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Administrative system of afforestation in the Czech Republic: A long journey to a new forest

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Abstract: This review uses a case study based on an executed afforestation project to comprehensively describe the administrative procedure regarding afforestation of agricultural land in the Czech Republic, Central Europe. We consider the official proceedings for obtaining a permit to land-use change (i.e. changing the nature of land use and the mode of land use in the real estate cadastre) as a very complex and protracted procedure, which can substantially reduce the motivation of people to establish new forests. Therefore, we propose a simplification of the administration process of land-use change. The main idea is to make the procedure as simple as possible in those areas where afforestation is desirable, especially from the environmental point of view. It assumes the possibility of quick, precise and, if possible, automatic distinction whether the afforestation is suitable or not. The situation in the Czech Republic is compared with the surrounding Central-European countries: Poland and Slovakia. In these countries, the official procedure connected with afforestation seems to be rather less complicated.

Keywords: administration; afforestation of agricultural land; forest establishment; land-use change; spatial planning policy

In the Czech Republic, afforestation has been carried out throughout the last quarter of a millennium. Although the intensity of forest cover change varied mainly according to political and social changes and turns, the overall area of forests has been increased by 0.5 million ha until now (Simanov 2016). In recent decades, the annual increase in forest cover in the Czech Republic has averaged about 2 000 ha (i.e. 0.04%; MoA 2022), which is not a negligible pace, but not at all rapid, as reforesting all suitable land at this rate would take several hundreds of years.

Increasing the forest cover of the landscape is generally considered to be one of the decisive factors of climate change mitigation and a key measure for reducing soil erosion and optimising water

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management in the landscape (Vacek, Simon 2009; Záruba et al. 2021; Vacek et al. 2022). In the Czech Republic, however, the landowners who decide to afforest their land must expect an almost two-year administrative procedure, regardless of the factual suitability of the land for afforestation. If we are to take the improvement of the environment seriously, then a change in the approach to afforestation is needed. At the same time, however, we emphasise that this does not mean calling for extended afforestation without any limits. On the contrary, it is desirable to adopt a differentiated approach which will significantly adjust the extension of the necessary administration associated with afforestation, especially in terms of suitability for land afforestation according to soil quality and land-use planning requirements.

The aim of the present paper is to comprehensively describe the administration process of conversion of land type from agricultural land to forest land before starting the afforestation work. On this basis, the task is to assess the justification of the individual steps and propose changes where this seems appropriate for the conditions of the Czech Republic, discussed with the situation in the selected neighbouring countries (Poland, Slovakia).

LITERATURE REVIEW

Forest cover changes in the world. People have been changing the landscape since prehistoric times (Hughes, Thirgood 1982; McMichael et al. 2005). A significant impact is associated with the development of agriculture (Kacálek et al. 2009). The ancient civilisations, as well as the agricultural societies in Central Europe, occupied mainly non-forest ecosystems around large rivers. The increasing population gradually colonised the surrounding landscape, which was systematically deforested, both for firewood and timber, and especially for the purpose of obtaining agricultural land. Generally, deforestation is considered a key circumstance accompanying the development of civilisation (Skaloš et al. 2012). Generally, the areas with soil or climate unfavourable for agriculture or the areas important for the defence of the country usually avoided deforestation (Podrázský 2014).

The changes in forest cover were significantly different across the regions of the world (Podrázský et al. 2014). In the Mediterranean, the period with the lowest forest cover dates to the end of antiquity (Olofsson, Hickler 2008). In most of the developed industrialised countries of Western civilisation, the woodland area was gradually increasing especially during the 20th century (Nagendra, Southworth 2010; Bunce et al. 2014). In other regions, the rate of deforestation is culminating at present, or it is still growing (especially in tropical areas) (Grainger 2013).

In Central Europe, the human influence on forest expansion was evident as early as 6 000 years ago (Williams 2000). Deforestation was underway (with temporary fluctuations as a result of wars and epidemics) throughout the Middle Ages (Williams 2000). The least forest cover was reached around the end of the 18th century (e.g. Zerbe, Brande 2003). During the 19th century, local fluctuations in forest cover were still recorded, but during the 20th century, a general increase in forest cover was noticed (Skaloš et al. 2012).

In habitats with limited agricultural use (unfavourable climate, slope, fertility), while conditions are still suitable for forestry use, the process of forest return is often more or less planned, organised or assisted (Cukor et al. 2020). On the other hand, the return of forests in less fertile, dry, or otherwise poorly utilisable soils (stony, soils on slopes, etc.) is often spontaneous (Cramer et al. 2008).

Causes and effects of forest restoration. Undoubtedly, the economic benefits connected with wood production are substantial for landowners to decide on afforestation (Kumm, Hessle 2020). However, there are many deeper reasons for new forest planting. The overall task is to ecologically stabilise the landscape (e.g. reducing the risk of soil erosion or degradation, strengthening the water retention function, increasing biodiversity, improving the esthetical value) and adapt it to changing social needs, and the expected climate change (Nadal-Romero et al. 2016; Vacek et al. 2018, 2020). On the contrary, large-scale afforestation may have a negative impact on biodiversity (Caparrós, Jacquemont 2003), but this issue is out of the topic of this paper.

The change in land cover (including afforestation) is usually causally related to socioeconomic factors. However, it is obvious that the correlation does not always mean causality (Bürgi et al. 2004). Since the mid-20th century, in marginally productive areas of Central Europe, there has been a general decline in agricultural production due to deep socioeconomic changes (Strijker 2005; Vacek et al. 2016;

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Cukor et al. 2017). Another reason why some marginally productive lands were abandoned is an increase in the efficiency of agricultural production (Krausmann 2001). Many agricultural commodities are produced in regions with more favourable ecological as well as economic conditions, such as unequally distributed subsidies and national quotas for commodity production. This is approached by the general and global phenomenon of urbanisation, which is characterised by the depopulation of the rural landscape (Pazúr, Bolliger 2017). Tillage (or landscape maintenance) in such marginal areas then requires large subsidy transfers (Macdonald et al. 2000).

The above-mentioned natural and socioeconomic factors often result in farmland abandonment (García-Ruiz, Lana-Renault 2011). That creates a space for increasing the forest area (Poyatos et al. 2003; Taff et al. 2010). The new forests emerge both by succession, e.g. in the Polish Carpathian Mts. (Kolecka et al. 2017) or in the Alps (Tasser et al. 2007), and by the artificial afforestation (e.g. Skowronek et al. 2005; Terres et al. 2015).

Various afforestation programs have been implemented across European countries. In Portugal, the soils less favourable for agricultural use are afforested, and socioeconomic factors also play an important role (van Doorn, Bakker 2007). In addition to official programs, afforestation is carried out by small farmers or landowners, both for economic gain (Schirmer, Bull 2014) and also often as a hobby, where economic profit is only a secondary motivation (Præstholm et al. 2006).

The rate of forest succession depends on many factors, primarily on the soil surface character and the distance from seed trees (Vacek et al. 2018; Garbarino et al. 2020). Poor sandy soils usually undergo tree succession faster. Contrarily, on rich soils, grass turf often appears earlier than tree seedlings and slows down tree succession (Ruskule et al. 2012). Under suitable conditions, the forest environment can return in as little as 20 years; elsewhere, blocked succession stages can persist for many decades (Ruskule et al. 2016). The secondary forest and shrub formations often occur as the result of succession processes, e.g. the so-called macchia in the Mediterranean (Aronne, Wilcock 1997). The further development of such areas depends on the intensity and methods of human interventions, which may include maintaining succession or, conversely, performing active management (Lasanta et al. 2015).

In some areas, there is a process called 'planned wilderness return', where the area is purposefully left without human influence (e.g. in national parks; Höchtl et al. 2005). This creates 'forgotten landscapes' (Palang et al. 2006), which are often associated with an extensive increase of forest cover (Bičík et al. 2001).

Afforestation has been strongly supported by EU funds. The new interest in afforestation is associated with a required reduction in the carbon dioxide amount in the atmosphere to mitigate the considered climate change (Stoate et al. 2003), although the latest studies (Strand et al. 2021) do not confirm an increase in the soil carbon stock after afforestation of marginal agricultural land (specifically pastures).

