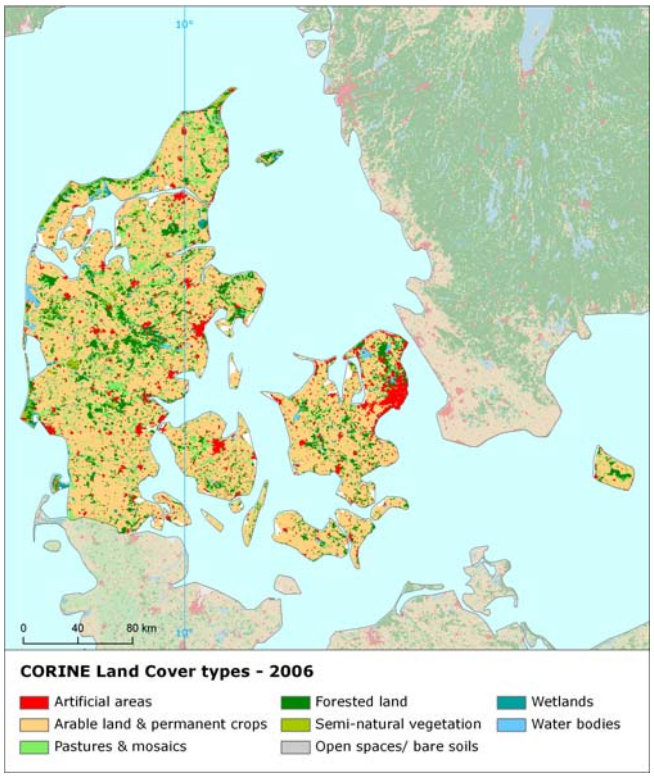
Denmark

Land cover 2006

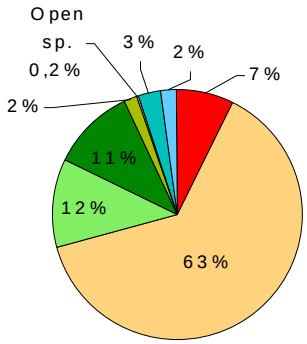
Overview of land cover & change 2000-2006

The overall intensity of land cover development in Danish landscape is stable, compared to the previous period 1990-2000. The latest development in Denmark landscape is characterized by consumption of agricultural areas (which have prevailing share on total land cover in the country, with more than 60% of arable land on total land cover) by artificial land uptake, which occurs with even higher intensity compared to the previous period. Besides the artificial sprawl, recent internal forest conversions and formation of water bodies are typical for the rest of landscape development.
Artificial sprawl is concentrated around major Danish cities, mostly in surroundings of the capital city Copenhagen and around other large cities with pattern similar to the previous period. Changes of forested land are situated in southern part and also along north-western coast of Jutland peninsula.

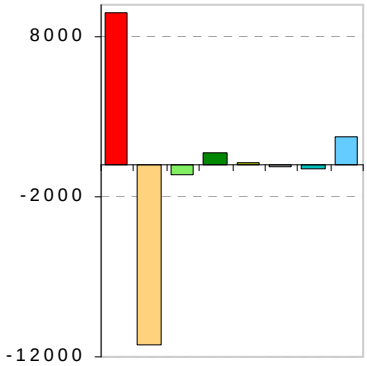


Note: The results presented here are based on a change analysis of 44 land cover types mapped consistently on a 1:100.000 scale across Europe over almost two decades 1990-2006 - see Corine land cover (CLC) programme for details.
Number of years between CLC2000-CLC2006 data for Denmark: 6

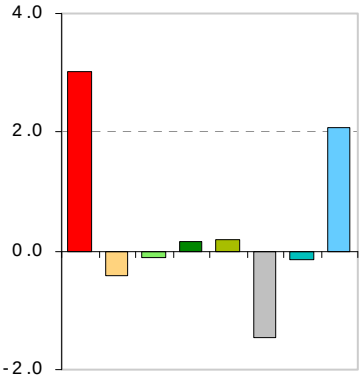
1.1. Land cover 2006 [% of total]



1.2. Net change in land cover 2000-2006 [ha]



1.3. Net change in land cover [% of initial year 2000]



Artificial areas
Arable land & permanent crops
Pastures & mosaics
Forested land
Semi-natural vegetation
Open spaces/ bare soils
Wetlands
Water bodies

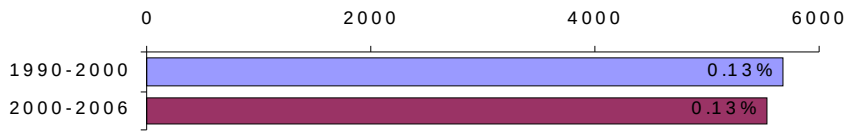
Summary balance table 2000-2006

	Artificial areas	Arable land & permanent crops	Pastures & mosaics	Forested land	Semi-natural vegetation	Open spaces / bare soils	Wetlands	Water bodies	TOTAL [hundreds ha]
Land cover 2000	**3153**	**27962**	**5161**	**4697**	**764**	**91**	**1410**	**832**	**44069**
Consumption of initial LC	33	120	18	126	2	2	25	7	332
Formation of new LC	128	8	12	134	4	0	22	24	332
Net Formation of LC	**95**	**-112**	**-6**	**8**	**1**	**-1**	**-2**	**17**	**0**
Net formation as % of initial year	*3.0*	*-0.4*	*-0.1*	*0.2*	*0.2*	*-1.5*	*-0.2*	*2.1*	
Total turnover of LC	**161**	**127**	**30**	**259**	**6**	**2**	**47**	**31**	**664**
Total turnover as % of initial year	*5.1*	*0.5*	*0.6*	*5.5*	*0.8*	*2.4*	*3.3*	*3.7*	*1.5*
Land cover 2006	**3247**	**27850**	**5155**	**4705**	**766**	**89**	**1408**	**849**	**44069**

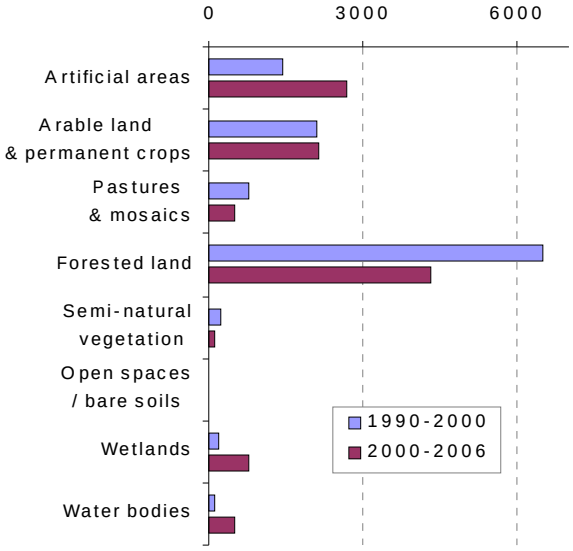
Denmark

Land cover trends comparison 1990-2000 vs. 2000-2006

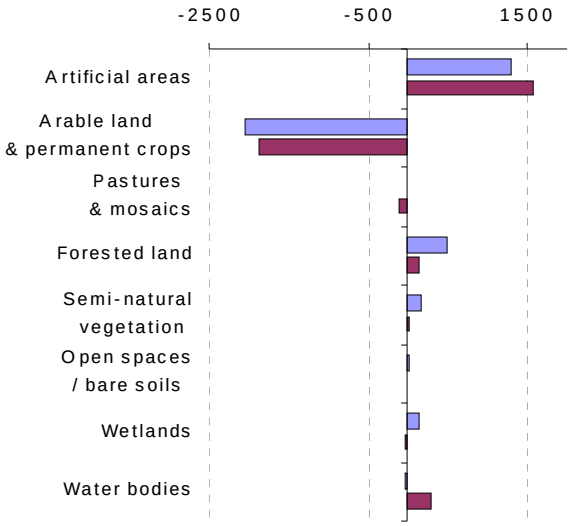
2.4. Annual land cover change [ha/year, % of total area]



2.5. Annual turnover of LC types [ha/year]

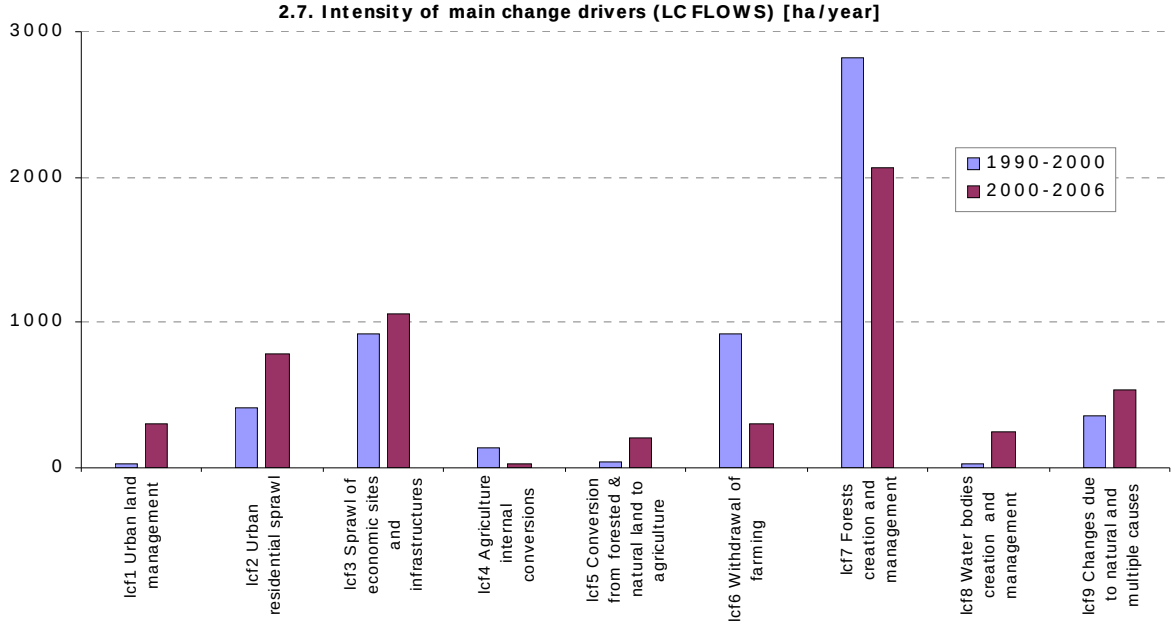


2.6. Net annual change of LC types [ha/year]



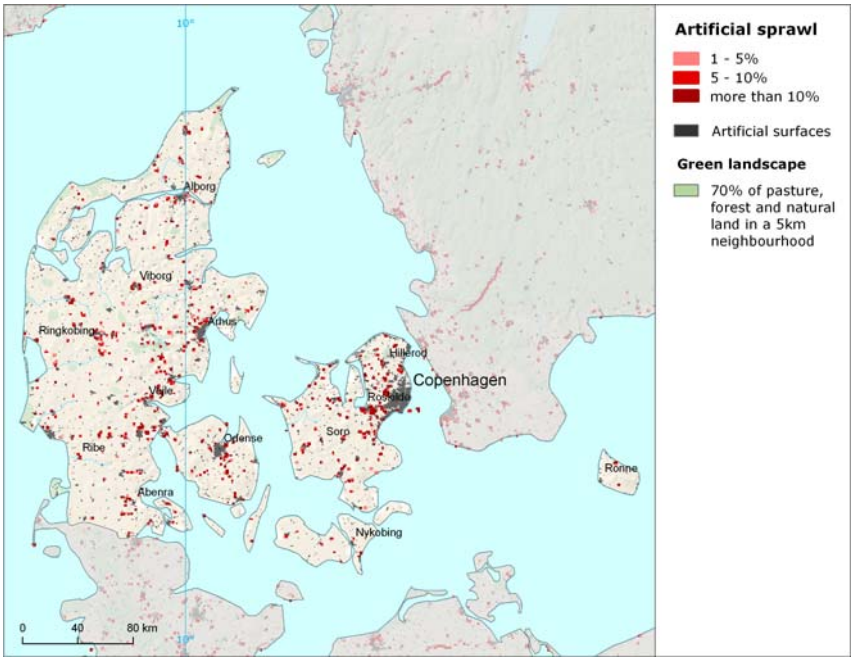
Summary trend figures	1990-2000	2000-2006
Annual land cover change [ha/year]	**5680**	**5531**
Annual land cover change as % of initial year	**0.13%**	**0.13%**
Land uptake by artificial development as mean annual change [ha/year]	1333	1804
Agricultural land uptake by urban and infrastructures development as mean annual change [ha/year]	1269	1939
Net uptake of forests and semi-natural land by agriculture as mean annual change [ha/year]	-915	-254
Net conversion from pasture to arable land and permanent crops as mean annual change [ha/year]	-82	-15
Forest & other woodland net formation as mean annual change [ha/year]	482	134
Dry semi-natural land cover net formation as mean annual change [ha/year]	177	2
Wetlands & water bodies net formation as mean annual change [ha/year]	116	251

