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The System of Spatial Planning and Land Management in Poland

1. Introduction

Spatial planning, which determines the manner of space use (space being a good restricted both in terms of quality and quantity), aims at ensuring appropriate development of particular country regions, taking into consideration their unique features, mutual relationships and national interests. Thus defined space use is subject to certain restrictions, for instance through spatial management plans, which define the purpose and principles of land use. The plans make it possible to realise the aspirations of entities living within the same space, as well as let them implement certain investments.

According to the current Polish act on spatial planning and spatial management [13], it is necessary to consider the following aspects, when defining land use patterns and principles of their management:

- the requirements of sustainable development (eco-development),
- the requirements of spatial order, architecture and urban planning,
- the requirements of natural environment protection,
- the requirements of health protection as well as human and property security,
- the requirements of cultural heritage protection,
- space economic assets and property regulations,
- defence and state protection needs,
- public interest needs.

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2. An Overview of General Space Planning and Management Principles

Since the Earth Summit in Rio de Janeiro in 1992, Poland, just as other countries of the European Community, has been implementing the principles of sustainable development (eco-development), for example, through its spatial policies. Generally speaking, the term sustainable development refers to the equal treatment of the economic, social, ecological and cultural sphere [3]. The degree of sustainable development implementation can be measured by evaluating the so-called integrated order, which includes spatial order, architectural order, urban order, etc. [2].

The inclusion of architectural and landscape assets into spatial planning and management entails their evaluation with regards to landscape protection and shaping [5]. The requirements of environment protection included in spatial planning are mainly based upon environment protection regulations [11], the act on nature protection [14], water law [12], and others.

For example, nature protection regulations, which oblige planners to take into consideration the principles of nature protection, provide for the following forms of nature protection: national parks, nature reserves, landscape parks, landscape protection areas, NATURA 2000 areas, nature monuments, documentation sites, ecological areas, natural and scenic complexes.

The requirements of health protection as well as human and property security mainly refer to restrictions on the localisation of plants or other dangerous objects to prevent the occurrence of serious failures. This also concerns technical conditions that building structures and their localisation should fulfil.

According to the regulations on cultural heritage conservation, the following objects should be protected irrespective of their condition: cultural landscapes, urban and rural settlement systems, architectural monuments, industrial plants, archaeological sites, etc.

Economic assets of space depend on its adaptability for various purposes, taking into consideration investment effectiveness within the area. Ownership rights are protected by the constitution though they often give rise to clashes in the process of spatial planning. These rights can be restricted only when state security, public order or environment protection requires so.

Defence and state protection needs are defined by relevant bodies in the framework of cooperation with (especially local) spatial planning entities.

Public interest needs determine preferences, social or local expectations in regards to spatial planning.

3. The System of Spatial Planning and Land Management

According to the act on spatial planning and spatial management [13], Polish system of spatial planning involves **state planning**, responsible for the creation of the national spatial development scheme, and **local planning** which consists of provincial spatial management plans and local spatial management plans.

Spatial planning extends over three levels:

- national (drawing to scale 1 : 1 000 000),
- provincial (scale 1 : 130 000),
- communal (scale 1 : 1 000 or 1 : 1 000).

National spatial planning is mainly based upon the **national spatial management scheme**, which defines objectives and development directions as well as indispensable activities:

- basic elements of the national settlement network and separate metropolitan areas;
- requirements concerning nature and monument protection, taking into consideration areas under protection;
- the distribution of social infrastructure of national and international importance;
- the distribution of technical and transport infrastructure facilities, strategic water resources and water management objects of national and international importance;
- problem areas of national importance, including areas that demand detailed studies and plans.

In particular, the national spatial development scheme defines conditions, objectives, and directions in sustainable development, including:

- basic elements of the national settlement network and separate metropolitan areas,
- requirements concerning nature and monument protection,
- the distribution of social infrastructure of national and international importance,
- the distribution of technical and transport infrastructure facilities, strategic water resources and water management objects of national and international importance,
- problem areas of national importance, including areas that demand detailed studies and plans.

The national spatial development concept is approved by the Cabinet.