The temporary plantations of fast-growing woody plants grown on agricultural land are an alternative to permanent afforestation. For this purpose, mainly fertile soils are used where the production of biomass can be achieved within several years after the establishment of the stand (Telenius 1999). Such plantations are typical, for example, in the Baltic countries [Latvia (Abolina, Luzadis 2015) or Estonia (Kund et al. 2010)]. Given those plantations are usually established on agricultural land without official change in the nature of land use (and the mode of land use) in the real estate cadastre, this topic is out of the scope of this paper.

Afforestation in Central Europe and in the Czech Republic. In the Central European region, afforestation plays an important role. In Poland, for instance, a total of 1.477 million ha of agricultural land have been afforested between 1947 and 2012. Other 80 000 ha of new forest stands emerged between 2000 and 2012 through natural or controlled succession (Krawczyk 2014). Birch, less also pine, typically dominated in the species composition of these stands (Bronisz et al. 2016). They can be a source of significant wood production, especially of firewood (Zasada et al. 2014). In the lowland parts of Poland, forested areas are scattered, and the structure of the traditional rural landscape does not fundamentally change. In contrast, a significant change in land cover occurred mainly in the Polish Carpathians [north from the ridge of the Carpathian arc (Munteanu et al. 2014)], where the gradual regional depopulation due to migration to the USA affected this area since the end of the 19th century. Another significant impulse was the expulsion of the Ger-

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man population after World War II. A significant increase in forest cover was the final result. Since 1930, the forest proportion in the individual districts increased by 40–64% (that means a net increase of 5–31% points). The mosaic landscape has thus gradually become a predominantly forest landscape (Kozak 2007).

It should be noted that rural depopulation, declining agricultural production and subsequent afforestation are not the exclusive issues of the former socialist bloc in Europe, where changes in the landscape structure during the communist era and after the fall of communism were generally quite significant (Václavík, Rogan 2009; Kanianska et al. 2014) but these processes are noticeable also in Western Europe, i.e. in Spain (Poyatos et al. 2003) or Sweden (Cousins 2001).

In the territory of today's Czech Republic, the lowest forest coverage dates to the end of the 18th century. According to the data from the so-called Josephian Cadastre (1790) and the First Military Survey (1780), the forests covered about 25% of land (i.e. an area of 1.974 million ha) at that time, compared to today's 33.96% [2.678 million ha (MoA 1998, 2022)]. Even in 1930, the forest cover was only 29.8% (2.354 million ha); in 1991, it reached almost today's values of 33.3% [2.629 million ha (Špulák, Kacálek 2011)]. Several stages of increasing the area of forests can be distinguished as follows:

(*i*) Gradual afforestation of infertile and erosion-threatened sites during the 19th century;

(*ii*) Afforestation boom in the newly established Czechoslovakia in connection with land reforms, which regulated the land ownership structure after the fall of the Austro-Hungarian monarchy and the aristocratic status (Simanov 2016) in the 1920s;

(*iii*) Afforestation boom of agricultural land after World War II (the most extensive stage);

(*iv*) The last afforestation boom came after 1990 in connection with general socioeconomic changes.

In the 50's of the 20th century, two phenomena coincided, especially in the border areas of the Czech Republic (Opršal et al. 2013). The first was a significant and somewhere permanent decline in settlement as a result of the expulsion of the German population after World War II (Kacálek et al. 2011; Grešlová et al. 2015; Zelinka et al. 2021). As an example, we mention the area of territorial jurisdiction of today's 'Municipality with Extended Powers' Králíky (Ústí nad Orlicí District, Pardubice Region, Czech Republic). In this region, the population decreased after 1945 from about 15 700 to 8 900, i.e. to about 57% of the original number, and this situation with slight fluctuations has persisted until now (CSO 2013).

The second phenomenon is the change in agricultural practice, which was the result of technological progress (introduction of mechanisation) and the so-called collectivisation after the start of the communist regime in 1948.

It led to a relatively short but very intense boom of agricultural land afforestation, which culminated in 1952, when almost 16 000 ha of agricultural land were afforested (Simanov 2016), and between 1945 and 1960, about 150 000 ha were afforested in total (MoA 2000). The afforestation program was enshrined in the then legislation (Act No. 206/1948 Coll. § 5–13). The selection of land suitable for afforestation was carried out in an organised manner, based on the initiative of the local authorities. The process of declaring the land a forest was generally very simple.

The last afforestation boom started after 1990 (Kupková, Bičík 2016) in connection with socioeconomic changes after the fall of communism and persists up to now. As the motivation, the subsidies play an important but not crucial role. Since 1990, the forest cover has increased by about 45 thousand ha, in the last 10 years with an annual average of about 2 000 ha (MoA 2000, 2022). The increase is due both to afforestation and the refinement of the real estate cadastre, where previously afforested land (artificially or by succession) for which no change of the type of land use has been made yet is now declared forest land.

The area of agricultural land in the Czech Republic suitable for afforestation varies according to various calculation methods (depending on the threshold values of used indicators – e.g. slope, exposure, stoniness, depth of soil profile, etc.) between 16% and 36% of agricultural land, i.e. 0.81–1.82 million ha. A detailed map, based on soil quality indicators delimiting the land suitable or unsuitable for afforestation, has been developed by Vopravil et al. (2015). If all suitable lands were afforested according to the above calculation, the forest cover of the Czech Republic would increase from the current 33.9% to about 44% or 57%, respectively, according to the scenario. At the current rate, however, it would take 400–900 years.

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Of course, it is not possible to demand that all suitable lands be afforested in the near future. Such a change would mean a significant and permanent intervention in the landscape structure, which would not be beneficial from a socioeconomic and probably also from an ecological point of view (Vopravil et al. 2015). On the other hand, there are several undeniable positive effects of afforestation, as mentioned above.

Aims. Despite the rhetorical and subsidy support, the landowner who decides to afforest the agricultural land (a modern 'man who planted trees' – cf. Giono 1954) must surmount both the technical issues of tree planting and a significant administrative burden to achieve official conversion of land in the real estate cadastre, which will allow legal afforestation. In the Czech Republic, the process is long and sometimes uncertain. Its complexity does not depend on the location and the real suitability of the land for afforestation. In addition, the individual steps are not clearly summarised in the legislation, but they implicitly result from the entire spectrum of laws and regulations.

Based on the case study (the really executed land-use change and afforestation project), the task of this paper is to describe the official procedure in the Czech Republic before the tree planting itself can legally launch – in comparison with the situation in selected neighbour countries (Slovakia, Poland). Then, we suggest the possibilities to modify the administration settings to simplify the process of land conversion from agricultural to forestry purposes. The results can be used as a basis for the proposal of legislation changes.

MATERIAL AND METHODS

The study is based on a performed project of agricultural land afforestation, including the initial official conversion of the land use from agricultural land to forest land in the cadastre followed by the planting of trees. The project was carried out in 2018–2020 at the land parcel No. 942/4 in the cadastre unit Mistrovice nad Orlicí, Mistrovice Municipality, Municipality with Extended Powers Žamberk, Pardubice Region, Czech Republic. GPS of the plot centre: 50°02'13"N, 16°34'45"E. The plot lies in the range of altitudes 510–535 m a.s.l., exposure azimuth is approx. 20° (NNE direction), slope inclination varies approx. 1–20%. Originally, the agricultural soil value was classified as ESEU 83551 [ESEU – Evaluated Soil Ecological Units; original abbreviation in Czech: BPEJ; for explanation, see Appendix I in the Electronic Supplementary Material (ESM)]; from the forestry point of view, it was determined as the complex of forest site types 4S1 (modal fresh beech forest with *Oxalis acetosella*; for details see Viewegh 2003).

The original land parcel No. 942/4 had an area of 20 313 m^2. The part of the land parcel could not be afforested due to the conflict with the spatial plan (for details, see the Discussion section), and it had to be excluded. The new land parcel after the exclusion has an area of 18 568 m^2. The really afforested area is approximately 1.57 ha, because some partial zones had to be removed from afforestation (namely the strips around the boundaries, the protection zone of the adjacent main road and the underground telecommunication facility).

