



Doctoral School of Environmental Sciences

## Land use and land cover change evaluation in Hungary

---

**Saeidi Sahar**

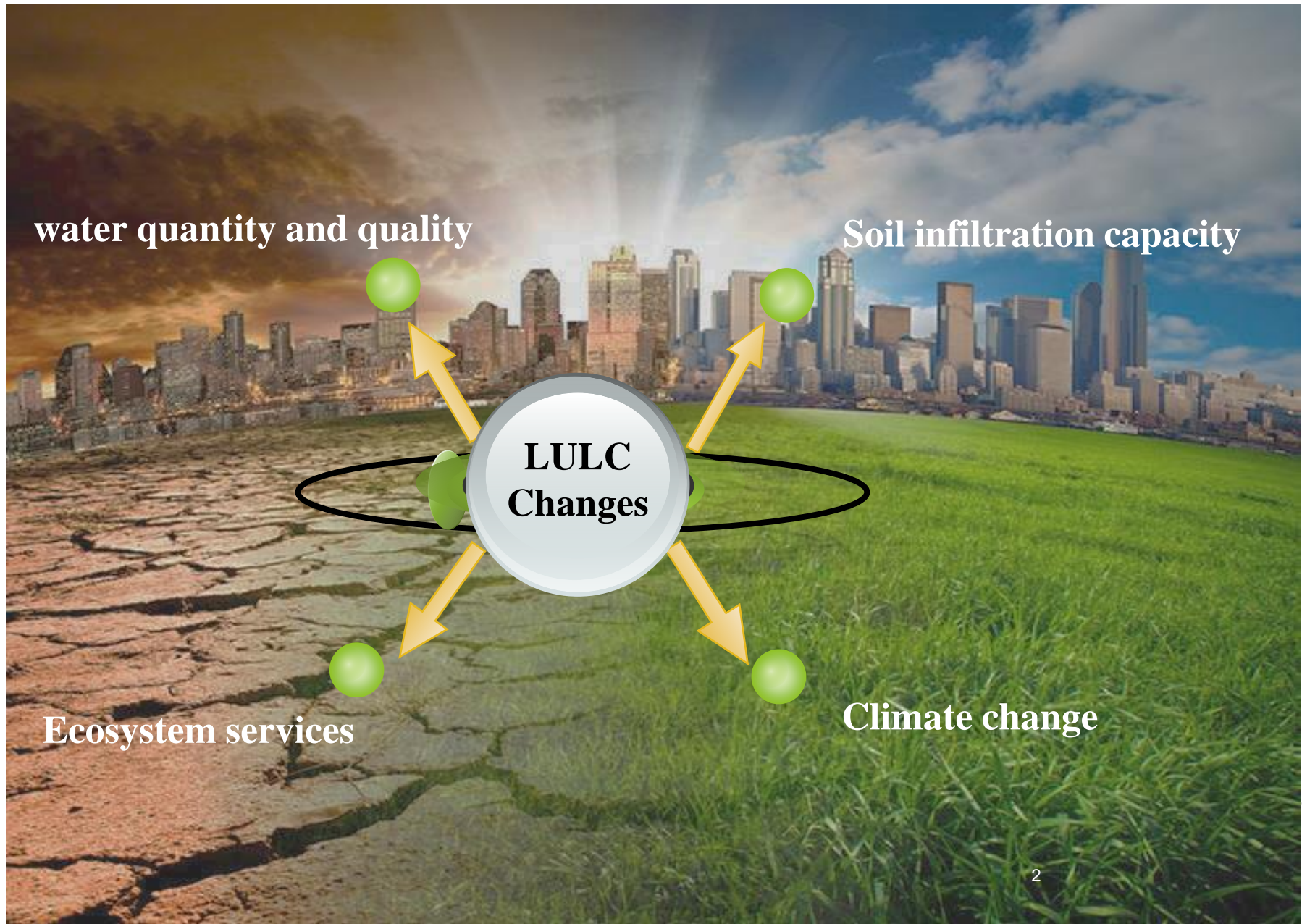
**Email:** [Sahar\\_Saeidi90@yahoo.com](mailto:Sahar_Saeidi90@yahoo.com)