2.7. Intensity of main change drivers (LC FLOWS) [ha/year]

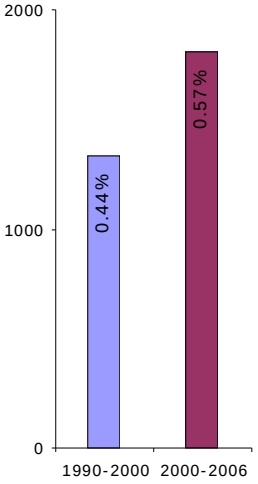


Denmark

Artificial areas



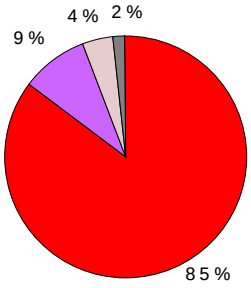
3.8. Artificial land take [ha/year, % of initial year]



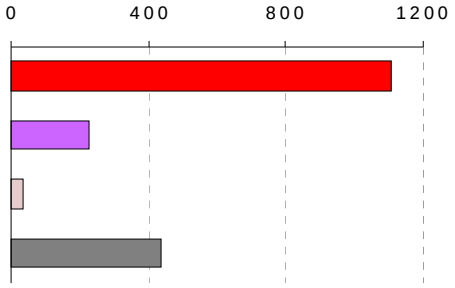
Diffuse residential sprawl accelerates

Artificial sprawl, which continuous with even higher intensity compared to the previous period, is driven mainly by accelerated development of discontinuous urban fabric areas (43%) and by sprawl of sport and leisure facilities (18%). The other main drivers of land take are sprawl of commercial and industrial units, mines and quarrying sites and construction. Artificial sprawl occurs mainly at the expense of arable land (90% of total taken area). Besides the artificial land uptake, recycling of developed urban areas (represented by conversion of construction sites into urban fabric and commercial/industrial units) became a significant driver of urban change too. At the same time, former developed areas like mineral extraction and construction sites have been consumed by agricultural land. Spatial distribution shows the similar pattern as in the previous period with concentration around the main cities.

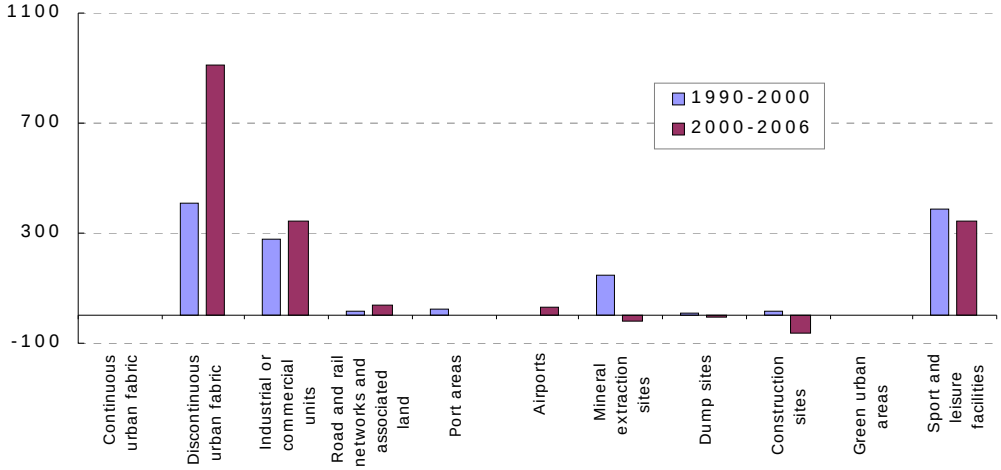
3.9. Artificial surfaces 2006 [% of total area]



3.10. Artificial land take 2000-2006 [ha/year]

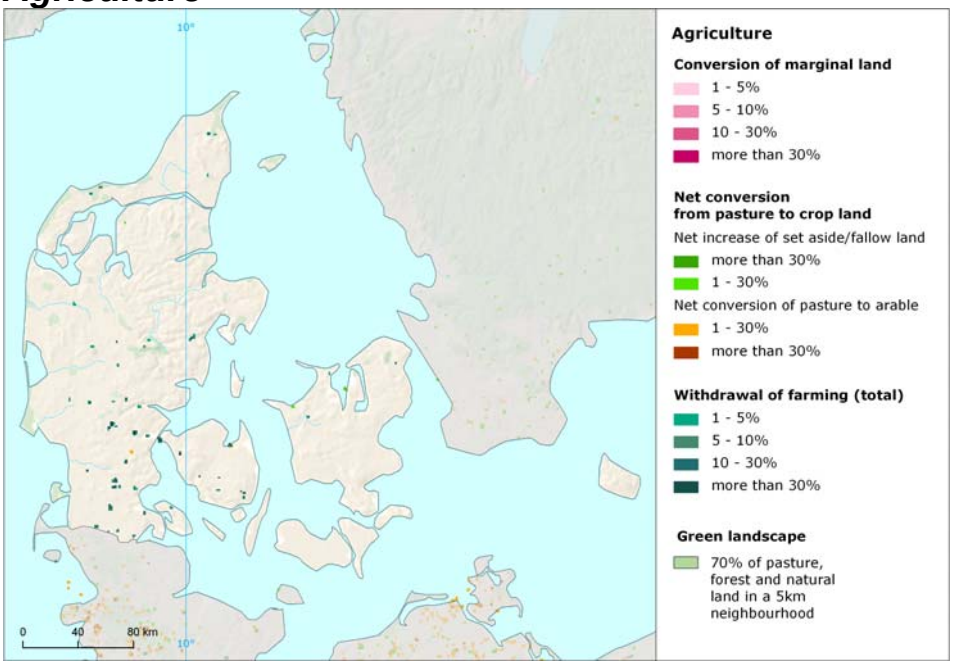


3.11. Mean annual artificial change by class [ha/year]



Denmark

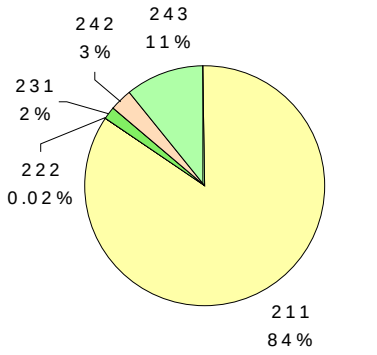
Agriculture

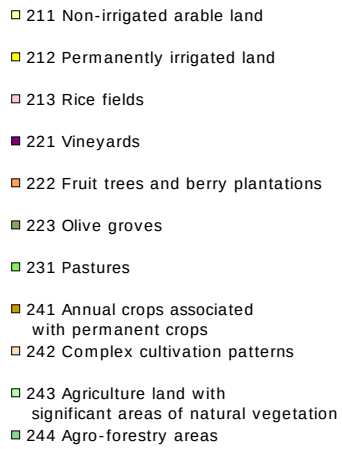


Consumption of arable land

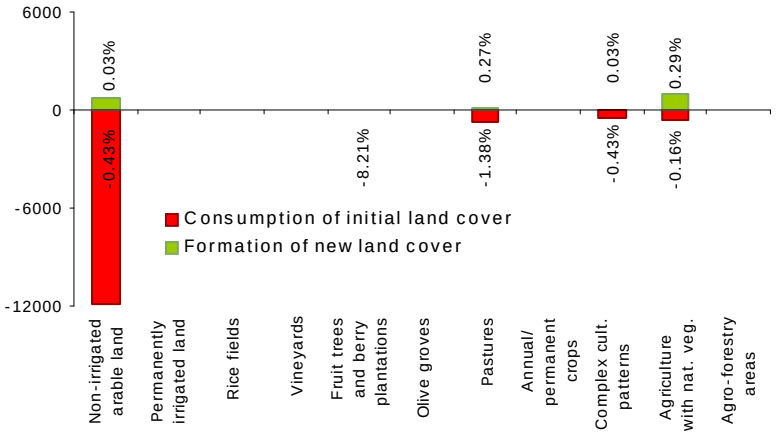
Development of agricultural areas in Denmark is low, characterized by negative net change balance of both arable and pasture land. Arable land has been mostly consumed by artificial sprawl and also by withdrawal of farming with woodland creation and water bodies creation. Besides significant share of withdrawal of farming without woodland creation occurs, represented by conversion of intensively used agricultural land into agricultural areas with significant amount of natural vegetation. On the contrary, new agricultural land is formed through conversion from developed areas (mostly mineral extraction sites). These external changes have predominant share on total agricultural land development in the country. Internal changes have significantly lower intensity, compared to previous period, with still prevailing extension of pasture, set aside and fallow land.

4.12. Agricultural areas 2006 [% of total area]

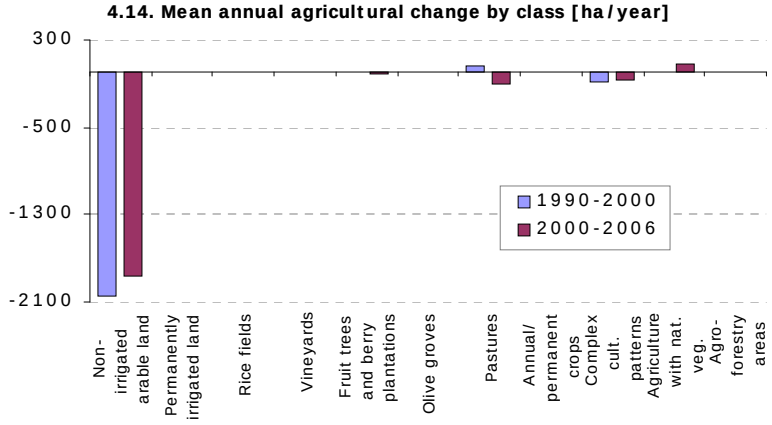




4.13. Development of agricultural areas 2000-2006 – detailed balance [ha]

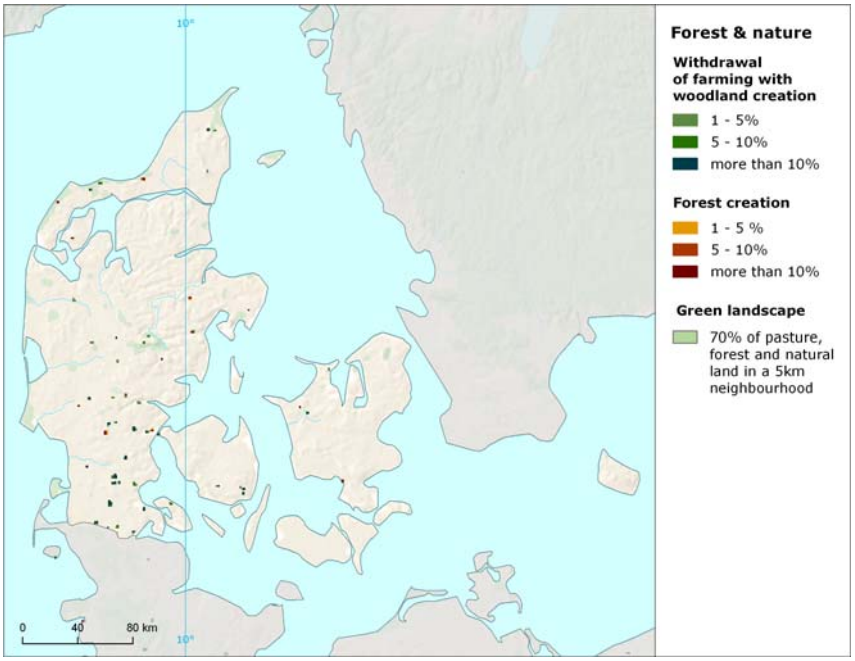


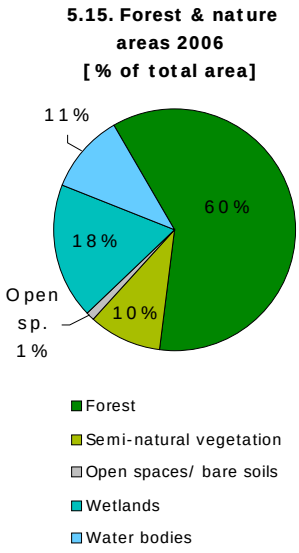
4.14. Mean annual agricultural change by class [ha/year]



