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"Natura 2000" ecological network in the aspect of sustainable development

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Abstract: The work discusses the operation of the "Natura 2000" European Ecological Network in aspects related to sustainable development, i.e. taking into account economic undertakings and planned business projects which conform to the idea of sound management of natural resources. The legal basis for the Natura 2000 network is the Habitats Directive 92/43/EEC and the Birds Directive 79/409/EEC, which have been transposed into the Polish law, especially in the Act of 16 April 2004 on the protection of nature. Both environmental conservation directives seek to establish an ecological network of protected areas (so-called Natura 2000 sites) across Europe. In Poland, Natura 2000 comprises Special Protection Areas for birds (SPAs, or bird sites), Special Areas of Conservation (SACs, or habitat sites) and Sites of Community Importance (SCIs) (based on the Act on the protection of nature). Studies have demonstrated that Poland currently has a total of 141 SPAs with an area of 55,228 km^2, which makes up 15.6% of Poland's land area, and 364 SACs occupying 2.89 million ha, which represents 8.95% of the total area of Poland.
The Natura 2000 European Ecological Network Programme supports the principle of sustainable development in the context of guidelines set out in Art. 6 (3) and (4) of the Habitats Directive (92/42/EEC) under which any plan or project which is likely to have a significant impact on a Natura 2000 site should be subject to appropriate assessment to determine how it affects the site. Environmental impact assessment is a preventative nature conservation tool which, based on thorough consideration of different implementation options of specific projects combined with public opinion research, helps eliminate solutions that fail to comply with the overriding principle of sustainable development.

Key words: Habitats Directive 92/43/EEC, Birds Directive 79/409/EEC, sustainable management, environmental impact assessment, Art. 6 of the Habitats Directive 92/43/EEC.

1. Introduction

Environmental protection in the 21st century is more than a need – it is a must. Europe's rapid economic growth, global climate changes and dramatically high rates of extinction of plant and animal species pose a threat to nature across the entire European continent (Głowaciński 1997, 2002; Kaźmierczakowa & Zarzycki 2001; Radziejowski 2001; Mirek et al. 2006; Piękoś-Mirkowa & Mirek 2006). The declining condition of the natural environment is best evidenced in statistical data gathered by the European Environment Agency (EEA) which show a 5% growth in man-made landscapes in the 1990s. An area of approx. 8,000 km^2 was covered with concrete over just 10 years. Within the European Union, ca. 1,500 ha of land is lost to nature each day because of infrastructure development and urban growth. The total length of motorways in Europe increased by almost 15,000 km (41% of the total figure) by 2003, with an estimated future increase of 12,000 km in new EU Member States (European Commission 2009a). These developments markedly diminish the chance to halt the loss of biodiversity across Europe. At present, 15–23% of mammals, amphibians and reptiles inhabiting the European Union are threatened with extinction, while 64 spe-

cies of European endemic plants have died out in nature in recent years (European Commission 2010) (Table 1).

In the face of such dramatic changes in the natural environment, Europe responded by establishing the Natura 2000 European Ecological Network. The Programme gives all 27 Member States an opportunity to cooperate with a view to protecting the most precious species of wild flora and fauna and valuable habitats across the entire EU, regardless of national borders. Natura 2000 represents the EU's pledge to contribute to global biodiversity conservation according to requirements laid down in the international "Convention on Biological Diversity" of 1992 (unpublished text). Natura 2000 plays an important role in the process of implementing the obligation "to halt the loss of biodiversity by the end of 2010" adopted by EU Member States at the EU Summit in Gothenburg ("2010 Biodiversity Target") (European Commission 2009b). The establishment of Natura 2000 sites was preceded by the adoption of the Habitats Directive (Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora) of 21 May 1992 which, together with the Birds Directive (Directive 79/409/EEC on Wild Birds) of 2 April 1979, provide the basis of the European nature conservation policy (Makomaska-Juchiewicz & Tworek 2003). The Habitats Directive and the Birds Directive currently represent the largest organized initiative for environmental protection undertaken to date for the purpose of preserving the natural heritage in the European Union (Makomaska-Juchiewicz et al. 2001; Dyduch-Falniowska et al. 2002; Liro et al. 2002; Baranowski 2003; Baranowski & Makomaska-Juchiewicz 2004; Pawlaczyk & Jermaczek 2004).

The aim of natural resources conservation is to preserve environmentally valuable areas which are used for economic development and identify actions which should be taken to maintain their biological diversity. The Natura 2000 network does not require environmentally vulnerable regions to be left without any business activity and economic growth. The main assumption of the programme is to define a set of conditions governing human activities which will promote the coexistence of economic development and preservation of European biodiversity. The Natura 2000 programme supports the principle of sustainable development (European Commission 2009b, 2010).