**Waltner István**

**Email** [waltner.istvan@mkk.szie.hu](mailto:waltner.istvan@mkk.szie.hu)

**Centeri Csaba**

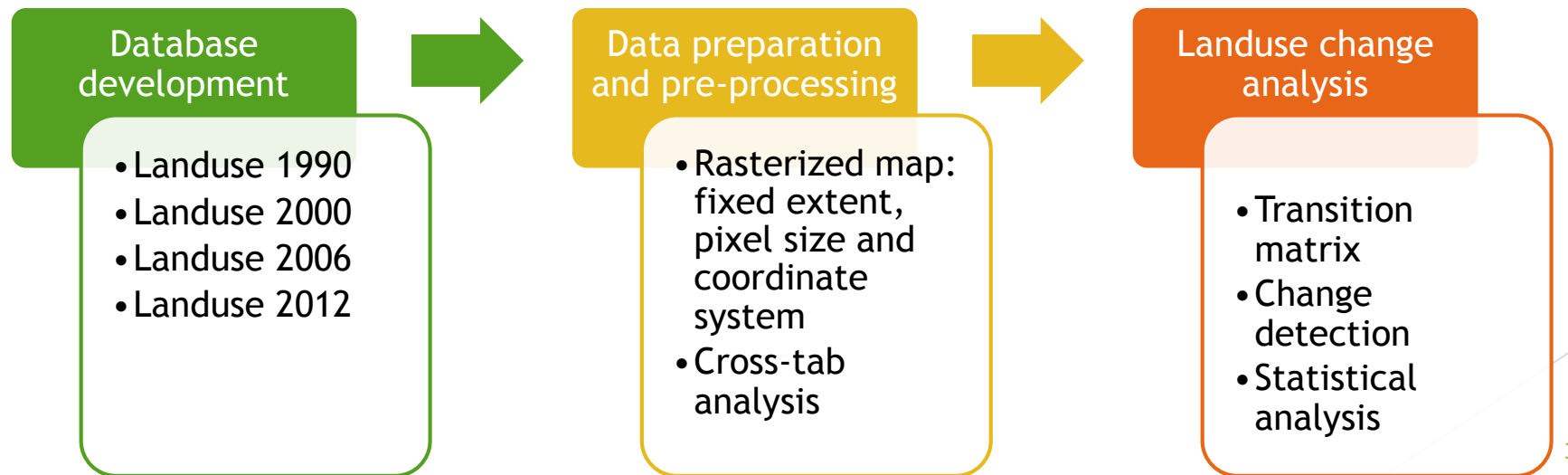
**Email:** [Centeri.Csaba@mkk.szie.hu](mailto:Centeri.Csaba@mkk.szie.hu)



