

Implementation of Environmental-Economic Accounts in Denmark

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Addis Ababa 2-5 February 2015



STATISTICS
DENMARK

History of the Danish Environmental Accounts



1974 Energy accounts linked to the national accounts

Supply-use tables for energy (1966->)

Monetary and physical

Input-output energy analyses

1993 Work on environmental accounts/air emissions begins

1999 Regular publication of environmental accounts begins

Energy og emissions to air

Input-output analysis

2001 Work on extensions begins

Water, supply and use

Energy asset accounts

Environmental taxes and subsidies

History of the Danish Environmental Accounts

continued

2008 Further extension

Material Flow Accounts

2010 Discontinuation due to budget cuts

2011 Work starts again due to EU-legislation

2014 Environmental Goods and Services

2015-2017 Increased budget for "Green National Accounts"

Pilot projects

Forests

Physical input-output tables

Waste

Tradeable CO₂-permits

IO-based decomposition analysis

Up-to date accounts

Regional environmental accounts

Environmental protection expenditures



New activities due to increased budget 2015-2017

Background for increased budget:

Increasing interest in "Green National Accounts" from Ministry of Environment, Ministry of Economics, etc..

The publication "Green National Accounts and the Green GDP"

Proposal for new law:

"Danish Green National Accounts"

Meeting with the Finance Committee and the Environment Committee of Danish Parliament