The work seeks provide insights into the operation of the "Natura 2000" European Ecological Network in aspects related to sustainable development, i.e. taking into account economic ventures and planned business projects which are compatible with the idea of rational management of natural resources. Natura 2000 sites are integral elements of cultural landscapes. Consequently, while maintaining traditional land management methods used in a given area, it is also essential to protect endangered plant and animal species and valuable habitats. By protecting invaluable natural resources, which are our shared European heritage, we can preserve Europe's unique biodiversity for future generations.

Table 1. The conservation status of European species in selected categories according to the IUNC Species Red Lists (Source: European Commission 2010)

European Species	Threatened in European Union [%]	Declining in population in Europe [%]
* Terrestrial Mammals	15	27
* Marine Mammals	23	27
Amphibians	22	59
Reptiles	21	42
Butterflies	7	31
Dragonflies	16	24
Saproxylic beatles	14	14

*Based on assessment of EU-25.

2. Operation of the Natura 2000 European Ecological Network

Natura 2000 European Ecological Network represents a system of protection of endangered components of biological diversity across the European continent. It comprises Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) established and operating on the basis of two Directives: the Habitats Directive (Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora) and the Birds Directive (Directive 79/409/EEC on Wild Birds) (ec.europa.eu/environment/nature). The EU's common environmental conservation system is to encompass at least 15% of the land area of EU Member States. European legislation defines standards for the protection of nature across the entire European Union by means of incorporation into legal systems of two executive acts listed below:

Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) adopted on 21 May 1992 (last amended by Council Decision 97/62/EEC).

The Habitats Directive defines legal regulations which act as a basis for the operation of Natura 2000 sites (Dyduch-Falniowska et al. 2001; Mróz & Perzanowska 2001). The Directive has six Annexes (ec.europa.eu/environment/nature; natura2000.gdos.gov.pl):

I – List of 221 natural habitat types of Community interest whose conservation requires the designation of Spe-

cial Areas of Conservation (SACs, as laid down in the Regulation of the Minister of Environment of 13 April 2010);

II – List of 483 plant and 222 animal species of Community interest whose conservation requires the designation of Special Areas of Conservation (SACs);

III – Criteria for selecting sites eligible for identification as sites of Community importance (SCIs) and designation as Special Areas of Conservation;

IV – List of plant and animal species of community interest in need of strict protection;

V – List of animal and plant species of community interest whose taking in the wild and exploitation may be subject to management measures;

VI – Prohibited methods and means of capture and killing.

Directive 79/409/EEC on Wild Birds (Birds Directive) adopted on 2 April 1979 (amended by Council Directives 81/854/EEC, 85/411/EEC, 86/122/EEC, 91/224/EEC, 94/24/EEC).

The main goals of the Birds Directive include conservation and preservation of all bird populations living naturally in the wild on the European continent and adoption of a legal framework regulating the trade, hunting, capture and killing of birds. The Birds Directive contains five Annexes (ec.europa.eu/environment/nature; natura2000.gdos.gov.pl):

I – List of 195 bird species requiring particular attention (in danger of extinction or vulnerable) whose conservation requires the designation of Special Protection Areas (SPAs). SPAs should be designated on the basis of precise quantitative criteria developed by BirdLife International;

II – List of huntable species;

III – List of tradeable species;

IV – List of methods of bird capture and killing which are prohibited in Europe;

V – Proposed subjects of research and work to increase the effectiveness of bird protection.

The main purpose of both environmental conservation directives is to establish a Europe-wide ecological network of protected areas, called Natura 2000 (Ostermann 1998; Baranowski 2003; Zając 2003; Baranowski & Makomaska-Juchiewicz 2004; Jackson et al. 2004; Qualification Criteria for Special Protection Areas 2004). Natura 2000 seeks to protect biodiversity by conserving rare and threatened plant and animal species, and valuable or endangered types of natural habitats, across Europe, within the limits of nine biogeographical regions: Alpine, Atlantic, Black Sea, Boreal, Continental, Macaronesian, Mediterranean, Pannonian and Steppic (European Communities 2009b).

Natura 2000 comprises around 25,000 sites set up to ensure the survival of valuable natural heritage, which makes it the largest system of nature conservation areas worldwide (Tables 2 and 3). Their total area represents around 20% of the total land area of the EU (800,000 km^2) and of marine environment (100,000 km^2) (European Commission 2009b). Annex I to the Birds Directive currently lists 195 species of birds which are in danger of extinction or rare across Europe and which require the establishment of Special Protection Areas (SPAs). The majority of them are nature refuges of international importance. Annex I to the Habitats Directive includes a list of proposed 221 types of natural habitats which are endangered in Europe (Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds). Annex II to the Habitats Directive lists 483 species of plants and 222 species of animals (with the exception of birds) for which Special Areas of Conservation (SACs) should be set up to conserve natural heritage (Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora).

