CURRENT STATE OF AGRI-ENVIRONMENTAL INDICATORS OF REPUBLIC OF MACEDONIA

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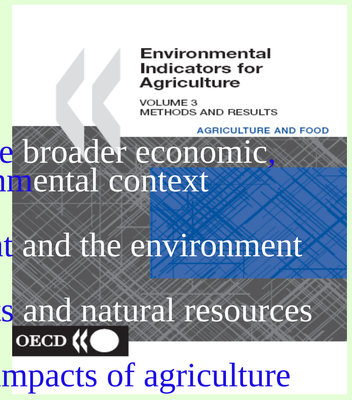
Introduction

Agri-environmental indicators are a useful tool for analysis of the connection between agriculture and environment and identifying developments in this intensive interaction. Such indicators should consequently help to accomplish a better understanding of the complex issues in the field of agriculture and environment, to show developments over time, and to provide quantitative information. This is an overview of up-to-date data and state of agri-environmental indicators in Republic of Macedonia and accordingly an analysis and evaluation of the sustainable development in the country.

Materials and methods

The Organisation for Economic Co-operation and Development (OECD) has established a set of agri-environmental indicators, developed in co-operation with Eurostat and Food and Agriculture Organisation (FAO). These indicators inform policy makers and society on the state and trends in agri-environmental conditions, and can provide a valuable aid to policy analysis.
In this study, specific OECD agri-enviromenatal indicators are presented, analyses and evaluated.



Part I: Agriculture in the broader economic, social and environmental context

Part II: Farm management and the environment

Part III: Use of farm inputs and natural resources

Part IV: Environmental impacts of agriculture

AGRICULTURE IN THE BROADER ECONOMIC, SOCIAL AND ENVIRONMENTAL CONTEXT	Agricultural GDP (2004-2014)	**10%**	
	Farm employment	**40.47% (1960), 21.26% (1981), 17,3% (2012)**	
	Farmer age (%)	Age	**%**
		<27	**0,5**
		28-49	**25,3**
		50-59	**26,05**
		60-64	**16,7**
		>65	**31,45**
	Number of individual farms	**176.296 (1981); 192.378 (2012)**	
	Farmer education	Level	**%**
		Illiterate	**4,55**
		4th grade	**14,43**
		8th grade	**56,8**
		High school	**21,2**
		University	**3,02**
	Land use	**~ 56,2% of total is agricultural land (1.264 thousand ha) ~ 40% cultivated ~ 60% grasslands**	

FARM MANAGEMENT AND THE ENVIRONMENT	Soil and land management	**No data available**	
	Irrigation and water management	**106 irrigation systems – irrigation capacity 173.000 ha Irrigation limited to 120.000 ha Average irrigation systems utilisation (22,7%)**	
USE OF FARM INPUTS AND NATURAL RESOURCES	Nutrient Use	Application of mineral fertilizers	**43.000 t - 1982 35.000 t - 1992 33 t/1000 ha - (2002-2010)**
		Application of organic manures	**No data available**
	Pesticide Use	**2.706 t (1983) 659 t (1993) 0,611 t/1000 ha (1992-2010)**	
	Water Use	**45% biological minimum 34% irrigation 11% industry 10% house holdings**	

ENVIRONMENTAL IMPACTS OF AGRICULTURE	Soil Quality	**40.000 ha endangered by soil erosion**	
		38% of the territory under erosion influence	
		Soil lost 17*10^6 m^3	
	Water Quality	**No data available**	
	Land Conservation	**Floating protected soil - 72.000 ha 10,5*10^6 m^3 soil taken by the river flows to either to neighbour countries or to water accumulations**	
	Greenhouse Gases	**Total emission of agriculture sector - 1.277,98 CO_2-eq (Gg) 10,29% of total GHG emission**	
	Biodiversity	Genetic	**410 autochthones plant varieties; Native livestock: Busha, Pramenka, Balkan goat, local pig, Sharplaninec**
		Species	***Avena* spp., *Hordeum* spp., *Triticum* spp., *Cannabis sativa*, *Papaver* spp.; many local fruit varieties**
	Wildlife Habitats	Intensively farmed agricultural habitats	**Field and vegetable crops (415.000 ha) Fruit and grape (39.000 ha) Meadows (59.000 ha)**
		Semi-natural agricultural habitats	**Grasslands/Pastures (750.000 ha)**
		Uncultivated natural habitats	**1.000 ha**
		Organic agriculture	**2.632 ha**
	Landscape	**0.5% agricultural land lost per year due to urbanization**	

Conclusions

Measurable indicators for all concerns of environmental impact of agriculture are not available and/or partially are available, descriptive and not update. On-farm indicators data are not available. Well developed agri-environmental indicators will provide information on the current state and changes in the environmental impact of agriculture and they can be used for policy monitoring, evaluation and forecasting purposes.