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MEASURES SUPPORTING SUSTAINABLE MANAGEMENT OF AGRICULTURAL LAND RESOURCES¹

1. Introduction

Land conversion for non-agricultural purposes, including the development of suburban housing, has become a very important issue in Central and Eastern European countries (CEECs). Many decision-makers operating at both central and local levels consider the urbanisation process to be one of the factors of multifunctional development of rural areas. Due to the relatively large amount of land resources and low profitability of agricultural production, similar conclusions are being voiced from academic circles. The utilisation of land resources is becoming a widely accepted factor of economic development. However, it is often the case that environmental issues related to such development are ignored. In many cases, environmental issues are considered a barrier in this respect.

Poor land management can in consequence lead to a loss of rural landscape. The areas surrounding large agglomerations, being subject to the direct influence of these cities, are particularly exposed to such a danger. The settlement of urban people in these areas leads to the conversion of a substantial acreage of agricultural land into housing sites. The scope of this process in some cases is so great that the concerned areas lose

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their rural character. In consequence, the preservation of green space around large cities may be of rapidly increasing importance.

In Poland this situation is supported by processes of decentralisation and of the widening scope of private control over land resources. Both these processes have created a situation, in which individuals and organisations having influence in the field of land conversion receive tangible gains from its intensification. This is confirmed by the case study conducted within a CEESA project entitled "Land Conversion for Suburban House Building in Poland". According to this study, all the actors taking part in the process of land conversion, *i.e.* local government, farmers, non-agricultural families and urban people, showed a great degree of approval for the change of land use.

The rationalisation of land conversion for suburban housing therefore causes a need to modify prevailing solutions or to create new ones, which could be aimed at more efficient protection of such resources as land and the rural landscape closely linked to it. The property rights binding at present, along with the governance structures, support the intensification of the process of land conversion. Bearing this in mind, this paper identifies institutional alternatives, which are focused on the improvement of land management to ensure the balanced use of resources in the short and long run. The second objective of this paper is to assess the alternatives from the point of view of their feasibility and possible outcomes at a local level.

2. Land conversion for suburban house building

The research concerning land conversion for suburban housing sites has been conducted in two districts. The first of them – the Piaseczno district – is located in the province of Mazovia in the immediate surroundings of Warsaw – the province and the state capital. The second district – Stawiguda – is located close to Olsztyn – the capital the Warminsko-Mazurskie Province. It has to be underlined that the Warminsko-Mazurskie Province is one of the regions with the highest quality of the natural environment in Poland. On the other hand, Warsaw is the most dynamic economic centre. Moreover, the districts studied featured a high share of areas of protected landscape (APL's), which in the Piaseczno district contributed to 75% of the total area and 100% in the Stawiguda district.

The results of the study show that, about 700 ha of agricultural land in the Piaseczno district and 600 ha in the Stawiguda district was withdrawn from agricultural production over the period of 1994–2000. The changes in the area of agricultural land do not result exclusively from

the development of house building. The scope of this process is also shaped by transformation of land for such uses as development of non-agricultural economic activities, road construction, forestation or mineral exploration. However, the analysis carried out on the spatial development plans of these districts confirmed that conversion for housing purposes has had a crucial impact on the decrease in the area of agricultural land. For instance, about 2000 ha in the Piaseczno district was allocated to housing over the period of 1994–2000 and a further 900 ha is planned to be allocated to housing in the near future.

The attitudes and behaviour of local government, farmers, non-agricultural families and urban people settling in rural areas has had a crucial impact on the development of land conversion in both of the districts. The approval of these groups for this process as a factor supporting the economic development of rural areas in these districts is caused by various factors. The activities undertaken have resulted from an ongoing process of decentralising the government and the extension of private control over land. Land property rights and gains coming from conversion of agricultural land into housing sites can be characterised as follows:

- local government:
 - a) entitlements:
 - implementation of activities supporting economic development of the district,
 - elaboration of the plan of spatial development as a legal basis for land conversion,
 - application to government institutions for high quality agricultural land to be used for housing,
 - possibilities of the creation of APL's, in order to protect valuable areas,
 - b) advantages:
 - tax, increased tax revenue due to replacing agricultural tax with real estate tax and an increase in personal tax revenue,
 - additional economic gains, such as improvement of infrastructure, development of non-agricultural economic activities, improvement in the quality of human capital,
 - farmers
- a) entitlements: free choice regarding land sales, pressure on local self-governments to change their assumptions in spatial development plans,
- b) advantages: high land prices, improvement in the living standard linked with access to infrastructure facilities, possibilities of additional income from the services provided for the newcomers,

