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About the governance pillar of agrarian sustainability

KEYWORDS

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ABSTRACT

Introduction. Most of suggested and practically used framework for assessing the agrarian sustainability include three pillars – economic, social, and environmental. In recent years a new “fourth” governance pillar of sustainability has been introduced in academic literature and appeared in official documents of governmental, international, professional and business organizations. Nevertheless, the elaboration of the approach for assessing the governance sustainability of agriculture still is at the beginning stage. This article suggests a holistic framework for assessing the new governance pillar of agrarian sustainability.

Materials and methods. A framework of new evolving interdisciplinary methodologies of Sustainable Development and the New Institutional Economics has been incorporated and a holistic system comprising of well-defined principles, criteria, indicators and reference values used for assessing governance sustainability of Bulgarian agriculture at national and (sub)sectoral (industry) levels.

Results. Multi-principle, multi-criteria and multi-indicators assessment indicates that the Overall Governance Sustainability of Bulgarian agriculture is at a “Good” but very close to the “Satisfactory” level. Besides, there is a considerable differentiation in the level of Integral Governance sustainability of different agro-industries in the country. What is more, the individual indicators with the highest and lowest sustainability values determine the “critical” factors enhancing and deterring the particular and integral Governance sustainability of evaluated agro-system.

Conclusion. Holistic assessments of governance and overall sustainability are important for improving the management of agrarian sustainability in general, and the Governance sustainability of agriculture in particular. Therefore, they are to be expended and their precision and representation increased. The later requires improvement of the precision through enlargement of surveyed farms and stakeholders, and incorporating more “objective” data from surveys, statistics, expertise of professionals in the area, etc.

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INTRODUCTION

The need to include “the fourth” governance pillar in the concept for understanding and the system of measurement of sustainability is increasingly justified in academic literature [1; 2; 10; 11; etc.] as well as finds place in the official documents of different (government, international, private, etc.) organizations [12; 13; 16]. Nevertheless, the building of the system for assessing the “new” governance aspect (pillar) is still a “work in progress”.

This paper tries to fill the gap and suggests a holistic framework for assessing the governance sustainability of Bulgarian agriculture. The newly elaborated approach is applied (tested) in a first in kind large-scale study for assessing the governance sustainability of country’s agriculture at national and sectoral levels.

STUDY METHOD AND DATA

The “governance sustainability” characterizes the efficiency of the specific system of governance in an evaluated system (national, subsector, ecosystem, regional, farming enterprise, etc.). Accordingly, a “good governance” means a superior governance sustainability, while a “bad” (inefficient) governance corresponds to inferior governance sustainability.

The system of governance includes a number of district components [3] all of which have to be included in the sustainability assessment – *institutional environment* (“rule of the game’), *market* modes and mechanisms (“market order’), *private* modes and mechanisms (“private order’), and *public* modes and mechanisms (“public order’).

In order to identify the individual indicators for assessing the (governance) sustainability of Bulgarian agriculture a hierarchical system of well-determined Principles, Criteria, Indicators, and Reference Values for each Aspect (Pillar) of sustainability is elaborated*. Detailed justification of that new approach, and the ways and criteria for selection of sustainability Principles, Criteria, Indicators and Reference Values are presented in other publications by H. Bachev [4; 5] and H. Bachev et al. [8; 9].

The *Governance Sustainability Principles* are “universal” and relate to the multiple functions of the agriculture representing the states of the sustainability, which is to be achieved. For the “specific” contemporary conditions of Bulgarian (and European Union) agriculture following five principles related to the generic (five) mechanisms and modes of governance are identified: “Good legislative system”, “Democratic management”, “Working agrarian administration”, “Working market environment”, and “Good private practices”.

The *Governance Sustainability Criteria* are precise standards for each of the Principle representing a resulting state of the evaluated system when the relevant sustainability Principle is realized. For the contemporary conditions of the Bulgarian agriculture 20 Criteria for assessing diverse aspects of the governance sustainability are specified. For instance, for the Principle

* That approach is adapted from Sauvenier et al., 2005.

“Good legislative system” four Criteria are selected: “Harmonization with the European Union policies”, “Extent of the European Union policies implementation”, “Beneficiaries’ satisfaction of the European Union policies”, and “Policies effects”.