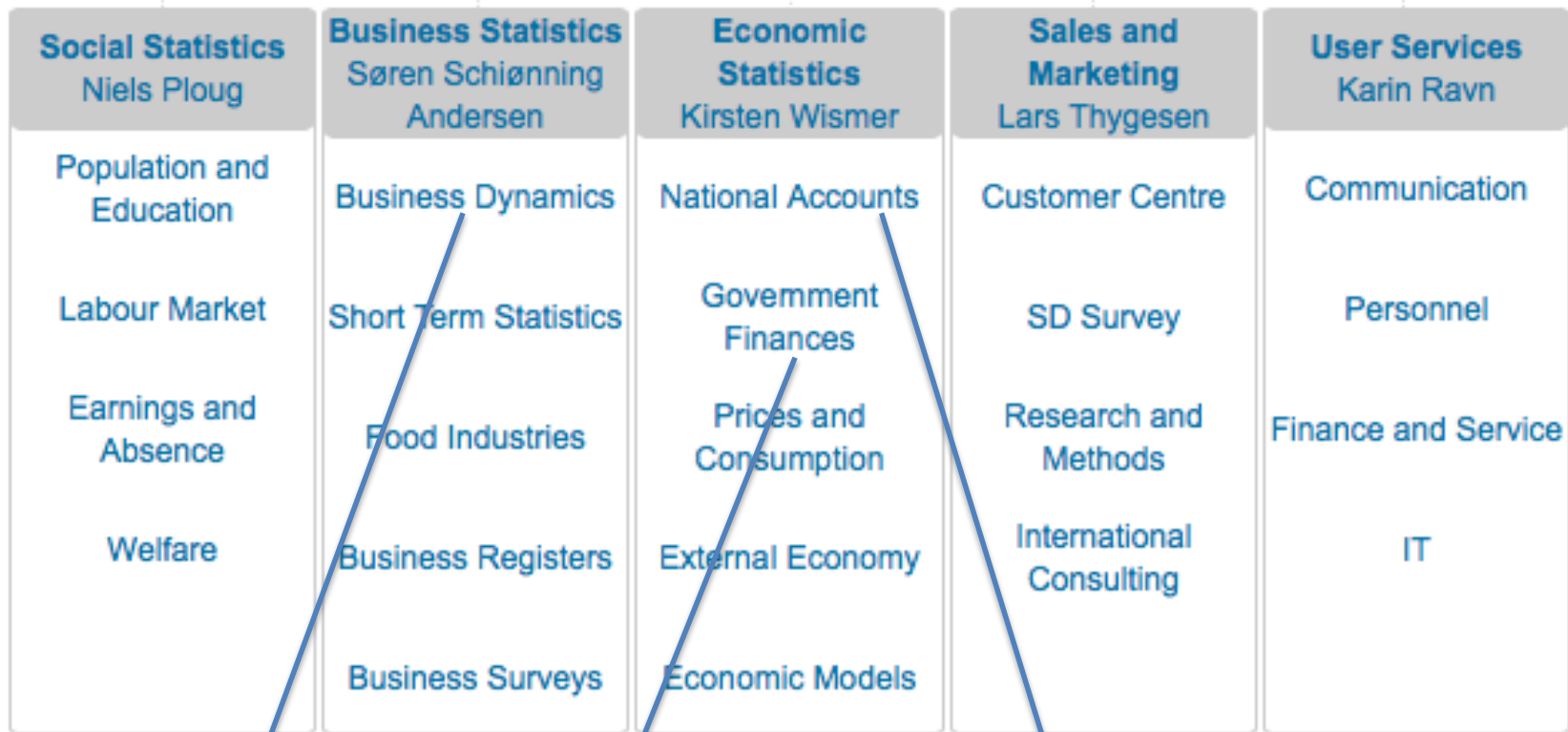




New activities

- Three new staff being hired (6-7 persons in total)
- Implementation plan
- Coordination within statistics Denmark
- Coordination and involvement of Env. Protection Agency, Nature Agency, Energy Agency, ministries, organisations
- Expertise and support needed