Under the Act of 16 April 2004 on the protection of nature (Journal of Laws 2004, no. 92, item 880), Natura 2000 sites designated in Poland are one of ten legally established systems of nature conservation. They have been operating in Poland since 2004 following the signing of Poland's EU accession treaty. They are Special Protection Areas (SPAs) designated in accordance with Council Directive 79/409/EEC of 2 April 1979 "for the conservation of populations of wild birds of one or more species providing them with favourable living conditions throughout their entire life cycle, at any time or stage of development" and Special Areas of Conservation (SACs) established under Council Directive 92/43/EEC of 21 May 1992 for the purpose of "permanent protection of natural habitats or populations threatened with the extinction of plant or animal species" or "for the restoration of proper state of conservation of natural habitats or proper state of conservation of the species" (Qualification Criteria of Special Protection Areas 2004).

In Poland, the updated reference list of natural habitats and plant/animal species which are threatened with extinction across Europe concerns two biogeographical regions: Continental (96% of Poland's total area) and Alpine (4% of the area) (natura2000.gdos.gov.pl). The Natura 2000 network in Poland comprises:

- Special Protection Areas for birds (SPAs, or bird sites);
- Special Areas of Conservation (SACs, or habitat sites);
- Sites of Community Importance (SCIs) (Act on the protection of nature).

Legal regulations pertaining to Natura 2000 sites were incorporated into Polish legislation in the Act of 16 April 2004 on the protection of nature (Art. 6 and Arts. 25–39) and the Act's executive acts. By mid-2007, only Important Bird Areas (not requiring approval by the European Commission) were set up in Poland. During this time, a total of 124 bird sites were designated, including 72 SPAs in 2004 and 52 SPAs in 2007, pursuant to the Regulation of the

Table 2. The Special Protection areas (SPAs) in the European Union have been designated to Birds Directive, Directive 79/409/EEC (Source: European Commission 2010)

SPECIAL PROTECTION AREAS (SPAs) Birds Directive					
Member States	Number of sites	Total area sites (km^2)	Terrestrial area (%)*	Number of marine sites	Marine area (km^2)
Belgium	234	3,282	9.7	4	315
Bulgaria	114	23,217	20.4	14	539
Czech Republic	39	9,684	12.3	–	–
Denmark	113	14,718	5.9	59	12,180
Germany	738	59,784	12.2	15	16,055
Estonia	66	12,592	13.5	27	6,502
Ireland	131	2,827	2.9	66	810
Greece	163	16,740	11.9	77	1,099
Spain	599	105,032	20.6	33	1,034
France	381	76,297	7.9	73	33,041
Italy	597	43,777	13.6	45	2,724
Cyprus**	7	788	13.4	1	21
Latvia	95	6,999	10.0	4	520
Lithuania	81	6,031	9.0	1	171
Luxembourg	13	145	5.6	–	–
Hungary	55	13,512	14.5	–	–
Malta***	13	16	5.1	0	0
The Netherlands	77	10,125	12.6	6	4,895
Austria	96	9,869	11.8	–	–
Poland	**141**	**55,228**	**15.6**	**4**	**6,490**
Portugal	59	10,438	10.7	10	622
Romania****	109	–	–	1	–
Slovenia	27	4,656	23.0	1	3
Slovakia	38	12,236	25.1	–	–
Finland	468	30,838	7.5	66	5,567
Sweden	531	29,874	6.2	108	4,018
United Kingdom	257	16,114	6.2	4	901
European Union	**5,242**	**574,819**	**11.1**	**619**	**97,507**

* % of SPA terrestrial area compared to MS terrestrial area.
** The area and % of territory corresponds to the area of Cyprus where the Community acquis applies at present, according to protocol 10 of the Accession Treaty of Cyprus.
*** Several marine sites, but no information on marine areas provided in the database.
**** No surface areas provided in the Romanian database.

Table 3. The Sites of Community Importance (SCIs) in the European Union have been designated to Habitat Directive, Directive 92/43/EWG (Source: European Commission 2010)

SITES OF COMMUNITY IMPORTANCE (SCIs) Habitats Directive					
Member States	Number of sites	Total area sites (km^2)	Terrestrial area (%)*	Number of marine sites	Marine area (km^2)
Belgium	280	3,269	10.1	2	198
Bulgaria	228	33,430	29.6	14	592
Czech Republic	1,082	7,854	10.0	–	–
Denmark	261	19,319	7.4	125	16,145
Germany	4,622	54,342	9.7	53	19,768
Estonia	531	11,321	16.7	46	3,752
Ireland	424	13,558	10.7	97	6,014
Greece	239	27,798	16.3	114	6,344
Spain	1,448	131,434	24.5	97	7,926
France	1,366	72,418	8.5	132	25,709
Italy	2,288	45,309	14.3	162	2,254
Cyprus**	36	711	11.5	5	50
Latvia	324	7,856	11.3	6	562
Lithuania	279	8,822	13.2	2	171
Luxembourg	48	399	15.4	–	–
Hungary	467	13,973	15.0	–	–
Malta***	28	50	13.3	1	8
The Netherlands	146	14,342	8.4	14	10,857
Austria	168	8,978	10.7	–	–
Poland	**823**	**38,003**	**11.0**	**6**	**3,600**
Portugal	96	16,788	17.4	25	775
Romania****	273	32,833	13.2	6	1,353
Slovenia	259	6,360	31.4	3	–
Slovakia	382	5,739	11.7	–	–
Finland	1,715	48,552	12.7	98	5,460
Sweden	3,983	64,468	13.7	334	7,512
United Kingdom	623	29,066	6.8	49	12,409
European Union	**22,419**	**716,992**	**13.6**	**1,391**	**131,459**

