UNIVERSITY OF SARAJEVO
FACULTY OF AGRICULTURAL AND FOOD SCIENCES

IMPACT OF SOCIO-ECONOMIC DEVELOPMENT AND POLICIES ON THE SUSTAINABLE LAND MANAGEMENT IN AGRICULTURE

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GOAL OF THE RESEARCH

The aim of this paper is to use available data to analyze trends and characteristics of the way of use of agricultural land in B&H as well as the position and sustainable management of agricultural land within the socio-economic development of the country from the standpoint of impact of sectoral policies, social, political and economic factors in the period from 1961 to date.

The average loss of land of 3,000 ha/year has been used as official data since 1977!

SOURCE OF DATA

❑ STATISTICAL DATA ON AGRICULTURAL AREAS

-statistical data on agricultural areas by category of use (1961-1991);
-data on arable land by the method of use (1964-1991).

❑ CADASTRAL REGISTER

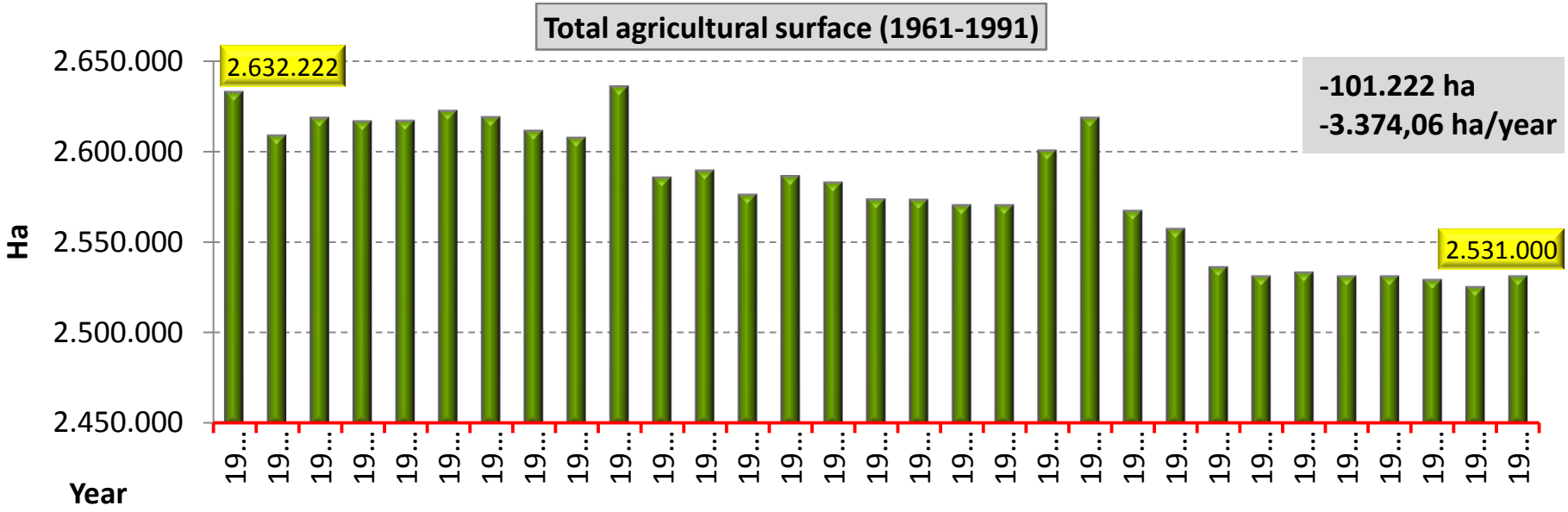
-the analysis encompassed data for the period 1973-1983 and the year 1991, since there is no integrated data for B&H for the period 1983-1991.

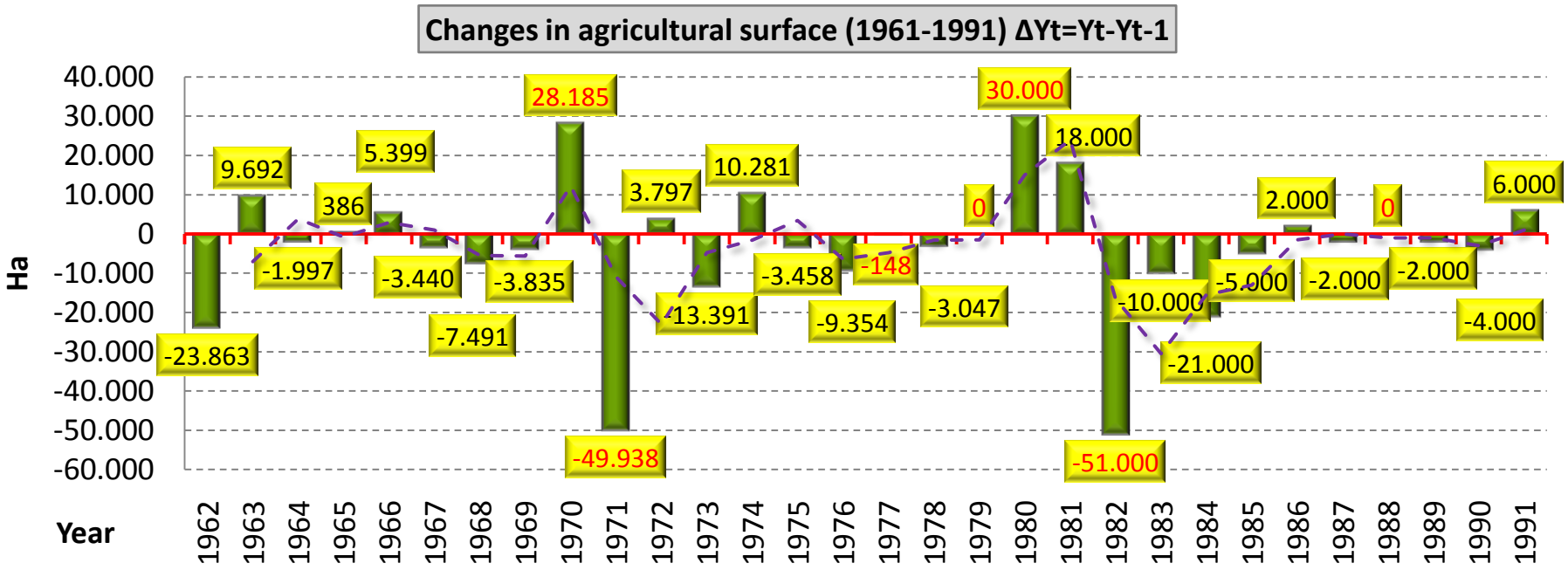
❑ CORINE DATA - COoRdination of INformation on the Environment

-changes to agricultural land (>5 ha) in the period 2000-2012.