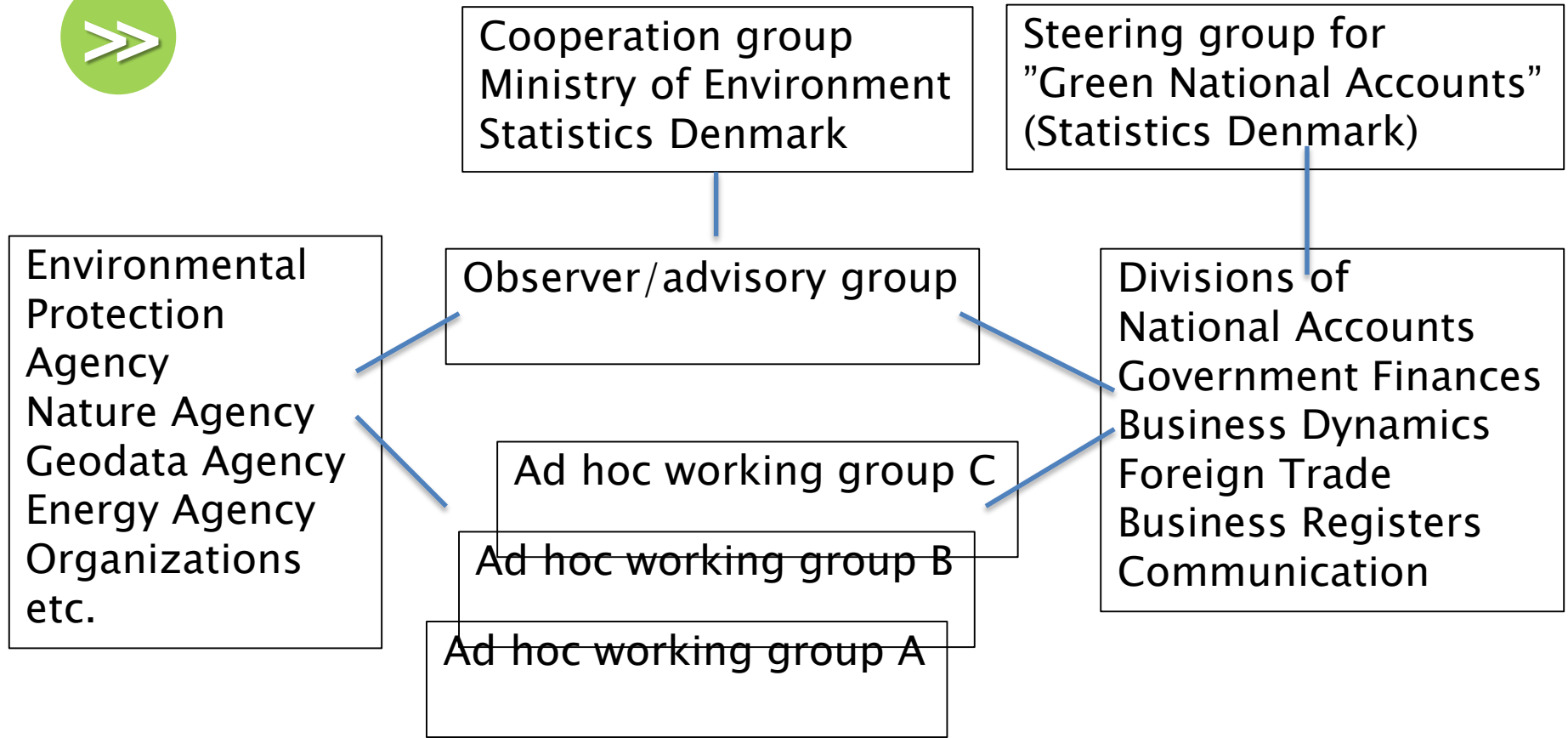
>> Organisation of Statistics Denmark



EGSS
Industries' env.
protection
expenditures

Government
environmental
activities

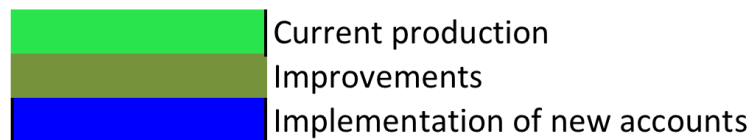
Environmental Ec. Accounts and input-
output: Energy, Air emissions,
Env. taxes by industries,
Material flow accounts, Input-output





Foreseen activities 2015-2017

	2015	2016	2017
Cross-cutting coordination and communication activities	Current production	Current production	Current production
Energy	Improvements	Current production	Current production
Air emissions	Current production	Current production	Current production
Material flow accounts	Improvements	Current production	Current production
Solid waste	Implementation of new accounts	Current production	Current production
Water	Current production	Implementation of new accounts	Current production
Waste water	Current production	Implementation of new accounts	Current production
Env. related taxes	Current production	Current production	Current production
Env. related subsidies	Implementation of new accounts	Current production	Current production
Env. protection expenditures	Implementation of new accounts	Current production	Current production
Environmental goods and services	Implementation of new accounts	Current production	Current production
Oil and natural gas	Implementation of new accounts	Current production	Current production
Land cover, land use, value of land	Improvements	Implementation of new accounts	Implementation of new accounts
Forests		Implementation of new accounts	Implementation of new accounts
Fish			Implementation of new accounts



Primary dissemination channel: www.statbank.dk



SUBJECTS

- › Population and elections
- › Living conditions
- › Education and knowledge
- › Culture and National Church
- › Labour, earnings and income
- › Prices and consumption
- › National accounts and government finances
- › Money and credit market
- › External economy
- › Business sector in general
- › Business sectors
- › Geography, environment and energy
- › Other

LOG ON

Username

Password 

Automatic Logon

› Register as new user

› Forgot your password? 

WELCOME TO STATBANK DENMARK

StatBank Denmark contains detailed statistical information on the Danish society.

The database is free of charge and data can be exported in several file formats and presented as diagrams or maps.



› How to proceed

As registered user you can...

- retrieve larger tables
- personalize in accordance with your preferences
- save your tables for later re-use
- have news sent by e-mail

› Free registration here

NEWS IN STATBANK DENMARK

15.1 2015: Newer Excel format

Now it is possible to open Excel data in a newer format (xlsx). Until now only an older version (xls) has been available. If you have a user profile and have Excel as your favorite format, you need to update this setting in your user profile, if you would like the new format as your favorite output.

› Read more news

LATEST RELEASES

- › DNPRND: The banks' and the mortgage-credit institutes' accounts (net position) with the Nationalbank
- › DNRENTD: Danmarks Nationalbank's official interest rates and money and capital market interest rates by item, country and methodology (daily observations)
- › DNVALD: Daily exchange rates by currency and type
- › FODER1: Feed Stuffs in Agriculture by type of fodder, origin and unit
- › FODER5: Fodder balance by type of fodder, time and use
- › KONCYK1: Business Cycle Tracer by industry and unit
- › KORN: The utilization of cereals by crop, period, origin and type


› Scheduled releases



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- › **Geography, environment and energy**
- › Other

GEOGRAPHY, ENVIRONMENT AND ENERGY

 show all...