- non-agricultural rural people
 - a) entitlements: pressure on local self-governments to prepare plans of spatial development,
 - b) advantages: improvement in the living standard linked with access to infrastructure, facilities, additional jobs,
- urban people
 - a) possibility of influence at the level of land conversion: promoting the interests of local people, including farmers and decision-makers, in land conversion as a source of additional gains,
 - b) advantages: attractive environment and landscape, relatively low land prices (compared to land plots in urban areas), reasonable location, choice of life styles.

Due to the fact that the present property rights and governance structures of land conversion support the intensification of this process, there is a necessity to seek alternatives that would reduce the scope of the conversion of agricultural land into housing sites. The elimination of housing development is virtually impossible and even irrational. Nevertheless, various indicators, such as a decline in the number of houses that are being developed in a particular area or the inspection of converted land focused on compatibility with legal regulations can substantially limit the scope of this process. The legal framework regarding land management promotes protection of land resources and the landscape. However, a lack of constant monitoring of the conversion process often leads to the excessive use of land, which is in contradiction with the idea of sustainable development. The key actors of the land conversion process are obliged to obey these rules.

3. Institutional options

Option 1. Rural association (fellowship) – local environmental protection groups

Support for the development of environmental groups at local level could to some extent limit the scope of land conversion and promote the preservation of so called green areas. Such forms of activities aimed at landscape protection are feasible only with the participation of the newcomers – educated, as well as being respected members of local society. It is necessary to formalise their activities, in order to be a real partner when negotiating with local government on the scope of the spatial development plan. The main task of such associations would be control, as long as decision-making bodies obey the rules of landscape protection. There were some indicators of such organisations becoming active in the districts studied. At the present, their activities are rather more linked

with woodlands than with agricultural land and concern mainly negotiating with local government on increasing the minimum areas of housing sites. Moreover, inhabitants of the districts, who are not linked with these associations, consider these activities as a form of action influencing the inflow of people with high incomes, but not environmental protection.

Option 2. Land Trusts (LT)

At present, there is no such form of management of environmentally valuable areas in Poland. In the case of districts located around large agglomerations, the establishment of LTs seems to be a very interesting solution. Depending on specific local features, their activities can be conducted in two ways. Firstly, an LT could support environmental protection through the purchase of valuable areas, which afterwards could be rented out to private farmers. However, the way in which farmers use such land would be subject to special limitations, requiring that it be utilised exclusively for agricultural production in line with the Code of Good Agricultural Practices. The second possibility concerns the purchase of development rights from farmers by an LT. The farmers would retain property rights, but would have to obey the rules defined by the LT, including, for example, a ban on sales of land for non-agricultural purposes. The adoption of land trusts in Polish conditions would require legislative regulations concerning the definition of the legal status of an LT, including its right and duties. Nevertheless, the popularisation of such a form is entirely justified, because activities have already been undertaken concerning the purchase of land by newcomers, in order to prevent it from being used for housing.

Option 3. Infrastructural investments

Districts located close to large agglomerations are often characterised by better-developed technical and social infrastructure than other rural districts. However, there are lots of exceptions to this rule in many towns located in such areas. The inflow of urban people leads to an increase in infrastructural investments. This happens for two reasons. Firstly, the newcomers spend more money on investments and secondly the district budget revenue increases. Such a situation leads to the improvement in the standard of living for the entire local society. The financing of infrastructural development from external funds could negate one of the basic reasons for common approval of migration to rural areas. The attractiveness of rural areas to urban people is increasing and therefore there has been an upward shift in land prices. Nevertheless, there are protective measures against uncontrolled rural settlement set up in the Polish legal framework. Local self-government is entitled to

impose additional taxes on farmers selling properties, whose value has been increased due to investments in infrastructure, but this form of tax is very rarely used.

