



## **PUBLIC GOODS IN THE MODEL OF THE AGRICULTURAL DEVELOPMENT, THE THEORETICAL APPROACH**

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### **Abstract:**

*The aim of this paper is the presentation of the role of public goods in the concept of the multifunction agriculture. One paid attention on premises and restrictions in the development of the agricultural sector in new conditions social-economic. We were presented the review of the concept of the multifunctional agriculture, indicating his different measurements. As the point of departure of considerations, one accepted the proof of differences among private and public goods. A basic difficulty is the proper valuation of public goods and the possibility of the configuration of the mechanism providing incoming for their production. The realisation of the multifunctional agriculture concept encounters obstacles such as difficulties in separating private and public goods as well as taking appropriate methods of the other estimation. In this paper we show that taking into consideration more complex and integrated approach of the agricultural functions realisation allows to use the resources better in economy as a whole.*

*Keywords: agriculture policy, multifunctionality agriculture, public goods.*

## 1. INTRODUCTION

The neoliberal concept which clearly dominated in process of transformations of the global market after the year 1989 putting on the perfect efficiency and completeness of the market. The omission of many imperfections became a reason of numerous difficulties, which experienced economies of individual states and economic sectors. Particularly results of such approach gave about themselves to know during the crisis, which appeared at last the first decade of the new age. He was preceded with the rise in prices of foodstuffs, what how indicates in its elaborations Timmer (2010, pp. 6–7), distinguishes the appearance of the marked breakdown on the global market. That in this elaboration we wish to pay attention on the problem of the multi-functionality of the development of the agricultural sector, as the factor stabilizing this area economy in new conditions of the social development-economic. The overvaluation many of previous models of the agriculture of concentrating first of all on the realization of the function productive, perceiving the agriculture only, as caterers caused the search of other directions of his development. The intensification of the productive function led to „rinsing” of resources from the agriculture, partly supported with operations led within the framework of the agricultural policy. This permitted to increase efficiency the factor of the work in the agricultural sector but restricted natural abilities to creating of public goods. This restriction constituted to the rural development and the more and smaller adaptation to social needs. Structural conversions turned out too free, and advantages swimming from the politics of the cheap food gradually became exhausted. This was observed especially in countries high developed, where to the reduction of expenses on conventional, mass-farm produce and followed the awakening of many new needs to relate with the safe food, with values environmental or cultural. This requires however uses of completely other exploratory perspective in reference to the agricultural sector.

## 2. THE CONCEPT OF MULTIFUNCTIONAL AGRICULTURE

The multifunction of rural areas covers the agriculture and a development of a non-agri-food use of farming products. It is a very narrowed approached though it is linked with a search of other areas of production function use. This approach in some sense is an expansion of an industrial farming concept, which allows differentiating the incomes of farms. Alongside the creation of food buffer was via running the agricultural production surplus and its non-farming use was possible. This conception does not include public goods but there is a possibility to limit unfavourable phenomena in a non-agri-food sector<sup>1</sup>. This approach is often rejected or regarded as incomplete. A multifunction does not mean multi-activity but paying attention to creating benefit (Adamowicz, 2005, pp. 24–25). Whereas multifunction in a largo sense is a resources approach to agriculture taking into account in a number of rent cases that appear in this activity. Agricultural multifunction is acknowledging mutual fulfilling economic, environmental and social functions in farming (Kallas, Gomez-Limon & Arriaza, 2007, p. 405). Assuming this we can show the areas, which are the source of benefits coming from non-agricultural economy sectors. According to the OECD approach (2001, p. 13), multifunction is a “positive” notion, which covers three different roles, which agriculture plays: producing agri-food products and fibres, preserving rural landscape and environment

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<sup>1</sup> One of the examples is replacing non-renewable fuels with farming products. In some countries, it caused a significant growth of farming production. It is enough to point out that in the USA in 2006 20 % of corn sowing in total was destined for the bio-fuel (de Gorter & Just, 2009). The use of bio-fuel in approximately 90 % is focused in three countries: the USA, Brazil and the EU. On the other hand it means a huge waste of food products in a situation when still a significant part of world’s society famine-stricken.