* % of SCI terrestrial area compared to MS terrestrial area.
** The area and % of territory corresponds to the area of Cyprus where the Community acquis applies at present, according to protocol 10 of the Accession Treaty of Cyprus.
*** Several marine sites, but no information on marine areas provided in the database.
**** No surface areas provided in the Romanian database.

Minister of Environment of 21 July 2004 (Journal of Laws 2004, no. 229, item 2313) and 5 September 2007 (Journal of Laws 2007, no. 179, item 1275). Based on data updated in November 2009, Poland currently has 141 Special Protection Areas for birds (SPAs) occupying an area of 55,228 km^2, which makes up 15.6% of the Polish land area (Table 2) (European Commission 2010). Within the territory of Poland, 129 species of wild birds are protected under the Birds Directive (Directive 79/409/EEC on Wild Birds).

As for Special Areas of Conservation in EU Member States, Poland had submitted to the European Commission a list of proposed 364 SACs covering more than 2.89 million ha (8.95% of Poland's land area), by the end of 2007. In addition, on 30 October 2009 Poland sent to the European Commission a list of new proposals for Sites of Community Importance (SCIs). As a result, the number of SCIs will rise to 823, occupying a total area of 38,003 km^2 (i.e. 11% of Poland's land area) (European Commission 2010). Approval of the updated list in a European Commission decision is expected in December 2010 (Table 3).

By 13 November 2007, the European Commission approved the list of 172 Natura 2000 sites for the Continental region and by 25 January 2008 – 17 Natura 2000 sites for the Alpine region. By 12 December 2008, the European Commission approved 157 new areas for the Continental region and 18 new areas for the Alpine region (Commission Decision of 12 December 2008 adopting, pursuant to Council Directive 92/43/EEC, a second updated list of Sites of Community Importance for the Continental and Alpine biogeographical regions). Poland has 33 officially approved sites in the Alpine region and 331 in the Continental region, with 364 Sites of Community Importance (SCIs) overall (www.gdos.natura2000.gov.pl).

The latest version of the reference list for Poland (24–26 March 2010) comprises 81 types of valuable natural habitats, including 6 designated separately in the Alpine region, 41 in the Continental region and 34 designated for both regions jointly. Out of 81 types of valuable natural habitats, 9 have a priority status in the Continental region and 9 are designated jointly for both regions, which gives a total of 18 types of valuable habitats with a priority status (Bilateral Biogeographical Seminar, Poland, Alpine and Continental regions 2010). The priority status of habitats and plant/animal species means that, unless successfully protected against extinction across the European continent, they will become extinct globally.

According to the reference list of 24–26 March 2010 (Bilateral Biogeographical Seminar, Poland, Alpine and Continental regions 2010), the following species of fauna and flora living in the wild state in Poland are subject to conservation activities under the Habitats Directive (Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora):

45 plant species, including 11 species of special priority for the European flora (*Dianthus nitidus* Waldst. & Kit., *Pulsatilla slavica* G. Reuss, *Cochlearia polonica* E. Fröhlich, *Erysimum pieninicum* (Zapał.) Pawł., *Pedicularis sudetica* Willd., *Campanula bohemica* Hruby in Polivka, Domin Podp., *Campanula serrata* (Kit.) Hendrych, *Serratula lycopifolia* (Vill.) A. Kern, *Cochlearia tatrae* Borbás, *Gentianella bohemica* Skalický, *Galium sudeticum* Tausch);

85 animal species including:

– 39 invertebrate species, with 6 species of special priority (*Callimorpha quadripunctaria* Poda, *Osmoderma eremita* Scopoli, *Rosalia alpina* L., *Phryganophilus ruficollis* Fabricius, *Pseudogaurotina excellens* Brancsik, *Coenagrion ornatum* Sélys);
– 19 fish and lamprey species, including 2 species of special priority (*Acipenser sturio* L., *Phoxinus percnurus* Pallas);
– 5 amphibian and reptile species;
– 22 mammal species, with 6 of special priority (*Canis lupus* L., *Ursus arctos* L., *Spermophilus suslicus* Güldenstaedt, *Bison bonasus* L., *Marmota marmota latirostris* Kratochvil, *Rupicapra rupicapra tatrica* Blahout).