A **provincial spatial management plan** takes into account the decisions of the provincial development strategy and defines:

- basic components of the provincial settlement network and their infrastructural and communicational connections, including transfrontier connections;
- the system of protected areas, including the areas of environment, nature and landscape protection, health resort protection, natural heritage, monument and contemporary cultural goods protection;
- the distribution of public purpose investments of translocal importance;
- problem areas along with principles of their management, as well as metropolitan areas;
- support areas;
- flood hazard areas;
- borders of restricted areas and their buffer zones.

Provincial spatial management plan contains public purpose investments of translocal importance; for a metropolitan area, a management plan is passed as part of the provincial plan.

The process of **local spatial planning**, which plays a major role in the shaping of space, consists of three basic elements: a study of determinants and directions of spatial management (development conditions and spatial management direction), a local spatial management plan (text and drawing) along with an environment impact prognosis and land management activities (decisions regarding building conditions, decisions regarding the localisation of public purpose investments). The study of determinants and local plan are passed by the community council.

The **study** distinguishes conditions that result from the following:

- the area's past form of use, its management and infrastructure;
- the condition of spatial order and requirements regarding its protection;
- the condition of environment, including agricultural and forest production space, the size and quality of water resources, as well as requirements regarding environment, nature and cultural landscape protection;
- the condition of cultural heritage and monuments, including goods of contemporary culture;
- living standards, including the level of health protection;
- safety hazards to local inhabitants and their property;
- communal development needs and possibilities;
- legal state of lands;
- the existence of protected objects and areas;
- the existence of natural geological danger areas;

- the existence of documented mineral deposits and underground water resources;
- the existence of mining areas, delineated on the basis of separate regulations;
- the condition of technical infrastructure communication systems, including arrangements for water supply, sewage treatment, energy supply and waste management;
- the realisation of translocal public purpose objectives.

In particular, the study defines:

- change directions in the communal spatial structure and land use patterns;
- directions and indexes regarding land management and use, including lands excluded from building development;
- the areas and principles of environment, resource, nature, cultural landscape and health resort protection;
- the areas and principles of cultural heritage, monument and contemporary cultural goods protection;
- development directions for communication systems and technical infrastructure;
- localisation areas for public purpose investments of translocal importance;
- localisation areas for public purpose investments of translocal importance, according to the regulations of a provincial spatial management plan;
- areas for which a local spatial management plan is an obligatory document and must be drawn up on the basis of separate regulations, including areas requiring consolidations or property transformations, areas for commercial infrastructure whose floor surface exceeds 2 000 m², and public space;
- areas for which a local spatial management plan is going to be drawn up, including lands whose designation is going to be changed from agricultural or forest to non-agricultural and non-forest respectively;
- directions and principles of shaping of the agricultural and forest production space;
- flood and landslide hazard areas;
- mining areas or objects for which bottom pillars have been determined;
- holocaust monument areas and their protective zones as well as local restrictions on commercial activity;
- borders of restricted areas and their buffer zones;
- other problem areas depending on local conditions and communal spatial management needs.

A commune draws up a **local spatial management plan** (local plan) in order to establish land zoning, including zoning for public purpose investments, and to

determine land management and building patterns. Compared to studies of determinants, local plans do not have to be drawn up for the entire area of the commune.

The local plan, which is an act of local law, conforms to the regulations of the study and defines the following:

- land zoning and division lines between areas of different designation or different management principles;
- the principles of spatial order protection;
- the principles of environment, nature and cultural landscape protection;
- the principles of cultural heritage, monument and contemporary cultural goods protection;
- requirements stemming from public space development needs;
- parameters and indexes of building development and land management, including building lines, overall structure dimensions and building intensity indexes;
- borderlines and methods of managing areas or structures under protection, defined through separate regulations, including mining areas, flood and landslide hazard areas;
- detailed principles and conditions for property consolidations and divisions under the local plan;
- detailed conditions of land management and use, including a building ban;
- the principles of modernisation, extension and construction of communication systems and technical infrastructure.

Depending on needs, the local plan defines the following:

- borderlines of areas where property consolidations and partitions shall take place;
- borderlines of areas where the existing building development and technical infrastructure shall be rehabilitated;
- borderlines of areas demanding transformation or reclamation;
- borderlines of areas designated for commercial objects;
- borderlines of recreation areas and areas where mass events are held;
- borderlines of holocaust monument areas and their protective zones as well as restrictions on local commercial activity.