Denmark

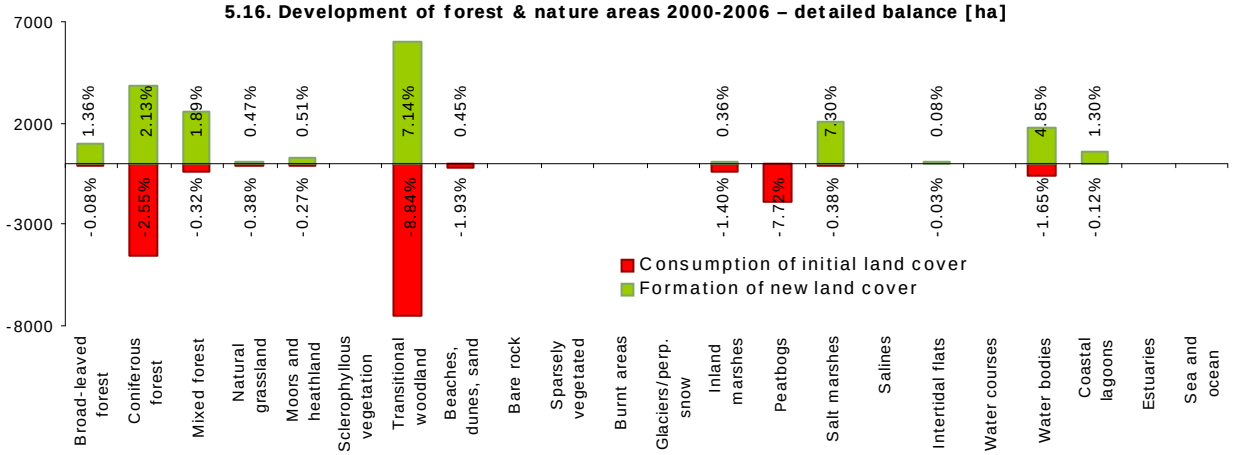
Forest & nature

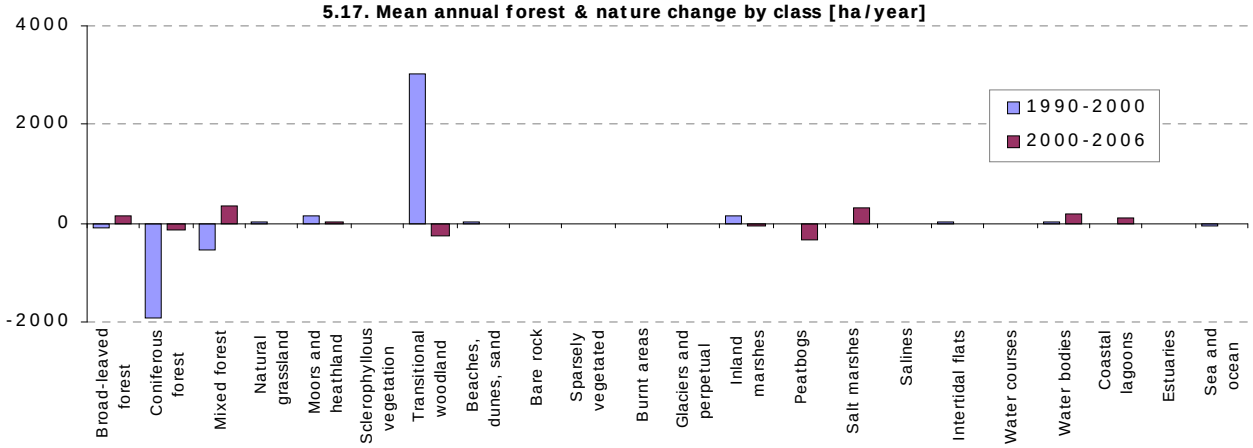




Dynamic development of wetlands and water bodies

The intensity of changes of natural surfaces in Denmark has increasing tendency, compared to the previous period. Accelerated forest creation and management became the most powerful driver of landscape change in this period. Formation of forest area is driven by prevailing internal conversion from transitional woodland to forest and also by withdrawal of farming with transitional woodland creation. Besides these forest conversions, changes of wetlands and water bodies are the other main contributors of natural land development in Denmark. Internal exchange of these land cover types is represented mostly by decrease of peatbogs and increase salt marshes area and by decrease of water bodies and increase of coastal lagoons. External formation is driven mainly by creation of new water bodies over agricultural land or mineral extraction sites.

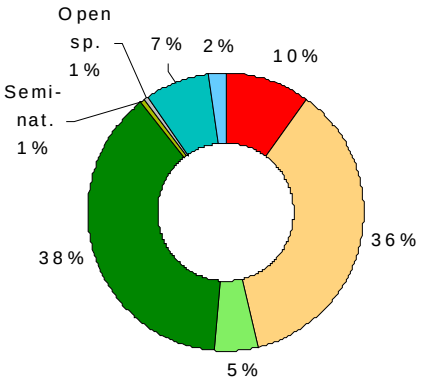




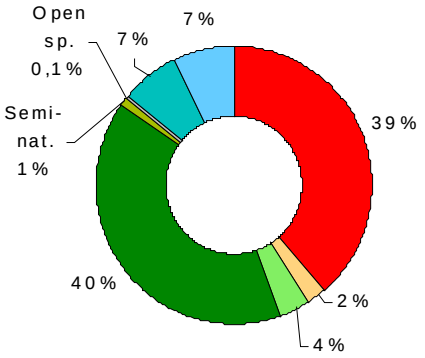
Annex: Land cover flows and trends

Land cover flows 2000-2006

6.18. Consumption of land cover 2000-2006 [% of total change area]

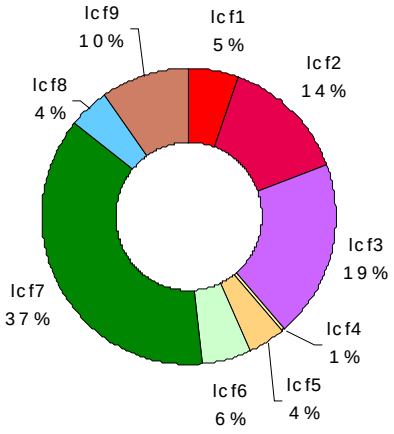


6.19. Formation of land cover 2000-2006 [% of total change area]



Artificial areas | Arable land & permanent crops | Pastures & mosaics | Forested land
Semi-natural vegetation | Open spaces/ bare soils | Wetlands | Water bodies

6.20. Drivers of change (LC FLOWS) 2000-2006 [% of total change area]

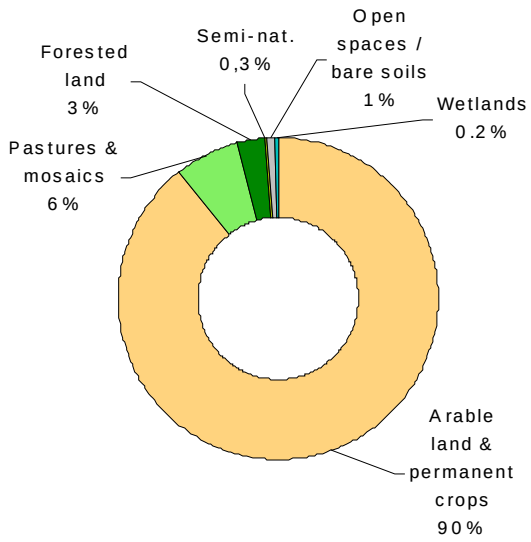


- lcf1 Urban land management
- lcf2 Urban residential sprawl
- lcf3 Sprawl of economic sites and infrastructures
- lcf4 Agriculture internal conversions
- lcf5 Conversion from forested & natural land to agriculture
- lcf6 Withdrawal of farming
- lcf7 Forests creation and management
- lcf8 Water bodies creation and management
- lcf9 Changes due to natural and multiple causes

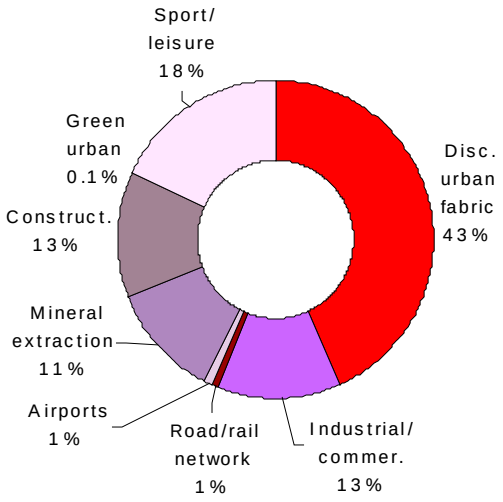
Denmark

Artificial areas

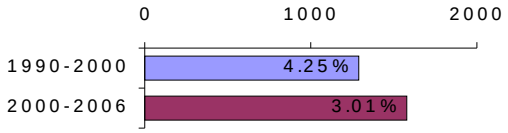
7.21. Consumption by artificial land take 2000-2006 [% of total]



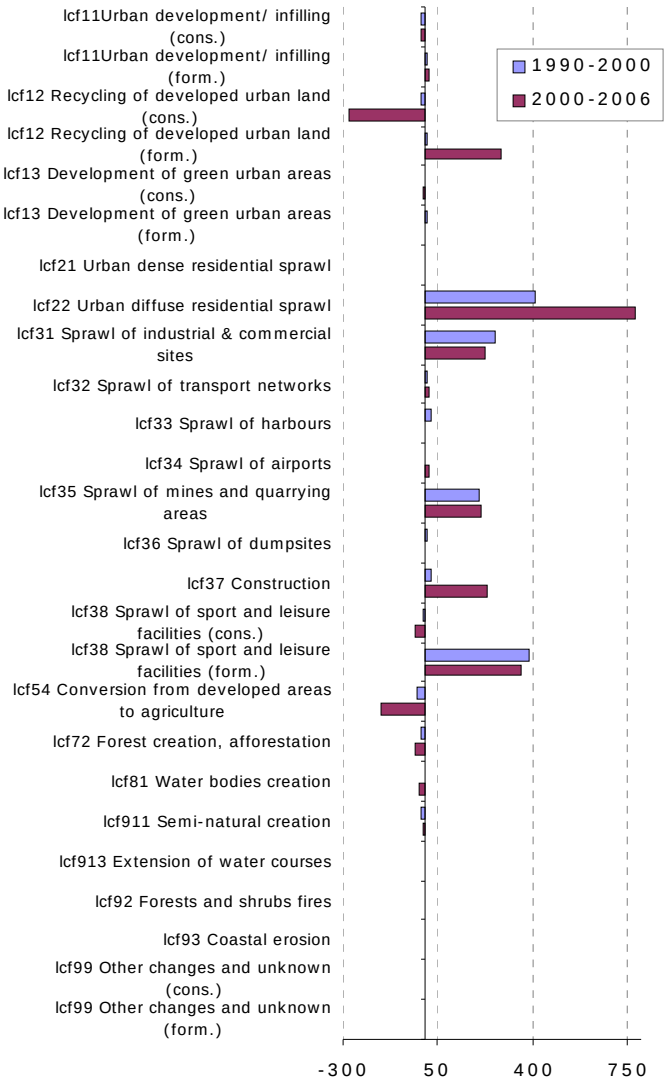
7.22. Formation by artificial land take 2000-2006 [% of total]



