1, 1960 terminated capabilities of several Slovak authorities and Inspectorate of Czechoslovak Spas in Prague gained competence in spas also in Slovakia. In Bratislava there was re-established Inspectorate of Spas and Sources at the Ministry of Health of Czechoslovakia from July 1, 1967, where the continuous competence till today. During its almost 50 years of activity the Inspectorate addressed a number of issues of legislative, organizational, control and other spheres. The Inspectorate was involved in the creation of laws, regulations, decrees and other provisions related to its agenda.

Protection zones, however, are the most important ways to protect resources. The institution of resource protection zones has almost 150 years of tradition. The protection zones are also used by other laws, for example to protect water resources, nature conservation, the protection of railways and roads, etc. It is therefore necessary to include the protection of the resources already in preparation, plans and project activities as well as to the procedure for the authorization of any activity within a protection zone. This applies to land-use activities, documentation of nature and landscape, construction activities and use of buildings, the exploitation of mining minerals and wood, processing of raw materials, goods production, preparation and approval of departmental and municipal policies and development programmes, etc.

In the legislation on water general reporting obligations are transposed. Each person has an obligation to report occurrence of groundwater at his own costs not only to water management body, but also the Ministry of Health. Two levels of protection zones are established and their purpose is monitored. The protection zones are determined by the Ministry of Health which makes proposals for the designation of the land. The safety zone is the area around the source of the seepage with the strictest regime. In the safety zone can access only the employee who is directly responsible for protecting source – balneotechnologist. Act no. 538/2005 Coll. introduced establishing working activities and tasks that are provided by balneotechnologist. The balneotechnologist is a person who has fulfilled the specific conditions for issuance of the certificate by SSC Ministry of Health. The certificate is valid for five years.

Recognition is historically formed procedural legal act by which natural healing source or natural mineral water becomes a natural source, for example, groundwater is recognized as the healing one, or the mineral one. The recognition regime has existed since the first statutory regulation of the last Century; since 1955 it is known as the promulgation. Until 1994 the Recognition (Announcing) had the form of a decision made in administrative proceedings and was associated with the decision on its use (§ 47 of the Act no. 20/1966 Coll.). Since 1994 sources are

declared by a decree and subsequently a decision on the administrative proceedings of the use of issued.

The use of natural healing sources and natural mineral water is subject to permission of the Ministry – the SSC decision. It is excluded also by applicable European directives to authorize the use of natural mineral water through the filling into consumer packaging and placing on the market under various trade brands.

The Act collects obligations of a beneficiary from natural healing source and natural mineral water. The beneficiary are granted the obligations in terms of the decision on exploitation, which he must accept at the use of a recognized source. The beneficiary is also obliged to contribute to the costs associated with the use and protection of a source.

Spa area historically meant a municipality or part of the municipality in which there were recognized spas and spa charges levied. The spa area has been taken into account in land-use planning activities as an area protected from the harmful effects of industry, agriculture and transport. It is depicted in the local plan. From 1955 to 2006, it was announced by the government resolution. The spa area is the heart of a spa town. It includes part of spa place immediately around the spa. The spa area is necessary for the operation of a health spa for spa treatment. The Ministry of Health executes the state supervision over its protection in the form of expert opinions to the activities authorization. The Statute of the spa area is determined by government regulation; it states the regime within the spa area and defines the boundaries of the spa area.

A detailed methodology for carrying out analyses and issuing opinions was adjusted by Ministry Decree no. 100/2006 Coll. The Decree was compiled in response to the requirements of Annex to Council Directive 80/777/EEC, as amended by European Parliament and Council Directive 96/70/EC. The same rules apply for the recognition of natural mineral waters across the EU. This involves implementation of the physical, physico-chemical, chemical, microbiological and biological analyses for natural healing source or natural mineral water.

4.3 Monitoring of sources

The monitoring system of natural healing resources and natural mineral resources is enshrined and defined in § 2 sec. 14 of the Spa Act. It is a system through which the monitoring of regime of is carried out hydrogeological, chemical, physical, microbiological and biological indicators of natural medicinal resources, natural mineral resources, observational wells, monitoring stations and meteorological characteristics of the area concerned. It is defined as the regime monitoring of selected parameters on the selected sources and evaluation of the obtained data for the purposes of internal and external resource protection, microbial contamination, protection against the risks of pollution and impact assessment of wastewater. The system is open to the extent that it can be supplemented, for example, on components of protection against the risk and impact assessment of wastewater (Božíková, 2014).

In Slovakia there are currently 1,782 registered natural mineral resources. In total there are now monitored 156 objects, 122 of which is recognized as a natural healing source, natural or mineral source, and other unrecognized sources. Natural healing water, differs from the ground-water by its origin, the content of total dissolved solids or gaseous substances (above 1,000 mg · l⁻¹), content of hydrogen sulphide and other trace elements.