CORINE is considered to be unique and currently most relevant database of changes to land in B&H!

RESULTS – statistical data





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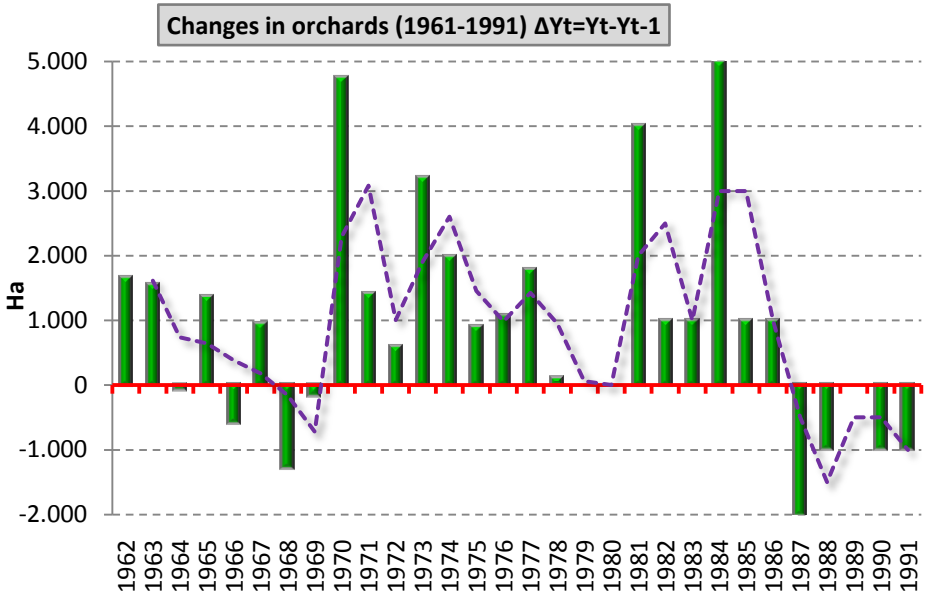