4. Environment Protection in Spatial Planning at a Local Level

Communal studies of determinants and directions of spatial development and local spatial management plans ensure rational management of environment resources by means of, for example, rational use of earth's surface (including land

management, mineral deposits). They also provide comprehensive solutions for urban and rural development problems (water supply and sewage treatment, waste management, green area development, etc.) and protection for landscape assets and climatic conditions [13].

Ecophysiographic studies, drawn up for the needs of these plans and characterizing natural assets and their interrelations within a given area, come to be useful in this respect. Moreover, the study of determinants takes into consideration the existence of protected objects and areas, flood and landslide hazard areas, areas in need of transformations, rehabilitation and reclamation.

A local spatial management plan, which is an act of local law, is drawn up in order to establish land zoning, including zoning for public purpose investments, and to determine land management and building patterns.

From the point of view of environment protection, the plan particularly needs to take into account restrictions resulting from the following factors:

- the establishment, in accordance with the nature protection act [14], of various protected areas and objects as well as their buffer zones;
- the establishment of restricted land use areas;
- the establishment, in accordance with the regulations of water law [12], of conditions on surface and underground water use and the establishment of water intake protection zones.

The local plan takes into consideration the following issues regarding environment protection and development:

- the principles of environment, nature and cultural landscape protection;
- the principles of spatial order protection;
- borderlines and methods of management for areas or structures under protection (mining areas, flood and landslide hazard areas);
- borderlines of areas demanding transformation or reclamation.

Environment protection issues, particularly anti-erosional soil protection, are also taken into consideration during **consolidation activities**. Areas characterised by intensive degradation processes require so-called ecological consolidations.

Principally, **linear structures** (communication, overhead, underground lines) are run in such a way as to limit their environment and landscape impact, whilst industrial plants which can potentially pose serious failure hazard should be localized at a safe distance from each other, residential areas, buildings, etc.

The investor realising **building works** is obliged to take into account environment protection issues and particularly the protection of soil, green areas, natural relief and water regimes.

Building works, therefore, can allow for minimal interference into the natural environment. However, in the case when elements of the natural environment cannot be protected, it is necessary to undertake repair activities, mainly through damage compensation (reclamation, afforestation, creating clusters of plants that can help restore the natural balance, etc.). A newly built or modernized building structure or facility cannot be put into use if it does not fulfil certain environment protection requirements (applying appropriate technological solutions to protect the environment, obtaining certain decisions defining environment use conditions, observing emission standards, etc.).

A public purpose investment is localized on the basis of a local plan, and when such a plan does not exist, through an administrative decision. Areas that the local plan designates for public purposes or properties where public purpose investments will be held can be expropriated (the decision is made by the head of county) and held by the state or local administration units [10]. Expropriation can be decided as to the entire property or its part. Therefore the owner or perpetual land user is entitled to demand a buyout or exchange.

From the sozological point of view, the term public purpose investment can refer to the process of building or maintaining environment protection facilities, water reservoirs, flow regulation and flood protection, as well as training and maintenance of waters and water melioration devices remaining the property of the state or local administration units.

The proceedings of issuing a decision on public purpose investment localisation involve various agreements, also concerning environment protection (for example with the Minister of Health, administrative bodies dealing with geological issues, manager of the national park, nature conservator).

The decision regarding public purpose investment localisation defines, among other things, the conditions and requirements of nature conservation and human health as well as spatial order protection and development. The decision on the planned investment (building investment, land use pattern change, mineral extraction) requires an evaluation of nature impact. The procedure of evaluating environment impact involves an analysis and assessment of the direct and indirect influence of the given investment on the environment, health and living conditions, material and cultural goods, mutual relationships between the above-mentioned elements, the accessibility of mineral resources and the required scope of monitoring.

According to the act on nature protection [11], the following documents are referred to as decisions on the planned investment:

- decision about building provisions and land management,
- building permit or designation for demolition,

- concession to search for or extract mineral deposits,
- permission in the context of water regulations concerning: the creation of water facilities, underground water intake, agricultural use of sewage sludge, etc., a decision outlining conditions of sewage regulation works, etc.