The monitoring system allows continuous evaluation of source parameters subject to regular monitoring and documenting the measured values across the overall hydrogeological structure. This allows to immediately indicate the damage of a source or affecting the circulatory pathways of mineral water independently ISS MoH directly by users of sources. The data are collected and archived in a database system, complemented by tools of their collection and immediate processing and tied to a geographic information system. Each site has its mirrored data, geographic and structured display at the ISS MoH. By processing of summary documentation characterizing individual objects in the database there were inserted at the beginning in the Monitoring system around 4 million individual data. During the solution inventory of resources and monitoring objects was processed at defined sites. Prior to the installation of measuring facilities and eventual adjustments of collars of drillings and tapping lines there was processed inventory of recognized technical resources and monitoring objects.

Range of monitoring of selected regimen components on individual sources and objects is specified in the authorization for the use of sources. The user of a source is legally obliged to establish and operate a monitoring system of natural healing sources and natural mineral sources and observation wells connected to a central monitoring system (CIS) of the Ministry of Health. Conditions of the permit to use a source and continuously provide information for the database of the Ministry and operate a local information system (LIS) are mandatory for approval. Currently the monitoring in the Slovak Republic involves a total of 39 sites, 37 of which use LIS ISS MoH, and this condition ensures data transfer to CIS ISS MoH.

4.4 Use of natural medicinal resources and natural mineral resources

The authorisation of the use of natural curative source (NHS) and natural mineral source (NMS) is possible only in the case of water from a source which has been recognized a natural healing water (NHW) or a natural mineral water (NMW). Upon the publication of the decision of NHW or NMW water it is possible to submit an application for a license to use the resources. Natural healing resources *are to be primarily used for therapeutic purposes* and may be used only to the extent permitted. Requirements for obtaining, treatment, bottling, labelling and marketing of natural mineral waters in consumer packaging is governed by Act no. 152/1995 Coll. on Food, as amended. The Spa Act allows use of the full capacity of many natural healing water of a particular resource. Therefore, the applicant must provide proof of a useful amount of NHW or NMW.

This creates prerequisites for the eventual use of the source to other users, provided the available quantity of water in the collector allows it. The law also strictly observes the arrangement of economic issues preceding the application. It commits to substantiate agreement on the disbursement of funds for research of NHW or NMW provided a person didn't finance the research. The applicant must provide a method for disposing of waste and unused waters which must be disposed of in accordance with special regulations. The application for a license to use the resources may also be a request for authorization for water treatment.

The Act provides requirements for the authorization of a resource, responsibilities of a resource beneficiary, conditions for modification and revocation of use of a resource. The Spa Act sets out the conditions of termination of permit to use a resource, conditions under which it is possible to use a source by another user and the professional supervision of use and protection. The use of natural healing resources and natural mineral water is controlled by the monitoring system, according to § 2 sec. 14 of the Act.

Natural healing water is distinguished from ordinary groundwater by its origin, the content of total dissolved solids or content of dissolved gaseous substances (above 1,000 mg · l⁻¹), the content of hydrogen sulphide and other trace elements. The waters are classified according to several criteria, for example the total dissolved solids, the predominant ions, temperature, osmotic pressure, etc. Natural mineral waters in consumer packs contain the description of all the features provided by an accredited laboratory.

4.5 Spa treatment

Balneology can be called a summary of specific activities, infrastructure and human resources in the areas of knowledge and practices focused on the knowledge of natural healing sources and implementation of techniques and procedures for the treatment of various diseases. The overall aim of the balneology is the prevention and treatment of human diseases, forces regeneration and relaxation. It is associated with the harnessing of natural healing resources, beautiful natural environment and cultural environment composition (Kriš, 2011).

Approval of a spa treatment following a request made by the competent doctor to the patient on the basis of public health insurance is possible according to the indication, which is provided for in the Act no. 577/2004 Coll. For each diagnosis categories of residence are defined in indication list. Bases on the current health insurance an insured person can ask for reimbursement for spa treatment stay in category A or B. Staying in category A is fully covered by public health insurance. To stay in category B health care is covered by the public insurance and accommodating at the patient's expenses. It is also possible to pay the whole spa stay by the client himself at full value.

Authorization to operate natural health spas and spa treatment centres (license) shall be issued on the basis of the declared medicinal properties of recognized natural healing source or climatic conditions and the fulfilment

of mandatory personnel and material – technical requirements for a spa treatment. Within the administrative procedure the operator has also to submit documentation that defines the Spa Act. In the application he shall, inter alia, declare professions of the staff with a valid license to be engaged in professional activities (Decree no. 100/2006 Coll.). Upon meeting the all conditions the applicant is granted a permit decision. Annex 6 (Act no. 577/25004 Coll.) contains the tabulated list of indications for spa treatment: adults I. – XII. and children (under 18 years) XXI. – XXX.

4.5.1 Natural Health Spa

Geological evolution of the Western Carpathians create conditions for varied and rich representation of natural

plenty of cultivated greenery, quiet zones, sports facilities, cultural facilities, abounding in rich gastronomic offer, high quality air. Just for the high quality environment and infrastructure the spas have become popular centres for holding conferences, congresses, festivals, and places for recreation and relaxation of healthy people. Of the total number of guests in the Slovak spas up to 40 % is from abroad, mainly from EU countries.