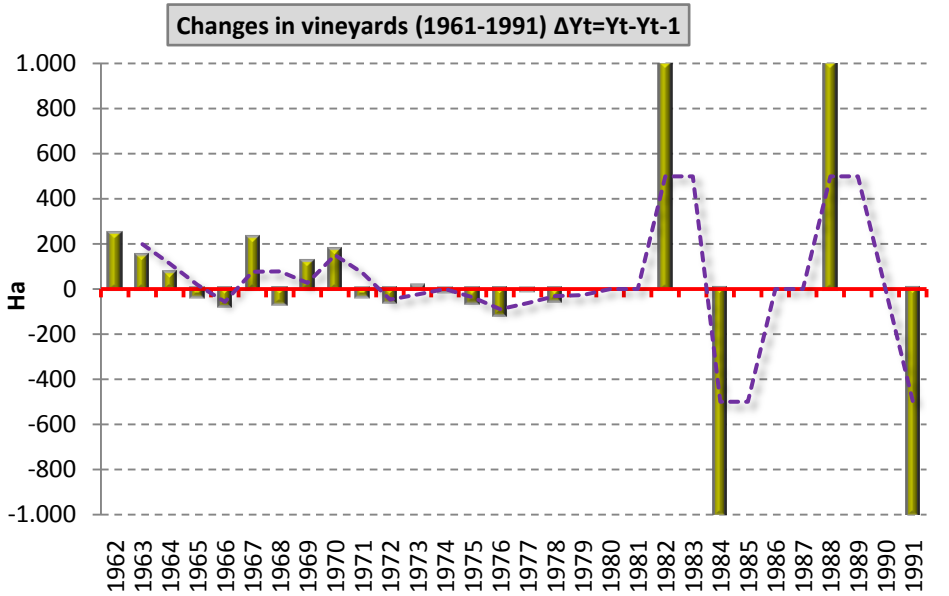

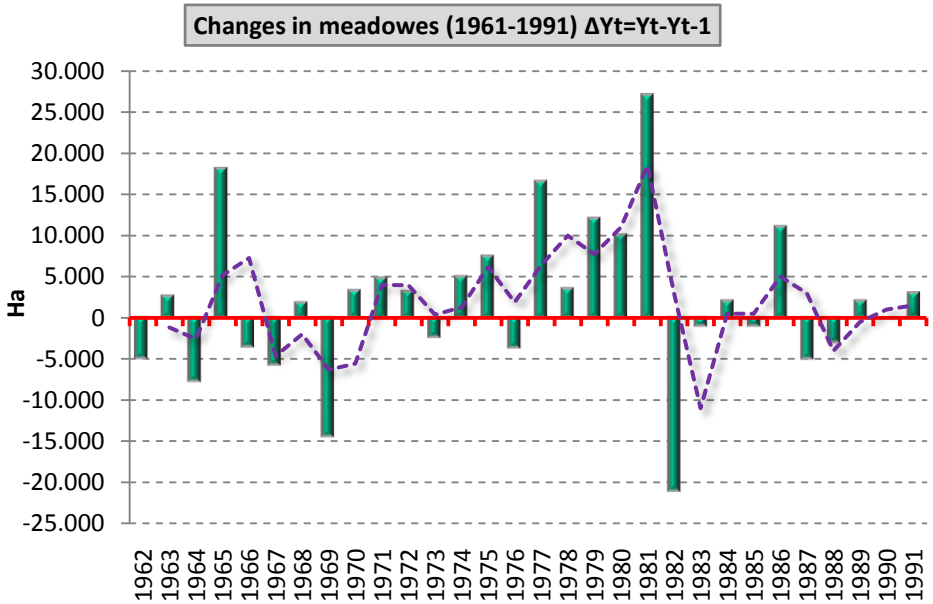

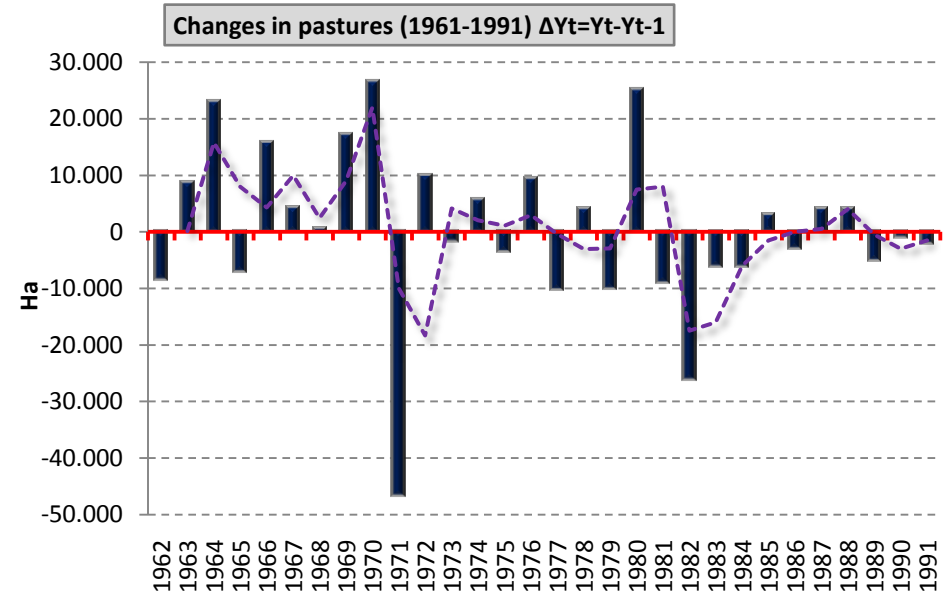

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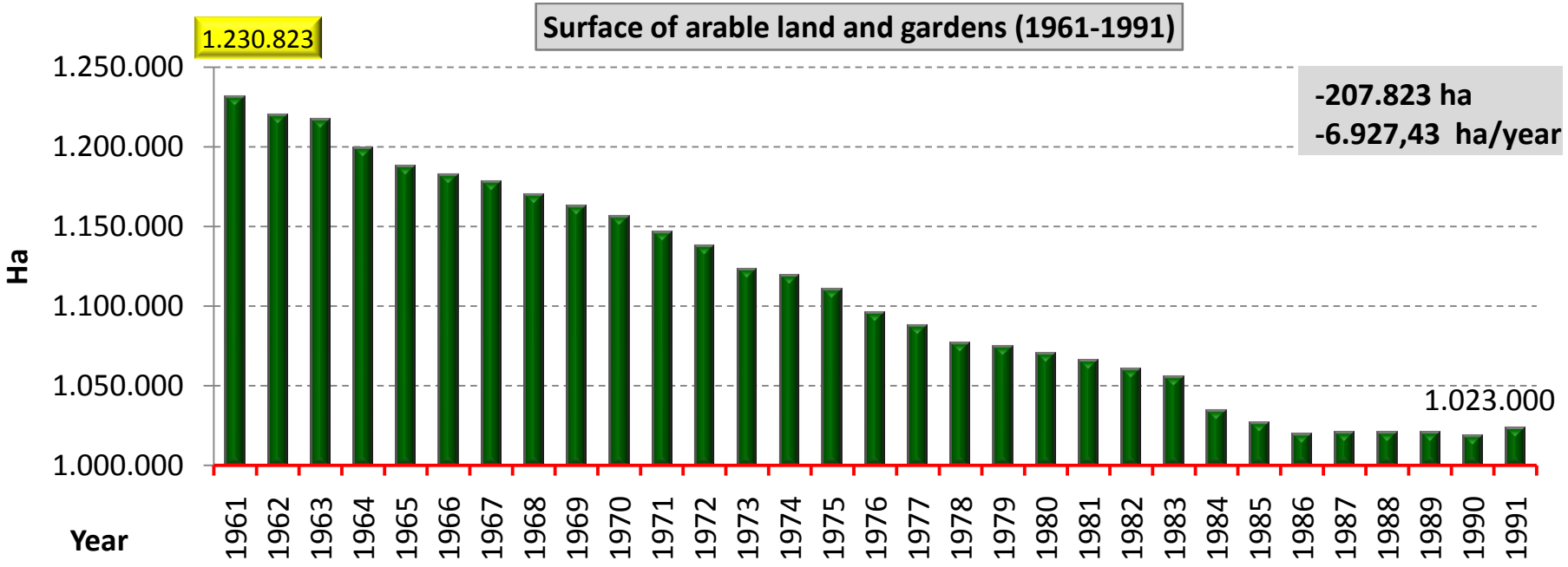
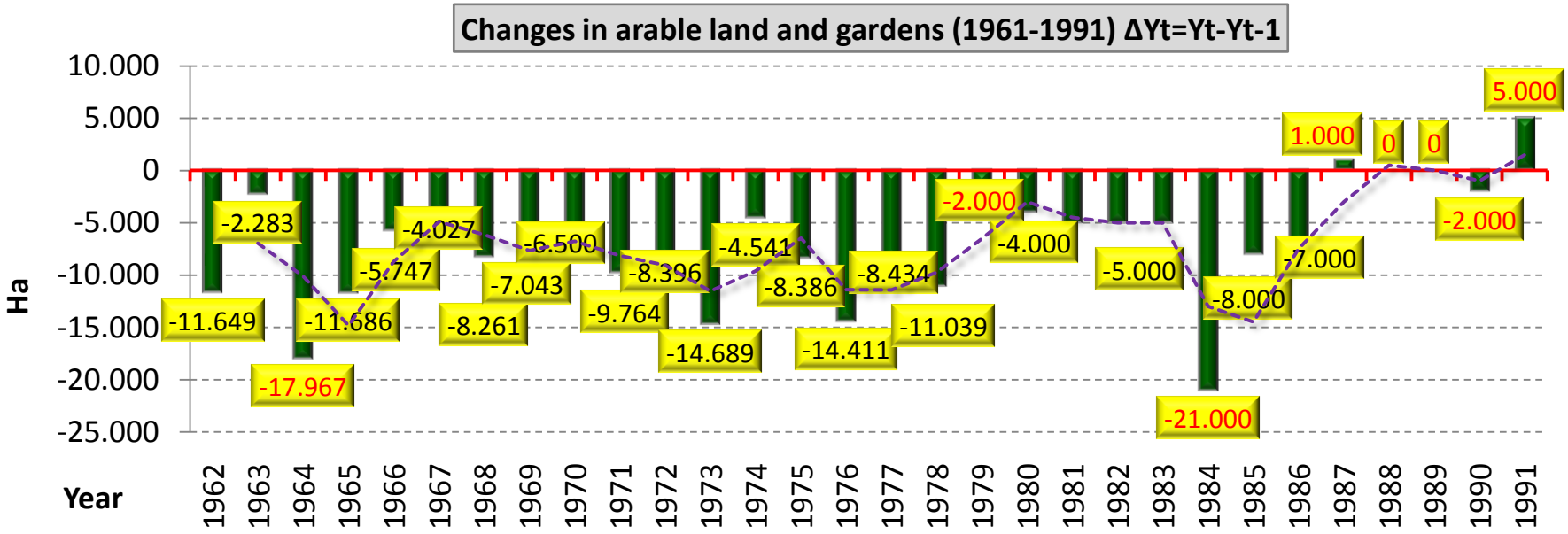