7.23. Net formation of artificial area [ha/year, % of initial year]



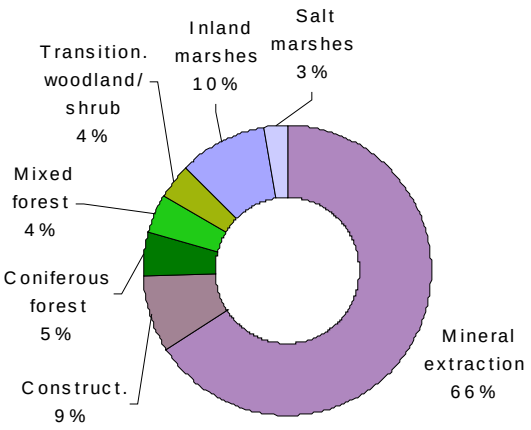
7.24. Artificial development by change drivers (LC FLOWS) [ha/year]



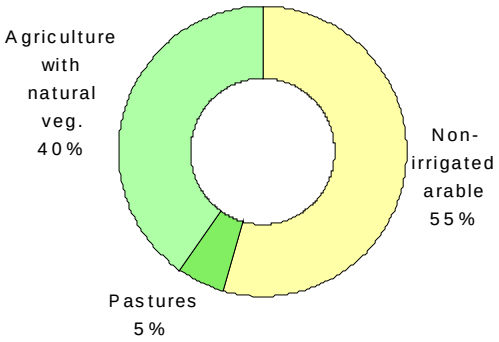
Denmark

Agriculture

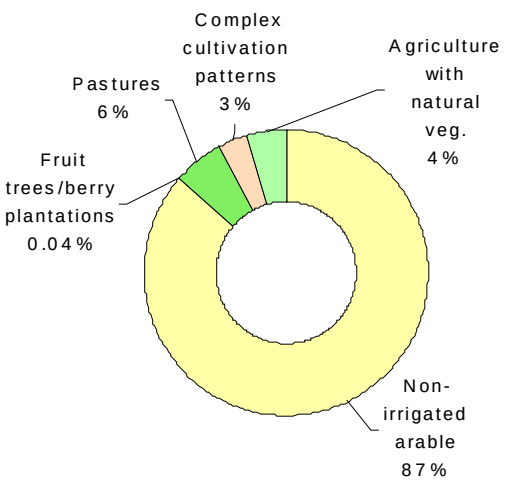
8.25. LC consumed by agriculture 2000-2006 [% of total]



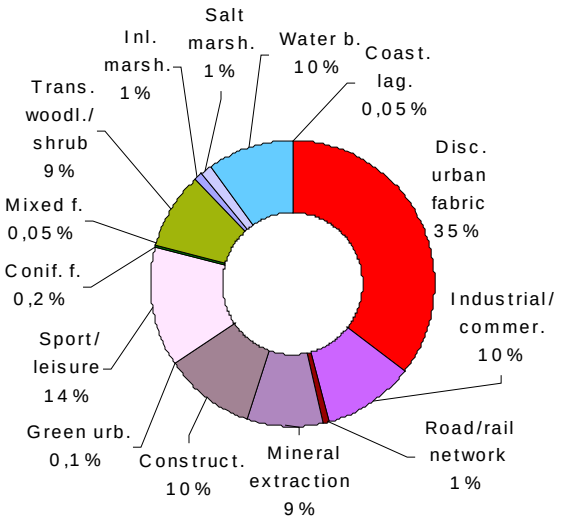
8.26. Formation of agricultural land from non-agriculture 2000-2006 [% of total]



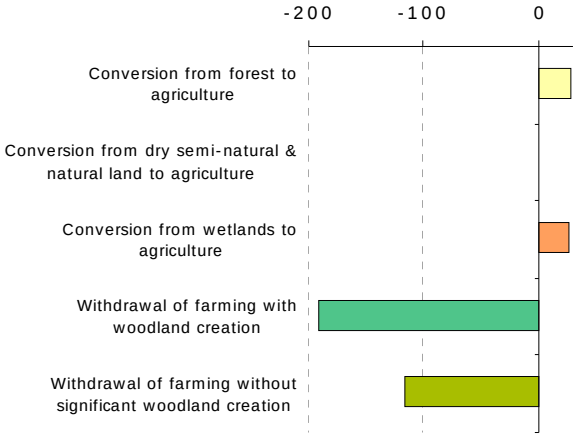
8.27. Consumption of agricultural land by non-agriculture 2000-2006 [% of total]



8.28. Formation of non-agricultural land from agriculture 2000-2006 [% of total]



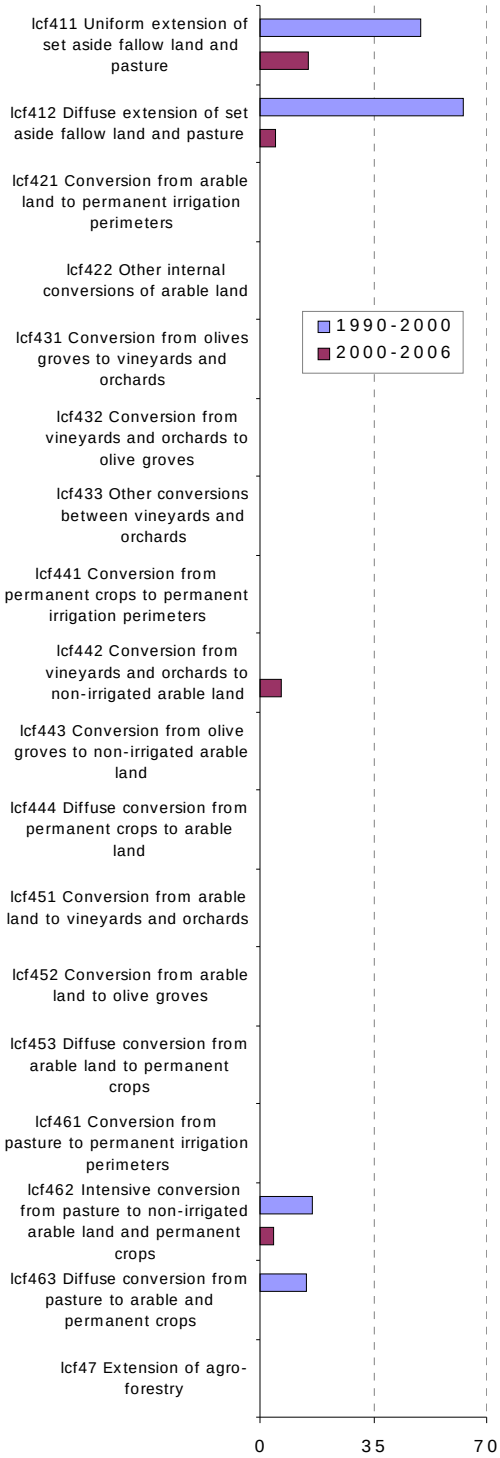
8.29. Main annual conversions between agriculture and forests & semi-natural land 2000-2006 [ha/year]



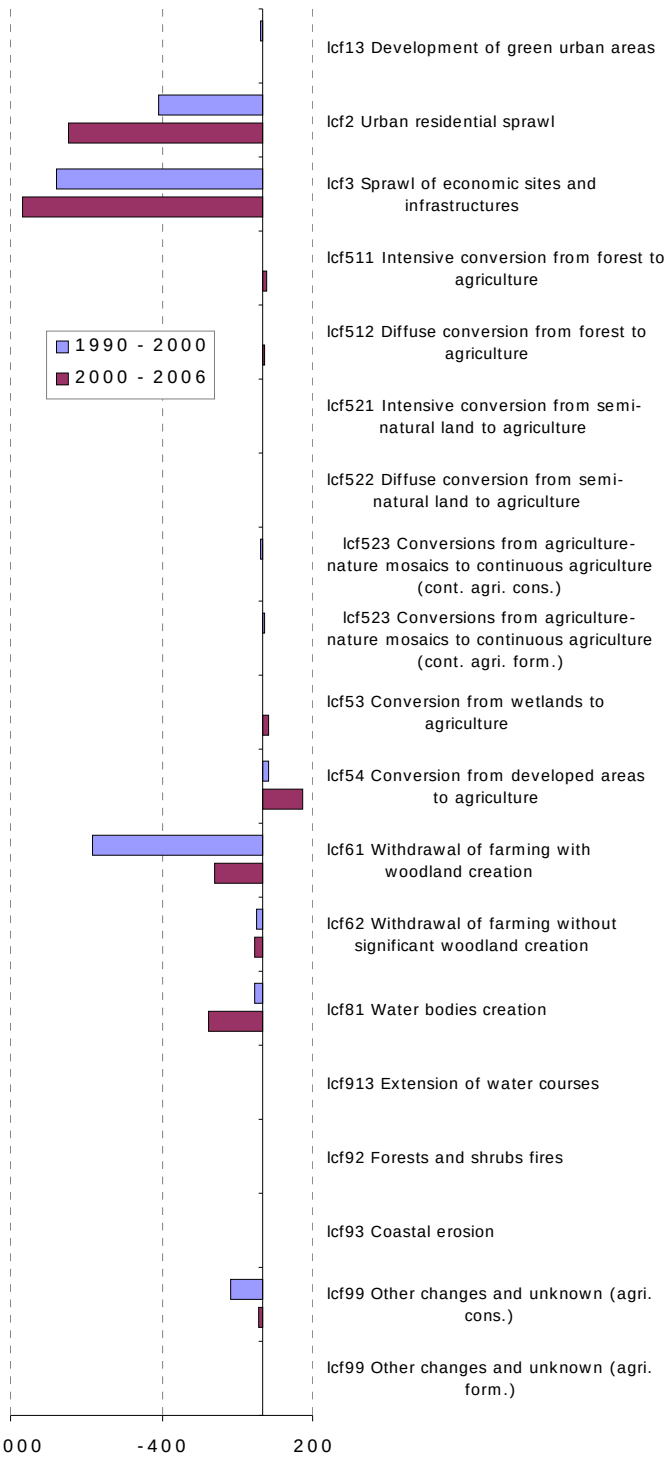
8.30. Mean annual conversion between arable land and pasture [ha/year]

Denmark

9.31. Mean annual agriculture internal conversions [ha/year]



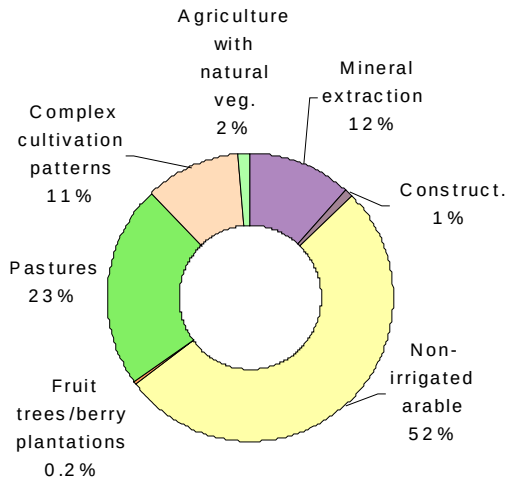
9.32. Mean annual conversions between agriculture and other LC types [ha/year]