and contributing to vivacity of rural areas and balanced development. Such an approach means that multifunction agriculture produces market and non-market products. This first area covers mainly food products though we can include here also non-agri-food use of agricultural products. While the other one is an effect of market mechanism imperfection, especially its inability to create markets, which allow to guarantee subsidies for realisation of goods which are socially demanded<sup>2</sup>. We can also read into the balance approach to multifunction indicating that in determining products obtained from this activity we should mutually taking into consideration the positive and negative effects (so also the unwanted goods, OECD, 2003, p. 10). It is extremely important from the point of view of the rewarded resources. In case of agricultural multifunction, it means that the estimation of farming input into the social-economic system requires an inclusive consideration of all externalities, generated by farms' functioning (Randall, 2002, pp. 290–292). It is worth noticing that idea of agriculture, which provides non-agri-food products, is not new and it is not controversial itself. However, the possibility to retransfer the economic surplus to agriculture as a specific payment for realisation of non-farming functions is the problem. A common accusation is the issue of an excessive link of social or economic functions only with agriculture. Multifunction is not a phenomenon reserved only for agriculture but the problems are specific as well as public goods produced in this sector. A very important feature in this context is the natural character of the resources (especially land) in farming. Therefore, as Whitby indicates (2000), agriculture is multifunctional of its nature. However, the level of economic-social development causes a specific gradation of farming values in the system of public needs. A significant aspect, which is always paid attention to, is the biological character and multitude of intentional as well as unintentional “additional” products, which become of a public good dimension (OECD, 2003, p. 11). There are many positive effects of agricultural activity among which we can specify values including: maintaining bio-diversity, sustaining aesthetic virtues of landscape, securing good conditions of recreation, water accumulation, vivid recycling and establishing wild environment, protection against atmospheric events or anti-flood protection (Van Huylenbroeck & Durand, 2003; Brouwer, 2004; Cahill, 2001).

From the definition, agricultural multifunction means that the effects of farms' activity are passed outside farming itself. Therefore, they do not cumulate only in this area. Nevertheless, food production and production of non-agri-food products in given area present an important development factor of particular community because they contribute to the creation of regional added value. If agriculture creates rural GDP then in multifunctional farming we can distinguish at least two ways of its functions' distribution (Hensher, Rose & Greene, 2005): direct and indirect channel. Direct channel: farming produces food, non-agri-food products (but also other products or services) which are the basic component of rural GDP. Among these productions there are public effects basing of agricultural products (e.g. agro-touristic). The activity of rural households contributes to securing the incomes for other, non-agricultural businesses functioning in definite local area. In this aspect, those are financial external effects. Indirect channels: farming produces other non-agri-food products, which significantly influence productivity of other economy sectors or economic-social situation (measured with: employment rate, amount of free time or population magnitude). They represent positive and negative effects of external activity of farms. Consequently, they influence the production decisions in non-agricultural businesses or households. The indirect

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<sup>2</sup> In highly-developed countries a growth of support for directing the retransfers to farming sector is observed with the reservation of fulfilling particular requirements which in reality constitute defining public goods which would be provided by agriculture (Brunstad, Gaasland & Vårdal, 1999, p. 539). This support for agricultural multifunction is various in citizens' perception, especially within the estimation of different attributes, which this definition covers (Hensher, Rose & Greene, 2005).

redistribution channel seems extremely important as it shows a multilateral range of farming influence in economic system. Referring to the balance approach, which covers positive and negative externalities of farms' activity we need to focus on present feedback. The lack of gaining incomes on public goods switches the efforts to producing private goods (food and non-agri-food) which cause an excessive intensity of resource use and the increase of unfavourable externalities emission. Thus, it led to the degradation of resources and further rise of intensity of their use with the aim to increase production effects. Therefore appreciating the resources via including the non-farming agricultural functions leads to the pressure diminishing of their intensive use and in consequence, it decreases the creation of negative externalities. As Wilkin shows there are many functions which agriculture serves in economic system which are poorly-recognised and inadequately described (Wilkin, 2010). Moreover, as Blandford and Boisvert (2002) indicate the non-market agricultural activity effects are usually of territorial character (they are linked to particular localisation) and they create mostly the advantages of a limited area<sup>3</sup>. In carried deliberations over multifunction agriculture nature, we can find three important approaches: concentration on the resource side of farming and the ability to their proper evaluation via including non-market benefits, stating publicly demanded goods which farming should provide on a given stage of economic development and taking into consideration the range of influence and regional particularity of farming resources. The combination of those approaches is necessary to determine optimal supply of public and private goods produced in agricultural sector from the public point of view.