4.5.2 The oldest spa sites

The territory of present-day Slovakia was known at the beginning of the 13th Century and later by the occurrence of healing waters. The oldest documents describe the healing springs in Bardejov, Bojnice Piešťany, Sliač, Trenčianske and Turčianske Teplice (Fig. 4.1).

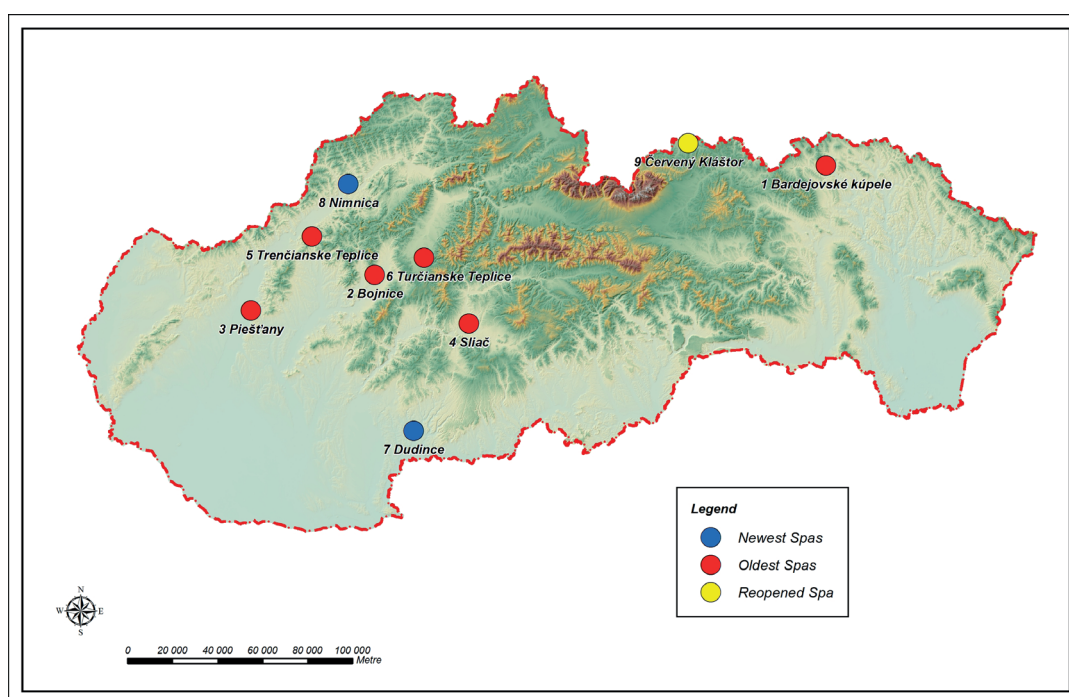


Fig. 4.1 Operating spas in Slovakia.

healing, mineral and thermal waters in the Slovak Republic. These treasures of the Earth were used by the inhabitants of this territory since the initial settlement to treat various health ailments. Documentary evidence of the therapeutic use of medicinal waters in Slovakia date back to the 12th Century. Archaeological excavations, however, push the assumptions of the healing waters utilisation in considerably earlier periods.

Slovakia is rich in climates that pose beneficial effect on human health. Mountain and Alpine climate, based on long-term scientific validation is used in seven locations for climate treatment.

Spa treatment in Slovakia is an integral part of health care. It uses the latest scientific developments in the field of balneology, physical medicine, health food and medical rehabilitation. It is targeted not only to the immediate and subsequent spa treatment but also to the prevention of a wide range of diseases. The spas have built spa environment with

Bardejov Spa

The first mention of Bardejov (Fig. 4.2) springs of healing water is from 1247. Hungarian King Bela IV. do-



Fig. 4.2 Bardejov Spa – Bath House Alžbeta (Elisabeth)

Tab. 4.1 Indication list for balneological treatment

Indication for adults		Indication for children (< 18 years old)	
I.	Oncological diseases	XXI.	Oncological diseases
II.	Circulatory system diseases	XXII.	Circulatory system diseases
III.	Diseases of the digestive tract	XXIII.	Diseases of the digestive tract
IV.	Metabolic and endocrine diseases	XXIV.	Metabolic and endocrine diseases
V.	Non-tuberculosisrespiratory diseases	XXV.	Non-tuberculosisrespiratory diseases
VI.	Neurological diseases	XXVI.	Neurological diseases
VII.	Diseases of the locomotor system	XXVII.	Diseases of the locomotor system
VIII.	Diseases of the kidneys and urinary tract	XXVIII.	Diseases of the kidneys and urinary tract
IX.	Mental diseases	XXIX.	Gynaecological diseases
X.	Skin diseases	XXX.	Skin diseases
XI.	Gynaecological diseases		
XII.	Occupational diseases		

nated the territory of today's Spa and springs to the city of Bardejov. The healing effects of springs were known to residents for a very long time. Since 1505 they were in service booths for bathing of sick. The inflow of visitors from the ranks of Polish and Hungarian nobility stimulated the construction of brick buildings known from 1777. The most important visitor of royal families in the 19th Century were: Polish Queen Maria Kazimiera Sobieski and in 1895 the Empress Elizabeth, known as Sisi.