Option 4. Financial compensation to farmers from central government funds

The establishment of a system that would compensate farmers who decide to transfer development rights to governing institutions is one of the possibilities of keeping land in agricultural production. There are already certain government structures in Poland, which could conduct such a function, for instance, the National Fund of Environmental Protection (NFEP) or the Agency for the Agricultural Property of the State Treasury (AAPST). This compensation could be exercised not only in the form of direct purchases of development rights, but also in the form of a structural retirement scheme, which at present is aimed at the improvement of agrarian structure. On the other hand, it is not possible to subsidise farmers, who have decided to keep their land in agricultural production, with tax concessions. The present system of agricultural tax does not create many possibilities in this respect. Low rates of agricultural tax along with a lack of income and property tax in agriculture, make potential tax incentives a weak alternative to the high prices of land for housing. The financial situation of the state budget also creates obstacles in this regard. The limited use of this option results also from the fact that government and local government institutions are at present considering compensation to cover the immediate losses incurred, but not opportunities foregone. Taking the above into consideration, this option seems unlikely to be workable in the long-term.

Option 5. Financial compensation to districts from central government

Studies have shown that local governments have gained additional revenue from property tax and income tax collected from individuals (physical persons), due to land conversion. The improvement of infrastructure, of which certain elements such as the water supply network and sewage systems belong to the district, is considered as an additional gain. Therefore, investments in infrastructure conducted by individuals increase the wealth of local governments. Implementation of the changes in the system of financing local governments and co-financing infrastructural investments (Option 3) could reduce the scope of land conversion. For instance, an increase of a district's share in income tax (received from the central government's budget) due to a necessity to reduce the land excluded from agricultural production can be used for this purpose. Subsidies supporting landscape protection are another measure for doing so. This option is thus oriented and feasible to imple-

ment over a long term perspective. The implementation of this option requires changes in the legal framework, as well as additional finance from in the state budget.

Option 6. Education of farmers

The ecological education of farmers creates another set of possibilities to reduce the level of land conversion. The level of ecological awareness and knowledge of landscape protection is poor. Farmers consider the activities aimed at the above issues as bringing additional costs. Therefore, education should initially cover the issues related to the danger resulting from environmental degradation to themselves, as well as future generations. This will promote the evolution of a sense of duty to preserve the features of the environment. These activities have to be linked with the next stage, which would be the presentation of alternative forms of land use generating additional income, for example, the development of ecological agriculture or various forms of agro-tourism. The favourable location of such farms in the neighbourhood of agglomerations (huge market capacity and potential customers of tourism services) will support the development of such activities in suburban districts. An additional advantage, in the case of agro-tourism, would be that a large number of not well situated urban people cannot afford expensive, traditional forms of tourism at the moment, so they would tend to use agro-tourism. Farmers should also be aware of characteristic behaviour of urban people, especially of the limitations on farming that would arise due to their settlement in rural areas, such as the creation of green organisations which influence the choice of agricultural production methods.

This option could be implemented with the participation of extension services, as well as various non-government organisations (NGOs) including foundations linked with environmental protection. Activities in this field can be performed in many ways, such as:

- direct contact of extension services with farmers – creation of leaders,
- village meetings,
- mass media,
- information from local government,
- widening of education programmes to introduce the above issues into agricultural schools,
- education of children in primary schools in protection of rural landscape.

For the time being the rise in ecological awareness in rural areas is inevitable. In order to achieve the stated objective, the reduction of land

conversion, all the activities conducted in this respect have to be complementary to each other. For instance, clarification of the danger to the environment without pointing out alternative sources of income would for sure bring negligible results.

Option 7. Tax benefits for companies buying development rights

As previously pointed out, there are not many possibilities to use tax exemptions to farmers as compensatory measures for landscape protection. On the other hand, there are such possibilities in the case of companies interested in the purchase of development rights and the maintenance of the traditional means of land use in certain areas. Exemptions regarding income or property tax can be used for this purpose. This option has a great chance of being widely accepted by society. It is not a restrictive measure, but assures some savings for companies purchasing development rights, as well as for farmers selling the rights to land at an agreed price. In practice, this option first needs the creation among various companies of an interest in landscape protection in areas surrounding large agglomerations and of course a change in the tax system.