Earth surface protection concerns ensuring best possible surface quality through:

- rational management and preservation of its productive potential,
- limiting natural environment changes, including relief, and maintaining appropriate soil quality standards,
- preserving cultural qualities, including archaeological cultural goods.

Earth surface protection is strictly connected with the protection of agricultural lands, forests and minerals.

The protection of agricultural lands involves [9]:

- limiting their non-agricultural and non-forest use,
- preventing land degradation and devastation processes as well as losses in agricultural production resulting from non-agricultural activities,
- reclamation and management of lands designated for agricultural purposes,
- preserving peat bogs and small ponds as natural water reservoirs.

Protection of forested areas involves analogous objectives, that is limiting their non-agricultural and non-forest use, counteracting degradation, improving their usable quality and preventing production falls.

Mineral deposits are subject to protection which means rational management of their resources and comprehensive mineral exploitation, including accompanying minerals. A unit carrying out mineral extraction is obliged to undertake all measures ensuring the protection of deposit resources, earth's surface, underground waters and surface waters. Moreover, it is responsible for restoring other natural elements to the right state in a gradual way. According to regulations on environment protection, the owner of a property, where soil contamination or unfavourable transformations of the natural relief are observed, is obliged to carry out their restoration.

Pursuant the act on the protection of agricultural lands and forests [9], the owner of agricultural lands or lands reclaimed for agricultural purposes is obliged to prevent soil degradation, particularly erosion. A relevant administrative body (head of the county, State Forests director, or national park director) is allowed to, on account of erosion prevention measures, instruct the owner to convert the area into forest or establish it as a permanent grassland, and provide a refund on the purchase of all indispensable materials. Moreover, the owner of a given property

is obliged to maintain anti-erosion and melioration devices located within their property in a proper technical condition. For lands situated within protection zones surrounding industrial plants in the areas of limited use, it is necessary to develop management plans (at the expense of the relevant plant).

A draft of the management plan for such areas should define the following:

- pollution types and condensations, as well as its influence on the existing management pattern,
- current directions of plant cultivation and plants that can be cultivated,
- the method of counteracting decrease in soil quality,
- the expected level of global agricultural and forest production,
- a list of farms and predicted compensations,
- indispensable expenditures to cover production channel change,
- expected area of land to be purchased by the industrial plant and its cost.

Land reclamation measures are planned at each level of the industrial production. They are conducted successively as particular areas become completely, partially or temporally unnecessary for industrial production or are finalized 5 years after this production has ceased.

As for the areas of predicted ground subsidence caused by mining activities, the plant is obliged, when requested by the property owner, to commence reclamation activities before the actual degradation takes place.

Regulations on land reclamation and management define the degree of land quality loss or restriction, the person responsible for reclamation measures and the date upon which they have to be commenced as well as determine when reclamation should be termed as finished.

In order to identify the possibilities within land and property management, it is necessary to define **permissible forms of management or use of ecologically protected areas**.

Based upon the act on nature protection [14], the question can be synthetically presented in the following way:

- national parks and nature reserves: nature reserve management, science and didactics, specialised and recreational tourism;
- landscape parks and landscape protection areas: nature reserve management, forest economy, pro-ecological agriculture, settlement, tourism, science and specialist didactics, maintenance of the protected area, and in the case of a protected area also holiday houses;
- buffer zones of protected areas: nature reserve management, forest and water economy, agriculture, settlement, tourism, holiday homes, maintenance of protected areas;

- Natura 2000 areas allow for similar forms of use as the above-mentioned areas;
- documentation sites, natural and scenic complexes and ecological areas: science, specialist didactics, recreational tourism, and in the case of ecological areas also the following functions: ecological, small retention or phytomelioration function.

Although the existence of protected areas is occasionally the source of conflict between the need to follow protection regulations, particularly in national parks and nature reserves, and local social needs, protected areas ensure high quality of the natural environment and create new perspectives of space use for the needs of tourism, recreation or healthcare.

5. Poland's Infrastructure and Settlement State Evaluation

Even though the state of technical infrastructure of Poland has improved over the past several years, it still differs significantly from the EU standards. Selected problems in this respect are briefly presented below, based upon data obtained from the Ministry of Regional Development [7].