The first written scientific report on the results of the analysis of the two most widely used Hlavný and Kúpeľný sources was compiled in the year 1795 by prof. Paul Kitaibel in Pest. According to him, Bardejov waters are suitable against headaches, for the treatment of contractions, epilepsy, hypochondria, gynaecological diseases, gout, kidney stones and stomach diseases. Based on this assessment, the Bardejov mineral water began to be bottled and exported to Budapest, Warsaw, Berlin, Frankfurt. In the first half of the 19th Century there were recorded 13 mineral springs (Archive of ISS MoH).

Currently the Bardejov Spa utilizes the largest number of natural medicinal sources in Slovakia. 10 springs are used for spa treatment – external and internal balneothera-

py. Their physical – chemical composition is quite different, which creates conditions for the treatment of a wide range of indications. Mostly they are highly mineralised cold waters, weak acid, hypotonic, bicarbonate, sodium, carbonic, high in boron content and with lithium content increased. The Bardejov Spa is among the few spas in Slovakia providing treatment of children.

Based on the different characteristics of the springs the Bardejov Spa is allowed to treat indications:

- adults – I., II., III., IV., V., VII., VIII., XI., XII.,
- children – XXI., XXII., XXIII., XXIV., XXV., XXVI., XXVIII., XXIX.

Bojnice Spa

Thermal waters in Bojnice (Fig. 4.3) surges to the Earth's surface by natural seeps; they brought the attention of local people. The first written evidence of their existence emerged in the letters of the Zobor Monastery from 1113 A.D. Later, several scholars, e.g. Nicholas Istvánffy, Juraj Wernher, who in 1549 in his book *De admirandis Hungariae aquis hypomnemata* states that these sources were used in the then Spa facilities, whose amenities outclassed any other spa in Slovakia. The Bojnice Spa were referred to by Matej Bel in his famous work *Notitia Hungariae novae historico-geographica*. Extensive Spa construction took place under the property by the Thurzo Family and since 1637 by the Pálffy Family. The company was awarded in 1942 the title spas by the State. After the Second World War the Spa was nationalized by the state. By late 90s they were privatized and it still operates in this mode.

Natural healing water in Bojnice is characterized as low-mineralised, slightly alkaline, hypotonic hydrogen-carbon-sulphate and calcium-magnesium thermal water with a temperature of 46 – 47 °C (Piatko, 2006).

Currently, the Spa Bojnice, a.s. uses natural healing sources based on the Decision of the State Spa Commission (+SKK) of 2012, no. 10068/2011-41/2012/+SKK. Of the total amount of usable thermal mineral water of the discharge area



Fig. 4.3 Bojnice – Spa House Lysec

for the hydrogeological structure in Bojnice in category B recognized are natural healing sources (BR-1, BR-2, BR-3 and Z-2) with $22.5 \text{ l} \cdot \text{s}^{-1}$ and unrecognized thermal natural healing sources $6.7 \text{ l} \cdot \text{s}^{-1}$ (BR-6 and PA-7).

Natural healing properties of water provide treatment for external balneotherapy: musculoskeletal disorders, neurological diseases, urological and gynaecological problems. According to the classification in the indicator list indications are: VI., VII., VIII., XI. and XII.

Piešťany Spa

The first written mention of Piešťany (Fig. 4.4) (called Pescan) was found in Zobor Deed of Hungarian king Koloman I. of 1113. At the turn of the 13th and 14th centuries Piešťany was part of estate of Matúš Čák of Trenčín, Landlord of Váh and Tatras. After 200 years of various ownerships the city acquired Alexei Thurzo. Administrative activities of the town in the 16th Century are evidenced by the first letter written in Slovak in 1564, written by Piešťany Mayor Valo Kudlas to Trnava Magistracy. The most beautiful memory of Piešťany thermal water, baths and living in them, left behind Adam Trajan of Benešov in his ode “Healing Spa Piešťany” from 1642. In the years 1720 – 1848 the city belonged to the Erdődy Family.

The Spa belonged to the Erdődy Family until 1940. Count Erdődy founded the Spa park.

In the 19th Century, the first expert – balneologist Francis Ernest Scherer worked in the Spa, author of the work “The healing springs and spas in Hungary” (Leipzig 1837), later founder of the Military Spa Institute in Piešťany (1863).

The largest Spa boom began after 1889 after the Spa was rented by Winter Family from Erdődys. In the late 19th Century, in 1894 there emerged symbol of the Spa – Crutch, which is today in the emblem of Piešťany. Through development and modernization of the Spas by Winters international prestige of the Spa raised. Old tradition of the Piešťany Spa treatment and its success is based mainly on the medicinal use of natural healing factors, which include thermal water, sulphuric mud and climatic conditions (Archive of ISS MoH).