-  **Area**
-  **Infrastructure**
-  **Environment**
-  **Energy**



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GEOGRAPHY, ENVIRONMENT AND ENERGY

- show all...
- Area
- Infrastructure
- Environment
 - Environmental accounts
 - 2470: Environment Accounts
 - MRO1 Emissions by industry and type (1990-2012)
 - MRO1 Bridge table by bridging items and type of emission (1990-2012)
 - Material Flow Accounts
 - MRM2 Economy-wide material flow accounts by material type and indicator (1993-2013)
 - Environmental taxes etc
 - MREG2 The public sector environmental accounts by environmental category, kind and sector (2007-2012)
 - MRS1 Environmental taxes etc. by industry and type of tax (1995-2013)
 - MREG21 Environmentally related taxes by environmentally related category (1995-2013)
 - Environmental goods and services
 - GRON1 Environmental goods and services by item, industry and unit (2012-2013)
 - GRON2 Environmental goods and services by industry (DB07), item and unit (2012-2013)
 - Resource Productivity
 - RP01 Resource productivity by indicator, industry and product (2005-2013)
 - RP02 Resource productivity by indicator, industry and level of processing (2005-2013)
 - RP03 Manufacturers purchase of goods (per cent of turnover) by industry (DB07) and level of processing (2001-2012)
 - RP04 Resource productivity by industry (DB07 127-grouping) and unit (2002-2012)
 - RP05 Costs by cost element, industry and price unit (2005-2013)
 - RP06 Energy and waste intensities by indicator and industry (2005-2012)
 - RP07 Treatment of waste by kind of treatment and industry (2011-2012)
- Archive
- Mining and quarrying
 - Archive
- Energy



MRU1: Emissions by industry and type

Unit: -

Select Advanced selection Information

INDUSTRY (236)

More options...

- Total
- Households
- Total industries
- A Agriculture, forestry and fishing
- 01000 Agriculture and horticulture
- 010000 Agriculture and horticulture
- 02000 Forestry
- 020000 Forestry
- 03000 Fishing
- 030000 Fishing
- B Mining and quarrying
- 06090 Mining and quarrying
- 060000 Extraction of oil and gas
- 080090 Extraction of gravel and stone
- 090000 Mining support service activities
- C Manufacturing
- CA Manufacture of food products, beverages and tobacco
- 10120 Manufacture of food products, beverages and tobacco
- 100010 Production of meat and meat products
- 100020 Processing and preserving of fish
- 100030 Manufacture of dairy products
- 100040 Manufacture of grain mill and bakery products
- 100050 Other manufacture of food products
- 110000 Manufacture of beverages
- 120000 Manufacture of tobacco products
- CB Textiles and leather products
- 13150 Textiles and leather products
- 130000 Manufacture of textiles
- 140000 Manufacture of wearing apparel

TYPE OF EMISSION (15)

More options...

- Carbon dioxide incl. biomass (CO2), 1000 tonnes
- Carbon dioxide excl. biomass (CO2), 1000 tonnes
- Carbon dioxide from biomass (CO2), 1000 tonnes
- Sulphur dioxide (SO2), tonnes
- Nitrogen oxides (NOX), tonnes
- Carbon monoxide (CO), tonnes
- Ammonia (NH3), tonnes
- Nitrous oxide (N2O), tonnes
- Methane (CH4), tonnes
- Non-methane volatile organic compounds (NMVOC), tonnes
- Particulate matter < 10 µm (PM10), tonnes
- Particulate matter < 2,5 µm (PM2,5), tonnes
- Sulphur hexafluoride (SF6), tons CO2-equivalents
- Perfluorocarbons (PFC), tons CO2-equivalents
- Hydrofluorocarbons (HFC), tons CO2-equivalents

YEAR

More options...

- 2012
- 2011
- 2010
- 2009
- 2008
- 2007
- 2006
- 2005
- 2004
- 2003
- 2002
- 2001
- 2000
- 1999
- 1998
- 1997
- 1996
- 1995
- 1994
- 1993
- 1992
- 1991
- 1990

Number of selected data cells for the table: 120 (select max. 10000)

Cancel Show table

3-2-2015 Statistics Denmark , www.statbank.dk/MRU1



MRU1: Emissions by industry and type

Download file as...

Excel (*.xlsx)

Codes in sep. columns

Incl. Footnotes etc.