# Methodology

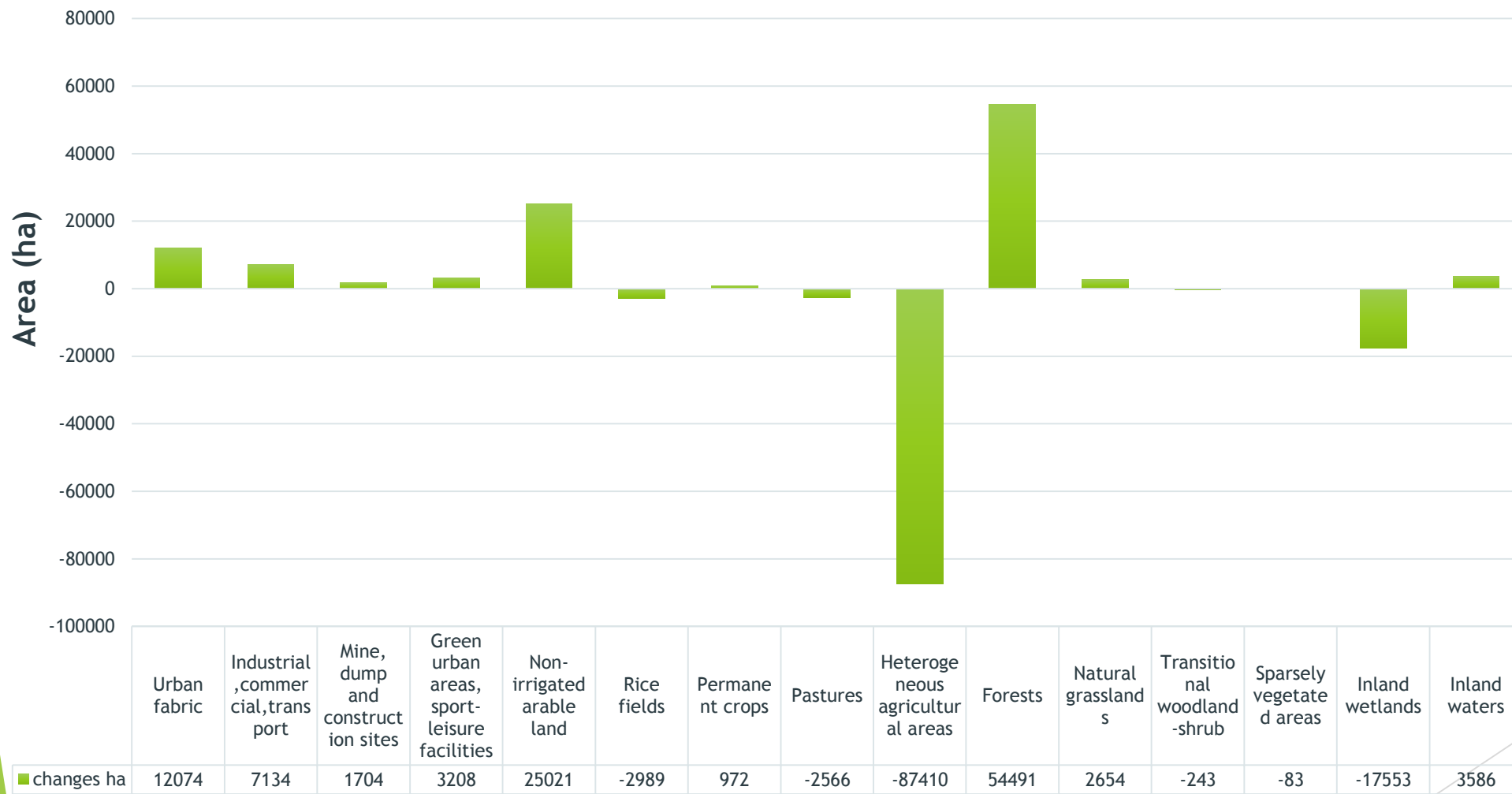
## CORINE

- ▶ The main data used in this study were four CORINE land cover maps (Copernicus Land Monitoring Service) for four years (1990, 2000, 2006, 2012).
- ▶ Copernicus is a European program for monitoring the Earth, in which data is collected by Earth observation satellites and combined with observation data from sensor networks on the earth's surface.



LULC 1990-2000	1990 (ha)	2000 (ha)	Changes (ha)	Changes %
• Urban fabric	415567	427641	12074	0.12981
Industrial, commercial, transport	56848	63982	7134	0.076699
• Mine, dump and construction sites	11869	13573	1704	0.01832
• Green urban areas, sport-leisure facilities	36373	39581	3208	0.03449
• Non-irrigated arable land	4958900	4983921	25021	0.269007
• Rice fields	14775	11786	-2989	-0.03214
• Permanent crops	215013	215985	972	0.01045
• Pastures	680005	677439	-2566	-0.02759
• Heterogeneous agricultural areas	483859	396449	-87410	-0.93976
• Forests	1684294	1738785	54491	0.585845
• Natural grasslands	225809	228463	2654	0.028534
• Transitional woodland-shrub	241934	241691	-243	-0.00261
• Sparsely vegetated areas	2413	2330	-83	-0.00089
• Inland wetlands	103428	85875	-17553	-0.18872
• Inland waters	170175	173761	3586	0.038554