Option 8. Monitoring of the process of land conversion

Permanent control over land conversion is needed to reduce the scope of this process. According to the law, the conversion of agricultural land for housing sites can be effected only in accordance with the plan of spatial development. Such a plan has to be worked out on the basis of a study of development factors taking into account the characteristics of land resources, including landscape, which is evaluated by a team of experts. In practice, the plans do not always reflect the prerequisites stated in the study of development factors. Therefore, this is a field, which has to be carefully highlighted by central government authorities with a well defined, efficient control system. Additionally, the total area of agricultural land has to be monitored as well. Any substantial contraction in the area of agricultural land should send a signal to the relevant structures of government (e.g. Ministry of Agriculture) to investigate the causes of such changes. This option is linked with the operation of an appropriate system of registering land, which would make the monitoring of the changes possible.

4. Evaluation of local-level effects

The Polish legal framework includes a wide system of landscape protection in rural areas. The implementation of the rules set out in the system at local level does not always reflect the anticipations of the law-

maker. The observed lack of control mechanisms leads to a lack of respect for the prevailing restrictions on land use. Therefore, it seems to be necessary to first increase the commitment of central government as regards monitoring the process of land conversion. The implementation of strict control over this process may significantly limit the scope of land conversion. So it may appear that there would be no need to build elaborate instruments preventing agricultural land from conversion into housing sites. The implementation of monitoring will definitely reduce the scope of conversion of the most valuable areas. The studies of local factors, elaborated by experts, in most cases exclude this possibility.

The establishment of rural societies (groups) orientated towards environmental protection is the next element of land resource preservation, which should be widely disseminated. This element is likely to be introduced shortly. Local people should be involved in the activities of such groups. Due to the low level of ecological knowledge of local people, newcomers should constitute the core of these groups. Reflecting specific local features, a group's activities should be focused on co-operation (negotiations) with local governments while shaping the plan of spatial development and the setting a vision for housing development. These activities can be expressed by the formulation of postulates concerning the preservation of the agricultural character of certain areas. Another element, observed in the Piaseczno district, was the negotiations between such groups and the local government concerning the minimum size of housing site plots. Such activity can lead to a reduction in the scope of settlement in a given area. Nevertheless, agricultural land will be converted into housing sites, but significantly larger areas will be preserved, together with their biologically active character. Considering the habits of rural people, the activities of such groups will not be widely popular, in particular among farmers. An increase in the minimum size of a plot of land for housing immediately leads to a decline in demand for housing plots. Such situation may start a conflict with farmers, who would then be exposed to the possibility of a loss of a source of additional income. Therefore, it would be necessary to support this option with other options assuring compensation to farmers.

The protection of land resources in Poland is based mainly on restrictive measures linked to limitations on land use for other purposes than agriculture and forestry. Thus, in certain areas these measures restrict the property rights of farmers and, to some degree, local governments. In such cases farmers are obliged to respect government property rights. In other words, farmers perform environmental protection, but do not receive any compensation for it. Such a situation forces them to seek various way of excluding land from production. The elaboration of a compen-

sation system for farmers undertaking activities protecting the environment would substantially counteract the process of land conversion. The options taking advantage of the purchase of development rights, which assure additional income to farmers, could be very useful. Such a solution is very likely to be acceptable to farmers, because the costs linked with landscape preservation will be borne not only by farmers, but by society as a whole. Farmers consider such options to be the most suitable. However the efficiency of this option does not depend exclusively on farmers, but also on local society, which is to bear the costs. In order to obtain the approval of this group, it is necessary to conduct activities aimed at the dissemination of the view that the land and landscape are common goods and not the property of farmers.

Considering the purchase of development rights and the purchase of land by various companies interested in environmental protection, it has to be pointed out that such measures could also cause a reduction in land conversion. Moreover, such measures could gain the approval of rural people and interested companies. However, this option should be preceded by the implementation of tax exemptions (benefits). Nonetheless, tax exemptions are not the only benefits to be obtained by organisations performing such activities. According to business representatives, a company can gain from:

- increased prestige due to involvement in environment protection,
- purchased rights increasing the value of the company,
- the areas purchased and pro-ecological activity can be used in advertising and promoting the company,
- possessed rights can be used for the development of economic activity allowed on APLs by law, such as agro-tourism.

The implementation of this option (the purchase of development rights) requires certain legal amendments. Polish law in its present form does not create any possibility of sorting this problem out without the imposition of major changes. A land and mortgage register has to be set up recording every single agricultural property in Poland. This land and mortgage register would contain information defining the location of a property, owner, mortgage charges and so called special provisions. The purchase of development rights could also be noted in one section. At the moment this section is used to legitimise the right of third parties to use the property, for instance road access for a neighbour through a property, the right of the previous owner to use the property after the property rights have been transferred to an inheritor. Therefore, this section could be used to transfer development rights to third parties. Similarly to the examples mentioned above, the decision on the transfer

of development rights has to be noted in the register on the basis of a court decision.