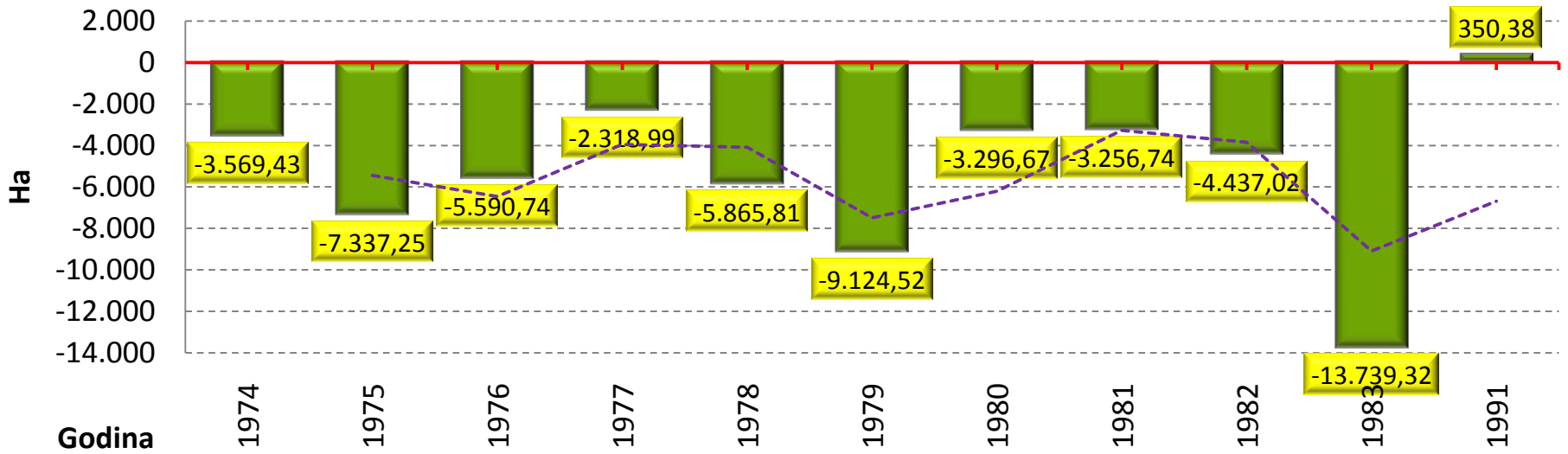


RESULTS – cadastral records

Changes in surface of cadastral categories (1973-1991) $\Delta Yt = Y_t - Y_{t-1}$

Year	Arable land and gardens	Orchards	Vineyards	Meadows	Pastures	Total agricultural land	Change
1974	-2.100,8	-38,2	-36,0	1.548,0	-2.942,4	2.590.164,3	-3.569,4
1975	-10.801,9	4.554,7	134,7	5.376,8	-6.601,6	2.582.827,1	-7.337,3
1976	-2.877,1	858,7	-75,1	-3.091,7	-405,5	2.577.236,4	-5.590,7
1977	-4.691,8	1.080,7	-28,2	2.118,1	-797,8	2.574.917,4	-2.319,0
1978	-2.088,1	-257,5	324,5	437,6	-4.282,4	2.569.051,6	-5.865,8
1979	-8.740,9	2.605,7	227,5	2.791,2	-6.007,9	2.559.927,0	-9.124,5
1980	-8.303,5	1.035,4	-37,7	3.340,2	668,9	2.556.630,4	-3.296,7
1981	-3.812,7	1.578,4	-112,8	1.841,6	-2.751,2	2.553.373,6	-3.256,7
1982	-6.832,2	2.268,9	-44,9	1.905,8	-1.734,6	2.548.936,6	-4.437,0
1983	-11.753,9	3.022,2	-36,8	2.489,5	-7.460,4	2.535.197,3	-13.739,3
1991	-928,6	332,2	-96,2	-61,5	1.104,6	2.535.547,7	350,4

Changes in agricultural land (1973-1983) $\Delta Yt = Yt - Yt-1$



RESULTS – cadastral records

-The plans of socio-economic development were prepared separately and independently of the urban and spatial plans.

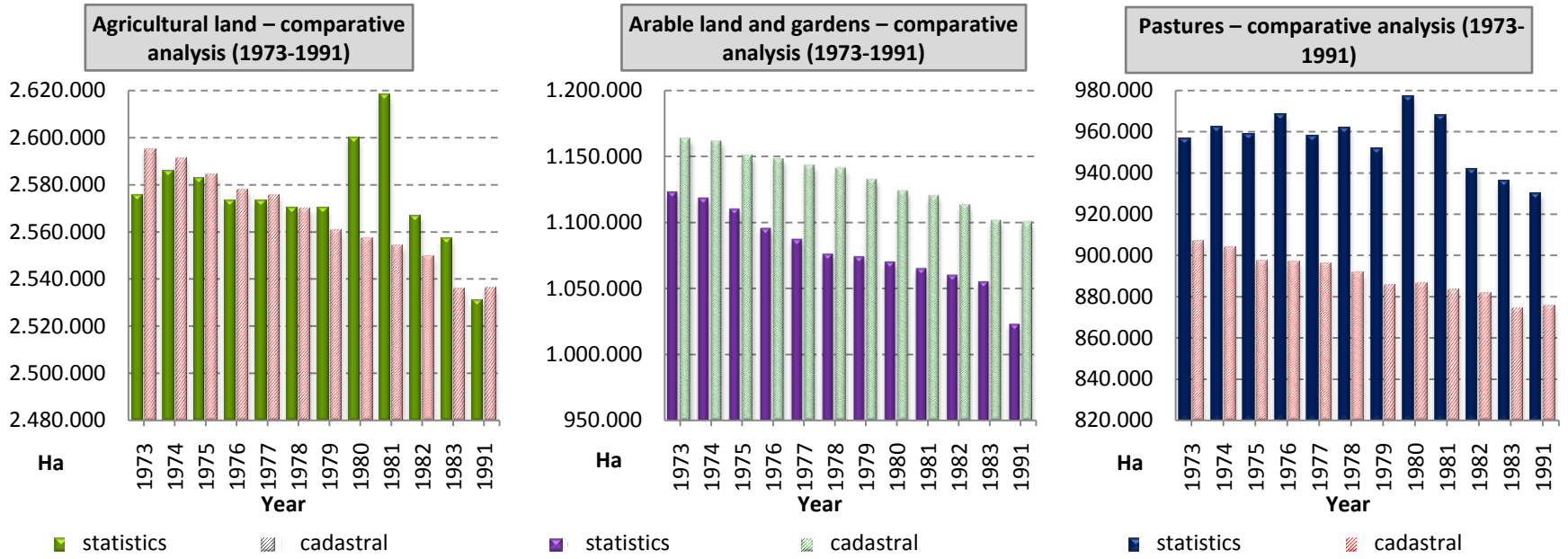
-The problem of the implementation of the policy of physical planning is also connected with the lack of land policy.