The administration process included 16 applications (on 37 pages), 21 assessments, opinions and communications (on 89 pages) and other 9 documents (on 20 pages). That overall represents a total of 146 pages of text. Most of the documents were further used as attachments. These reused copies are not counted. The analysed and cited set of Czech acts and other regulations consists of 24 items.

A total of 12 365 trees have been planted. To protect against game damage, the area was fenced with a wire fence of about 515 m in length and 1.6 m in height. The planting of trees was carried out manually into planting holes prepared using STIHL BT 121 earth auger (STIHL, Germany). A mixture of Norway spruce, Scots pine, European beech and oaks was planted and other partial experiments were laid out during the forest establishment. The plantation will be the subject of future forestry studies.

For the translation of technical terms, the terminological dictionary of the State Administration of Land Surveying and Cadastre (COSMC 2020) and the official translation of Building law (MRD 2024) have been used preferentially.

For CZK to EUR conversion, the official monthly exchange rate has been used (EC 2023). The current conversion rate in Sept 2023 was CZK/EUR 24.107.

RESULTS

Administration of land-use conversion

Administration of land-use conversion in the Czech Republic is a very complex and protracted process. The core is 'planning permission pro-

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ceedings' conducted at the 'Building Authority', which requires many statements issued by other offices, and further attachments. If the procedure is performed successfully, the applicant receives the 'planning permission on land-use change'. This decision is the most important attachment for the final 'Forest declaration decision' acquired on the basis of 'Forest declaration proceedings'. Then the change in the nature of land use (and in the mode of land use) in the cadastre can be accomplished. Figure 1 graphically depicts the relations between the documents; it is followed by a detailed description of the individual documents. The overview of the documents in the administration process, including the periods to obtain the individual documents, is presented in Appendix II in the ESM.

The overall period needed for the process cannot be exactly calculated. It depends on many circumstances and whether the parties of the proceedings appeal. Therefore, our model counts with the estimated values of periods based on real experience.

Description of the documents

The detailed description of the substance of the individual documents (marked A to Q according to the previous chapter) in the administrative chain is presented below.

A, B, B': Extract from real estate cadastre (REC), copy of cadastral map. The document can be received at any branch of the State Administration of Land Surveying and Cadastre (SALSC; original abbreviation in Czech: ČÚZK) or at the CzechPoint branch (Czech Submission Verification Information National Terminal; DIA 2024).

C: Forest site type classification. The typological classification in the Czech conditions determines the management principles for the individual forest stands. According to Regulations No. 456/2021 Coll. and No. 298/2018 Coll., the typological classification is a basis to define the species composition which will be used in the afforestation project. For details see Appendix III in the ESM.

D: Power of attorney. Granting the power of attorney, the landowner can authorise another person

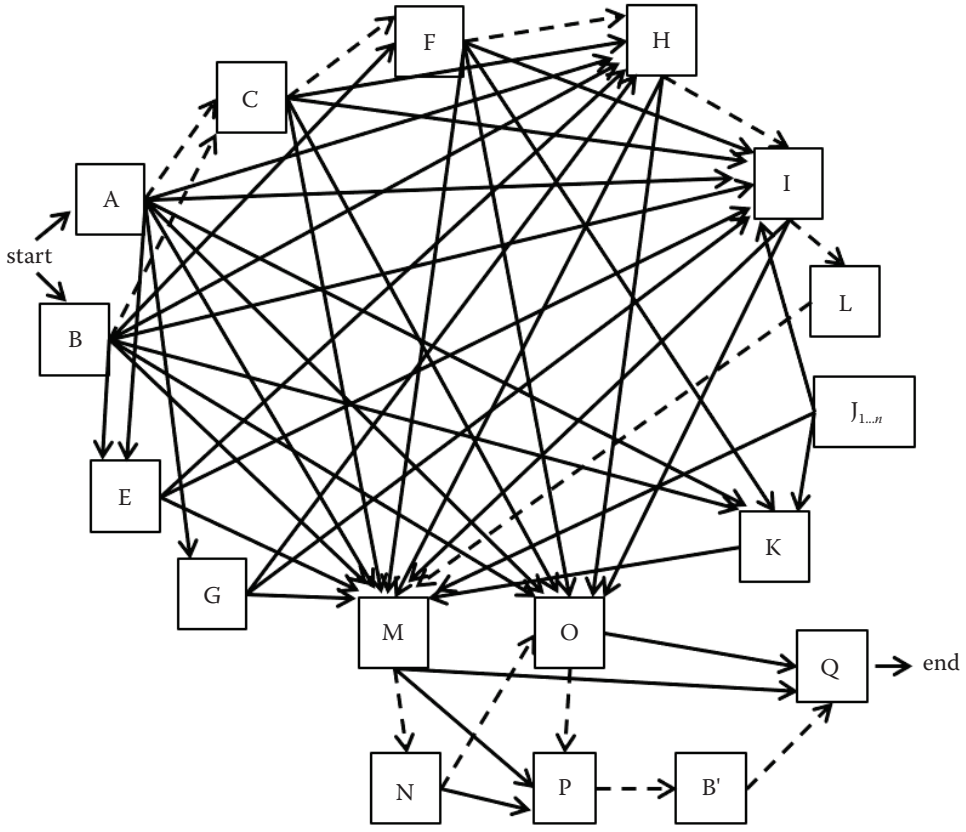

Figure 1. Relations between the individual documents

For simplification, the document D (power of attorney) was not included in the chart; the notation e.g. X → Y means that the document X constitutes an attachment needed for acquiring the document Y; the dashed line indicates the critical path.

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(applicant) to communicate with the authorities. If the power of attorney is granted for a larger number of proceedings, the signature must be officially verified (CzechPoint branch). In our case, there are two separate proceedings – planning permission proceedings and forest declaration proceedings.

E: Preliminary statement of the municipal authority. This is the first preliminary statement at the beginning of the administrative process. Municipalities are participants in the planning permission proceedings (according to Act No. 114/1992 Coll. § 71 par. 3). The document is required by the Department of the Environment of the Municipality with Extended Powers, which is a respective authority to provide the statement.

F: Afforestation project. The afforestation project is a documentation specifying the methods of establishing a new forest stand. Technological parameters are based on site conditions (forest typological classification) and legislative requirements (Regulations No. 456/2021 Coll. and No. 298/2018 Coll.) and they are adjusted to the specific situation. The (minimum) number and type of used tree species, tree spacing, type of planting stock, tree species composition, distribution of tree species, method of soil preparation, planting and protection against game and weeds are specified. The project can also suppose the establishment of a forest stand by sowing, or natural regeneration (succession). Although it is not directly stipulated by the legislation, the administrations usually require that the project be prepared by an authorised person, i.e. licensed forest manager.

G: Declaration for forest land – preliminary statement of the state forestry authority. It serves as a preliminary statement before commissioning the processing of the afforestation project and submitting further applications. It is an affirmation of the 'State Forestry Authority' to issue a 'Decision on the declaration for forest land' after the 'Planning permission on the change of land use' has been obtained.

H: Binding assessment on land parcel withdrawal from the agricultural land resources. The issuance of a binding assessment on the withdrawal of a land parcel from the 'agricultural land resources' is regulated by Act No. 334/1992 Coll. § 9 par. 8. If an affected area is less than 1 ha, the agreement is issued by the municipality with extended powers – according to Act No. 334/1992 Coll. § 15a letter j). In that case, the consent would be part of the 'Coordinated binding assessment' (see below). If an affected area is between 1 ha and 10 ha (our case), the agreement is issued by the Regional Authority of the concerned region (in accordance with Act No. 334/1992 Coll. § 17a letter e). If an area of more than 10 ha is to be affected, the agreement is issued by the Ministry of Agriculture (in accordance with Act No. 334/1992 Coll. § 17 letter d).

As a part of the binding assessment, the office will decide whether a fee for the withdrawal of land from the agricultural land resources will be levied (according to Act No. 334/1992 Coll. § 8 par. 1 letter a) item 1). The amount of fee will be decided according to the Act No. 334/1992 Coll. § 11 par. 2). In our case, no fee for the withdrawal was set and paid. For details see Appendix I in the ESM.