### **3. THE ROLE OF PUBLIC GOODS IN THE CONCEPT OF THE MULTIFUNCTION AGRICULTURE**

Multifunction of agriculture is inseparably connected with creating public goods. Public goods in a traditional approach are defined as those, which are characterised by at least two features: non-competitive consumption and inability to exclude from consumption (Atkinson & Stiglitz, 1980). Consumption of a particular good by an individual does not exclude the ability of consumption by other individuals and at the same time they cannot be attributed to a specific individual. However, these are the cases of so-called pure public goods. Moreover, we can introduce the concept of a local public good, which is connected with a defined area and does not exist elsewhere. Such group of goods is especially important in multifunction farming policy because it underlines the necessity to take into consideration the regional peculiarity of resources, as the result of use of them the public goods are produced. Indicating the diversity of public goods is extremely important from the point of view of the used tools of economic policy, which allows the economic surplus to flow, as a payment for public goods supply. The concept of public goods typology presented by Weimer and Vining (2004, pp. 78–80) bases on two aspects: the possibility to exclude and the ability to compete introducing additional categories of mixed goods. Taking into consideration the influence scope and also the connections between products we can also distinguish within non-market production (Freshwater, 2006, p. 14): club goods and public goods (i.e. local and non-local). Within the local goods: the ones provided locally which are limited by local forces which exclude the supply in other areas; local goods which causes side effects; local good limited by the connection with others. Extremely important distinction is the level of the connection of a public good with a private one. The situation of full disjoint leads to a possibility to set a payment only for the public good without the distortion of market mechanism in which the

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<sup>3</sup> We can also specify products, which are of a supranational character. However there appears even bigger difficulty in securing the inputs borne on their production.

private goods are produced. The jointness phenomenon that is connection of positive external farming effects with the production of market goods makes it impossible to exclude the protectionism elements from the agricultural policy. Then each of the introduced payments will also influence the private goods production and the same it will interfere the goods' evaluation, which would be present in a pure market mechanism. The problem occurs of so-called cross subsidising as a result of which the economic surplus retransfer to farming sector is a supporting factor in an indirect way the private goods production. At least two paths of support (de Gorter, Just & Kropp, 2008, pp. 43–44): maintaining a bigger number of farms in a production system and decreasing the costs of private goods production.

As a result of territorially limited benefits of creating public goods by multifunction agriculture, farming policy created on the level of the whole country will not allow to secure the optimum supply of public goods. They should take into consideration the local peculiarity, which is inseparably linked to the functions realised by the farming sector. It is sufficient to present a problem, which concerns the realisation of the food security function treated as a public good which securing requires a production of a specific number of private goods. The security does not mean only the ability to provide a definite level of supply of food but it has much wider dimension because it concerns not only a supply of a particular number of agri-food products but also their proper quality and conditions of production. Maintaining the agricultural production in highly-developed countries allows to subject it to control and achieve high quality values of agricultural resources, at the same time assuring using technologies accepted by the communities of the EU member countries and covering inter alia the well-being of animals, using chemicals, bearing full labour costs (including social insurance of farmers).

#### **4. MULTIFUNCTIONALITY AND THE AGRICULTURAL POLICY**

The realisation of a multifunctional farming concept is a result of changes resulting from social needs. Therefore, it can be assumed that there is a public consent to introduce the payments that allow securing advantages to provide public goods and external positive values. The incompleteness of markets as well as a varied range of externalities influence and frequent connection of public and private goods causes severe difficulties of their evaluation and using the activities, which allow to cover the production costs. It is Samuelson (1954, pp. 387–389) argued that there is no good way to reveal preferences mechanisms due to a public good. Therefore, they cannot be produced in an appropriate quantity (if they can be at all because they are often a limit for private goods production) in private sector. The case of agricultural sector shows that the production possibilities exist, however, they lead to under-investing of sector producing public goods. Then what levels of agriculture sector support can be used to enable the realisation of agricultural multifunction concept and which policy instruments are effective? As the answer to essential difficulties in social needs evaluation and estimation of public goods there appeared various solutions. Hall, McVittie, Moran (2004, pp. 213–216) describe a matrix of available techniques to estimate a whole set of goods and services provided by agriculture. Basing on quality assessments, they present five possibilities: judging observations; using proxy to evaluate public preferences; focused interviews, interviews, Delphi method; monetary estimation and multidimensional techniques. Part of the economists present a view that the liberalisation process of world's economy itself and abolishing the agricultural protectionism causing a price reduction will lead to using less intensive methods of farming production. Therefore it will decrease negative externalities and it will also improve the supply of public goods (e.g. it will enlarge the biodiversity (Buckwell, 1996; pp. 204–205; Ervina, 1997, p. 10). However, it is difficult to agree to such an approach.