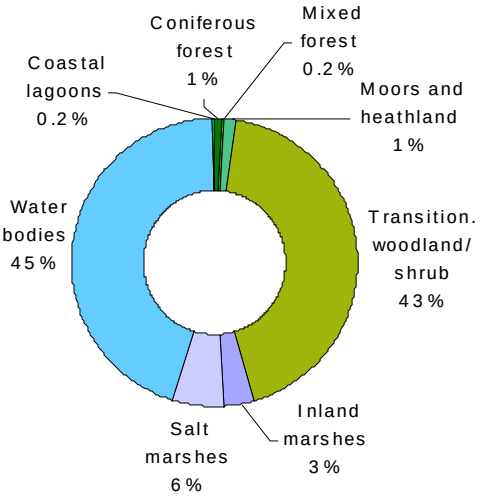
Denmark

Forest & nature

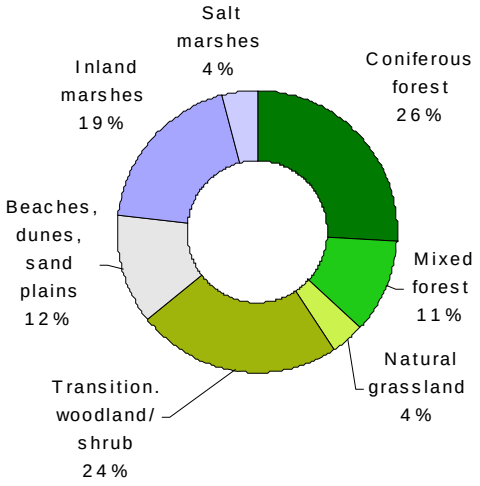
10.33. LC consumed by forest & nature 2000-2006 [% of total]



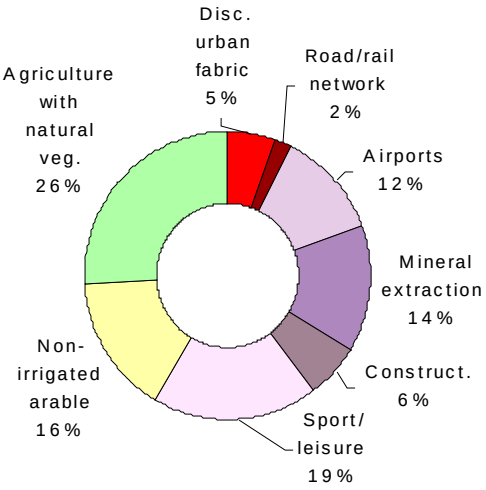
10.34. Formation of forest & nature land from non-forest /nature 2000-2006 [% of total]



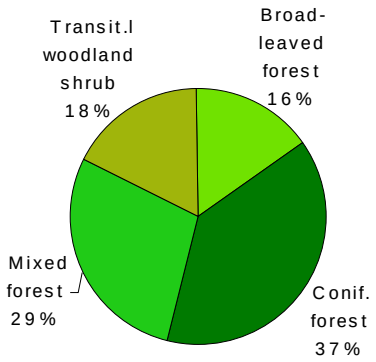
10.35. Consumption of forest & nature land by non-forest/nature 2000-2006 [% of total]



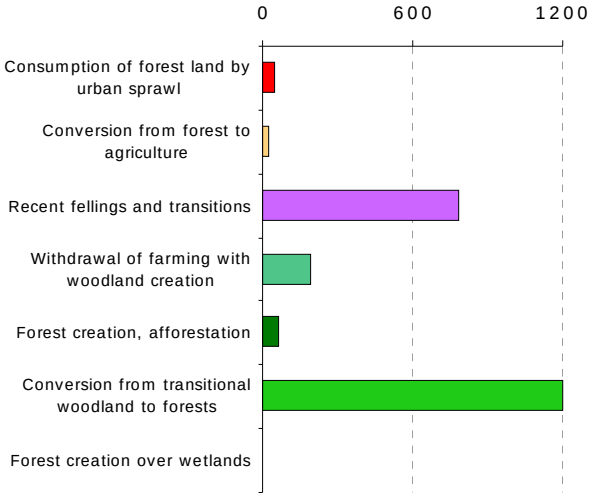
10.36. Formation of non-forest/nature land from forest & nature 2000-2006 [% of total]



10.37. Forested land 2006 [% of total area]

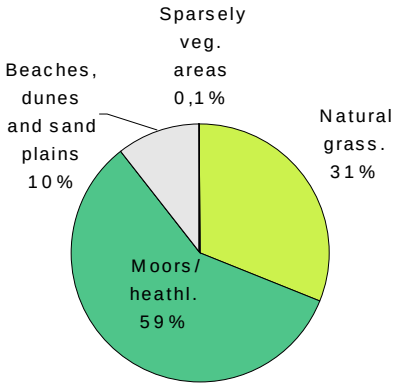


10.38. Main trends in woodland & forests consumption/formation 2000-2006 [ha/year]

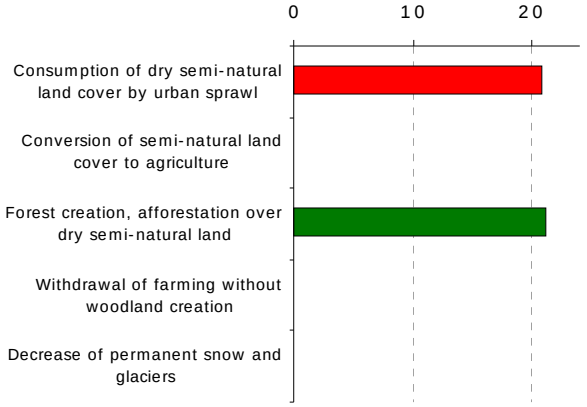


Denmark

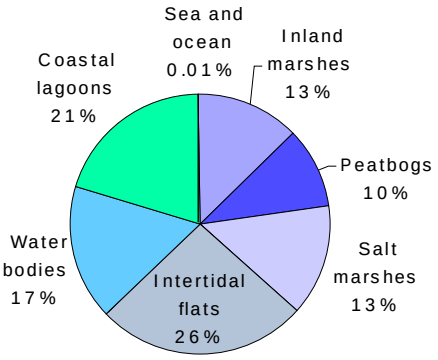
11.39. Dry semi-natural areas 2006 [% of total area]



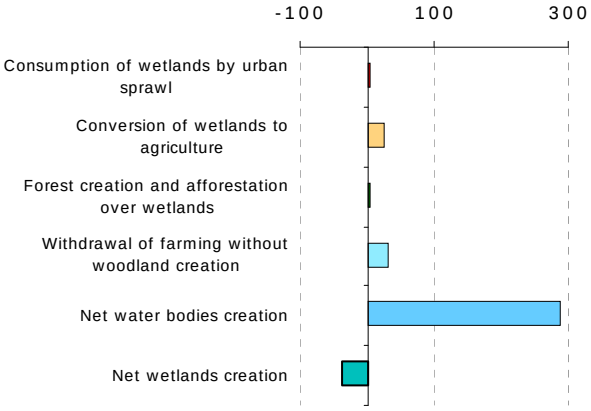
11.40. Main trends in dry semi-natural land consumption/formation 2000-2006 [ha/year]



11.41. Wetlands & water 2006 [% of total area]



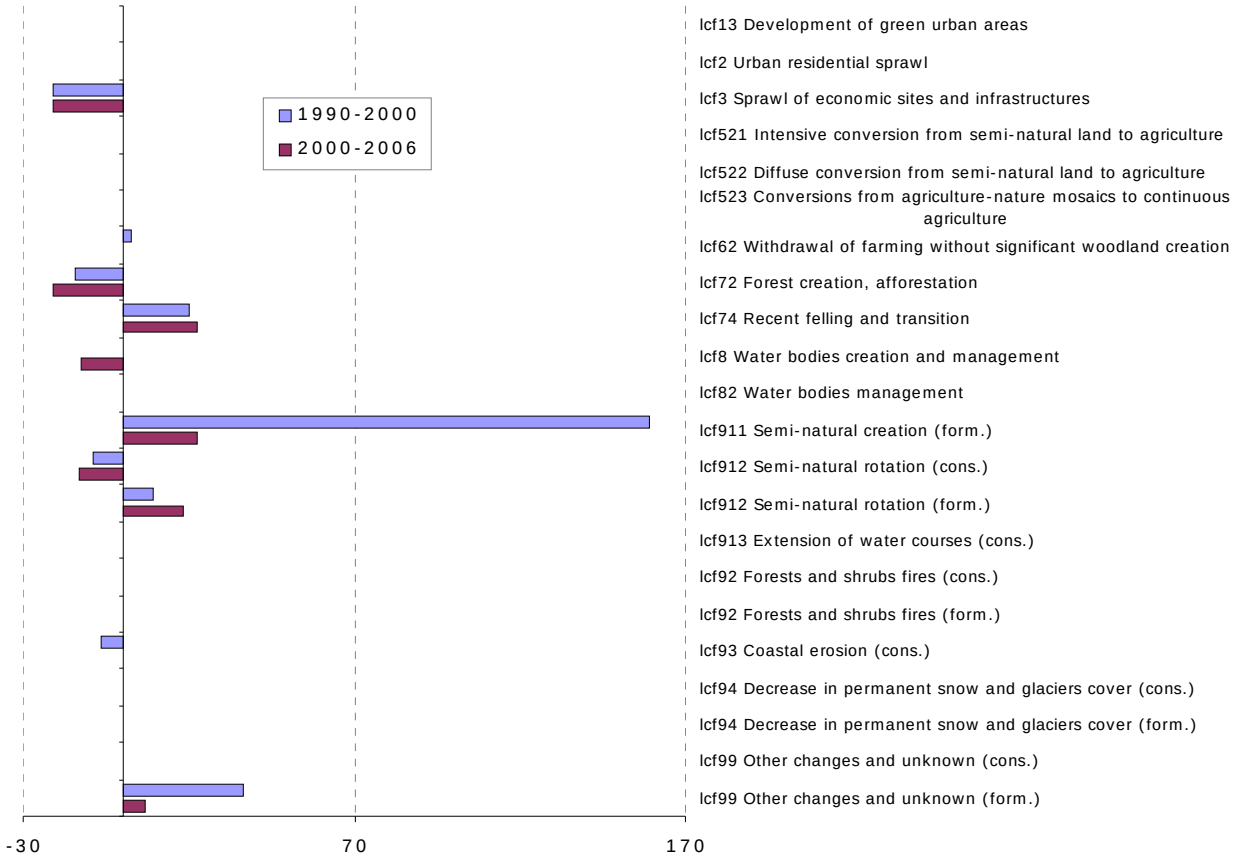
11.42. Main trends in wetlands & water consumption/formation 2000-2006 [ha/year]