-The share of farmers in total population in 1991 compared to 1961 was reduced by 74.89%!

-Statistics show that the area of uncultivated arable land and gardens tripled in the period from 1961 to 1991, that is, increased from 54,283 ha to 160,000 ha.

"Spatial Plan of the Socialist Republic of Bosnia and Herzegovina for the period from 1981 to 2000" foresaw the requirement of around 100,000 ha of land for the construction at the expense of agricultural land.

RESULTS – quality of data?



Differences between statistical and cadastral data for a period 1973-1991 (ha)

Year	Arable land and gardens	Orchards	Vineyards	Meadows	Pastures	Total agricultural land
1973	-40.594,17	-3.210,48	948,71	-31.819,14	49.933,31	-19.258,19
1974	-43.034,35	-1.176,24	971,75	-28.439,18	58.581,68	-5.182,01
1975	-40.618,49	-4.818,97	775,06	-26.373,93	61.632,24	-1.424,18
1976	-52.152,42	-4.614,64	733,17	-26.927,19	71.458,73	-4.754,62
1977	-55.894,59	-3.907,37	752,37	-12.550,33	62.097,56	-2.584,99
1978	-64.845,53	-3.532,92	373,87	-9.501,90	70.454,93	232,67
1979	-58.104,59	-6.138,58	146,41	-293,12	66.462,85	9.357,53
1980	-53.801,13	-7.173,95	184,09	6.366,66	90.793,97	42.654,63
1981	-54.988,39	-4.752,37	296,90	31.525,10	84.545,14	63.909,94
1982	-53.156,21	-6.021,25	1.341,83	8.619,31	60.279,72	17.347,34
1983	-46.402,34	-8.043,43	1.378,59	5.129,80	61.740,10	21.095,60
1991	-77.473,71	-6.375,64	474,83	14.191,34	54.635,52	-5.260,25

RESULTS – quality of data?

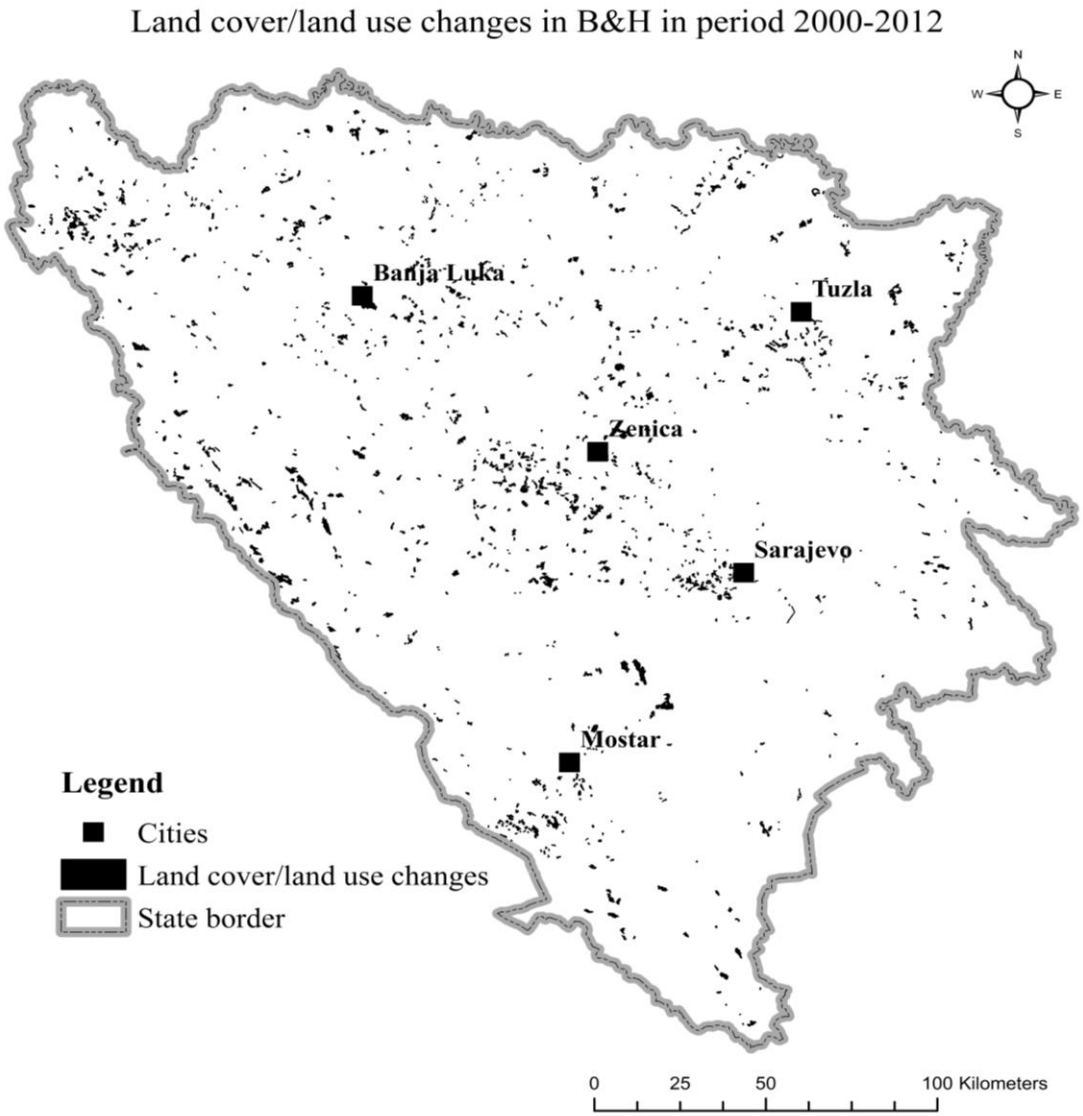
This analysis raised up two very important questions related to reliability and credibility of data.