The requirements for the application for withdrawal from the agricultural land resources are set out in Act No. 334/1992 Coll. § 9 par. 6. For the purposes of afforestation, the relevant supplements are as follows: extract from the cadastre, calculation of fee, justification and information for what proceedings the opinion is issued.

I: Coordinated binding assessment (CBA). If in a given matter (in our case the provision of documents for planning permission proceedings) several bodies (departments) within one office (municipality with extended powers – MEP; original abbreviation in Czech: ORP) are concerned, the 'Coordinated binding assessment' can be issued instead of individual assessments (according to Act No. 183/2006 Coll. § 4 par. 7). The CBA (original abbreviation in Czech: KZS) summarises the assessments of all respective bodies in one document, and it also presents information from the authorities which are not concerned. The CBA can be issued only if the statements are identical.

A binding assessment of the 'Nature protection body' is necessary for afforestation of land over 0.5 ha (Act No. 114/1992 Coll. § 4 par. 3). Outside a specially protected area, statements are issued by the MEP (Act No. 114/1992 Coll. § 77 par. 1 letter b). In the case of national parks (NP) or protected landscape areas (PLA; original abbreviation in Czech: CHKO), statements are issued by the Administration of NP or the Nature Conservation Agency of the Czech Republic (NCA; original abbreviation in Czech: AOPK; Act No. 114/1992 Coll. § 78 par. 3 letter j). This applies to all relevant assessments on planning permission proceedings.

In our case, CBA contains statements of the concerned bodies of MEP (Žamberk Municipal

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Authority) as follows: Department of the Environment and Agriculture (as a water-law body), Department of the Environment and Agriculture (as a nature protection body), Department of Regional Development and Spatial Planning (as a spatial planning body), Department of the Environment and Agriculture (as a body for the protection of agricultural land resources; it announces that a binding assessment has been issued by a superior authority – the Regional Office of Pardubice), Department of the Environment and Agriculture (as a body of the state forest administration; it does not comment directly, but it states that a decision will be issued in the matter on the basis of a separate application after a final decision on land-use change in the planning permission proceedings). The following bodies of MEP (Road Administration Office; Air Protection Authority; Waste Management Authority; the body of national monument care) add the notes that they are not concerned authorities and they do not issue the statements.

J: Statement of the owners of the technical infrastructure on the existence of distribution grids. As a basis for the planning permission proceedings, the applicant attaches the statements of the operators of energy, communications and other distribution grids, which come into consideration in the given locality whether there will be a conflict with these grids in the given area. If an underground or aboveground grid is located in the area where afforestation is planned, a protection zone is usually declared around the grid course, where certain activities are restricted, such as tree planting. In that case, the land-use change is possible, but the protection zone must remain without afforestation. The conditions given in the individual statements are contained in the planning permission.

Information on the distribution grids and their owners is published by the municipality with extended powers, usually on the website – according to Act No. 183/2006 Coll. § 166 par. 2.

Specifically for our case, the information is available at the website of the Municipality of Žamberk (Žamberk 2024). The applicant finds which owners of technical infrastructure are eligible in the given area and will ask them for a statement on the existence of the grid (usually by a web form on the websites of the companies). In our case, the owners of water, gas, electricity, telephone and data grids were asked for opinions. The width of the protection zones and the restrictions on activities depend on the type of network. In our case, a telephone line (underground optical cable) crossed the plot of the land. The protection zone where no trees should be planted is 1 m wide on each side of the line. For other examples of protection zones see Appendix IV in the ESM.

K: Statement of State Road Authority. Although the Road Administration Office of MEP is not the concerned body to issue the statement within the CBA (see above), the Building Authority required the statement of the Department of Transport and also the opinion of the transport route owner when the respective plot of the land is adjacent to a road or railway, along which a protection zone with various restrictions is located. In our case, the statement of the Regional Office, Department of Transport (based on Act No. 13/1997 Coll.) and the opinion of the Road and Motorway Directorate (RMD; original abbreviation in Czech: ŘSD) were attached to the application for the planning permission proceedings. In our case, there is a protection zone of the 1st class road (Act No. 13/1997 Coll. § 30 par. 2 letter b). For details see Appendix IV in the ESM.

L: Field survey sketch (geometric plan) for the division of the land parcel – verified concept. If the change in the land use (afforestation) is intended only for a part of the land plot, it is necessary to divide the land parcel by a survey sketch. The survey sketch will be prepared by the geodetic office (private company) on order and for a fee. The field survey sketch, which contains the geodetic parameters of the new boundary, will be used as a basis for the planning permission proceedings for the division of the land parcel.

M: Decision on the division of the land parcel and decision on land-use change. Planning permission proceedings (according to Act No. 183/2006 Coll. § 76) are a procedure by which a decision is made on the possibility of carrying out the planned intention. Based on the planning permission proceedings, a planning permission is issued. The legislation (Act No. 183/2006 Coll. § 77) distinguishes the planning permission proceedings on the location of the building, land-use change, division or merging of land parcels etc.

In our case, according to the assessment of the Spatial Planning Body (the 'office' hereinafter in this chapter), only a part of the original land parcel was allowed for afforestation. Therefore, two planning permissions (on the division of the land parcel and

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on the change of land use) should be issued. Since these two separate proceedings are factually related to each other, the office joined them together into one combined proceeding.

Planning permission proceedings take place at the locally competent building authority, which in the first instance is the authorised municipal authority (Act No. 183/2006 Coll. § 13 par. 1 letter d). Local affiliation to a municipality with an authorised municipal authority is determined by Act No. 314/2002 Coll. (Annex 1).

The parties of the planning permission proceedings (according to Act No. 183/2006 Coll. § 85) are as follows: the applicant, the municipality of the concerned territory, the owner of the land on which the planned intention is to be carried out or the person who has another material right to this land or building, persons whose ownership or other right to neighbouring land may be directly affected by the planning permission.

According to Act No. 183/2006 Coll. § 80 par. 1, the course of the procedure can be simply described as follows: after submitting the application, the office will check the completeness of the documentation and, without undue delay, will initiate the procedure or ask the applicant to complete the documentation. If a field inspection is not provided, the office shall deliver a notice to all of the parties about the opportunity to acquaint themselves with the documents and the possibility to lodge objections. The deadline for objections is at least 15 days (+ 10-day delivery time). If the office recognises the objection as justified, the proceedings are suspended. They are renewed after the applicant has settled the objections. After assessing the documents and any objections, the office will issue a communication to inform the parties that the office has completed the appropriate documentation to issue the planning permission and the parties have an opportunity to get acquainted with the contents of the file again (the deadline is 7 days + 10-day delivery time). If none of the participants lodges objections or the office finds the objections unfounded, the office will issue the planning permission without undue delay. Otherwise, the office asks the applicant again to complete the documentation or interrupts the proceedings. The time limit for issuing a decision is 60 days (in complex cases 90 days) from the commencement of the proceedings. After the decision is issued, a period of 15 days (extended by 10 days for delivery) runs to file an appeal. Unless the appeal is lodged in the deadline, the decision will come into force.

The change of land use up to 300 m^2 does not require any planning permission (according to Act No. 183/2006 Coll. § 80 par. 3 letter c). In case of the range of 300–1 000 m^2, a planning permission is not necessary, but a simplified form, the so-called planning consent is sufficient; however, the consent of all relevant bodies and parties is required (Act No. 183/2006 Coll. § 96 par. 2 letter d). When changing the land use of over 1 000 m^2, planning permission is always required.

Afforestation of non-forest land over 25 ha (Act No. 100/2001 Coll. Annex 1, line 95) is subjected to environmental impact assessment (EIA), if so determined in the investigation procedure (to be performed by the relevant Regional Authority) – Act No. 100/2001 Coll. § 4 par. 1 letter c).

Attachments to the application for the issuance of a planning permission are not declaratively defined, because they are individual, but they result from the provisions of Act No. 183/2006 Coll. § 86 par. 2 and of Regulation No. 503/2006 Coll.