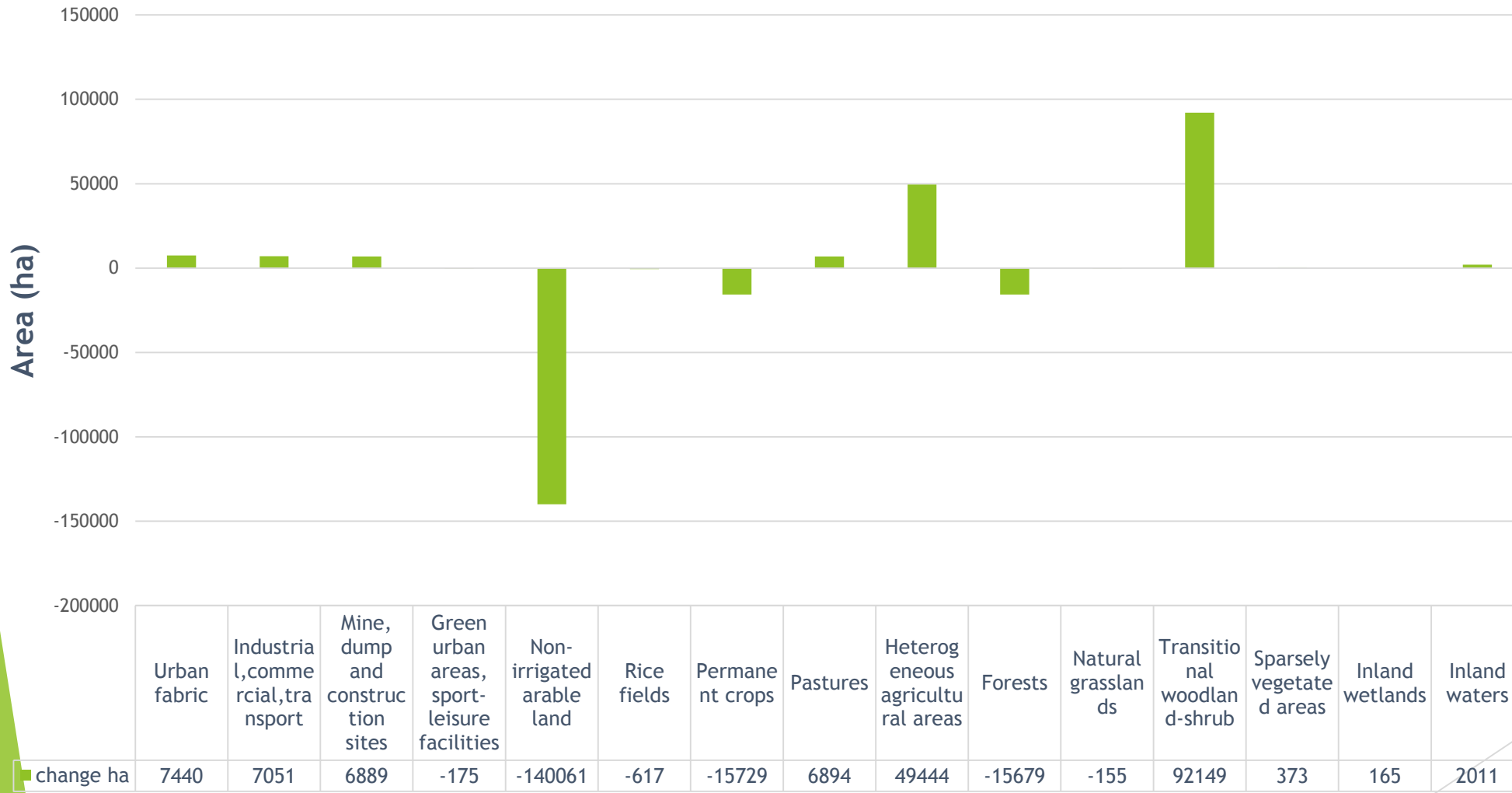
## LULC change, 1990-2000





LULC 2000-2006	2000 (ha)	2006 (ha)	Changes (ha)	Changes (%)
• Urban fabric	427641	435081	7440	0.079989
• Industrial,commercial,transport	63982	71033	7051	0.075807
• Mine, dump and construction sites	13573	20462	6889	0.074065
Green urban areas, sport-leisure facilities	39581	39406	-175	-0.00188
• Non-irrigated arable land	4983921	4843860	-140061	-1.50583
Rice fields	11786	11169	-617	-0.00663
• Permanent crops	215985	200256	-15729	-0.16911
• Pastures	677439	684333	6894	0.074119
• Heterogeneous agricultural areas	396449	445893	49444	0.531584
• Forests	1738785	1723106	-15679	-0.16857
Natural grasslands	228463	228308	-155	-0.00167
Transitional woodland-shrub	241691	333840	92149	0.990715
Sparsely vegetated areas	2330	2703	373	0.00401
• Inland wetlands	85875	86040	165	0.001774
• Inland waters	173761	175772	2011	0.021621