Based on the physical – chemical analysis of water the recognized natural healing sources are considered as: moderately mineralised, slightly acidic, sulphate – hydrogen carbonate, calcium – sodium – magnesium, sulphurous, hypotonic with increased content of fluorine and silica. According to balneological assessment it is a hot water having the temperature $65 - 67^\circ \text{C}$ at collar. A unique ecosystem is a live appearance of sulphurous mud. After pulling out of the mud from the bypass oxbow of the Váh River the mud is matured for a year in special pools under a constant inflow of Piešťany thermal water. Thanks to the action of thermal water, algae and sulphur bacteria the water is enriched in minerals and becomes the best natural means for the treatment and protection of cartilage, joints and intervertebral discs. The Piešťany Spa, even today of European significance,

is focused on degenerative diseases of the musculoskeletal system, spine diseases, conditions after injuries and after surgeries of the musculoskeletal system, central and peripheral nervous system, scoliosis, chronic rheumatism and many others.

The user of the natural medicinal sources Cmunt (borehole V-1), Hynie (borehole V-4A), Trajan (borehole V-5), Torkoš (borehole V-8) and Crato (borehole-10) in Piešťany is the Slovak Health Spa Piešťany a. s., which is permitted to use natural healing source for curative purposes in the provision of spa treatment in the following range of indications: VI., VII., XII., XXVI., XXVII.



Fig. 4.4 Napoleon Spa in Piešťany

Sliač Spa

The oldest written record of Sliač (Fig. 4.5) springs dates back to 1244. Since the mid-15th Century many prominent scholars and writers refer to them. The Sliač Spa operated already in the 16th Century. The carbon dioxide content was the cause of sudden unexplained death of birds and animals at surges (Piatko, 2006).

In the world there are known only 4 spa places at which emanate springs of natural isothermal temperature with a high content of carbon dioxide. The healing waters of such composition are excellent means to treat damage to blood vessels and the heart. According to Decree no. 100/2006 Coll. natural healing water Sliač is characterized



Fig. 4.5 Sliač Spa – Spa House

as moderately mineralised, low thermal (temperature 32 to 32.5 °C), slightly acidic, hypotonic, sulphate – hydrogen carbonate, calcium – magnesium, carbonated water with increased content of fluorine. The surging gas contains 99.7 % of natural carbon dioxide.

Recognized sources in Sliač can be used for external and internal balneotherapy – drinking cures. In the internal balneotherapy the water is recommended in addition to drink for the treatment of osteoporosis, functional disorders of intestinal motility, gallbladder roads failure, supportive treatment of diabetes.

The Sliač Spa offers ongoing treatment in the following indications: I., II. and VII.

Trenčianske Teplice Spa

It is believed that springs located in the picturesque valley of the river Teplička were probably already known by the Romans. The first written record of stream and spring is from 1242. The earliest mention of the Spa is from 1488. Their fate always related to the ownership of Trenčín estate. The Spa development is linked to the estate of the Family Illesházy during the years 1600 – 1835. Since 1715 it was protected by a special patent. After seven generations of the Family Illesházy ownership the Spa was bought by a Viennese financier Baron G. Sina. He managed to improve and raise the Spa to the European scale. In addition



Fig. 4.6 Trenčianske Teplice outdoor pool

to building new spa facilities he improved overall care of the Spa guests. There were built complexes Sina, Hammam, Zrkadliská. He restored also the park. After World War I, Prof. F. Lenoch published works on the Spa, thereby contributing to its development. (Piatko, 2006). The Spa utilises five curative sources for spa treatment. Their temperature reaches 36 to 40.2 °C, whereby it is possible to provide balneotherapeutic procedures without modification. The medicinal water is warm, moderately mineralised, sulphate, calcium – magnesium, sulphurous, slightly acidic, hypotonic with increased content of fluorine. Due to increased content of titrated sulphur of about 5 mg · l⁻¹, it is particularly suitable for the treatment of musculoskeletal disorders.

Natural healing properties of water in Trenčianske Teplice (Fig. 4.6) allow the treatment of inflammatory rheumatic and degenerative diseases of joints and spine, muscle and non-articular rheumatism, conditions after injuries and fractures, after orthopedic surgery, some diseases of the nervous and skin. For drinking procedures the natural healing water is useful in the treatment of gout, diabetes mellitus, lipid disorders, preventing the formation of stones in the urinary tract and complementary treatment of osteoporosis.

Indicating focus of the procedures: I., II., IV., VI., VII., X., XI., XII.

Turčianske Teplice Spa

Spa Turčianske Teplice (Fig. 4.7) is situated on a plain near the geographic centre of Europe, between Martin and Kremnica. The first historical record of sources was presented in the deed of King Ladislaus IV, who donated the estate to Count Peter. Since 1423 the regenerating and healing properties of water were already known from various sources of information. They were described in the records of prominent visitors, as was King Sigismund and Emperor Maximilian of Habsburg. The first plan of the Spa construction is dated back to 1803. The most famous and most typical building is Modrý kúpeľ (*Blue Bath*; Piatko, 2006). All historic buildings underwent reconstructions based on the tastes of the owners. At present, modern and renovated building of balneo-centre Veľká Fatra forms the central part of the Spa.