N: Survey sketch for the division of the land parcel – confirmed by the Cadastral Office. After the planning permission for the land division has been issued, the geodetic office will ensure confirmation of the field survey sketch at the Cadastral Office (the office will verify the accuracy of the map data, especially the numbering of land parcels). Then the geodetic office will prepare the final version of the survey sketch, which serves as a basis for recording the change in the real estate cadastre. The record of the land parcel division in the real estate cadastre may take place before the commencement of the planning permission proceedings on the land-use change, or it will take place parallelly (after the planning permission on the land-use change has been issued).

O: Decision on the declaration of land parcel for forest land. Forest land declaration proceedings are the final procedure by which the body of the state forestry authority in accordance with Act No. 298/1995 Coll. § 3 par. 4 declares the relevant land parcel to be a forest land. Pursuant to Act No. 298/1995 Coll. § 48 par. 1 letter b), the proceedings are led by the MEP. Unlike the planning permission, the outcome of which also depends on possible objections from the parties (e.g. neighbours), the procedure for declaring a forest is essentially formal. In theory, the office could request

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an adjustment of the afforestation project, but the permission to land-use change is, in practice, granted by the previous planning permission proceedings. The attachments required for the forest land declaration proceedings are not specified, but according to 'customary law' and the substance of the case. The required documents are mentioned in Table S1, Appendix II in the ESM.

The decision on declaration of the land parcel as a forest land (verbatim: the land designated for fulfilling the forest functions) will take legal effect after the expiration of the 15-day appeal period (+ 10-day delivery time). The legal force shall be marked by the office at the initiative of the applicant on the original document through the so-called legal force clause, usually during a personal visit, or by correspondence. After the forest land declaration proceedings, there is a 2-year period to perform own afforestation (according to Act No. 289/1995 § 31 par. 6).

P: Record into real estate cadastre (notification of changes). The whole process of land-use change is completed by announcing the change of data to the real estate cadastre (REC; original abbreviation in Czech: KN) – according to Act No. 256/2013 Coll. § 31 letter a). The REC registers, among other things, the type of land and the method of use – according to Regulation No. 357/2013 Coll. § 10 par. 1 letter g). The assignment of land parcel to forest land will take place in accordance with the provisions in Regulation No. 357/2013 Coll. § 38 par. 1 letter b). Since the land-use change is not an issue of a property right change entry to REC (but a change of other data), there is no administrative fee for registering these changes.

Specific documents are not stipulated in the legal regulation, but they result from the form for notifying changes (SALSC 2019). If all the required attachments are submitted (see Table S1, Appendix II in the ESM), the changing of the data in the real estate cadastre could be considered a formal and technical process. The applicant must report the change within 30 days from when the forest land declaration comes into legal force – Act No. 256/2013 Coll. § 37 par. 1 letter d). The Cadastral Office will register the change without undue delay, no later than 30 days from the submission of the application (Act No. 256/2013 Coll. § 33 letter d).

Q: The real estate tax. The process of conversion of agricultural land to forest land is finally completed by the filing of a partial tax return, which will assess the real estate tax in a new amount, as the tax on agricultural and forest land is different. The tax return is submitted to the locally competent tax office (TO; original abbreviation in Czech: FÚ) on the appropriate form which is also available at the website of the office (FA 2024).

In our case, the amount of tax before the land-use change reached EUR 4.60 (CZK 111); the new amount of tax (after the land-use change) reached EUR 7.34 (CZK 177). For the detailed calculation of the real estate tax for our case see Appendix V in the ESM.

DISCUSSION

General aspects

Although afforestation of marginal agricultural land is generally considered a beneficial measure which is often also subsidised by the state authorities, there are substantial administrative obstacles in the Czech Republic that markedly complicate the afforestation, regardless of how the land is suitable for afforestation in fact. Besides the complexity of the administrative procedure related to afforestation, the next problematic aspect is that the prediction of the result of the procedure is uncertain until the final decision on declaring the forest land is issued. That may complicate the scheduling of the afforestation work. Small landowners who would like to take erosion-control or landscaping measures through afforestation or to optimise the use of their property are significantly discouraged by this approach. Moreover, planting a forest on agricultural land without an official decision could be considered an unauthorised land-use change, which may be penalised up to EUR 20 741 (CZK 500 000) according to Act No. 183/2006 Coll. § 181 par. 1 letter c) and par. 7 letter a).

Popularly speaking, nowadays, the landowners embark on the afforestation not because it is easy, but because it is hard (cf. Kennedy 1962).

The systemic problem is that the institute of planning permission proceedings (the core procedure for changing the nature of land use and the mode of land use) is primarily used for the purposes of building permits, i.e. for projects where it is presumed to be profitable for owners but usually with negative impacts on the environment. However, the administration of the land-use change for the purpose of afforestation, which is usually perceived

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as environmentally beneficial, is also processed according to a qualitatively similar scheme.

It should be emphasised that it would not be correct or expedient to afforest all non-forest and abandoned or agriculturally unviable areas. It is obvious that there is a whole range of habitats where afforestation would cause environmental damage. Landscape protection (Stichmann 2000) or the protection of valuable non-forest associations (e.g. flower-rich meadows – Feurdean et al. 2018) can be such examples. Afforestation should be fundamentally unacceptable on such sites. On the other hand, there are a large number of areas very suitable for afforestation, especially sloping, eroding agricultural land.

A specific case is the planned afforestation of high-quality agricultural land in order to diversify the agricultural landscape. On the one hand, it is not very desirable to lose fertile agricultural land through afforestation. On the other hand, fertile soils are usually located in areas with a lack of forest cover, where the establishment of a new forest of suitable shape to divide large fields is significantly beneficial. These measures are usually implemented as the so-called Territorial System of Ecological Stability (TSES; original abbreviation in Czech: ÚSES), which is a network of biocentres and biocorridors, i.e. existing and newly built (planted) elements of landscape greenery on agricultural land in the form of small woods, wooded lanes, alleys, wetlands, etc. (Kubeš 1996). Suitable sites with less usable land (e.g. along roads, watercourses, etc.) are preferably used to create TSES elements, but sometimes the strips are run across large field plots according to geometric requirements regardless of land properties. It is, therefore, desirable to coordinate these activities in a wider area (at least one cadastral area), preferably within the implementation of the complex land consolidation. It is important that no fee is paid for the withdrawal of land from the agricultural land resources in the case of TSES (Act No. 334/1992 Coll. § 11a par. 1 letter l) and p). Nevertheless, the plots of biocorridors and biocentres usually remain a part of the agricultural land resources (ALR; original abbreviation in Czech: ZPF) without the change of the land-use mode and land-use nature.

Proposal of optimisation of the official process

Generally, the main idea of optimisation of the official process of afforestation is to remove the chaining of the individual proceedings. It is desirable that individual documents could be obtained in parallel, with regard to shortening the time periods needed for the process.

The optimal course is as follows: the applicant submits the application with as small an amount as possible of attachments (clearly specified in the legislation) to the competent authority (building authority or other authority within the municipality with extended powers). The office authority will provide the necessary documents (according to specific conditions) and issue a final decision which is sufficient to register the change in the nature of land use and the mode of land use in the real estate cadastre.

Comments on the individual documents are presented below.