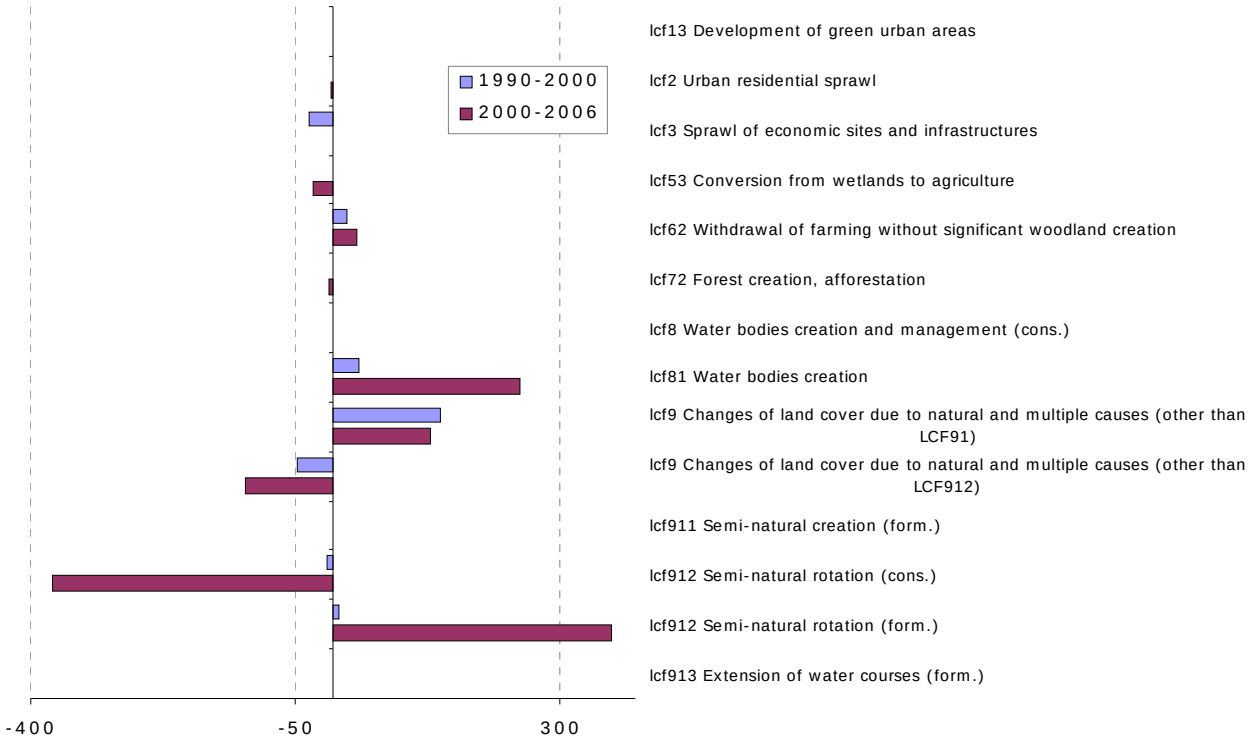
11.43. Mean annual conversions of forest & other woodland [ha/year]