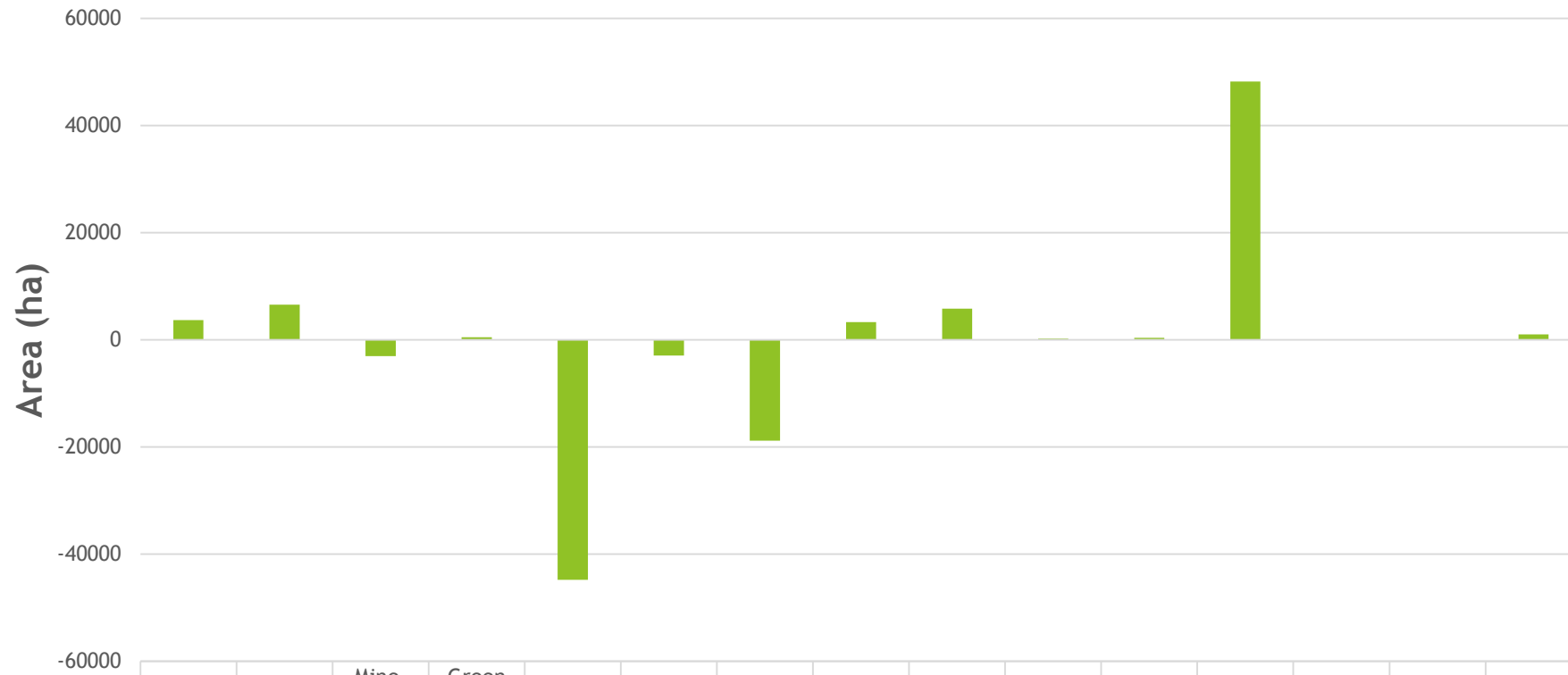
## LULC change, 2000-2006



LULC 2006-2012	2006 (ha)	2012 (ha)	Changes (ha)	Changes (%)
• Urban fabric	435081	438749	3668	0.039436
• Industrial,commercial,transport	71033	77598	6565	0.070582
• Mine, dump and construction sites	20462	17416	-3046	-0.03275
• Green urban areas, sport-leisure facilities	39406	39852	446	0.004795
• Non-irrigated arable land	4843860	4799046	-44814	-0.48181
• Rice fields	11169	8247	-2922	-0.03142
• Permanent crops	200256	181391	-18865	-0.20282
• Pastures	684333	687657	3324	0.035737
• Heterogeneous agricultural areas	445893	451725	5832	0.062701
• Forests	1723106	1723319	213	0.00229
• Natural grasslands	228308	228665	357	0.003838
• Transitional woodland-shrub	333840	382069	48229	0.518521
• Sparsely vegetated areas	2703	2703	0	0
• Inland wetlands	86040	86043	3	3.23E-05
• Inland waters	175772	176782	1010	0.010859