– Ad A, B, B': Obtaining extracts from the real estate cadastre does not represent a greater administrative burden, but in reality, it represents unnecessarily presented documents. In any case, the authorities have remote access to the real estate cadastre, and they can acquire and verify information on an ongoing basis (they do the same during the proceedings). To describe the intent when submitting the application, a preview (extract + map) from a public web application would suffice.
– Ad C: The typological classification is a professional activity which should not be useful to restrict.
– Ad D: The power of attorney is necessary when the landowner and the applicant are not the same person.
– Ad E: The relevant department in the municipality with extended powers deals with the conflict with spatial planning. The principle should be that the authorities shall agree among themselves. The statement of the municipality should, therefore, be obtained by the department at the municipality with extended powers itself.
– Ad F: Given that the content of the afforestation project is based on legislation that thoroughly specifies e.g. the number of planting stock and tree species, the project seems redundant. The project only summarises this data and does not introduce anything new. The proposal of the plantation density and tree species composition could already be a part of the forest typological classification, provided by the Forest Management Institute. If the owner applies for subsidies,

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let the afforestation project be more detailed and complete.
– Ad G: A separate statement is unnecessary. The statement should be included in the state forestry authority assessment within the coordinated binding assessment.
– Ad H: The practice that the regional authority provides the statement in case of larger areas to be afforested seems unfounded. The other respective authorities are always the lower-level authorities (MEP, MA), which also provide the partial statement and issue the final decision. A separate decision on land withdrawal is also superfluous. The authority of agricultural land resources protection should issue an assessment (within the CBA) and the final decision on the withdrawal (for afforestation) should be part of the planning permission proceedings on the land-use change which take place at the building authority.
– Ad I: The coordinated binding assessment institute means a significant simplification of administration for applicants, as requests for statements need not be submitted to individual departments, but only one CBA application is filed. In addition, the departments themselves decide whether or not they are the respective authorities in a given case. However, it is necessary to expect a period of several months for issuing an assessment. No special deadline for issuing CBA is set according to the MoRD (2022). The general provision in Act No. 500/2004 Coll. § 6 applies that the office is obliged to decide without undue delay. The provision in Act No. 500/2004 Coll. § 71 par. 3 states that a period of 30 days is considered reasonable. In reality, the period may even be longer than the stated 60 days. Nevertheless, it is usually more advantageous for applicants to wait longer for one summary and complete (coordinated) binding assessment than to obtain the individual assessments separately.
– Ad J, K: Conflicts with distribution grids and traffic routes should be primarily handled by the building authority. It can thus immediately verify which grids are located in the given area and which restrictions will result from their existence and integrate them into the conditions of the planning permission.
– Ad L: If the situation shows that the land parcel must be divided, then it is a necessary document.
– Ad M: Planning permission proceedings are the basic institute regulating land-use change. For afforestation purposes, it should be simplified, especially in non-complicated cases. There should be a possibility to handle all attached documents in parallel in order to avoid chaining and, thus, time delays. In general, the principle should apply that the relevant office will ensure everything it can provide itself (e.g. distribution grids localisation, extracts from the real estate cadastre, statements of the respective state administration bodies, etc.). The next principle should apply that the applicant receives only one summarised statement from the state authorities, which is further submitted in the planning permission proceedings. In fact, this will not increase the amount of administration, as the office nowadays asks the other relevant bodies (who have already issued the statement) again during the proceedings anyway. It is also lengthy that one relevant body sometimes provides the statement several times in a given matter, e.g. the state forestry authority issues a preliminary opinion, a binding assessment (or an opinion within the CBA) and then they conduct a forest land declaration proceeding.
– Ad N: No remarks.
– Ad O: The forest declaration procedure seems superfluous. It is obvious that the state forestry authority should have an overview of the newly forested areas, but it has already issued a binding assessment within the planning permission. From a factual point of view, notification should be sufficient for the office to record the change in the relevant registers and statistics.
– Ad P: This is a formal matter; without remarks.
– Ad Q: The real estate tax should be changed automatically by the Tax Office. The necessity to fill out partial tax returns in the present day 'digital age' seems to be rather useless.

Other aspects related with afforestation process

Spatial planning. Afforestation of agricultural land is closely related to the process of spatial planning; sometimes, they even clash with each other. The main goal of spatial planning is to create preconditions for sustainable use and development of the territory in terms of civilisation needs, in accordance with the protection of natural and cultural values (Act No. 183/2006 Coll. § 18–19; Vodný et al. 2017). The basic document of spatial planning

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is the spatial plan for a given municipality or region, which consists of a map and text part and sets out the permissible and impermissible use of the territory and the conditions for making changes.

The spatial planning instrument should balance the interests of all landowners, i.e. both developers and owners (and lessees) of agricultural and forest land. Spatial planning should protect the territory (landscape) from damage and spontaneous unregulated use. However, if the spatial plan allows developing on an agricultural land, the price of the land will usually increase many times over. In practice, it is therefore very difficult to remove the areas for the intended development from the already approved spatial plan, as the land would be devalued in terms of price, which the owners usually do not allow.

The spatial plans were adopted in most municipalities of the Czech Republic about 20 years ago. Although the procedure of a spatial plan formation is a public matter, the possibility to acquaint themselves with the arising spatial planning documentation is announced to landowners only by a public decree. Therefore, the arising spatial plan is usually directly discussed only with those landowners who are actively interested. Especially the well-informed landowners, typically the development companies, thus have more extensive opportunities to assert their interests while the small landowners (private persons) often stay apart. As a result, the interest in the occupation of agricultural land for developing purposes is in fact superior to the interest in agricultural management, but also the interest in the afforestation.

Forest protection zone. When changing the land use to a forest, like in our case, there may be a remarkable problem related to spatial planning. The obstacle lies in the application of the provision of the Forest Act (Act No. 289/1995 Coll. § 14 par. 2). According to this provision, the construction or land-use change affecting the 50 m buffer zone (since 2024 the width has decreased to 30 m – according to the Forest Act Amendment No. 149/2023 Coll. part 4 article V point 2) around the existing forest land requires the special consent of the state forest administration body within the planning permission proceedings and building permit proceedings.

This provision is intended to protect the forest from damage and, at the same time, prevent conflict between the construction and the forest in future (e.g. possible fall of trees). Therefore, new buildings should not be constructed in the forest and 50 m from its edge (30 m since 2024).

This aspect can become problematic in spatial planning. In the text part of spatial plans, specific conditions for the land-use change are set. The given conditions usually contain the provision that the land-use change is possible only if it does not create a new limit for future land use. In this way, the spatial plan prevents such changes that would complicate activities in the future that the plan allows.

Afforestation is therefore permissible only if the land is not adjacent to an existing (or planned) building, resp. existing or planned developing areas. The measure to protect the existing forest actually limits the possibility of establishing a new forest stand on previously non-forest land. In the case of existing (or seriously planned) constructions, this principle is understandable and correct, as the principle of time priority. The problem arises in a situation where the spatial plan on the given land allows construction (potential development area), but the construction is not even being considered yet, while the territorial reserve exists for possible future intents. Even in this case, the new afforestation must keep a distance of 50 m from the considered (physically non-existent) construction zone.

How to conceptually solve such a situation? It can be considered that in the future the forest owners would tolerate possible restrictions on management from the future construction. Specifically, they would have to ensure, for example, that the trees do not endanger the future construction. This would have to be reflected in the species composition, e.g. the use of pioneer tree species with a short rotation, a forest under coppice management etc.

Land Parcel Identification System. Simultaneously with the change of land use, the applicant must ensure the modification of data in the Land Parcel Identification System (LPIS) register.

The LPIS is a system of registration of agricultural land according to real user relationships for the purposes of verifying data in applications for agricultural subsidies (the system is introduced on the basis of Act No. 252/1997 Coll. § 3a). The system is operated by the State Agricultural Intervention Fund (SAIF; original abbreviation in Czech: SZIF). The basic unit of registration is the soil block (SB; original abbreviation in Czech: PB), which represents a continuous area clearly separated in the

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field. The part of the soil block (PSB; original abbreviation in Czech: DPB) then indicates the area with one type of agricultural crop, managed by one user (owner or lessee). The register operates independently of the real estate cadastre and consists of a web map application (MoA 2024) connected to an information database. The boundaries of SB are primarily determined according to the actual state in the field (based on orthophoto aerial images).

The administration of the adjustment of data in the LPIS during afforestation is carried out simultaneously with the procedure for declaring a forest (land-use change). If the user intends to apply for subsidies for afforestation, it is necessary that the afforested area is kept in the LPIS as a separate PSB with planting 'other planting – afforested land', abbreviation 'L'. If the user does not intend to receive subsidies for afforestation, then the area is completely excluded from the LPIS.

The data in the LPIS are updated at the request of the owner (or lessee) after the end of agricultural management. Culture L can be registered for a given SB only after physical afforestation. When reporting the changes, only the legal reason for use is documented, i.e. termination or establishment of a rental (lease) relationship. Details are given in Methodological Procedure (MoA 2023) and User Documentation pLPIS (MoA 2020).