One option that should be implemented promptly is the development of investment in infrastructure. In the case of districts particularly exposed to land conversion, i.e. located in the close neighbourhood of agglomerations. In such areas the inhabitants show high or even very high interest in the improving infrastructure. Accordingly, there are various forms of support from government institutions in this field. Credit lines provided by the Agency for Modernisation and Restructuring of Agriculture (AMRA) are an example of this. The limited opportunities of some districts to finance investments create a serious obstacle. Another possibility for improving infrastructure is created by such programmes as ISPA and SAPARD. Such investments should also be conducted in remote rural counties. In such districts these investments may draw more interest from urban people. On the other hand, districts, which so far have not been subject to migration from urban areas, tend to have more sizable resources of land with of low landscape value, i.e. areas, whose conversion into housing sites would cause significantly less damage to the environment than similar conversions in suburban districts. However, the development of infrastructure in districts located close to large agglomerations creates a threat of increasing demand for housing sites. Local governments can undertake preventive measures against rising demand for housing sites. The legal framework defines the term "adjacent fee", which in practice is rarely imposed. The mechanism of these fees entitles districts to impose additional payments at the moment of the sale of land. These fees are linked to the increase in the value of a certain plot, due to investments in infrastructure and its level may be as much as 50% of the difference between the value of the plot before and after investment. More regular use of this measure could significantly reduce the supply of agricultural land for housing purposes.

For the time being, the options concerning compensatory measures paid to farmers and local governments from central government are the most difficult to implement. This results firstly from the necessity to change the tax system and secondly it requires funding from the state budget. The implementation of the instruments enforcing this option will demand a relatively long period of time. During this time districts, in which there is a rapid process of converting agricultural land, could lose large areas with a valuable and attractive landscape. Such a scheme would be a desirable solution from the point of view of the farmers and local governments. Alternative sources of income in the form of various kinds of financial support from government institutions are of a stable nature and give a basis for long-term activities aimed at land protection.

Whereas implementation of this option in the short-term seems to be unreal, it is necessary to develop the required instruments. This is related to permanent economic growth in a district located close to an urban area. Any improvement in the economic situation of the district may trigger the urbanisation processes.

5. Conclusions

Taking various arguments into consideration, 8 institutional alternatives dealing with land conversion for housing purposes were elaborated in this paper. These alternatives could lead to a reduction in the rate of land conversion and preserve the rural landscape in the neighbourhood of large cities. These alternatives are different from each other for many reasons. Some of them, such as the monitoring of the process of land conversion should be implemented immediately, irrespective of high costs. Implementation of one option may exclude the possibility of implementing another option. There are also differences between the costs of these options. For instance, the options of compensation to local governments and farmers and tax benefits to the buyers of development rights require financing from the state budget. This makes them possible to implement in the medium or long run perspective. Other options, such as the creation of environmental protection groups or land trusts, whose activities are based on the use of private capital, could be implemented more quickly. Another factor differentiating the options is their innovativeness. For example, land trusts would be entirely new to Poland. Although this option is considered to be favourable by farmers, its implementation could be subject to processes linked to the implementation of other innovations in this group of people. In addition, some of the proposed options are complementary to each other. The use of compensation to districts without parallel compensation to farmers could result in conflicts at local level. The task of new, alternative solutions is not only landscape protection, but also the prevention of conflicts, which may arise from such activities.

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...the sustainability of the Park's sinks? to absorb waste and pollution (Meadows and Randers, 1972, 40).

The use of any type of resource by human society, regardless of whether it is land, water, oil, iron or any other resource, is constrained both by its source and sink. The nature of these constraints is highly complex, since these sources and sinks form part of a dynamic, interconnected whole: the Earth. These constraints are much clearer than others. There are both short-term and long-term constraints. The fact that in general these sources and sinks interact with each other is crucial. An element of the natural environment can play the role of both source and

¹The term source of streams of materials and energy used by a system has been used, for example, by Meadows et al. (1972).

²The final destination of streams of materials and energy used by a system, in this article taken to be the world economy.