The natural healing water has proven healing properties due to its high content of calcium, magnesium and fluorine. It is characterized as moderately mineralised sulphate – bicarbonate, calcium – magnesium, with increased content of fluorine, slightly acidic, medium thermal, hypotonic, with total dissolved solids around 1,450 – 1,500 mg · l⁻¹, with a temperature of 38 – 47 °C and content of CO₂ gas. It is suitable for outdoor and indoor balneotherapy. According to division in accordance with applicable legislation it is suitable for treating indications for both adults as well as children: I., III., VI., VII., VIII., XI., XII., XXI.



Fig. 4.7 Turčianske Teplice – Veľká Fatra Spa House

4.5.3 The newest spas

In the second half of the 20th Century there were recorded new occurrences of mineral water in Slovakia. Consequently, there were established new spa facilities in Dudince and Nimnica, which belong to the category of the newest spas.

Dudince Spa

The Spa Dudince is (Fig. 4.8) located below the eastern flanks of Štiavnická vrchovina Highlands. Presence of mineral water was already mentioned in documents from as early as 1301, the oldest memory about its curative effects is from the year 1549. The text says that in the meadow with mineral springs on the tops of travertine mounds pools were formed. Residents of the neighbourhood were treated here for eye, rheumatism and skin diseases. The water was consumed and exported also abroad (Piatko, 2006).

Despite this rich history the Dudince Spa belongs among the youngest spas in Slovakia. Its modern history began after 1950, when the first bathhouse was built with bathtub departments. Since 1983, the Dudince Spa was granted resort status. The Dudince Spa natural healing water is unique. Its mutual content of carbon dioxide and hydrogen sulphide is unique in Europe. It is suitable for the treatment of musculoskeletal disorders, nervous system and cardiovascular problems.

According to the physico-chemical analysis of natural healing water Dudince, the water is high-mineralised, very low thermal (27.5 °C), slightly acidic, bicarbonate – chloride, sodium – calcium, sulphurous, carbonic, hypotonic with increased content of calcium, fluorine, lithium and boron.

Indications: II., VI., VII., XII.

Nimnica Spa

The Nimnica Village under name Possessiio Nywny-cze was known in chronicles since 1408. The official census of Austria – Hungary reports acidic spring in Nimnica. The Spa (Fig. 4.9) history began with the construction of foundation pit of Priehrada Mládeže (*Dam of Youth*) in the middle of the last Century. In the foundation pit, below the level of the Váh River alkaline spring water appeared. Subsequently, the healing properties of the water source were confirmed to be useful in treating respiratory and digestive system. The Spa was opened in 1959 (Piatko, 2006). At present, the Spa Nimnica treats cardiovascular, gynaecological, neurological, musculoskeletal system diseases. Essential part of therapy are drinking treatments for diseases of the metabolic system, kidney and urinary tract diseases, treatment of goitre.

Recognized natural healing water is characterized as cold, slightly mineralised, slightly acidic, hypotonic, bi-carbonate, sodium, carbonic, iodine, with increased content of lithium and boric acid.

Indicating focus is broad, the Spa provides treatment to children: I., II., III., IV., V., VI., VII., XI., XII., XXV., XXVI., XXVII.



Fig. 4.8 Dudince – Spa houses Smaragd and Rubin (Emerald and Ruby)



Fig. 4.9 Nimnica Spa

In the recent period it emerges a great interest of entrepreneurs to restore the activity of the spas in the places where the operation was discontinued for various reasons. A large number of spas ceased after the World War II. Another part of them terminate their activities during the 70's and 90's of the last Century. From this large number of abandoned spa the Spa in Červený Kláštor again resumes its activities and started operation in 2012.

4.5.4 Recovery of Smerdžonka Spa in Červený Kláštor

The occurrence of mineral waters in Zamagurie region is modest. Undoubtedly, the most famous mineral spring of Zamaguria region is Smerdžonka, nowadays Červený Kláštor (Fig. 4.10). At the source of Smerdžonka incurred spa in order its healing effects can be enjoyed by the pub-

lic. As it follows from the record of the last Camaldolese Prior Benčík Gašpar, who came from Svätý Ondrej at Poprad, Camaldolese monks were charmed by the nature around Červený Kláštor. They intended to beautify its surroundings by planting the fruit trees, imported from Poland, and to build a bridge over the Lipník River. The most prominent admirer of the Pieniny Mts. Among the monks was Friar Cyprian, known pharmacist and author of monastery herbarium in 1764.

Smerdžonka as a place of mineral water occurrence is for the first time mentioned in the work “Gesundbrunnen der Österreichischen Monarchie (*Healing wells of the Austrian Monarchy*)” by J.H. Crantz, Vienna 1777. The spa buildings were built later when Smerdžonka was belonging to the religious fund, but after the Camaldolese monks departure from Červený Kláštor in 1782; the first spa buildings were constructed between 1805 – 1820.