The LPIS system is a suitable medium for the possible presentation of a map showing the suitability of land for afforestation. However, the currently existing map layer 'suitability for afforestation' only determines the eligibility of land for the provision of subsidies. It is not a basis for the state administration regarding decisions on land-use change.

Land consolidation. One of the ways to achieve a change in land use (incl. afforestation) is land consolidation, the goal of which is to create sufficient conditions for rational management. Through land consolidation, land parcels are spatially and functionally arranged, merged or divided. The original land parcels disappear, and at the same time, new land parcels are created, for which property rights are organised (Act No. 139/2002 Coll. § 2).

It is essential that the land consolidation substitutes the planning permission in case of land-use change (Act No. 139/2002 Coll. § 12 par. 3). With the help of land consolidation, it is thus possible to achieve a restoration of compliance between the actual and the official state of land use. The land plots which had been afforested earlier in the past (no matter if by succession or artificially) but the changes in the real estate cadastre have not been executed up to now, can be settled this way. Although land consolidations are planned, in fact, on the entire territory of the Czech Republic, their implementation on a national scale is very slow, and some cadastral areas will not undergo them at the current rate for several decades. This practically excludes the possibility that the intention to change the land use for afforestation should rely on future implementation within the framework of land readjustments.

Withdrawal fee. In general, it is undesirable to occupy the most fertile agricultural land for non-agricultural purposes. The approval of the state administration with the withdrawal from the agricultural land resources is therefore tied to the payment of a fee (levy), which is to demotivate owners to unnecessarily occupy agricultural land, especially for developing purposes, but also high-quality agricultural land for afforestation. In the case of afforestation, worse-quality soils are exempted from the fee (Act No. 334/1992 Coll. § 11a par. 1 letter h).

The fee is, therefore, set correctly in principle. However, the fee usually does not effectively prevent the land-use conversion for large development projects (industrial complexes, logistics and shopping centres), as from this point of view, the amount of the fee is completely marginal. Usually, the fee is only a very small percentage of the price of future construction.

Economic aspects. In our case, the total costs of afforestation (incl. work done by self-help) are almost 5 890 EUR·ha^{-1} (142 000 CZK·ha^{-1}). For details see Appendix VI in the ESM. The largest part of the costs is the price for planting stock and (self-help) work. Costs related to the administration account for about 20% of total costs, which may be considered marginal. The administration burdens the ordinary applicants primarily with the complexity of the process, associated with long deadlines for the completion of individual subsequent administrative steps. The applicants are interested in ensuring that the administrative process runs smoothly, without unnecessary errors and downtime. However, it demands acquiring quite deep knowledge of the law in the field of land-use change and spatial planning, which can be a significant burden and a demotivating factor for many applicants with expertise in agriculture or forestry,

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not in law. Moreover, even with the perfect preparation of documents and a completely smooth process, the possibilities of shortening the administrative process are very limited.

Subsidies. The administration of the potential application for subsidies is performed in parallel with the administration of the change of land use and the declaration of forest. It is solely up to the owner whether to apply for subsidies. Therefore, the administration process is not discussed in more detail in this article.

In 2018, the following documents were submitted: 35 applications for the establishment of a forest stand on a total area of 45.8 ha with the required financial volume of ca. EUR 137 000 [CZK 3.3 million (MoA 2019)]. It follows that subsidies are connected with only ca. 2.5% of the total forest land area increase, contrary to e.g. Scotland, where the afforestation process was more tied to subsidies (McCarthy et al. 2003). Although the registered forest area increase does not always mean agricultural land afforestation but also the accuracy improvement of the real estate cadastre, it is obvious that subsidies are not the crucial motivation for the landowners to do afforestation in the Czech Republic. See Appendix VII in the ESM for details.

Perspectives

The chapter provides a basis for the adjustment of legislation in the administration of the conversion of agricultural land to forest land. The starting point is the effort to: (*i*) facilitate and simplify the conversion of land use in cases where it is beneficial, especially from the environmental and space planning aspects; (*ii*) create preconditions for the state administration and the landowners to accurately, objectively, comprehensively and quickly assessing the suitability of a given agricultural land parcel for afforestation.

However, it is clear that a certain level of regulation of the afforestation process is needed, as it is essential to distinguish whether afforestation is considered in an appropriate locality. In a suitable location, the administration process of land-use conversion should be significantly simplified. On the contrary, in a locality where afforestation is undesirable in some respect, a change of land use would be possible only after the vindication of this intent in official proceedings. The fee for withdrawal from the agricultural land resources should be similarly differentiated.

The above-mentioned procedure assumes that agricultural land will be divided into categories according to their suitability for afforestation. Subsequently, it would be suitable to find out the category by means of the query to the map (web application). Such a system has been used, for example, in Denmark, where agricultural land is divided into three categories: suitable for afforestation, permitted and prohibited (Madsen 2002).

Currently, there is a detailed map in the Czech Republic (but it is not freely accessible on the web) which indicates land suitable or unsuitable for afforestation, based on various parameters of soil properties, such as slope, exposure, stoniness, depth of soil profile etc. (Vopravil et al. 2015). Using this map source, it would be desirable to develop a comprehensive map of suitability for afforestation, including:

– soil quality parameters for agriculture (fertility, depth of soil profile, stoniness, settling, wetting, slope exposure)
– erosion risk (slope and slope length)
– nature protection interests (occurrence of species or non-forest associations which would be fundamentally damaged due to afforestation – especially naturally or anthropogenically conditioned grass ecosystems (Chytrý et al. 2010)
– spatial planning interests (areas for the construction of roads or other structures, protection zones not allowing tree planting) etc.

It is proposed to integrate this map layer into the already existing web map services, like e.g. LPIS system (MoA 2024), where the map layer indicating eligibility for obtaining subsidies for afforestation is displayed, or the Research Institute for Soil and Water Conservation Geoportal [RISWC; original abbreviation in Czech: VÚMOP; cf. RISWC (2024)], where the map layer of suitability for grassing is presented.

This map could be a useful basis for simplifying the administration of land-use change for afforestation. The task of the state administration would basically only be to check whether the data on the map agree with the actual situation and, in undisputed cases, to issue a planning permit without undue delay. In cases of dispute, a formal procedure would be conducted.

Comparison with selected neighbouring countries

Poland. The Rural Development Plan (RDP; original abbreviation in Polish: PROW) includes sup-

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port for afforestation works. Afforestation activities are aimed at farmers (natural or legal persons) who own agricultural land or orchards intended for afforestation. The beneficiaries may also be local government units and organisational units of communes and others. However, the aid granted to them covers only the costs of establishing the forest plantation, the so-called afforestation support. Between 2001 and 2013, almost 160 thousand ha of agricultural land were afforested in Poland (Kaliszewski et al. 2016). In 2019, the area of newly afforested land reached 1.165 ha (Statistics Poland 2020). Inquiries carried out among the office staff that are related to the afforestation procedure show that the complicated procedures to gain financial support are the most important obstacles in the afforestation effort, while the administrative procedure to gain permission for afforestation is considered rather marginal (Kaliszewski et al. 2016).

In Poland, the procedure before afforestation is as follows: The landowner submits an application for drawing up an afforestation project to the nearest Forest Inspectorate. The Forest Inspectorate (forest district) compiles the project and returns it to the farmer. The farmer collects the remaining necessary documentation in the form of: an extract and a sketch from the local land development plan (if there is such a plan); declaration of the land area intended for afforestation; geodetic map; graphic materials; opinion of the competent director of the national park or the regional director of environmental protection. The applicant submits documentation to the Agency for Restructuring and Modernisation of Agriculture [ARMA (MARD 2014, 2016)]. ARMA reported that participants of RDP submitted 4 243 applications in 2015–2019 (ARMA 2020).

The landowner may not obtain the consent if the afforestation is contrary to the local land-use plan. In the absence of this plan (in more than 2/3 of the country), afforestation cannot be inconsistent with the study of the conditions and directions of spatial planning. It is not possible to obtain funding without previously obtaining an afforestation project created by the Forest Inspectorate (Kaliszewski et al. 2016).