The *Governance Sustainability Indicators* are quantitative and qualitative variables of different types which can be assessed in the specific conditions of the evaluated agri-system allowing measurement of compliance with a particular Criterion. The set of Indicators provides a representative picture for the agrarian sustainability in all its aspects. For assessing the Governance sustainability of the Bulgarian agriculture at micro (farm) and macro (sectoral, regional, eco-system, etc.) levels a system of respectively 22 and 26 Indicators are specified. For instance, for the Criteria “Policies effects” an Indicator “Level of subsidies comparing to the average for the sector” is selected for farm level, as well as two Indicators for the aggregate (sectoral) level – “Coefficient of subsidies distribution from Pillar 1” and “Coefficient of distribution of investment support comparing to share in Net Value Added”.

The *Governance Sustainability Reference Values* are the desirable levels for each Indicator according to the specific conditions of the evaluated agro-system. They assist the assessment of the sustainability levels giving guidance for achieving (maintaining, improving) particular aspect and the overall agrarian sustainability. Most of the Reference Values show the level(s), at which the long-term sustainability of agrarian Governance sustainability is “guaranteed” and improved. Depending on the extent of the Reference value achievement the evaluated agro-system may be with a “high”, “good”, or “low” sustainability, or to be “unsustainable”. For instance, agrarian system with a higher than the sectoral public support (level of subsidies) is more sustainable then others as far as “Policy effects” are concerned, and vice versa.

Very often individual Indicators for each Criterion and/or different Criteria, and Principles of sustainability are with unequal, and frequently with controversial levels. That significantly hardens the overall assessment requiring a transformation into “unitless” Sustainability Index and integration of estimates. Diverse quantitative and qualitative levels for each indicator are transformed into an Index of sustainability (ISi) applying appropriate scale for each Indicator [6].

The Integral Index for a particular Criterion (SI(c)), Principle (SI(p)), and Aspect of sustainability (SI(a)), and the Integral Sustainability Index (SI(o)) are arithmetic averages of the Indices of composite Indicators, Criteria and Principles. The Integral Sustainability Index for a particular Criterion (SI(c)), Principle (SI(p)), and Aspect of sustainability (SI(a)), and the Integral Sustainability Index (SI(o)) for evaluated agro-system is calculated applying “equal weight” for each Indicator in a particular criterion, of each Criterion in a particular Principle, and each Principle in every Aspect of sustainability.

For assessing the level of Governance and Integral sustainability of agro-systems in Bulgaria the following scale, defined by the leading experts in the area are used: Index range 0,81-1 for a “High” level of sustainability; Index range 0.50-0,8 for a “Good” level of sustainability; Index range 0,26-0,49 for a “Satisfactory” level of sustainability; Index

range 0,06-0,25 for an “Unsatisfactory” level of sustainability; Index range 0-0,05 for “Non-sustainable” state.

Elaborated holistic framework for assessing the Governance sustainability of Bulgarian agriculture is tested using 2018 survey data from the managers of 104 “typical farms” of different juridical type, production specialization, and locations. The structure of surveyed farms approximately corresponds to the real structure of farms in different categories in Bulgaria. The composite (Aspect and Integral) Sustainability Index of each evaluated agri-system is calculated as an arithmetic average of the Indices of relevant farms belonging to that system.

RESULTS AND DISCUSSION

A multiple indicators assessment of the Governance sustainability level of Bulgarian agriculture indicates that the Index of Overall Sustainability is 0,51 - this represents a close to the lower (“Satisfactory”) but still a “Good” level of Governance sustainability of the sector.

Analysis of individual Indexes for the primary sustainability Principles, Criteria, and Indicators allows identifying individual components contributing to the Governance sustainability of this important sector of Bulgarian economy. For instance, the Governance sustainability of Bulgarian agriculture is relatively low because the Index for the Principle “Good Private Practices” is at “Satisfactory” level (0,46) and compromises the Pillar’s Integral sustainability (Figure 1). Moreover, Indices for “Good Legislative System” and “Democratic management” are quite low and at the border with the “Satisfactory” level - 0,5 and 0,51 accordingly. At the same time, Indices for the Principles “Working agrarian administration” (0,55) and “Working market environment” (0,54) are highest and contribute most for elevating (ensuring) the Governance Sustainability of the sector.