The agency responsible for proper operation of the Natura 2000 European Ecological Network in Poland is the Minister of Environment. Since 2008, direct supervision and coordination of activities carried out in Natura 2000 sites have been within the competence of directors of Regional Directorates for Environmental Protection (RDOŚ) reporting to the Director of the General Directorate for Environmental Protection. Directors of Regional Directorates for Environmental Protection submit a complete set of information on actions undertaken for the conservation of habitats and species, protection measures and assessment of their impact on the condition of protected areas. The information is submitted on a six-year basis for habitat sites (SACs) and on a three-year basis for bird sites (SPAs) (Pawlaczyk & Jermaczek 2004).

The establishment of the Natura 2000 European Ecological Network in Poland does not aim to replace or substitute legal categories for the conservation of nature which are already in place in Poland. Natura 2000 sites as a new form of environmental protection can operate both within existing nature conservation schemes, for example in national parks, landscape parks, nature reserves and protected landscape areas, and in regions used for economic purposes and previously excluded from environmental protection (Symonides 2008).

2. Natura 200 European Ecological Network in the context of sustainable development

The concept of "sustainable development", understood as a process that meets the needs of the present without compromising the ability of future generations to meet their own needs, was outlined in the report entitled "Our Common Future", prepared by the UN's World Commission on Environment and Development in 1987. Sustainable development is only possible if natural resources are managed properly and environmental needs are addressed. It is a strategy of actions based on consciously balanced relations between economic growth and environmental protection, sensible management of natural resources and human health and social development.

Sustainable development refers to economic growth which rests on political, economic and social activities that are closely integrated with environmental equilibrium and stability of basic processes occurring in nature, as well as natural biodiversity at the level of landscapes, ecosystems, species and genes (European Commission 2009b, 2010). It represents conscious management which takes into consideration the results of comprehensive assessment of natural assets and the value of environmental resources. Natura 2000 is a programme which relies on harmonious coexistence of humans and nature as biotic elements of the natural environment, not humans understood as consumers.

Operation of the European Ecological Network in Poland and in the EU Member States is not tantamount to a ban on the use of natural elements and resources. However, it imposes a range of obligations which, on the one hand, result in a number of restrictions for planned business projects and, on the other hand, give broad possibilities for the use of EU funds for projects related to environmental resources in Natura 2000 sites. Therefore, environmental awareness of how the impact of a planned venture on Natura 2000 sites should be assessed, and how results of wildlife inventory should be used as a basis for spatial planning in a given area, is an issue of great importance (European Communities 2002).

The most important instruments available for the achievement of goals of the Natura 2000 European Ecological Network are environmental impact assessments and habitat management plans supporting conservation of natural habitats and species for which valuable nature sites are created. The Habitats Directive includes regulations which form the foundation of Nature 2000 sites in the context of guidance set out in the European Commission's interpretative document "Managing Natura 2000 sites: The Provisions of Article 6 (3) and (4) of the Habitats Directive 92/42/CEE" (referenced in documents as MN2000) (Fig. 1). Under these provisions, any plan or project which is likely to significantly affect a Natura 2000 site should be subject to appropriate impact assessment. Competent authorities agree to the implementation of the plan or project only after having determined that it will not have an adverse effect on the integrity of the Natura 2000 site concerned (Habitats Directive, Art. 6 (3)). If, despite negative assessment of its effects on the site and in the absence of any alternative solutions, a plan or a project must be implemented for imperative reasons of overriding public interest, the Member State concerned will be required to carry out all compensatory measures necessary to protect an overall coherence of the Natura 2000 network (Habitats Directive, Art. 6 (4)) (Fig. 1). It should also be noted that the Habitats Directive does not spell out any detailed measures for the protection of particular habitats and species. Instead, it contains a provision calling for the preservation of their "favourable conservation status". Under the Habitats Directive, the concept of favourable conservation status of a natural habitat should be interpreted as a state in which "its natural range and areas it covers within that range are stable or increasing and the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future" (Pawlaczyk & Jermaczek 2004). a necessary prerequisite for favourable conservation status of a habitat is also preservation of favourable conservation status of species which are specific to that habitat. The conservation status of a species can be regarded as favourable if "population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitat, the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis" (Pawlaczyk & Jermaczek 2004).

Each Member State is obliged to plan and implement, within the Natura 2000 network, appropriate protective measures which ensure effective conservation of natural habitats and species through maintaining them in favourable conservation status. Consequently, if protected habitats and plant/animal species within a designated Natura 2000 site enjoy favourable conservation status and are not endangered in any way, no changes are required to the way the site has been used for economic purposes to date. However, if economic activities carried out in a Natura 2000 site have an adverse effect on the favourable conservation status of the site's habitat or species, the Natura 2000 conservation programme should promote adjustments of the economic activities to meet conservation needs and prevent any activities which might "cause significant deterioration of the status of natural habitats (…) and have an adverse impact on species" (Art. 33 of the Act on the protection of nature).