Transport infrastructure has remained a field that is underdeveloped and seriously underinvested. In the years 2000–2005, the total length of public roads in Poland with paved surfacing has only increased by 2 thousand kilometres and reached the density of 81.2 km per km². The densest network was in the provinces of southern Poland while the lowest density was registered in the north-east and east of the country. The length of motorways in 2006 totalled only to 674 km, and expressways – 257 km, which gives Poland one of the last positions in Europe. In the years 2000–2005, the length of operating railways decreased from 22.6 thousand km to 20.3 thousand km, whilst their density fell from 7.2 km per 100 km² to 6.5 km per 100 km² yet exceeding the EU average of 5 km per 100 km² [7]. A fundamental problem is a lack of fast links between the main cities and including the railway system into the Trans-European Transport Network.

Energy industry infrastructure is almost completely based upon non-renewable sources (as for 2004: 86% – solid fuels, 1% – crude oil, 5% – gas, and 8% – renewable sources). This makes the energy industry in Poland one of the main sources of air pollution. The technical condition of the Polish power transmission network and gas transmission pipelines constitutes no threat for the safety of electric power supply to users.

Environmental infrastructure has made significant progress over the past several years. As a result of limitation of energy and material intensity in production,

changes in the financing system of pro-ecological activity and adaptation of protective norms to EU standards, the adverse impact of economic operation on the natural environment has been reduced. In many spheres, its state does not differ significantly from the one observed in other EU countries.

As regards pollution of soils, the situation is more advantageous. A positive symptom is also a continuous increase of protected areas – in the years 1991–2005 it was 1.7 fold [7]. Protected areas, covering 32.5% of Poland's territory, embrace national parks, nature reserves, landscape parks, and landscape protection areas. Apart from that, a system of Natura 2000 protected areas is being created.

Processes of restructuring and modernisation of the economy helped reduce the pressure level on the environment. Emissions of elementary air pollution types – SO_2 , NO_x and dusts – have decreased to approx. 55%, 38% and 76% respectively as compared to the beginning of the 1990s.

Over 95% of industrial sewage and 88% of municipal sewage are subject to treatment, thanks to which air and water quality in industrialised areas has been improved markedly. Also achieved was considerable progress in the sphere of the industrial and municipal waste management. This was accompanied by the rationalisation of water supply and sewage systems management. In the years 2000–2005 the number of population that benefits from sewage treatment plants increased. In 2005, the plants served 60% of total population, in towns 85% and in rural areas only 20%. Sewage treatment plants of the EU countries serve over 70% of the population. The scope of the water supply system has been also increased. Only in 2004 almost 2.7 residential buildings were connected to such systems on rural areas, that is by 16.2 more than in 2000.

In the years 1990–2004, considerable reduction was achieved in the quantities of municipal and industrial sewage to surface water, including a reduction by approx. 85% of untreated waste.

However, it is noted that water management has been an underinvested field for many years. Over 3.9% of the existing weirs with permanent water damming and more than 26% flood banks pose or may pose a serious risk. Flood risk is the most severe on border areas of southern and south-eastern Poland and in the Żuławy Wiślane region.

Progress has also been achieved in waste utilisation. The total volume of waste produced annually per one inhabitant amounted to 3.6 tonnes (in the EU – 3.8 tonnes). The total degraded area of Poland exceeds 8 000 km², of which industrial degradation comprises: to a great extent over 1 400 km² (0.4% of the country area), to the middle and small extent – almost 7 000 km² (2.2% of the entire area of Poland). The area of land that requires reclamation decreased gradually: from 93.7 thousand hectares in 1990 to 65 thousand hectares in 2005.

The settlement system of Poland is characteristic for its unique duality. On the one hand, we are dealing with a very favourable polycentric settlement system. On the other hand, settlement in rural areas is very dispersed. The situation is similar in the case of infrastructure. The polycentric structure is a result of a lack of capital city domination and relatively equal location of cities within the country. Since the 1990s, the urbanisation index has been at the level of approx. 62% and has not undergone major changes. In Poland 9 metropolitan areas can be distinguished, which together with surrounding communes are inhabited by 500 thousand inhabitants: the areas of Bydgoszcz and Toruń, Krakow, Łódź, Poznań, Silesia, Szczecin, Trójmiasto, Warsaw and Wrocław.