Sometimes public goods really can be produced automatically as by-products of food production. In other cases the goods will not be produced or they will be provided in an insufficient quantity if the payment will not be secured. Consequently, in the situation of free market public goods will be maintained below the optimal level (Dillman & Bergstrom, 1991, p. 262). If we make an assumption about the imperfect resources mobility there appears a phenomenon of structural balance lack belonging to agrarian issue, which causes that not securing the payments for providing public goods will deepen their supply difficulties. This problem is developed in a form of income gap between non-farming and agricultural sector. Apart of this gap is created by the economic surplus escaping from the farming sector as a result of not providing payments for public goods. This fact on one-hand points at the possibilities of shifting the economic surplus to the agricultural sector as an equivalent for public goods, on the other it is a specific pressure to increase intensity of production resources use and their further degradation within realisation of pure production function. Peterson (2002) presents that realisation of multifunction agriculture can be carried out via budgetary support, however stipulating that social aims cannot be reached by introducing production subsidies. At the same time, Latacz and Lohman (2000) argue that the economy policy instruments which are to secure a appropriately high level of public goods and increase multifunctional agriculture advantages should not be constrained by arbitrary rules, which prevent the actions which cause significant results within production and trade. Without a proper support from agricultural policy of an appropriate level of agricultural public goods such as e.g. landscape protection, it should be expected that it would lead to their perceptible lack, especially in highly-developed countries of unfavourable agri-environmental conditions. Considering the targets of agricultural policy, we should look at it through the rules' view which farming plays in the process of economic development. One of the approaches elaborated by the team of specialists of FAO presents the development process by six basic function (FAO, 2007): soothing poverty, securing the food safety, securing environmental externalities, migration control, buffer in case of economic stresses and culture shaping. The existing diverse incomes between particular countries, the intervention extent and the length of its influence in farming sector caused that agricultural functions in respective countries are completely different. The accomplishing transformation in technological progress in agriculture are transferred more and more from the outside by securing the flow of financial means to a farming sector enabling sustaining the extended reproduction and at the same time shaping conditions of innovation creation in agricultural surrounding. The demarcation in the situation of globalisation is the agri-environmental conditions, which decide on competitiveness of farming offer on the global market. It leads to the discrepancy between securing food safety and expansion into external markets.

The problem of multifunction finds its reflection in a retransfer structure in agricultural sector. Since if we can indicate the existence of public goods then there is a need of their financing. It means that a specific economy sector provides products, which bring costs and do not get any income. It can be presented as an economic surplus flow from the agriculture to external surrounding. In case of some environmental functions, they can be even of a international range (e.g. clean air). It causes the shift into the direction of creating specific structural transformations in agriculture and the production technologies used. Quitting the dominant role of agriculture and farming policy in rural areas shapes the danger of that sector marginalisation which at the same time shapes the external conditions for its development and resources in its surrounding. Past solutions "rinsed" relatively steadily a significant part of resources for other use often located outside rural areas. Paradoxically decreasing the traditional production functions and the importance of agriculture itself in the economy system increases the significance of means retransfer to farming and the resources used on

this account that they are getting rarer and rarer. It concerns mostly highly-developed countries characterised by unfavourable agri-environmental conditions, inclining towards the reduction or even agriculture disappearance.

The changes in agricultural policy indicate the tendency to take into consideration external effects implicated by technologies used and market incompleteness which causes the use of retransfer from the tax-payer (environmental subsidy) and consumers (higher prices for ecological products). Then the price differentiation should take into consideration not only the differences in the used production support systems and the costs of transport and insurance but also the internationalisation of externalities. However, maintaining the system of subsidy in agricultural sector in a modified form is dictated by many premises, which are mutually linked. The first one comes down to securing a widely reckoned food and resource safety. Numerous experts' opinions show that a part of farms as well as whole farming markets (e.g. involved in field crops) in a situation of the support liquidation would become income inefficient. That would mean the necessity to gain those resources in a further perspective outside the area of many highly-developed countries. At the same time it must be noticed that there is a numerous group of products which despite the liquidation of subsidies would gain the economic surplus and development abilities (in case of the EU we can list e.g. pigs breeding, poultry, gardening, fruit-gardening). Part of reasons of such a status quo is of a permanent character and results from the agri-environmental conditions.