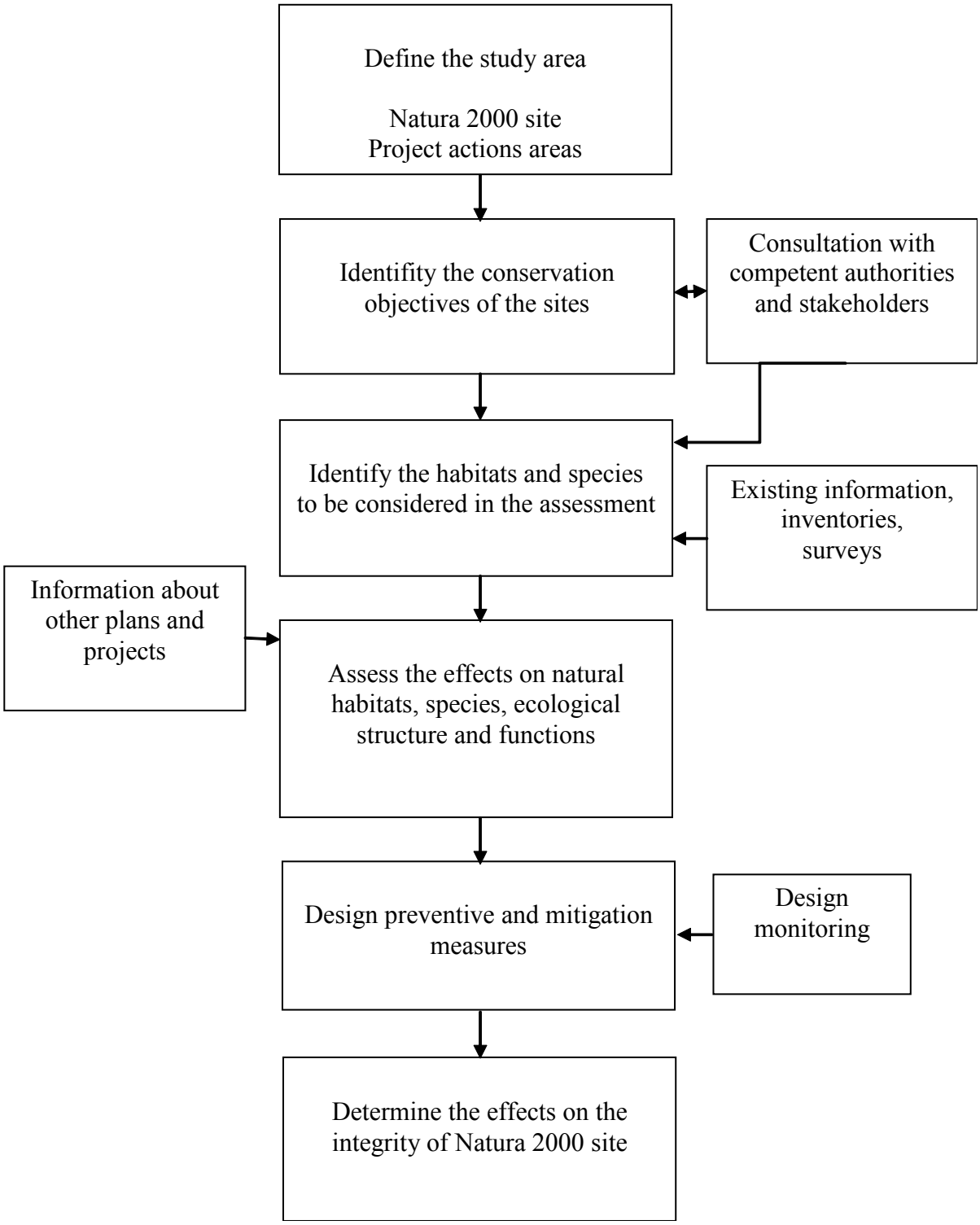

Figure 1. General procedure for assessing plans and projects significantly affecting Natura 2000 sites (Source: European Commission 2010)

3. Sustainable development and environmental impact assessment

Habitat and Birds Directives are binding for all EU Member States, nevertheless each country is free to introduce within its own territory such legal instruments as it sees fit for proper implementation of guidelines included in both Directives (Fig. 1) (Chylarecki 2007; European Commission 2010). In Poland, each planned project with potential, either direct or indirect, implications for the status of a Natura 2000 site, is subject to formal assessment of its environmental impact on the site, as laid down in the Act on the protection of nature (Journal of Laws 2006, no. 129, item 906). Properly performed assessment procedure is a precondition for achieving sustainable development. Environmental impact assessment is a preventative nature conservation tool which, based on thorough consideration of different implementation options of specific projects combined with general opinion surveys, makes it possible to reject solutions that fail to comply with the principle of sustainable development (Fig. 1). Environmental protection law, together with relevant regulations, specifies in detail how environmental impact assessment should be performed, what aspects should be included in the environmental impact statement and what types of projects must undergo assessment. Polish environmental protection law transposes Directive on Environmental Impact Assessment (EIA) (Council Directive 85/337/EEC, amended by Council Directive 97/11/EC), on the assessment of the effects of certain public and private projects on the environment, Directive on Strategic Environmental Assessment (SEA) (Council Directive 2001/42/EC) on the assessment of the effects of certain plans and programmes on the environment (Official Journal L 197, 21.7.2001, p. 30) and requirements contained in the Habitats Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora. Guidance and procedures of action included in Art. 6 of the Habitats Directive were prepared in compliance with general EIA procedures, which means assessment performed under Art. 6 of the Habitats Directive can be easily integrated with a complete EIA of a project or SEA of a plan (European Communities 2002). This means that whenever projects or plans come within the scope of actions laid down in EIA or SEA Directives, assessment performed under Art. 6 can be a part of these assessments or, if a project is found to have a likely significant impact on a Natura 2000 site, it is necessary to carry out assessment in compliance with Art. 6 of the Habitats Directive and standard environmental impact assessment (EIA under Directives 85/337/EEC and 97/11/EC). Furthermore, considering actions to be taken as a part of assessment of impact on Natura 2000 sites, appropriate provisions of Art. 6 of Council Directive 92/43/EEC have been incorporated into the Act on the protection of nature.