Reasons:

-different methodology of data collection,
-the difference in areas between two geodetic surveys,
-the issue of divergent data within the very municipalities which submitted them to the Geodetic Administration and Institute of Statistics,
-the failure to update cadastral records contributed to by illegal construction,
-the inappropriate taxation policy – lack of land register update (grunt),
-errors in the keeping of records of agricultural, forest and barren land - one area is recorded both as agricultural (by farmers) and forest (by foresters) at the same time

RESULTS – land cover/use changes

CORINE data show that in the period 2000-2012 in B&H changes occurred on a total area of 67,672.05 ha (5,639.33 ha/year).



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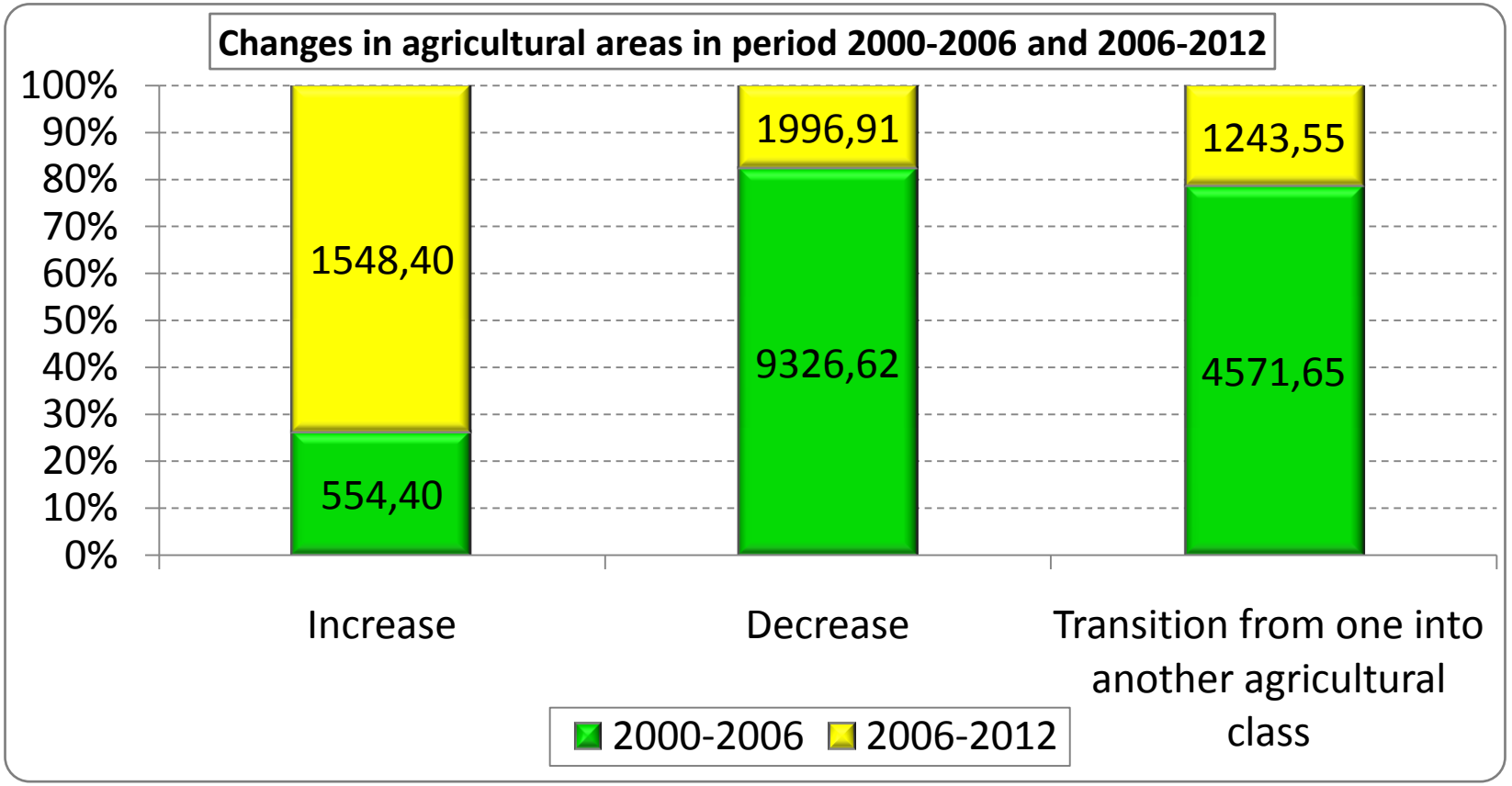
RESULTS – land cover/use changes



Total surface of agricultural areas: 1.779.169,38 ha.

19,241.53 ha or 28.43% are changes in agricultural areas.