Regarding the classification of agricultural land according to its suitability for afforestation, there are only general guidelines. Wasteland areas may be designated for afforestation, similarly like farmland unsuited to agricultural production and farmland whereof agricultural use is not being made, as well as other land suitable for afforestation, and in particular: land around the sources and springs giving rise to rivers and streams; divide areas; riverbanks and the shores of lakes and reservoirs; areas of mobile sands and dunes; steep slopes, areas affected by rockfalls, precipices and hollows; spoil heaps and areas where the exploitation of sand, gravel, peat or clay has ceased.

The extent of afforestation, the location and the way of realisation are defined by the 'National programme for increasing the forest cover' developed by the minister responsible for environment, approved by the Council of Ministers.

Like in the Czech Republic, there is no public map available which would represent the suitability of land for afforestation. If there is a local spatial development plan, the nearest municipality can be contacted for information. However, there is a webmap portal that allows you to generate statistics, for example, how many private lands have been afforested in a given municipality in a given year (Statistics Poland 2024).

Regardless of the type of land, the administrative requirements are the same. In the case of participation in RDP, each applicant for a grant must provide the documentation specified in a Guidebook published by the Ministry of Agriculture and Rural Development (Kaliszewski et al. 2016).

If farmers participate in the 'Rural Development Plan', then they do not incur any costs. If, however, they do not want to participate in the program, all administrative and afforestation costs fall upon them.

According to MARD (2019), in 2018, there were 420 beneficiaries (587 ha) and the total forested area reached 1 321.02 ha. A farmer applying for co-financing in the Rural Development Plan and whose application has been considered positively receives:

(*i*) Afforestation support: it is a one-off payment for the costs of afforestation in the second year (the amount is in the range of 1 857.5 to 2 841.36 EUR·ha^{-1}), additionally to the costs for fencing (1.97 EUR·m^{-2}).

(*ii*) Stand tending premium – it is a payment for the costs of forest tending work, i.e. weeding, performing tending cuts, thinning (from 177.54 to 364.03 EUR·ha^{-1}) and protection of the plantation or land natural succession through the use of repellents (94.81 EUR·ha^{-1}). It is paid annually for 5 years to afforested land or land with natural succession.

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(*iii*) Afforestation premium – a payment for covering the costs of lost income from agricultural activities. It is paid in the amount of 271.31 EUR·ha^{-1}, annually for 12 years, to the land on which agricultural activity was carried out before afforestation (MARD 2019).

Generally, we can conclude that the administrative procedure for the land-use change from agricultural land to forest land is considerably easier in Poland compared with the Czech Republic. The amount of subsidies is comparable in both countries (or slightly lower in Poland).

Slovakia. In Slovakia, afforestation has been seen so far more as the interest of the landowners. Afforestation of agricultural land and its conversion into forest land is probably not very desirable. In recent time, the introduction of agroforestry systems has become more extensive, i.e. the integration of tree species into the agricultural landscape. However, it should be strongly emphasised that agroforestry is not the afforestation of agricultural land but only a different management system connected with the presence and use of tree functions.

The administrative requirements for the conversion from agricultural land to forest land are encompassed in Act No. 220/2004 Coll. The District Land Office (§ 9) and the Agricultural Land Protection Authority (§ 23) shall issue a decision to convert agricultural land to forest land at the request of the owner or the agricultural land user. The attachments to the application for the change of the type of land to forest land (according to § 9 par. 1 of Act No. 220/2004 Coll.) are as follows:

– basic identification data of the land parcel(s) intended for afforestation with the survey sketch when the intention concerns only a part of the land parcel
– the statement of the public authorities concerned: (*i*) in the section of forestry – District Office, Land and Forestry Department; (*ii*) competent nature and landscape protection authority (District Office, Department of the Environment)
– the opinion of the owner and user of the land
– proof of payment of the administrative fee (EUR 33).

The agricultural Land Protection Authority shall decide, on its own initiative or at the request of the owner or user, to change the type of land if there is doubt whether or not the land is agricultural land: (*i*) due to natural processes, altered properties and character of the soil profile so that they correspond to the nature of non-agricultural land, but are registered in the real estate cadastre as agricultural types of land (gorges, ravines, sinkholes, high borders with bushes or with stones, areas covered with river gravel, bogs, areas permanently wet or overgrown with peat moss). The decision-making is based on the expert opinion of the soil service; (*ii*) the land is really long-term forested and suitable for the official conversion to forest land. In decision-making, the agricultural land protection authority shall take into account the binding opinion of the state forestry administration body and the statement of the state body for nature and landscape protection, if the land is located in the third to the fifth degree of territorial nature and landscape protection.

Regarding the chaining of administrative procedures, the application for the change in the type of land (according to Act No. 220/2004 Coll.), submitted to the District Land Office, must also contain statements of the relevant state administration bodies (forestry, nature protection), a survey sketch (in the case of land parcel division) and confirmation of payment of the administrative fee.

The delimitation criteria denote the classification of agricultural land resources that are appropriate for afforestation within the delimitation of the soil resources. The delimitation addresses the distribution of individual types of land, i.e. arable land, special crops and permanent grassland, as well as the land proposed for forest land resources for afforestation. Detailed delimitation criteria of the agricultural and forest land resources are given in the now ineffective decree of the Federal Ministry of Agriculture and Food (FMPVž No. 36/1987 Coll.) adjusting certain details of the protection of agricultural land (Annex No. 3): In the case of conversion of agricultural land to forest land:

– topsoil thickness up to 0.10 m, gravel and stone content more than 50–80%,
– the presence of boulders on the surface at a density which makes it impossible to farm for agricultural purposes,
– permanent waterlogging with no adjustment to agricultural cultivation,
– degradation of agricultural land due to an invasion of trees not suitable to be removed,
– slope inclination higher than 15–25° as agricultural cultivation can accelerate soil erosion, inaccessibility and insufficient width of the plot for agricultural mechanisation,
– plot of land up to 0.15 ha if the land cannot be attached to surrounding agricultural land, and

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cannot be used for agricultural purposes, undeveloped soils in mountain areas.

Although this decree is now ineffective, the above-mentioned criteria form a basis of the freely available map where the suitability of the land for afforestation can be verified (VÚPOP 2020).

The subsidising programmes within the Rural Development Program 2007–2013 [Improving the environment and the landscape (MARD 2011)] are focused on sustainable use of forest land.

The support for the first afforestation of agricultural land provided for:

– costs of land afforestation; the annual premium per hectare of afforested land as a contribution to cover the costs of maintenance for a maximum period of five years,
– the annual premium per hectare as a contribution to cover the loss of income due to afforestation for a period not exceeding 15 years for farmers who cultivated the land before afforestation, or for any other natural person or entity under private law.

Although in Slovakia, the competent offices assess the detailed criteria of the application for afforestation, the land-use change procedure seems to be less complicated compared with the Czech Republic. The subsidy system is comparable in both countries.

CONCLUSION

Based on the really executed afforestation project, in our case study, we described the administrative procedure regarding the conversion of agricultural land to a forest land resource. In the Czech Republic, the procedure of the official land-use conversion takes almost 2 years. The applicant needs to obtain more than 10 assessments and decisions issued by state authorities. The procedure differs very fundamentally in the different countries. In comparison with two neighbour countries (Poland, Slovakia), the complexity of the procedure in the Czech Republic is significantly the highest.

The variable extent of the administration, together with the graduated fee for withdrawal from the agricultural land resources, can become effective tools for regulating afforestation. In the case of sites suitable for afforestation, the correctly set principle of a differentiated approach will lead to a significant simplification of the administration associated with afforestation. The situation that we can consider to be the desired target is when the landowners submit only one application, and the office then issues the relevant decision regarding the afforestation plan based on one procedure. At the same time, it is important that the suitability for afforestation is easily ascertained from publicly available sources without direct contact with the authorities, preferably through an internet map application.

The package of outlined measures will motivate the landowners to carry out afforestation where it is desirable, and conversely, they can be effectively deterred from afforestation where it would be less appropriate. Moreover, it will be quite clear on which sites afforestation is not permissible, i.e. where the owners should not consider afforestation, because the office would not allow it anyway or it would be possible only after completing a special procedure.

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