Denmark

12.44. Mean annual conversions of dry semi-natural LC [ha/year]

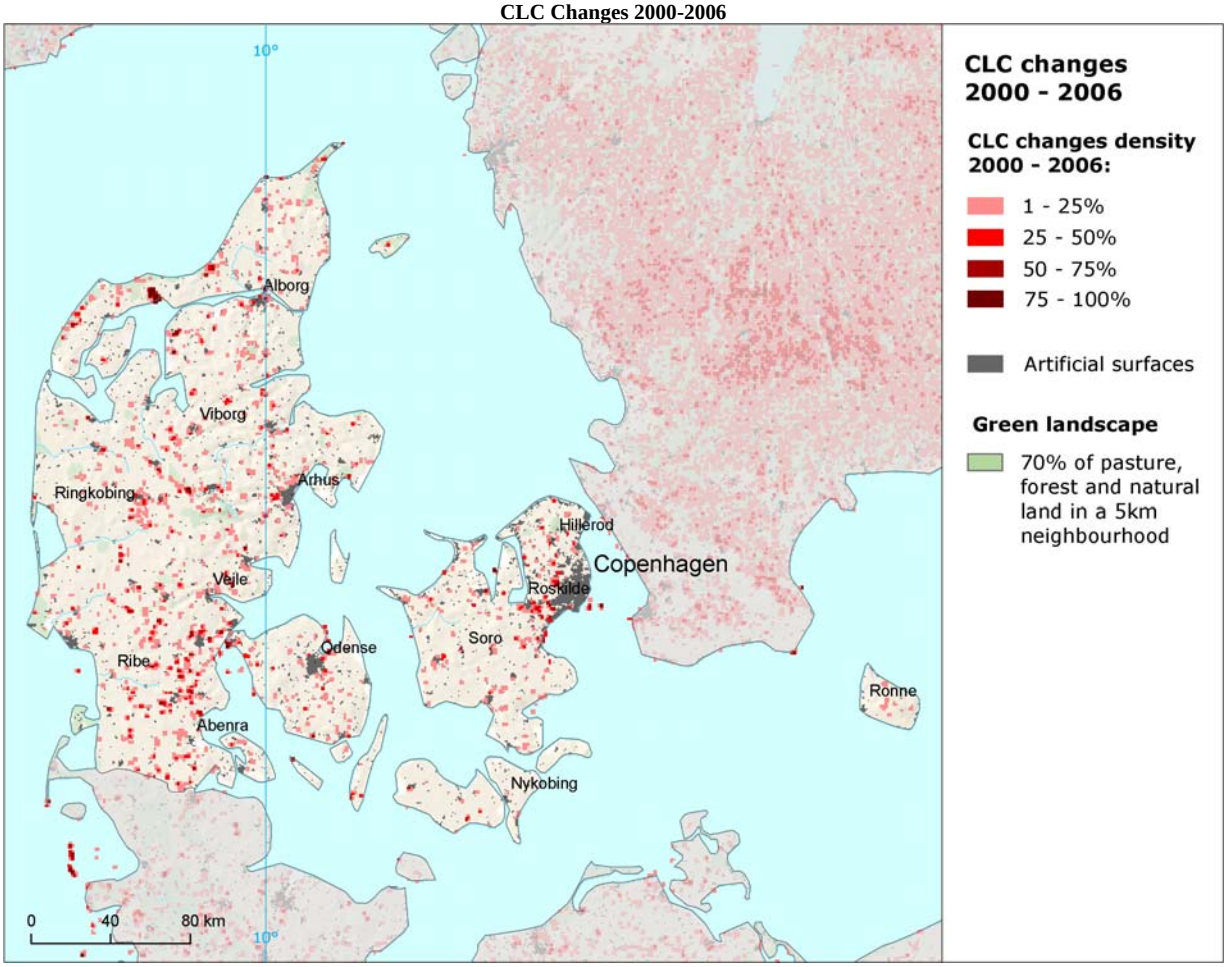


12.45. Mean annual conversions of wetlands and water LC [ha/year]

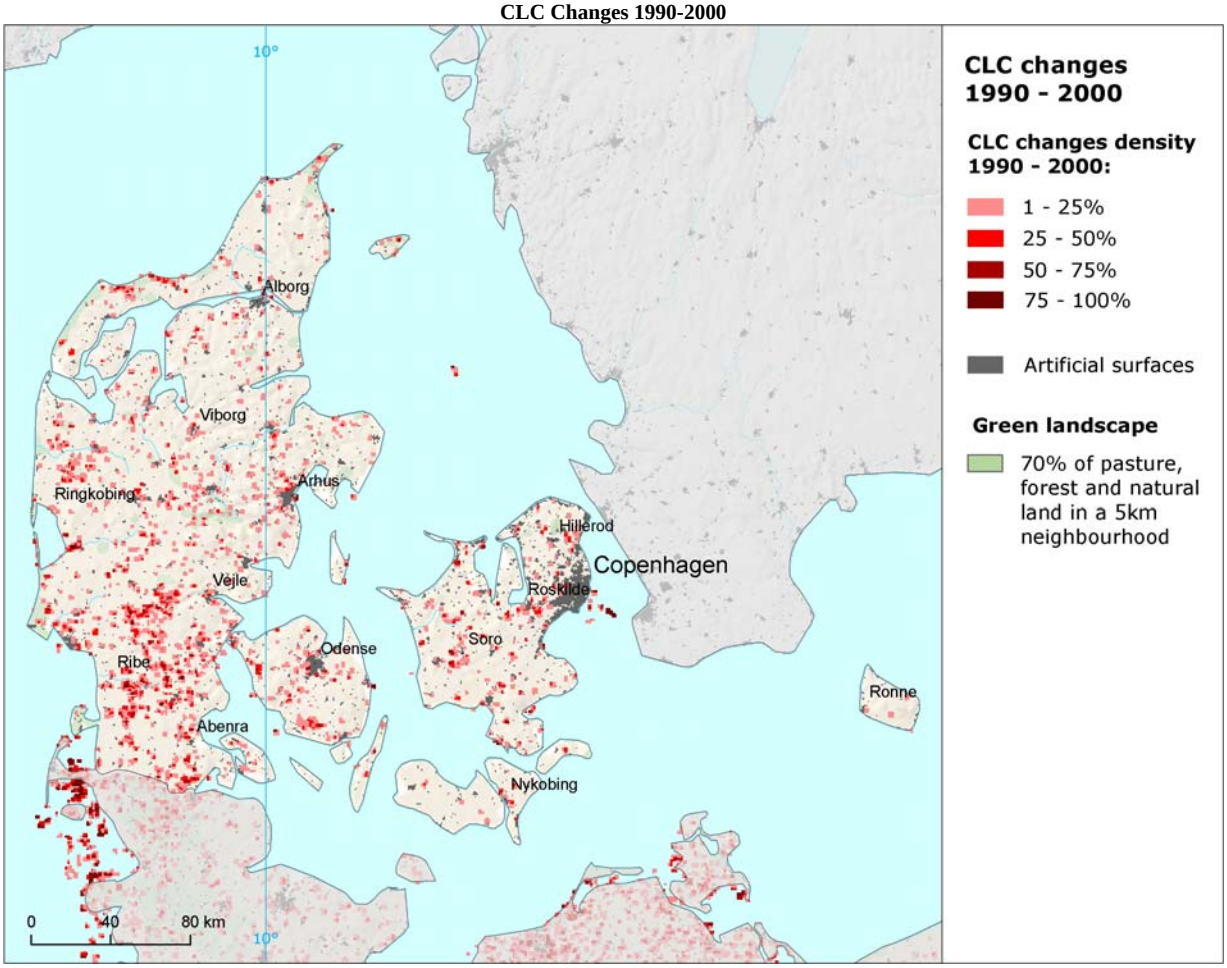


Denmark

CLC Changes 2000-2006

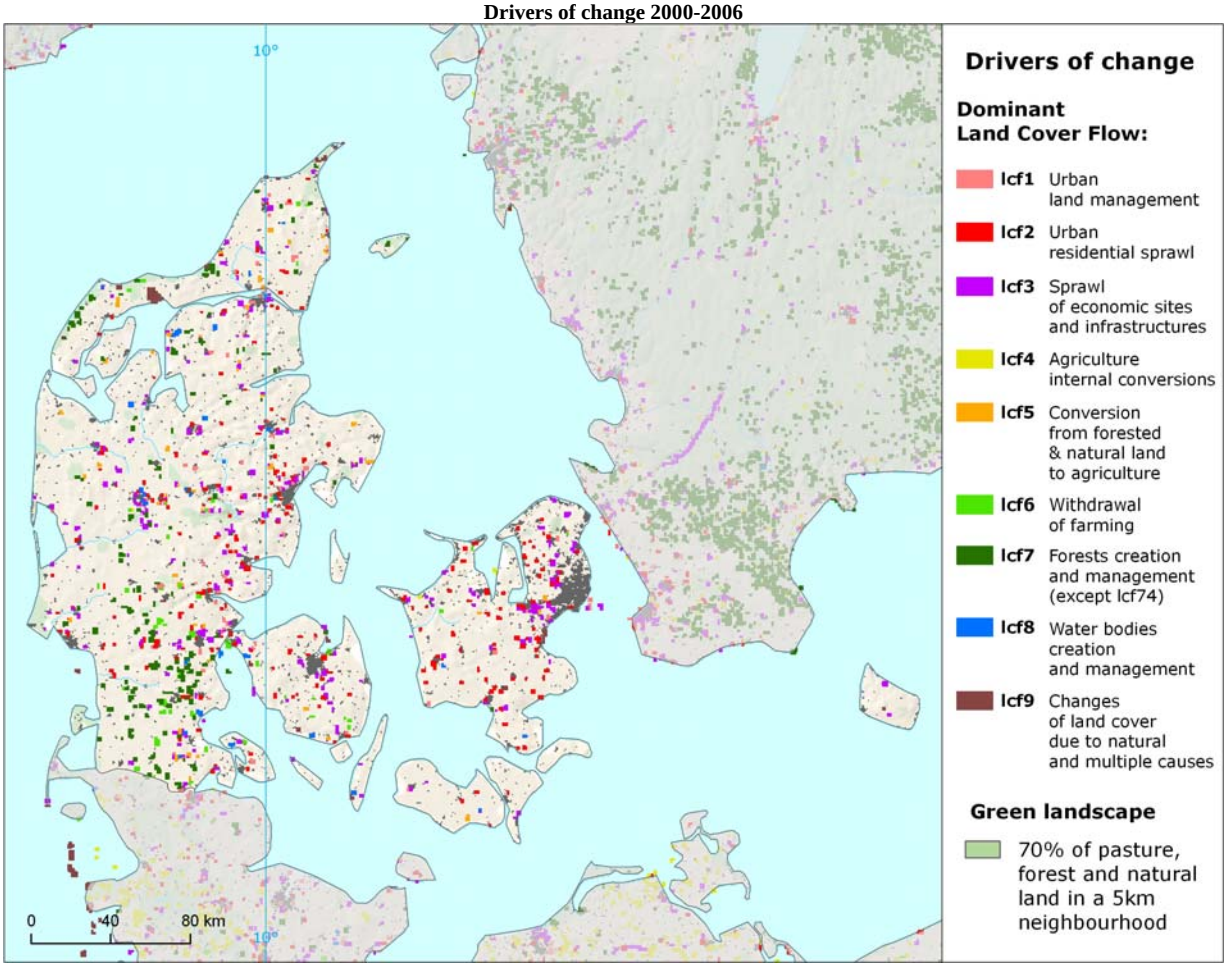


CLC Changes 1990-2000

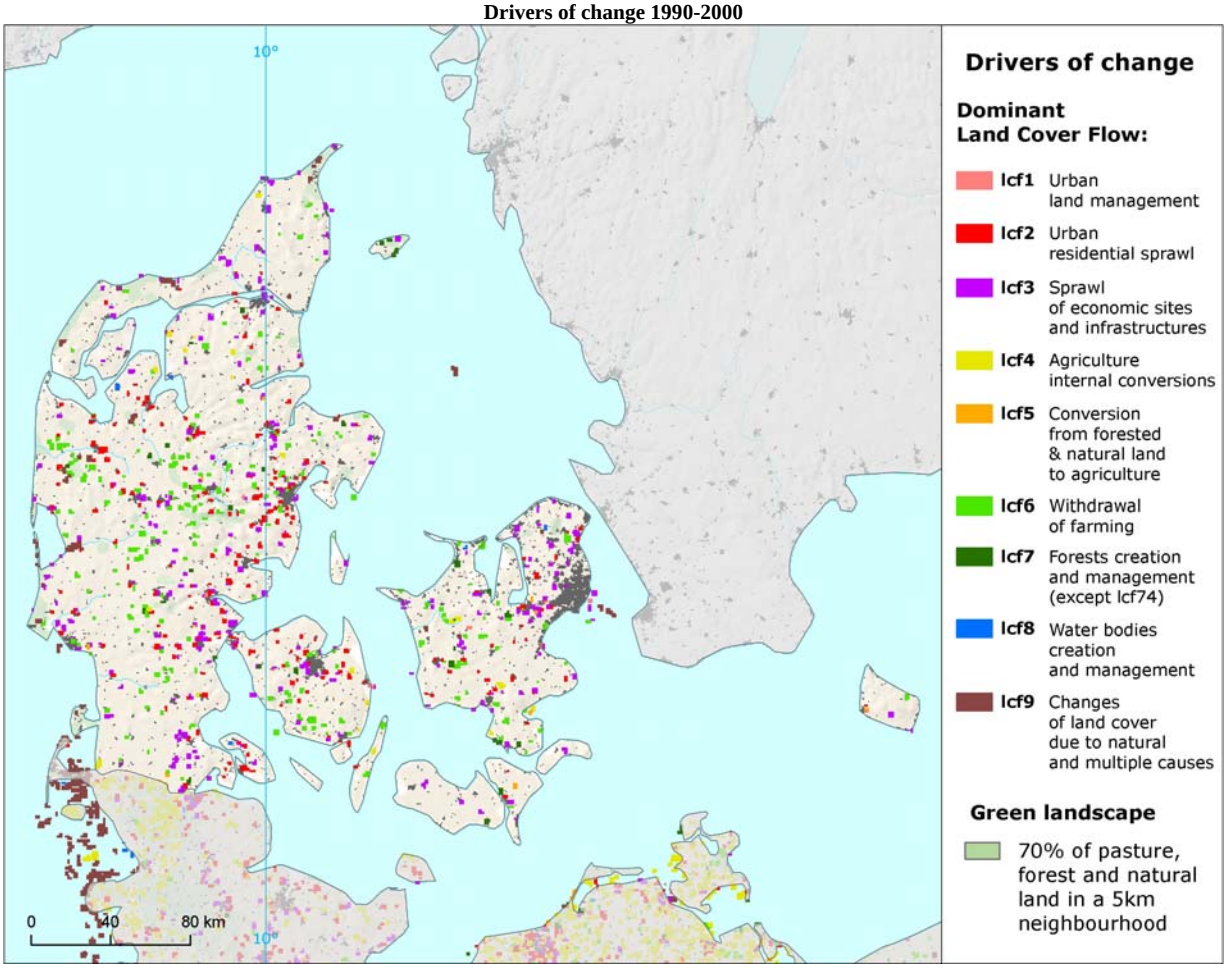


Denmark

Drivers of change 2000-2006