Strongly dispersed rural settlement in Poland suffers from considerable underdevelopment, particularly regarding infrastructure, when compared to towns.

Insufficiently developed technical infrastructure, whose construction costs are significant owing to great dispersal of rural population, is one of the most serious developmental barriers on rural areas [8].

Lagging behind of rural areas as compared to towns still concerns access to collective sewage systems (only 12.7% of villages have their own collective foul sewage system and 85% – collective water supply systems, while in towns those indicators achieve a value of over 90%) and sewage treatment plants (at the end of 2004, rural areas had approx. 2.4 thousand collective sewage treatment plants and 28.8 thousand individual rural treatment plants). Only 20% of rural areas have access to the gas supply system (in towns over 92%).

5. Conclusion

Spatial planning practices in Poland realise defined ideas, directions, laws and rules resulting from the created spatial policy [1].

Spatial policy principles understood as **ideas** refer to value system approved by the society, testified hypotheses serving as arguments for the purposes of, for example, sustainable development and spatial order.

Spatial policy principles understood as **directions** refer to development trends and help identify methods of achieving predefined goals, such as social satisfaction.

Spatial policy principles understood as **laws** refer to the legal and administration system, its regulations as well as the decision-making system, conflict resolution: between environment protection and efficient operation of social and economic units.

Spatial policy principles understood as **rules** aim at activities for the development of space according to social and ecological goals as well as the criteria of economic profitability. They all comprise a relatively cohesive spatial mechanism of social and economic development favouring the collection of resources and stimulating development.

Moreover, spatial management of a given area takes into consideration the following types of activity:

- **space demanding** (agriculture, mining);
- **reducing space** (transport, communication);
- **spot and neutral** (processing industry and services).

The following recommendations and conclusions made by Domański [1] can be treated as basic guidelines of Poland's spatial policy:

- settlement concentration (particularly on rural areas);
- simplification of spatial organization, which intensifies in the process of agglomeration and decreases when regional differences are reduced;
- in face of the limited number of localizations attractive for economic activity, their usefulness is high enough to cover possible increased transportation costs;
- new technologies and methods give rise to the development of new generations of rural-urban agglomerations (for example technological parks) resulting in transregional shifts;
- in areas facing recession, various economic structures should be created, according to the principle of diversification; in rural areas, this is the question of their multifunctional development;
- economy problem areas should undergo restructuring and revitalisation;
- the distribution of state subsidies should be more objective and financial instruments (taxes, fees, credits) regionally diversified.

It should be remembered that spatial policy's main task is to ensure the cohesion of Poland's space and its connection with the European space by means of harmonising regional development through spatial differentiation endogenic resources.

European spatial development policies are based upon i.e.: the development of sustainable and political system of city networks, the development of new relationships between rural and urban areas, the growth of Trans-European Communication Network, ensuring equal access to infrastructure, appropriate management, natural and cultural heritage protection [4].

The issues of spatial development, infrastructure, environment protection have been recently reflected in the *National Strategic Reference Framework 2007–2013* [7].

Implementation of the *National Strategic Reference Network*, through the instruments of Polish spatial management, will help to obtain:

- a significant improvement of technical infrastructure, especially transport (unsatisfactory state of road and railway infrastructure causes delays when compared to other EU countries, posing a serious barrier to general development, international exchange and social mobility);
- progress in terms of energy supply systems modernisation and restructuring, particularly increased percentage of renewable energy sources;
- improvements within water supply and sewage systems, waste management, flood hazard;
- significant progress in terms of equalising differences in technical and social infrastructure distribution in rural and urban areas;
- gradual elimination of dispersed rural settlement structures through the implementation of line-knot concept in spatial planning.

The implementation of the *National Strategic Reference Framework* in Poland will lead to GDP increase, which calculated per 1 inhabitant should reach the level of 2/3 EU average in 2015. This will be obtained thanks to the creation of about 3 million new jobs, the extension of expressway and motorway network, further improvement of the natural environment.

It should be noted that continuous improvement of the Polish spatial planning system, its legal and organisational bases constitutes a fundamental condition of successful realisation of the assumed objectives.

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