Chemical analysis of mineral water in Smerdžonka was published by pharmacist from Poprad-Veľká Aurel W. Scherfel in the study “Ana- lysis of Schwefelwassers of Bades Smerdzonka (*Analysis of Sulphuric Water in the*



Fig. 4.10 Červený Kláštor – Dom Zdravia (House of Health)

Spa Smerdzonka)”. According to Dr. Engel the mineral water in Smerdžonka is suitable for the treatment of chronic rheumatoid arthritis, pain in the kidney, chronic catarrh of the airways and everywhere wherein hydrogen sulphide is required (Božíková, 2013).

The Prešov Landlord was also the first architect of Smerdžonka. As a result, Smerdžonka received more and more public perception. Therefore, at the General Assembly of Spiš (Szepes) County, dated December 31, 1887, it was declared that Smerdžonka /Kronenberg in German, Koronahegy in Hungarian/ had to be incorporated among spas. It was supported by the decree of the Ministry of the Interior in 1887. In 1907, the Spa passed into state ownership, which contributed to the further construction. During the First World War, the Spa buildings were partly destroyed, partly heavily damaged. Their operation was renewed in 1928. War events of the WW2 again left their mark; the reactivation occurred in 1949. Subsequently in 1959, the operations were limited and the Spa operations ceased.

Picturesque landscape of Červený Kláštor and interesting history of the Spa was a prerequisite of new owner's thoughts on the Spa revitalisation.

Chronology of the reconstruction of the Spa was as follows:

2004 – Revitalisation of the Spa began.

2006 – First hydrogeological tests. Original ČKB-2 well was impossible to use because of bad technical condition. The new hydrogeological borehole ČKB-2A was situated in the immediate vicinity.

2010 – Recognition of the local source for natural healing source.

09/2010 – First construction work for the building of therapeutic treatments (Dom Zdravia – Health House) began.

11/2011 – Construction of Dom Zdravia – Health House completed.

State Spa Commission of the Ministry of Health issued a Decision on April 26, 2012 on the operation of natural health spa. The Červený Kláštor Spa was inaugurated on July 1, 2012.

Natural healing water is characterized as moderately mineralised, sulphate-bicarbonate, sodium, magnesium, calcium, sulphane, weakly alkaline, cold, hypotonic, with TDS of 1,031 mg · l⁻¹, with a temperature of 8.0 °C and containing H₂S gas 7.83 mg · l⁻¹.

Appropriate indications for the treatment using natural mineral water, according balneological assessment are as follows: external balneotherapy – musculoskeletal disorders, skin diseases and nervous disorders. For internal balneotherapy – drinking cures: digestive diseases, especially liver diseases (Božíková, 2013).

At present, the ongoing legislative process of approving the Statute of the Spa site, to be published in Government Ordinance.

4.5.5 Spa or wellness

Slovak and European spa facilities provide extensive options of stays from which the client can certainly choose. All products served are based on high-quality medical facilities in the use of recognized natural medicinal sources and recognized climates. The aim of traditional spa stays – based on voucher announced by doctors is to improve the functional potential of a sick, compensate and alleviate symptoms of diseases.

Slovak spa companies after the split of Czechoslovakia were better equipped to provide the so-called acute spa rehabilitation, which can be directly applied after the end of hospital treatment, for example after operations of the locomotion system, cardiovascular disorders, etc. Natural curative spas utilise material – technical, personnel and particularly natural conditions to enrich the products not only of spa treatment. Health tourism products are in high demand. They are mainly stays focused on prevention, healthy lifestyles and are financed from private sources. These stays are suitable for the healthy clients, and often are characterized as the wellbeing stays.

For the last 20 years, natural spas recorded changes in the needs of clients (Figs. 4.11, 4.12). Changes in the structure of Slovak spas clients reflects the average length of stay. In 1990 an average spa stay lasted from 20 to 23 days. Today it is only 11 to 18 days. Foreign clients who prefer a classic spa stay in spa, spend 15 to 18 days.

Provision of services “Wellness” – feel good – is expected in natural health resorts. Spa companies provide these services to complete the treatment programme, in time after for the procedures programme and as a complementary product to other visitors or self-funded clients. Wellness programmes for healthy clients are focused on the beauty of the body and a pleasant experience of the

tor it is sometimes difficult to navigate in such a diverse menu. This problem occurs on an European scale (Smith & Puczkó, 2014).

The main difference for orientation in the menus is a criterion of the occurrence of a natural healing source, which is used in treatments in natural health resorts. Existence of healing source is not a prerequisite for wellness facilities.

After a period of sharp reduction of clients traffic at spas there is currently observed an increase. This reflects the quality of services to clients in combination with the growing concern of the people about health. Short stays are mainly focused on prevention.