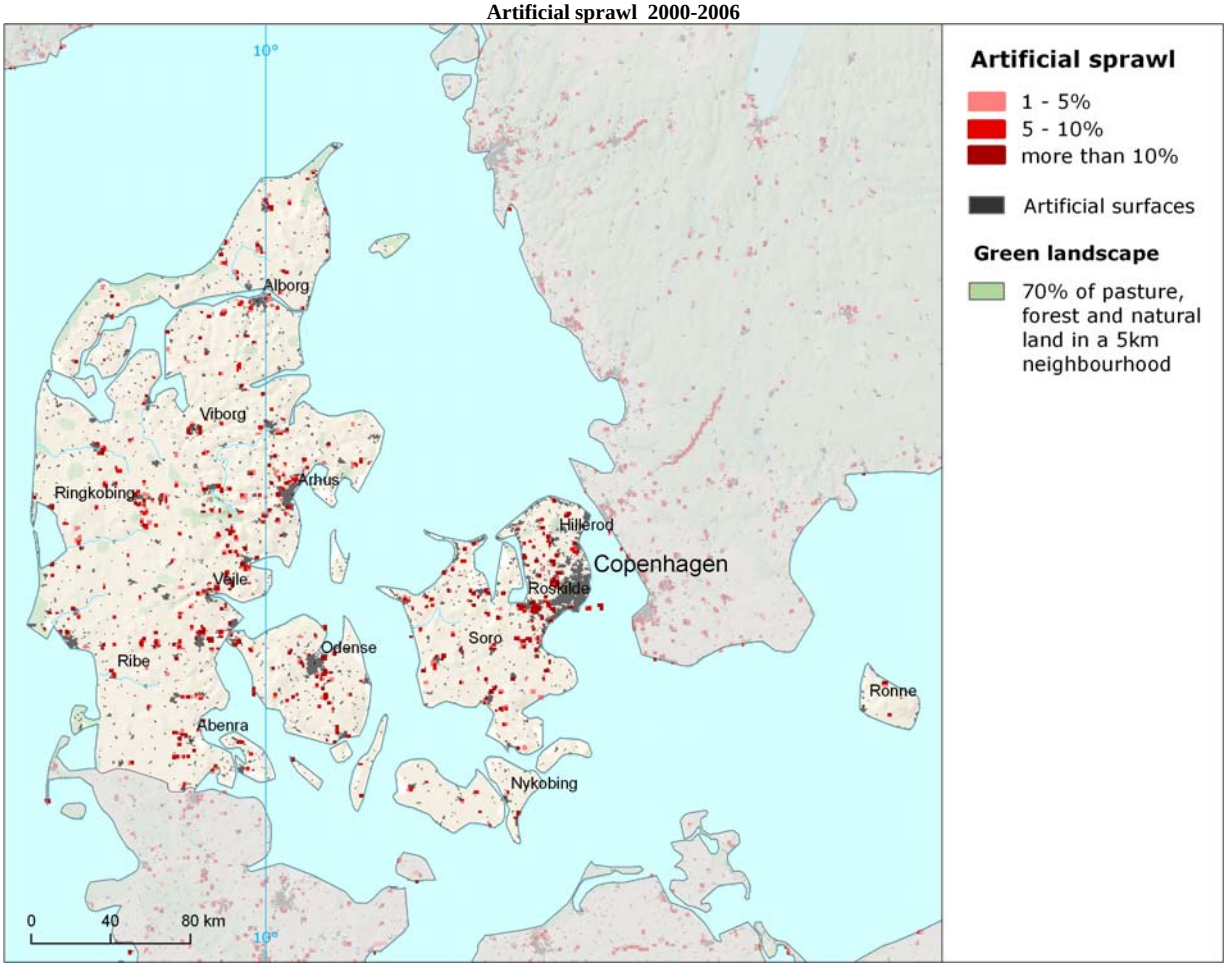


Drivers of change 1990-2000

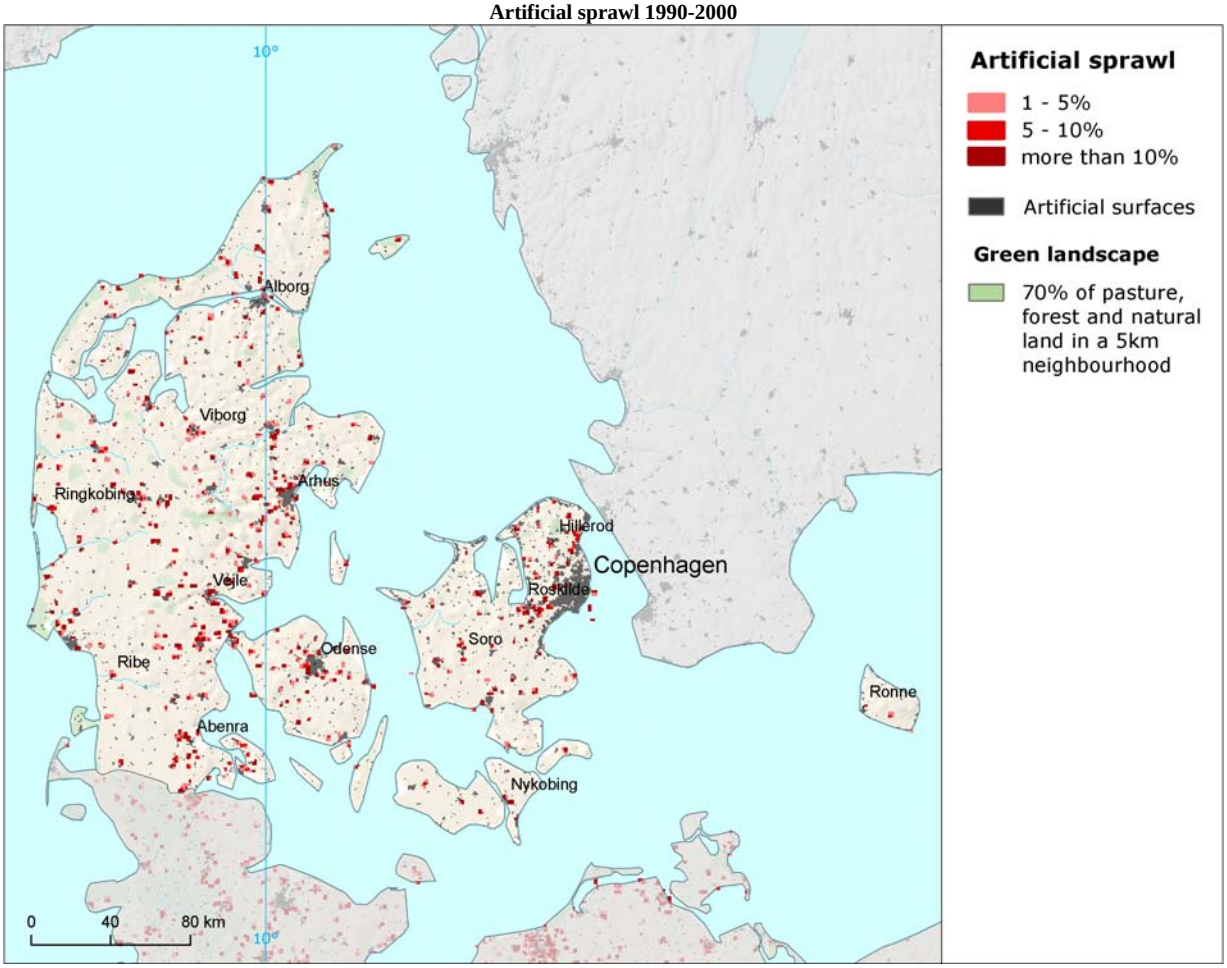


Denmark

Artificial sprawl 2000-2006

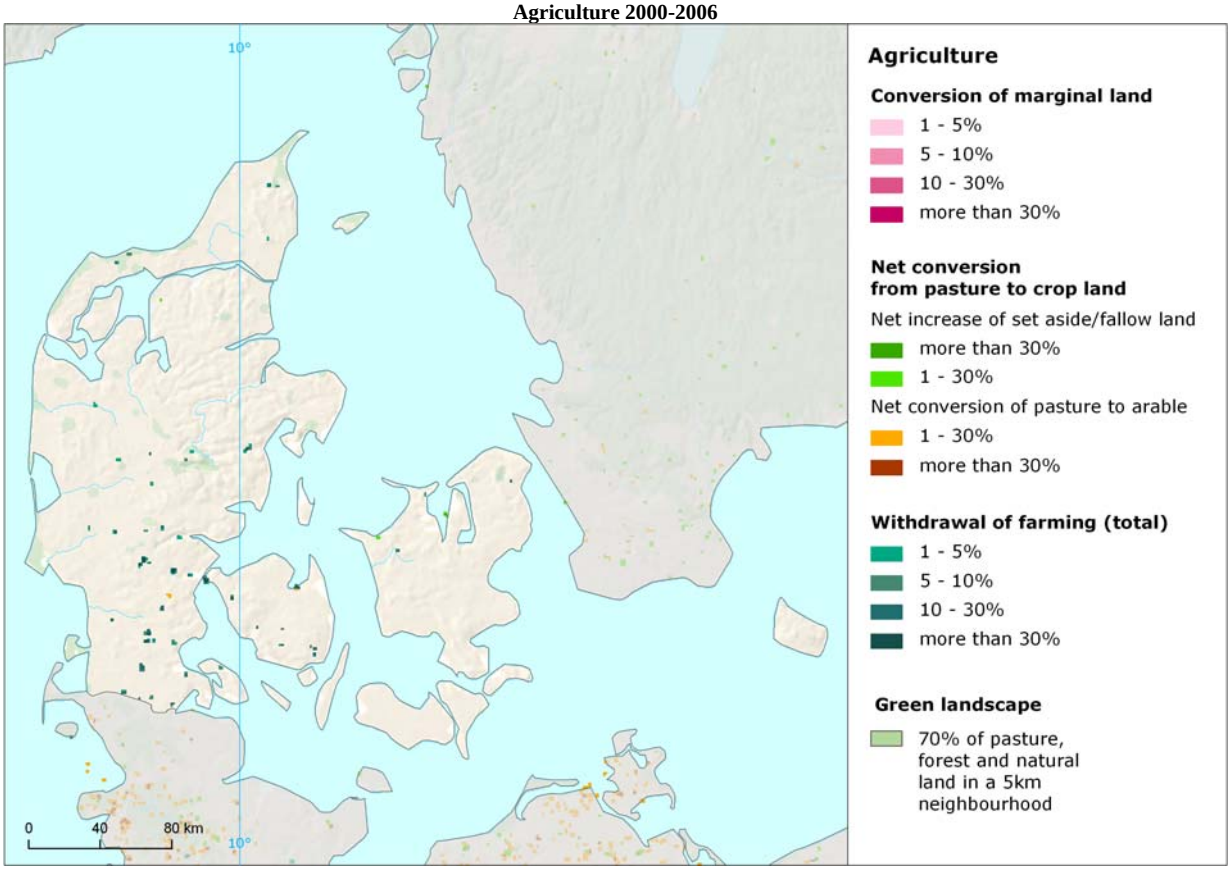


Artificial sprawl 1990-2000

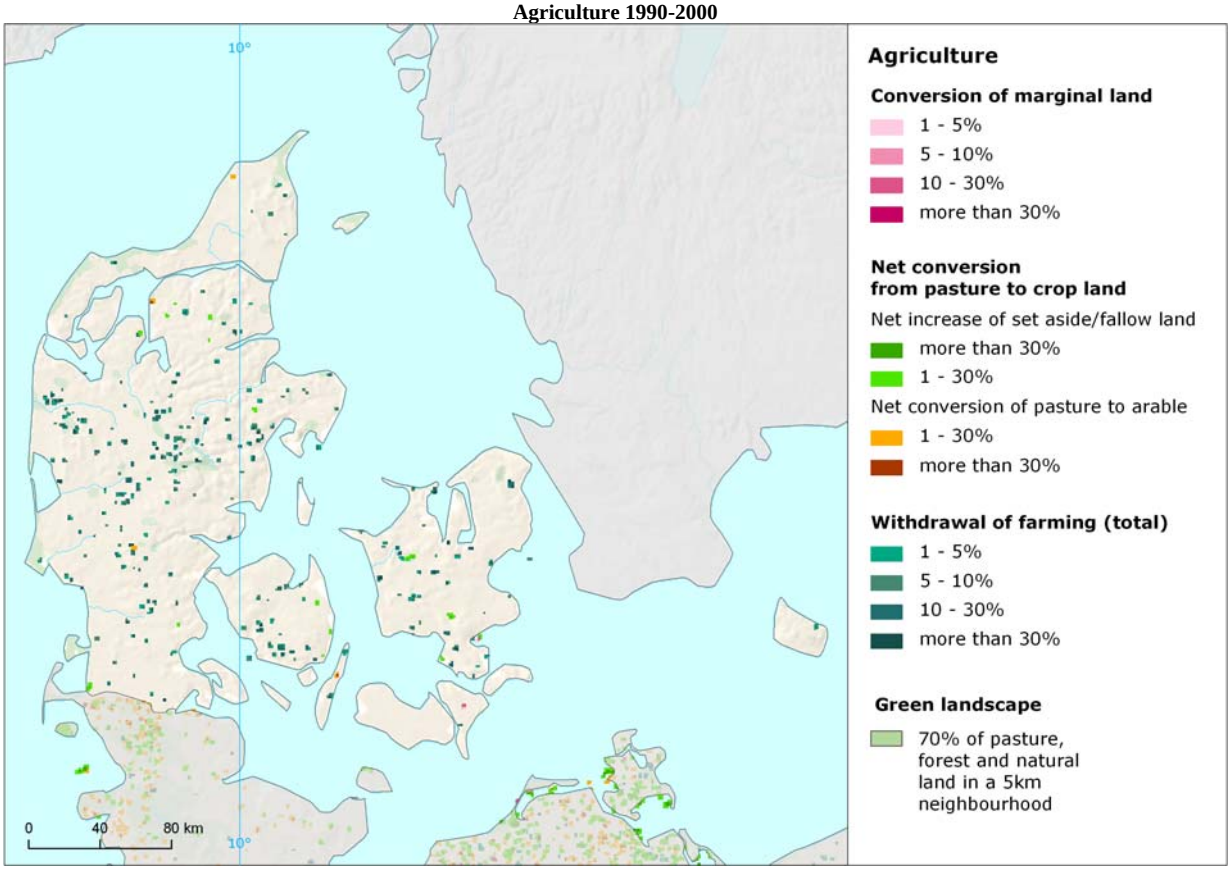


Denmark

Agriculture 2000-2006

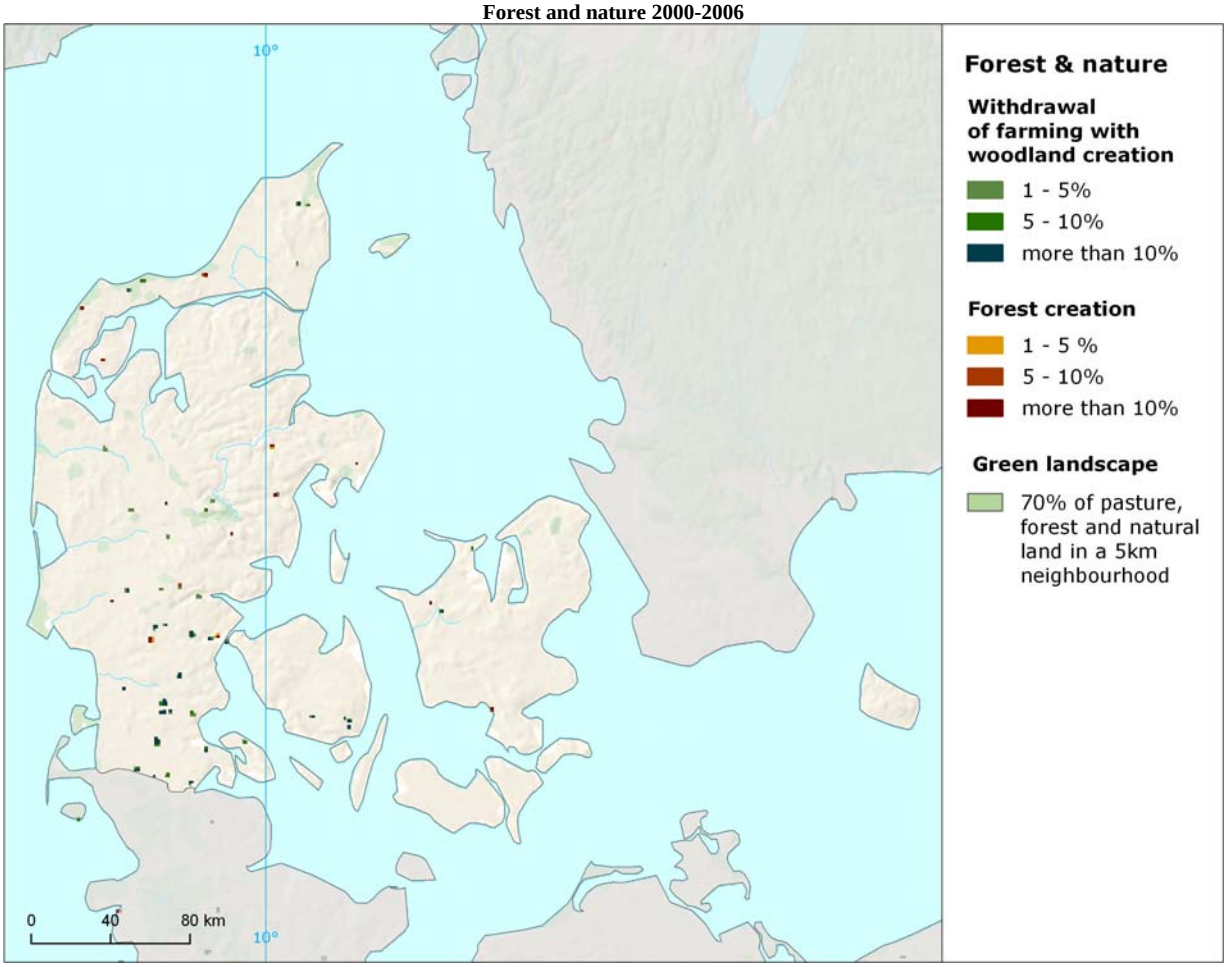


Agriculture 1990-2000



Denmark

Forest and nature 2000-2006



Forest and nature 1990-2000