Figure 1 Indices of Sustainability for Major Principles of Governance Sustainability of Bulgarian Agriculture (Source: author’s calculation)

In depth analysis of the levels of the individual Criteria and Indicators further specifies the elements that enhance or reduce country's agricultural Governance sustainability. For instance, the insufficient "Good Private Practices" is determined by the low "External control" (over management) (0,38), weak "Contracts enforcement" (0,49) and inferior "Informal system efficiency" (0,43) (Figure 2).

Similarly, despite that the Integral Index for "Democratic management" Principle is at a "Good" level, Indices for two criteria (policies) "Impact" and "Stakeholder participation in decision-making") are quite low at satisfactory territory. Likewise, "Working agrarian administration" seems "Good" but "Access to administrative services" is actually very low (0,34) at "Satisfactory" sustainability level. The same is true for the "Working market environment" which is "Good" while Index for the Criteria "Resource concentration" reviles low sustainability (0,43).

Figure 2 Indices of Sustainability for Major Criteria* of Governance Sustainability of Bulgarian Agriculture (Source: author's calculation)

*C1-Extent of policies implementation; C2-Extent of beneficiary satisfaction of EU policies; C3-Policies effects; C4-Representation; C5-Transparency; C6-Impact; C7-Stakeholder participation in decision-making; C8-Minimum costs of using; C9-Access to administrative services; C10-Information availability; C11-Quality of services; C12-Market access; C13-Free competition; C14-Competitive allocation of public resources; C15-Resource concentration; C16-Regulation implementation; C17-External control; C18-Contracts enforcement; C19-Informal system efficiency

Individual sustainability Indicators give precise information about the specific factors determining one or another values of a particular Criteria. For example, ineffective "Access to administrative services" is determined accordingly by the insufficient "Agrarian administration efficiency" (0,31) and undeveloped "Administrative services digitalization" (0,37) (Figure 3). Likewise "Satisfactory" sustainability for the "Resource concentration" is a consequence of the (low) "Possibility for lands extension" (0,37).

Figure 3 Indicators* for Assessing the Governance Sustainability of Bulgarian Agriculture
(Source: survey with farm managers)

* I1-Extent of CAP implementation; I2-Extent of beneficiary satisfaction of EU policies; I3-Subsidies distribution; I4-Representativeness of state and local authorities; I5-Access to information; I6-Subsidies in Income; I7-Farmer's participation in decision-making; I8-Acceptability of legal payments; I9-Agrarian administration efficiency; I10-Administrative services digitalization; I11-Extent of awareness; I12-Administration service costs; I13-Market access difficulties; I14-Market competition; I15-Prices negotiation possibilities; I16-Extent of competitive allocation of public resources; I17-Lands concentration; I18-Possibility for lands extension; I19-Extent of regulations implementation; I20-Management Board external control; I21-Extent of contract enforcement; I22- Level of informal system efficiency.

The low values for the Indicators help identify specific areas that require improvement through adequate changes in the institutional environment, public policy, modernization of agrarian administration, collective actions and/or management strategies. At the current stage of the development the most critical for increasing the Governance sustainability of country's agriculture are progressive improvements in following directions: "Farmer's participation in decision-making" (0,31), "Agrarian administration efficiency" (0,31), "Administrative services digitalization" (0,37), "Possibility for lands extension" (0,37), "Management Board external control" (0,38), "Level of informal system efficiency" (0,43), "Subsidies in Income" (0,48), "Extent of contract enforcement" (0,49), "Acceptability of legal payments" (0,5), and "Lands concentration" (0,5).

The higher levels of certain Indicators show the absolute and comparative advantages of the Bulgarian agriculture in terms of good governance and sustainable development. At the current stage of development, the most prominent of these include: "Representativeness of state and local authorities" (0,58), "Market competition" (0.6), "Extent of competitive allocation of public resources" (0.6), "Access to information" (0.65), "Extent of awareness" (0.66),

and “Administration service costs” (0.68). Nevertheless, the top value(s) of the Governance Sustainability Indicators in Bulgarian agriculture is relatively low. Therefore, there is a great potential for improvement of governance efficiency and further elevate the Governance and Overall sustainability.