4.6 Conclusions

The modern spa treatment is provided in addition to elements of classical balneotherapy, treatment by many means of physical medicine mainly physiotherapy, climatotherapy and diet therapy. The success of the spa treatment significantly contributes to the use of modern functional and diagnostic methods and the introduction of new therapeutic programmes according to the latest scientific knowledge.

The Spa Act fully respects the current results of science and technology in chemistry and earth sciences. It also includes experiences from practice, medical rehabilitation, balneology and physiotherapy. The purpose of the Act is to establish the conditions for the recognition and use of natural healing waters, natural mineral waters, climatic conditions suitable for treatment, ensuring the development of natural health spas and spa resorts.

The first act on spas adopted in the Slovak Republic has brought important contribution to Slovak balneology. There were precisely defined rights and duties of the state administration, as well as owners and operators of spa treatment facilities. New system for authorizing the operation of these medical devices was established. At the same time a progress was achieved in making such operation a mandatory “minimum material-technical and personnel resources of natural health spas and spa treatment centres” provided for in the Regulation.

The level of administration of therapeutic treatments and spa stays in Slovak enterprises has achieved excellence. Medical personnel along with the technical background combined with high quality natural healing sources guarantee the increasing popularity of spa stays for Slovak and foreign clients.

4.7. References

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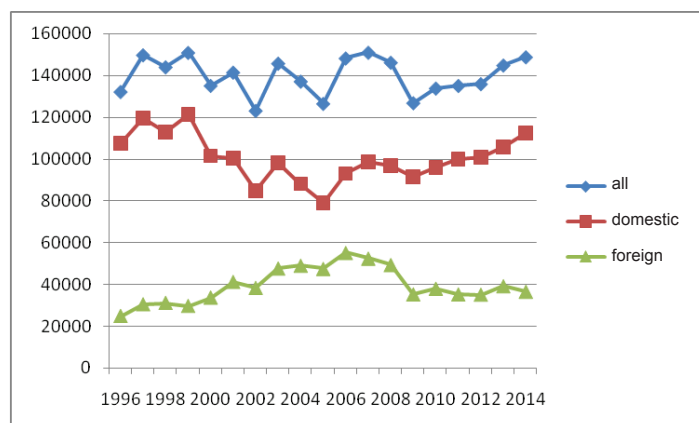


Fig. 4.11 Number of treated clients in natural health resorts – adults (NHICdata)

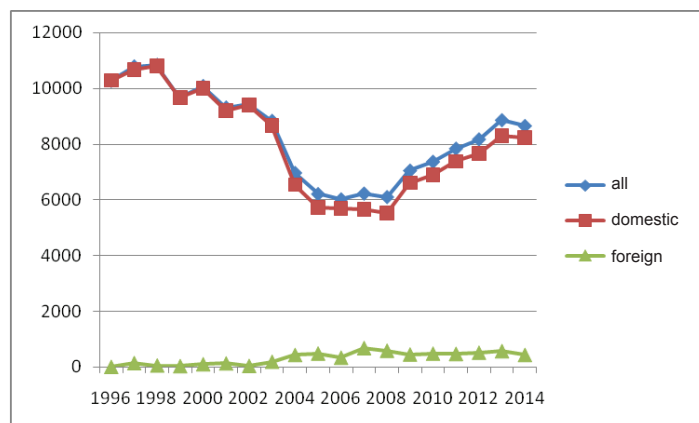


Fig. 4.12 Number of treated clients in natural health resorts – children (NHIC data)

attractive treatments in spas, or hotel complex, and are related to their standard of living.

The names “Wellness” SPA and are often found in the offers of various hotel facilities that have the status of natural health spas. The essence of wellness services is the presence and use of a natural healing source. It’s a provision of procedures according to the philosophy of healthy living. The offered services are of various kinds. It may be a device that operates the bath department with drinking water and flavouring agents. Alternatively, it is a beauty treatment, hair salon, nail salon often in connection with courses of meditation and massage services. For a visi-

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Legislative regulations

- Act no. 577/2004 Coll. on the scope of health care covered by public health insurance and on payments for services related to health care, as amended by Act no. 720/2004 Coll.
- Act no. 538/2005 Coll. on the natural healing waters, natural spas, spa sites and natural mineral waters and on amendment of certain laws.

Decree no. 87/2006 Coll. - Ministry Decree on the requirements for climatic conditions suitable for the treatment and the scope and terms of their monitoring.

Decree no. 100/2006 Coll. - Ministry Decree laying down requirements for the natural healing water and natural mineral water, details of the balneology assessment, distribution, coverage and content of analyses of natural healing waters and natural mineral waters and their products, and requirements for the registration of an accredited laboratory in the list maintained by the SSC.

Decree no. 101/2006 Coll. - Ministry Decree establishing a minimum of material, technical facilities and staffing of natural health spas and spa treatment centres and providing indications according natural healing waters and climatic conditions suitable for treatment.

Notification no. 175/2006 Coll. - Notification of the Ministry of Health of the details and the method of marking boundaries of spa territory, territory with climatic conditions suitable for treatment and protection zones of natural medicinal resources, natural mineral resources and climatic conditions suitable for treatment.