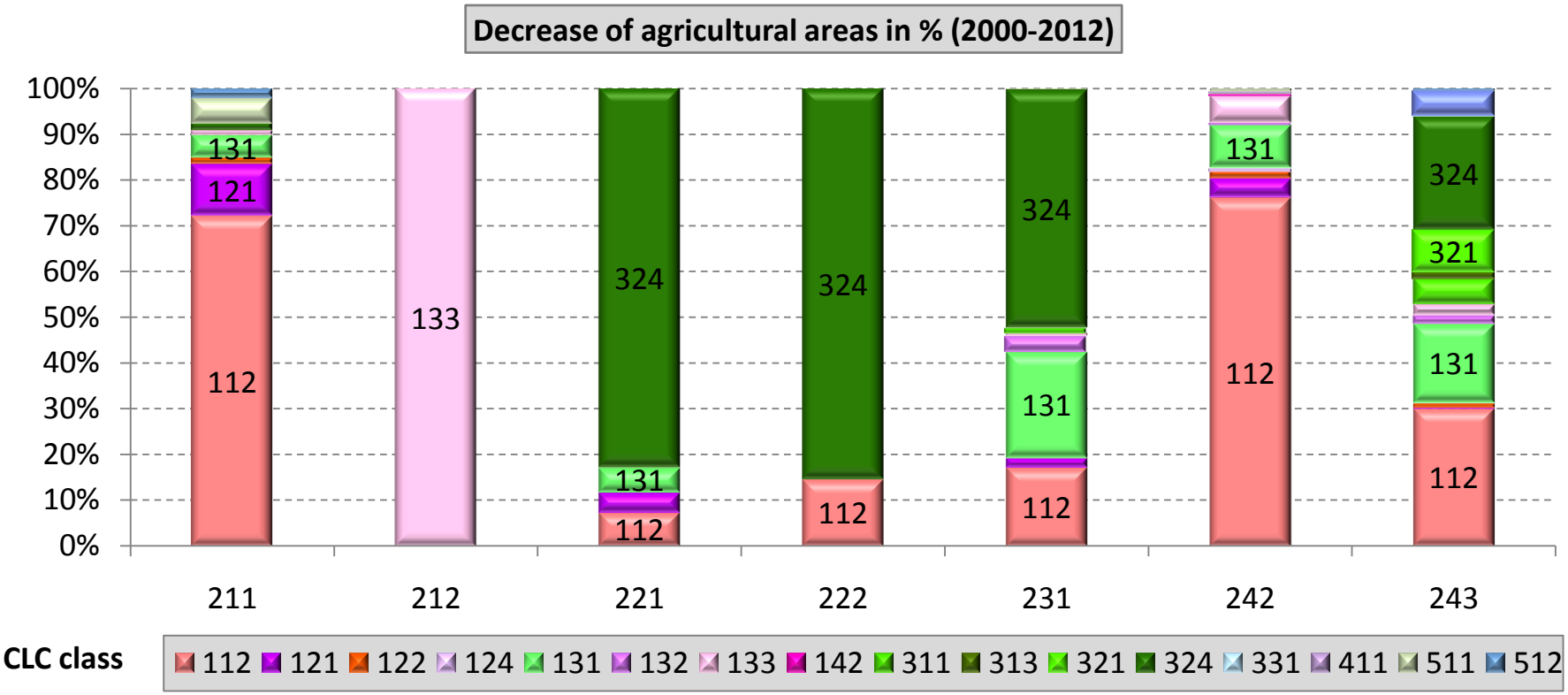
The increase in agricultural areas amounts to 2,102.81 ha, decrease to 11,323.54 ha, while 5,815.19 ha transitioned from one agricultural class into another.

RESULTS – land cover/use changes

Total decrease of agricultural surface is **-11.323,54 ha (943,63 ha/year)**.

The conversion of agricultural land to artificial surfaces is **8.658,45 ha** or 76,46% of total changes in agricultural surface.

The largest areas (6,081.42 ha) were turned into unrelated urban areas (98% 2000-2006) in 71 of 144 municipalities in B&H.