The analysis of the Governance sustainability of different sub-sectors of Bulgarian agriculture shows that there is a great variation in the sustainability level. The highest (“Good”) level of Governance sustainability is demonstrated in the “Mix livestock” production (0,59), followed by the “Vegetables, flowers, mushrooms” and “Mix crop-livestock” sectors (0,53) (Figure 4). Therefore, these three subsectors contribute to greatest extent for improving (maintaining) the overall Governance sustainability of Bulgarian agriculture.

On the other hand, the level of Governance sustainability in the “Grazing livestock” (0,52), “Permanent crops” (0,5), and “Beekeeping” (0,5) is close to the average in the sector. Finally, in some major subsectors like “Field crops” (0,47) and “Mix crops” (0,49), the level of the Governance sustainability is “Satisfactory” and far below the general one. This means that the later subsectors decrease in a biggest degree the Integral Governance sustainability of country’s agriculture.

Figure 4 Governance Sustainability in Different Sub-sectors of Bulgarian Agriculture
(Source: survey with farm managers)

The different sub-sectors of Bulgarian agriculture are characterized by significant variation of the levels of Indices of the main Principles of the Governance sustainability (Figure 5). For instance, the Principle “Good legislative system” is the best realized in the “Vegetables, flowers, mushrooms” production (0,58) and “Mix-livestock” operations (0,57), and the worst

in “Field crops” and “Grazing livestock” sub-sectors (0,47). The Principle of “Democratic management” is the best applied in the “Mix livestock” production (0,62), while it is not “Satisfactory” in the “Beekeeping” (0,46), and “Mix crops” and “Mix crop-livestock” sub-sectors (0,49). The interior and superior levels of the Governance sustainability for particular Principles show the directions for improving the Governance sustainability in the relevant sub-sectors of agriculture.

The Principle “Working agrarian administration” is effectively applied in “Beekeeping” (0,57), and “Grazing livestock” and “Mix crop-livestock” (0,56), while agrarian administration does not “work” well in the sector of “Field crops” (0,44). The sustainability for the Principle “Working market environment” is the highest in “Mix livestock” (0,64), “Beekeeping” (0,63) and “Mix crop-livestock” (0,58). Simultaneously, market mechanisms are not working very well for the “Field crops” producers (0,5). Finally, “Good private practices” are the best implemented in the subsector of “Mix livestock” (0,62) and “Mix crop-livestock” (0,5), while in all other subsectors they are applied only “Satisfactorily”, being particularly inferior in the “Beekeeping” (0,37) and “Field crops” (0,41).

Figure 5 Indices of the Principles of Governance Sustainability in Major Sub-sectors of Bulgarian agriculture (*Source: survey with farm managers*)

Further analysis of the sustainability level for the individual Indicators allows “complete” unpacking the “critical” factors enhancing and/or decreasing the Governance sustainability of each sub-sector. Our assessment has found out that different agricultural sub-sectors in Bulgaria are characterized by a significant variation in the levels of individual Governance Sustainability Indicators (Figure 6).

Field crops

Vegetables, flowers and mushrooms

Permanent crops

Mixed crops

Grazing livestock

Bee keeping

Mix Crop-livestock

Mixed livestock

Figure 6 Governance Sustainability Indicators in Different Sub-sectors of Bulgarian Agriculture (*Source: survey with farm managers*)

CONCLUSIONS

Multiple Principles, Criteria and Indicators assessment of the Governance sustainability of Bulgarian agriculture indicates that the Overall Sustainability is at a “Good” but very close to the “Satisfactory” level. Besides, there is a considerable differentiation in the level of Integral Governance sustainability of different agricultural sub-sectors. What is more, the individual indicators with the highest and lowest sustainability values determine the “critical” factors enhancing and deterring the particular and integral Governance sustainability of evaluated agro-system. Having in mind the importance of holistic assessments of this kind for improving the agrarian sustainability in general, and the Governance sustainability of agriculture in particular, they are to be expended and their precision and representation increased. The later requires improvement of the precision through enlargement of surveyed farms and stakeholders, and incorporating more “objective” data from surveys, statistics, expertise of professionals in the area, etc.

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