Using varied support instruments within the state interventionism is a characteristic element of a modern agricultural policy. Simulations show that in the best case 40 % of a current support level can be regarded as factors supporting public goods creation (Brunstad, Gaasland & Vårdal, 2005, p. 485). First of all the structure of support goes under changes. Gradually we can observe the separation of income regulatory from production (decoupling). Irrespective of the assumptions made, we must notice the following dysfunctions of the system of risk management: production structure and price conditions deformation, low efficiency of input resulting from the fact that a significant part of financial means is captured by the entities from the agricultural surrounding<sup>4</sup>. Also significant costs are borne (paid by tax-payers and consumers) which are less and less acceptable in an international market because it influences the price competitiveness of farming products. Subsidies are often captured by big entities, which are oriented towards gaining them. They are based mostly on historical crops so they establish the existing structural or income differences and the same the risk level in individual areas. The financial system of agricultural support allows to reduce income risk, and less the production risk (there occurs the growth of supply products and production factors' prices) and then an increase of institutional risk. It is necessary to take into account also the difficulty of the inseparability of the preference on public goods. This means because, that consumers expect the determined bundle goods, also goods private (e.g. cheap but the safe food), aside from the economic position. The joining of goods public and private permits also to cut costs their production (it reduced constant cost, but also the part of variable costs on the greater productive effect). Appears obvious known in the economy the problem of the free horseman (Mutuswami & Winter, 2004, p. 630), meaning, that the structure of the division of the bask with goods private and public will be shaken in the interest of these first. As the factor balancing they are applied be determined penalties for the infringement of a contract of social or relatively high advantages for the delivery of public goods.

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<sup>4</sup> In case of regulations, which cover price maintenance according to OECD, estimations (2008) it is even 77 % of retransfers directed to agriculture and in case of land subsidies 53 %. However in the second solution the majority of subsidies is capitalised in land price. The benefits are transferred mostly to the landowners and not necessarily to the farmers.

## 5. CONCLUSIONS

The rural development, basing only on the food production function, reached in many countries its criticality, leading to the search of his new concept. Multifunctionality of agriculture should be treated as another, more advanced stage of socio-economic development. It is a concept that is attributable to changes in social needs and the shift in their hierarchy, as a result of economic development. From this perspective, only the realization of the production function does not provide a sufficiently high growth in social welfare. However, more and more reveal the cost in the form of negative externalities. At the present stage of transformation of global economy is not possible to implement non-production functions in agriculture, without creating an institutional mechanism to return surplus economy to agriculture. Allocation of market imperfections that the market mechanism does not provide payment of public goods are created in the agricultural sector over exposing the productive function (only provide income for the market). This, however, highly developed parts of countries had already achieved a high degree of satisfaction of needs. As a result, it becomes necessary, therefore, better utilization of resources allocated to agriculture. Otherwise, it may lead to their further degradation and deterioration of social welfare in the long term. Imperfections of market allocation and the lack of automatic assurance of payments for providing public goods demanded by the society forms the perspective for solutions within the agricultural policy. Its optimisation in multifunction agriculture conditions needs defining the advantages and disadvantages which come from engaging the resources in the farming sector. Because farmers have no intensive to take into consideration public goods or public advantages while making production decisions, the resources allocation has not been publically optimal so far. Therefore there is a rational justification of government intervention to promote economic efficiency and the direction of agricultural development.

Found a link between private goods and public goods indicates that the activities conducted through agricultural intervention need not be completely decoupled. However, it is important to balance sheet approach, which will determine whether the benefits obtained in the form of private and public goods provide a higher level of social welfare at a given level of retransfer to the agricultural sector. Gaining the economic surplus in production or supply in agri-food products caused the shift towards the valorisation of resources in agriculture and creating as well as introducing charges for positive externalities and public goods produced in farming sector. This causes the shift towards structural transformation and development of technology, maintaining the resource, while reducing the intensity of their productive use. Does not mean the elimination of the production function in terms of consumption of food compulsion.

Described concept requires the further extension for mechanisms of the valuation of public goods so, to ensure the charge for their creation and consequently to increase the social well-being. It requires also the exact settlement of arising, differentiated public goods on which exist, on the given stage of development of economic, social needs. Such considerations are essential from the point of view of the proper formation of the agricultural policy and the valorisation of the agricultural resources.

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