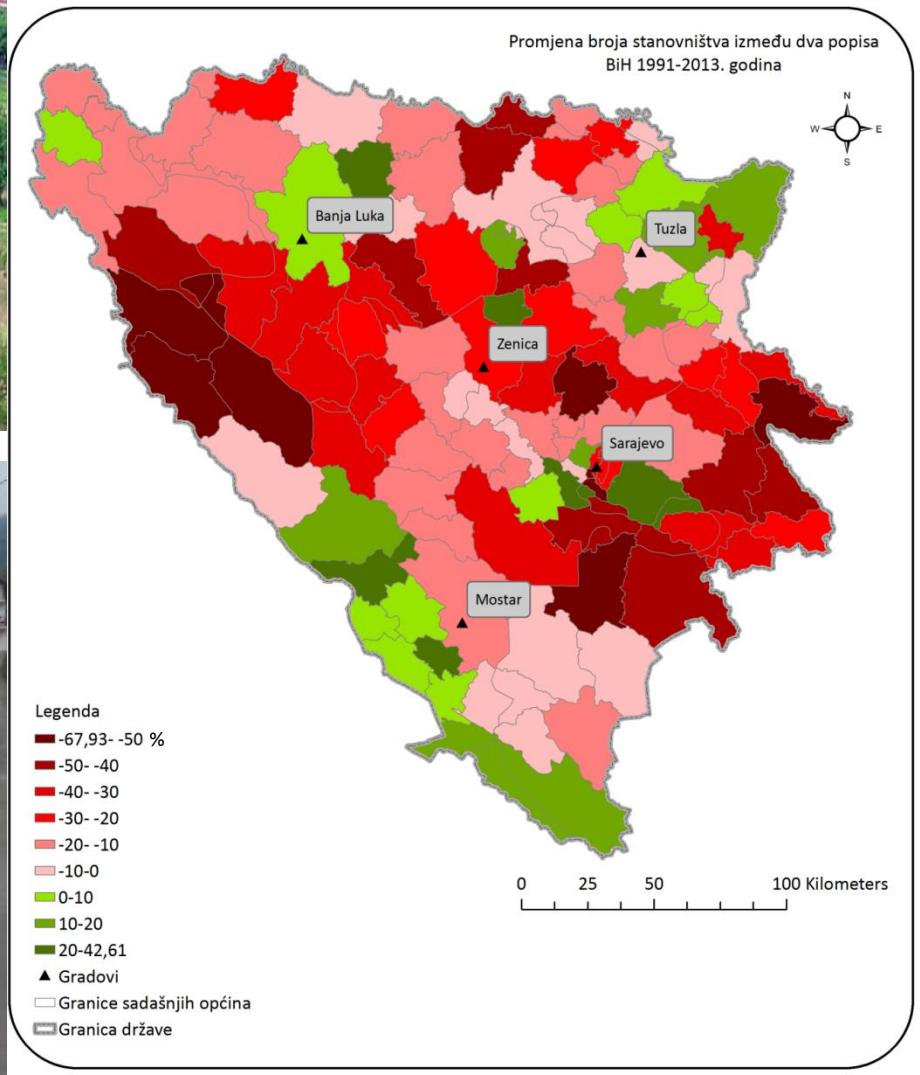
112-Discontinuous urban fabric

131-Mineral extraction sites

324-Transitional woodland/shrub

RESULTS – demographic changes

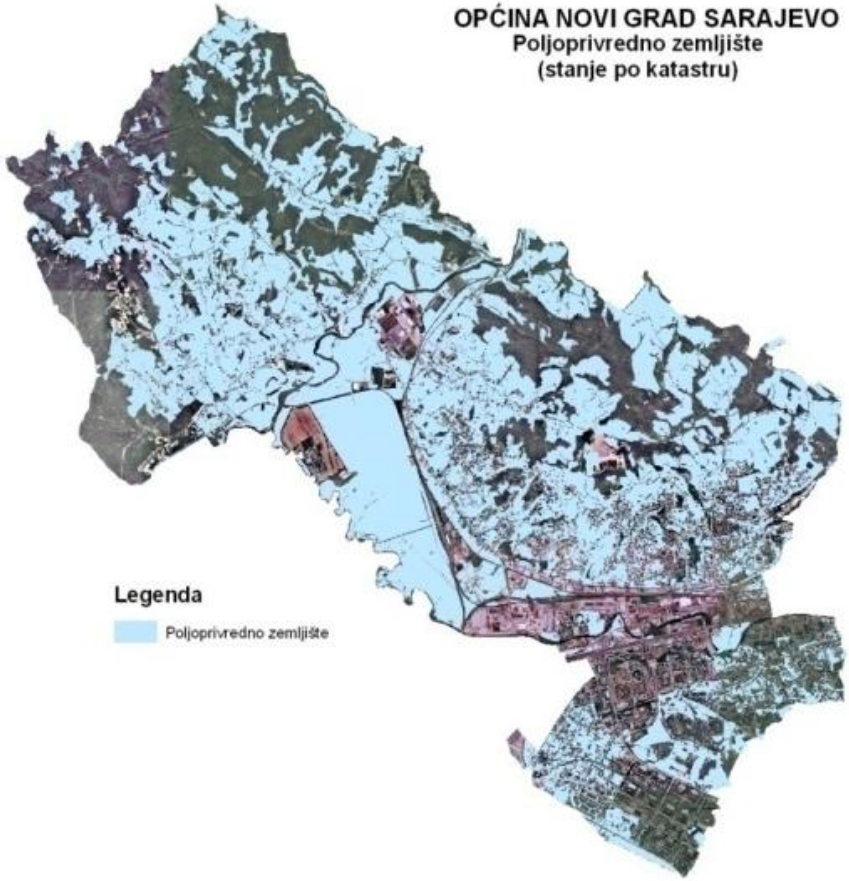
Change of no. of population between two Census in 1991 and 2013



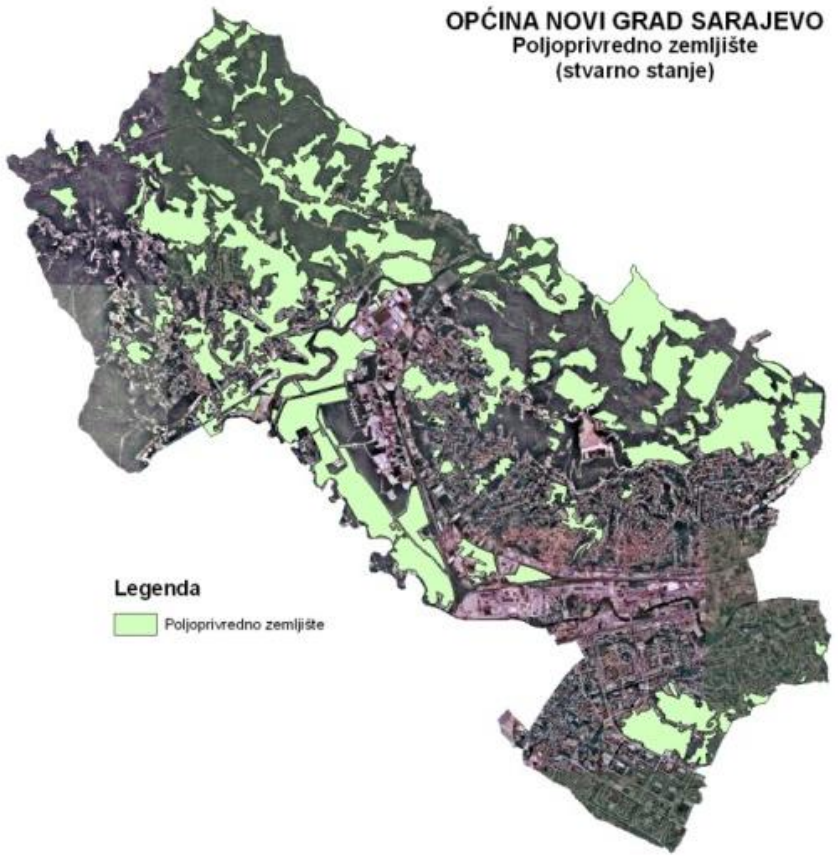
RESULTS – Sarajevo Canton

TOTAL	CORINE CLC		CADASTRAL RECORDS		DIFFERENCES	
	AGRICULTURAL LAND	ARTIFICIAL AREAS	AGRICULTURAL LAND	ARTIFICIAL AREAS	AGRICULTURAL LAND	ARTIFICIAL AREAS
	34.003,51	12.555,90	44.634,70	8.338,00	-10.631,19	4.217,90

MUNICIPALITY NOVI GRAD



CADASTRAL



REAL SITUATION

RESULTS

´60	´70	´80	´91	´92-95	´95	´16
Discrepancy between spatial and economic planning						
Illegal construction/urbanization						
Cadastral data not regularly updated						
Not developed spatial planning policy						
Not developed land policy						
Uncultivated arable land						
Use of agricultural land for non agricultural purposes						
Deagrarization						
Agrarian policy is not developed						

CONCLUSIONS

-The study has shown that the average loss of agricultural land is not linear (3,000 ha/year) and that there are huge fluctuations in the change of use in all its categories.

-Studies have shown that there is a strong correlation between land use and socio-economic development policy which in all sectors, including agriculture, was based on the planned economic policy.

-With the current problems of deagrarization, ineffective agrarian and land policies and incentives, it is very unlikely to expect the area of uncultivated fields and gardens to reduce; on the contrary, it is going to grow and partly become affected by the processes of succession and degradation, especially in marginalized areas and fragmented holdings.

T H A N K Y O U!