Permission to implement the plan is granted following positive outcome of environmental impact assessment (Fig. 2). In some cases, however, even negative EIA results do not exclude the planned project from implementation. Appropriate permits can be obtained if no alternative solutions are available and the project aims to serve the overriding public (social or economic) interest. Such cases call for maximum reduction of adverse implications of the planned project and, if this is not possible, compensation for adverse environmental impacts and preservation of the integrity of Natura 2000 sites (Habitats Directive, Art. 6(4)) (Fig. 2).

Under Art. 6 of the Habitats Directive, requirements applicable to the assessment of impact of a region development plan or project on a Natura 2000 site incorporate a four-stage approach comprising screening, appropriate assessment, assessment of alternative solutions and assessment of compensatory measures (European Communities 2002).

Stage 1: Screening – a process which identifies the likely impacts of a project or plan on a Natura 2000 site and determines whether the expected implications are likely to be significant.

Stage 2: Impact assessment – an evaluation of impacts of the project or plan on the integrity of the Natura 2000 site with respect to the site's structure, function and conservation objectives. If any negative impacts are identified, potential mitigation measures are also assessed.

Stage 3: Assessment of alternative solutions – a process examining alternative variants of achieving objectives of the development plan or project which make it possible to avoid adverse impact on the integrity of the Natura 2000 site.

Stage 4: Assessment of compensatory measures – an assessment performed where no alternatives exist and where adverse effects on the Natura 2000 site remain, though in the light of imperative reasons of overriding public interest it is considered that the plan or project should proceed.

Results of analysis at each individual stage determine whether the next stage of the procedure can be initiated. If no adverse impact on the Natura 2000 site is identified at Stage 1, it is not necessary to continue with the next assessment stages. However, it should also be noted that assessment performed under the Habitats Directive should be governed by the "precautionary principle" which – in the event of uncertainty – assumes that priority treatment is given to Natura 2000 conservation objectives. In this case, Communication from the Commission on the precautionary principle (COM (2000)) specifies the need for an objective evaluation, with appropriate evidence, that there is no risk of significant impact on the Natura 2000 site (Stage 1: Screening), no adverse impact on the integrity of