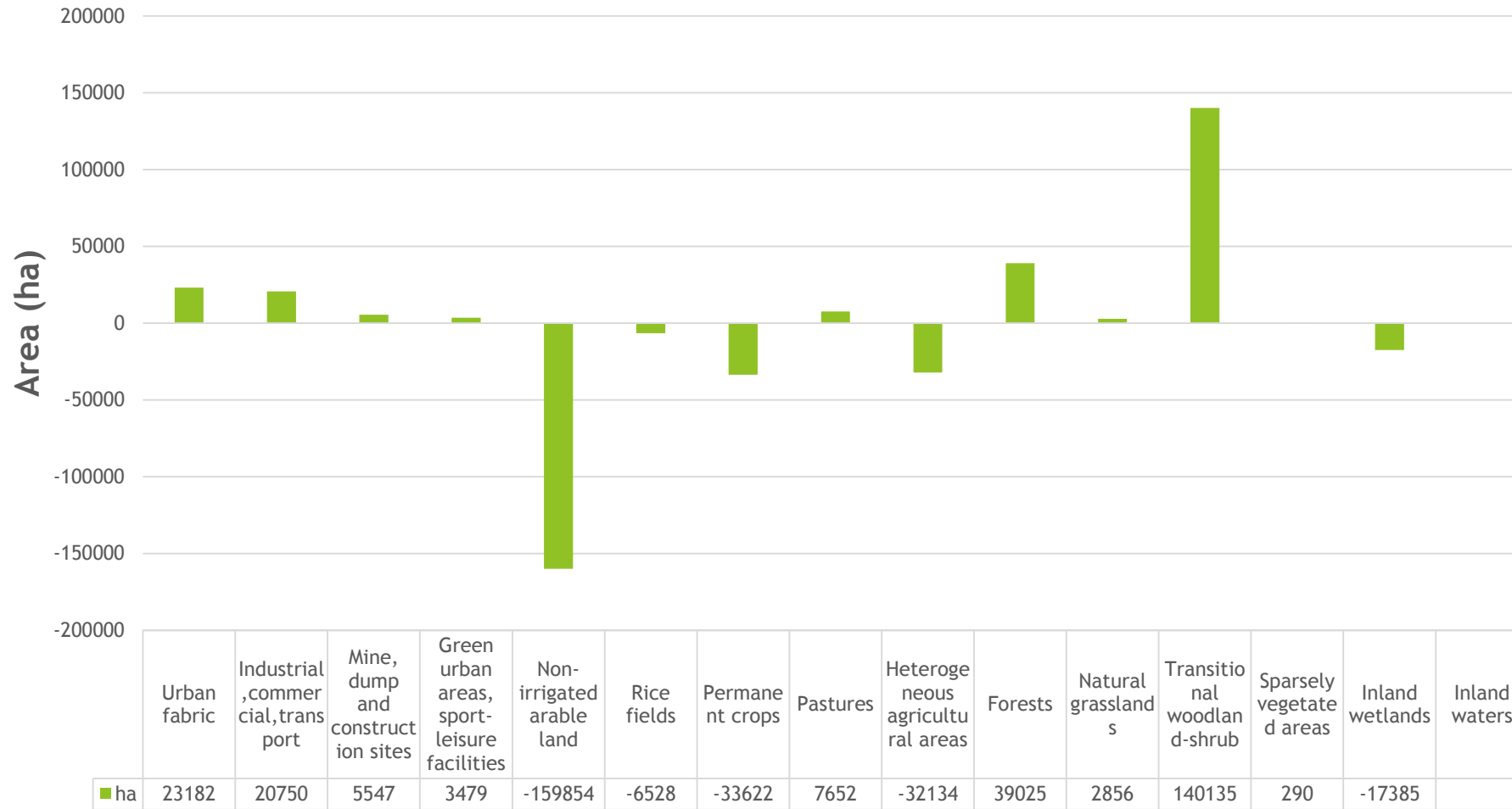
## LULC change, 2006-2012



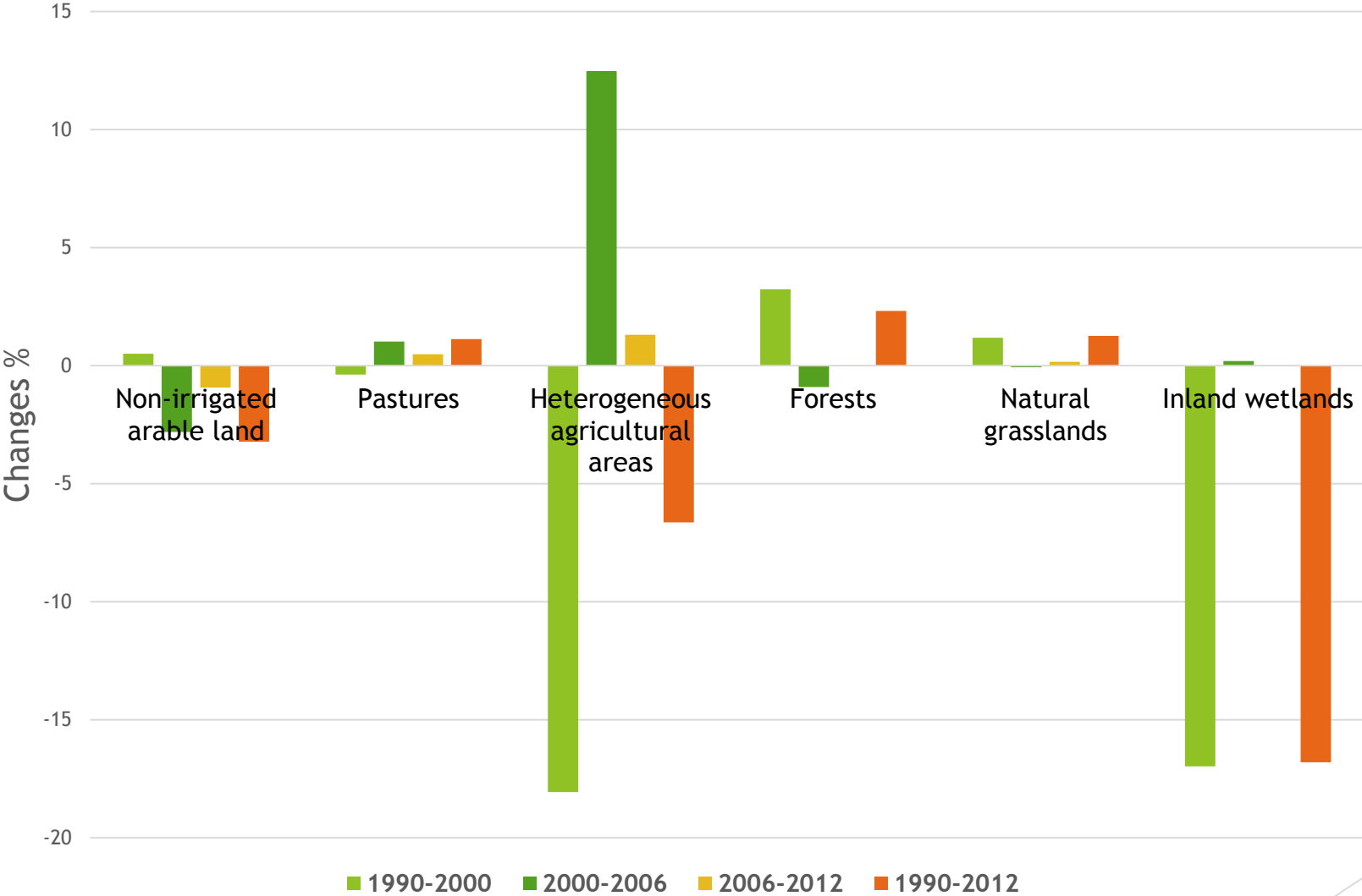
	Urban fabric	Industrial, commercial, transport	Mine, dump and construction sites	Green urban areas, sport-leisure facilities	Non-irrigated arable land	Rice fields	Permanent crops	Pastures	Heterogeneous agricultural areas	Forests	Natural grasslands	Transitional woodland-shrub	Sparsely vegetated areas	Inland wetlands	Inland waters
■ Adatsor1	3668	6565	-3046	446	-44814	-2922	-18865	3324	5832	213	357	48229	0	3	1010

LULC 1990-2012	1990 (ha)	2012 (ha)	Changes (ha)	Changes (%)
• Urban fabric	415567	438749	23182	0.249235
• Industrial,commercial,transport	56848	77598	20750	0.223088
• Mine, dump and construction sites	11869	17416	5547	0.059637
• Green urban areas, sport-leisure facilities	36373	39852	3479	0.037404
• Non-irrigated arable land	4958900	4799046	-159854	-1.71863
• Rice fields	14775	8247	-6528	-0.07018
• Permanent crops	215013	181391	-33622	-0.36148
• Pastures	680005	687657	7652	0.082268
• Heterogeneous agricultural areas	483859	451725	-32134	-0.34548
• Forests	1684294	1723319	39025	0.419567
• Natural grasslands	225809	228665	2856	0.030706
• Transitional woodland-shrub	241934	382069	140135	1.506624
• Sparsely vegetated areas	2413	2703	290	0.003118
• Inland wetlands	103428	86043	-17385	-0.18691
• Inland waters	170175	176782	23182	0.249235

## LULC change, 1990-2012



# Land cover change 1990-2012



**THANKS FOR YOUR  
ATTENTION**