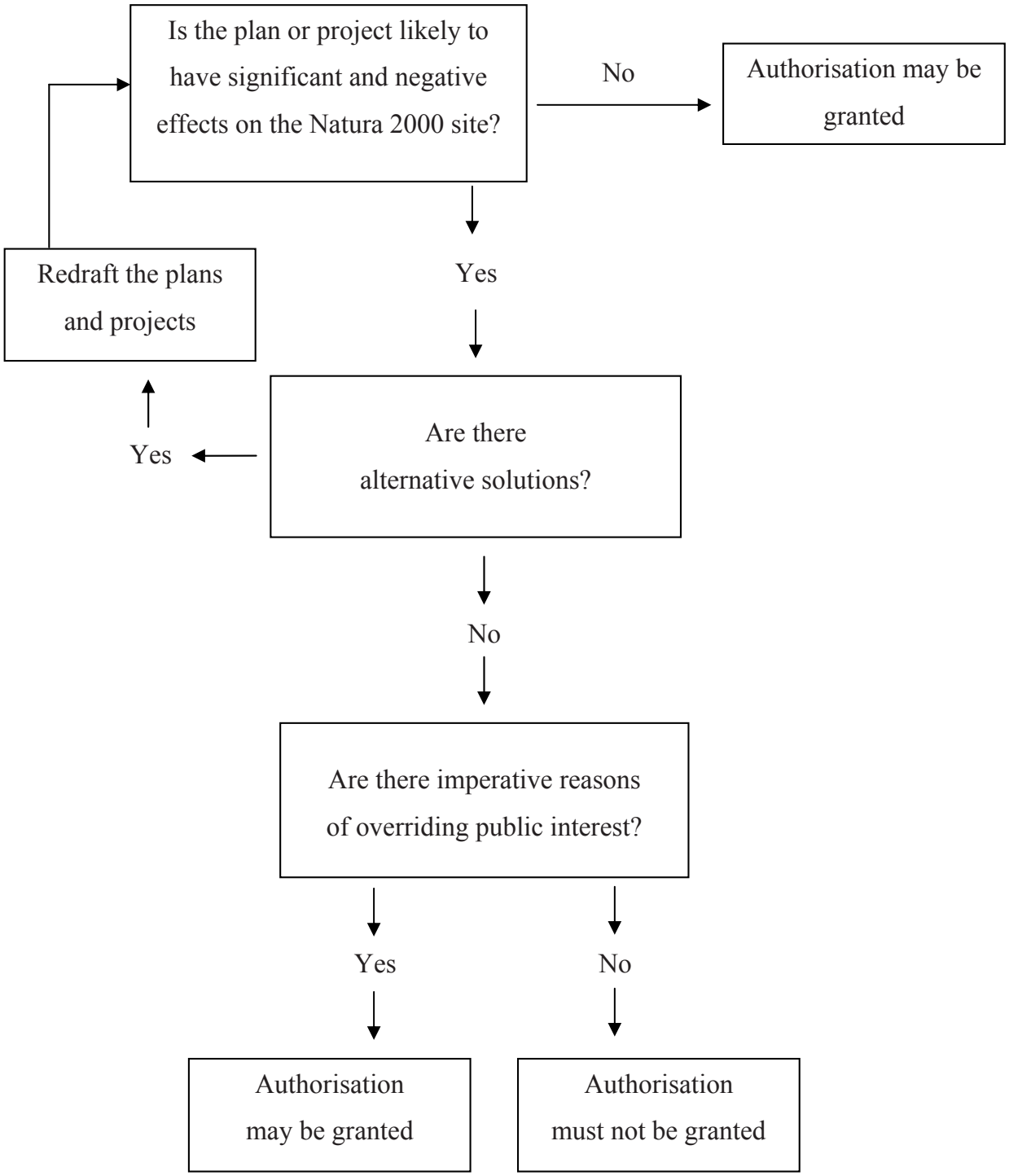

Figure 2. Consideration of a plan or project affecting a Natura 2000 site according with the Article 6 (3) and (4) procedure

the Natura 2000 site (Stage 2: Appropriate Assessment), there are no alternative options for a project or plan which is likely to have an adverse impact on the integrity of the Natura 2000 site (Stage 3: Assessment of alternative solutions) and there are compensatory measures which can be implemented to preserve or increase the coherence of the entire Natura 2000 network (Stage 4: Assessment of compensatory measures) (European Communities 2002).

According to the precautionary principle, it is essential to carry out an objective evaluation of planned projects to determine their effect on the conservation status of habitats and plant/animal species of European importance. Evaluation can be performed using various natural area valuation indices which make it possible to objectively assess the value of natural assets in a given area (Lenart & Tyszecki 1998; Obidziński & Żelazo 2007; Łaska 2009).

4. Sustainable development and Natura 2000 sites in practice

There are many examples across Europe demonstrating in practice how Natura 2000 operates in compliance with the idea of sustainable development. If a Natura 2000 site is used for economic interests, it is vital to indicate such forms of human activity that promote the maintenance of the site's biological diversity (Rio de Janeiro Convention on Biological Diversity 1992). There are many wrong beliefs about how Natura 2000 operates, such as claims that the value of agricultural land or forests designated as Natura 2000 sites automatically decreases or that Natura 2000 sites hamper economic activity, ban hunting and infrastructure development, or that elements of everyday life are also subject to Environmental Impact Assessment. The facts are that many traditional cultivation methods can still be used in agricultural areas designated as Natura 2000 sites, since they conform to the conservation needs of habitats and species present within the sites. However, if existing economic utilization of the area has adverse implications for local species and habitats, adaptation measures can often be implemented without limiting the scope of production. Such types of economic activity as hunting, fishing, tourism and recreation can be continued within Natura 2000 sites in line with the sustainable development principle, provided that they do not have any negative impact on species and habitats, and do not disturb nature restoration processes. An important aspect here is the involvement of all stakeholders and their participation in decisions on long-term use of such areas (Wilamowska & Wiśniewska 2007; Engel 2008). All parties can make a significant contribution to the success of Natura 2000 and conservation of biodiversity: land owners and users, enterprises, local authorities, environmental groups or individual people. In practice, this means close cooperation between all entities living or operating within the Natura 2000 site, based on the sustainable development principle, for the purpose of joint development of the most appropriate means of protecting habitats and species, while respecting social, economic and cultural features of the area. Open discussions involving all social groups concerned are helpful in working out an agreement on long-term protection and management of the Natura 2000 site. In addition, they promote the sense of contribution to the final success and help eliminate problems by applying practical solutions that promote sustainable development and are fully integrated with traditional economic uses of the land included in the Natura 2000 site. Sustainable development principle and effective conservation of natural resources are necessary components of sustainable social development across the entire European continent.

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