Edit table

Pivot (clockwise)

Calculate

Graphics

Line Chart

Sort table

Print

Air Emission Accounts by type of emission, industry and time

	2012
Methane (CH₄), tonnes	
Total	262 535
Households	6 438
Total industries	256 097
A Agriculture, forestry and fishing	200 933
B Mining and quarrying	2 663
C Manufacturing	2 606
D_E Utility services	48 443
F Construction	52
G_I Trade and transport etc.	1 220
J Information and communication	11
K Financial and insurance	7
LA Real estate activities and renting of non-residential buildings	4
LB Dwellings	3
M_N Other business services	29
O_Q Public administration, education and health	109
R_S Arts, entertainment and other services	17

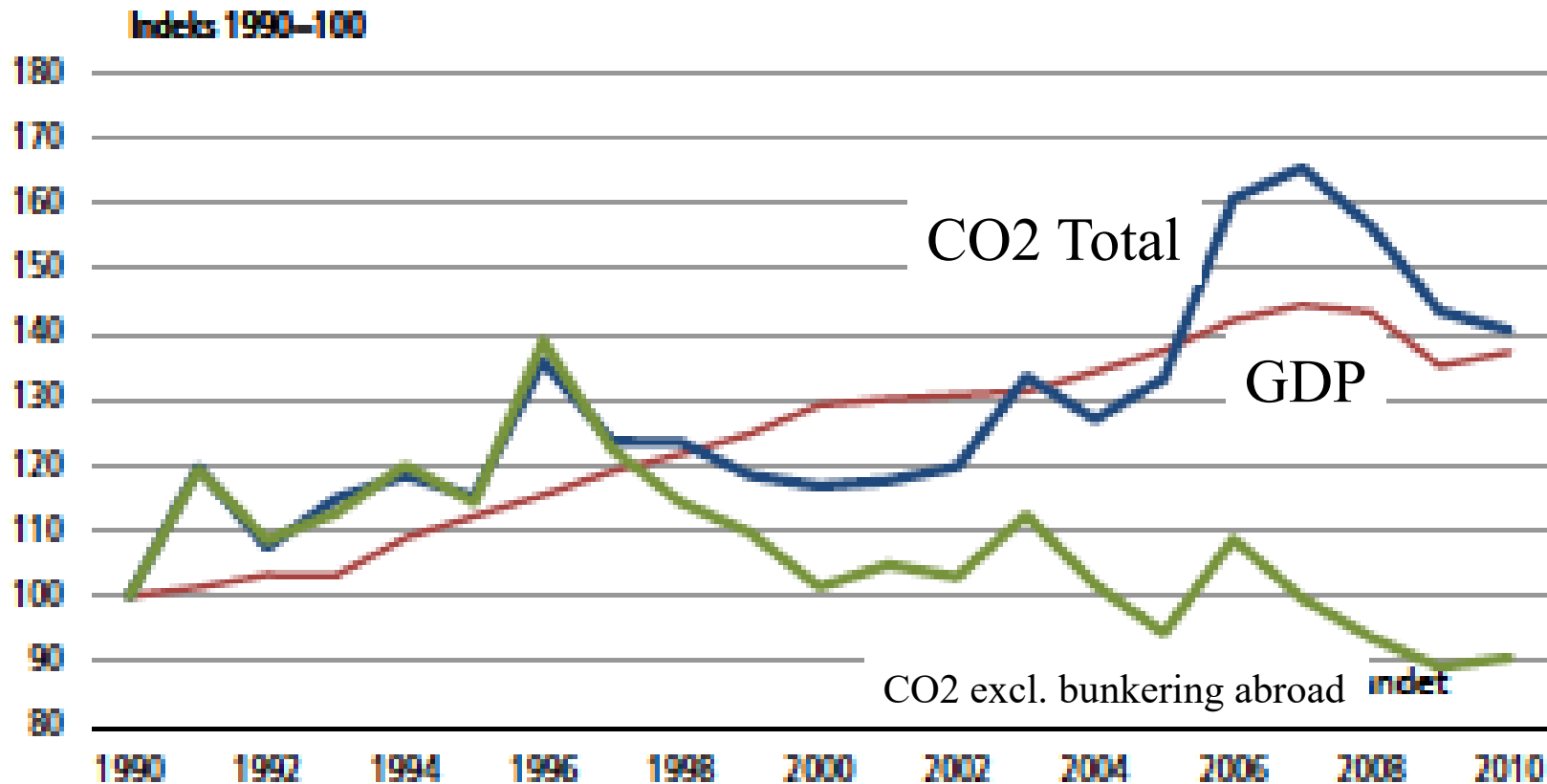
Unit : -

Contact : Anna Andriianets ana@dst.dk +45 39 17 30 66

Information : Show Quality Declaration

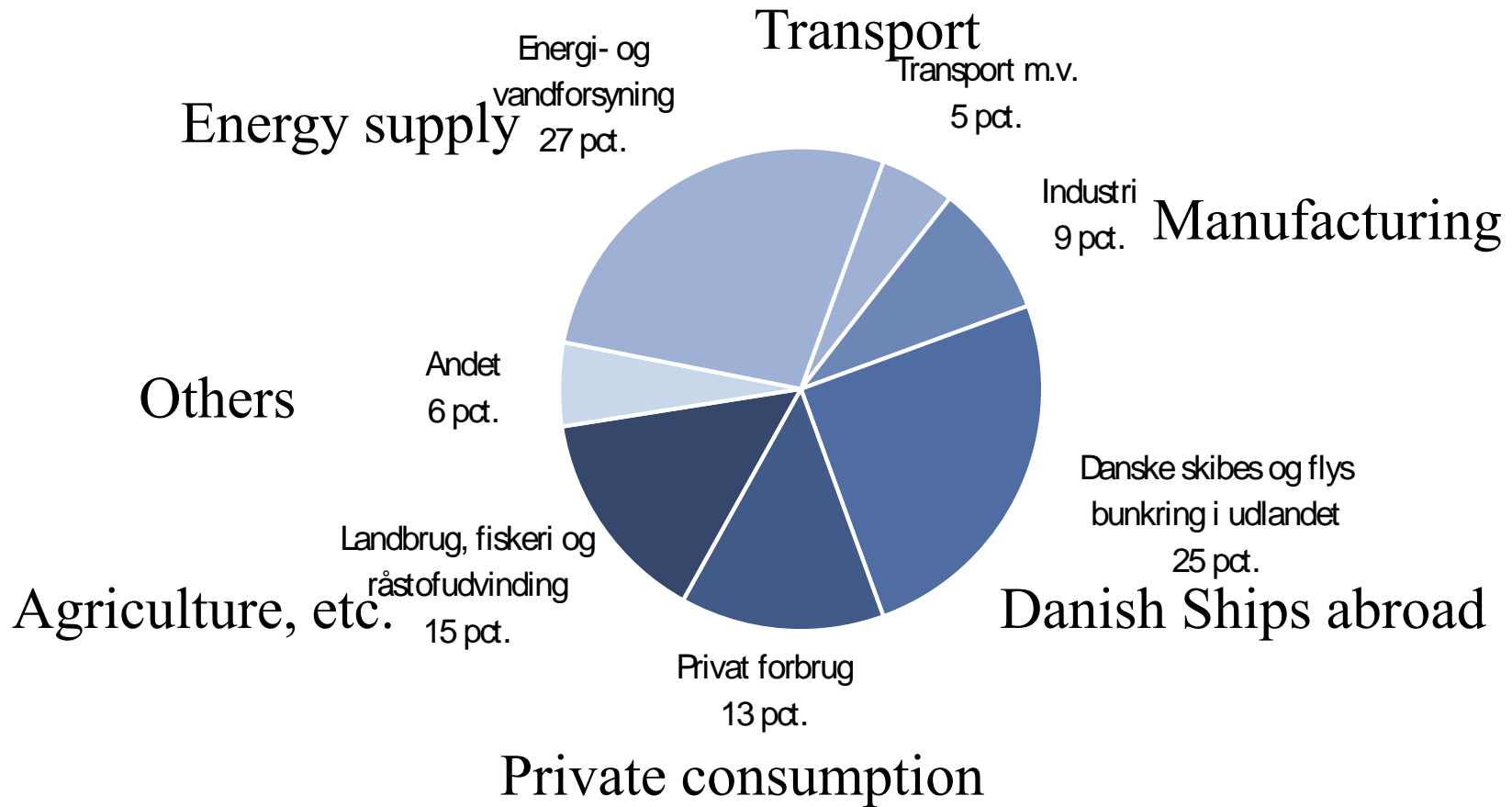


Indices (1990 = 100) for greenhouse effect and GDP (2000 prices)



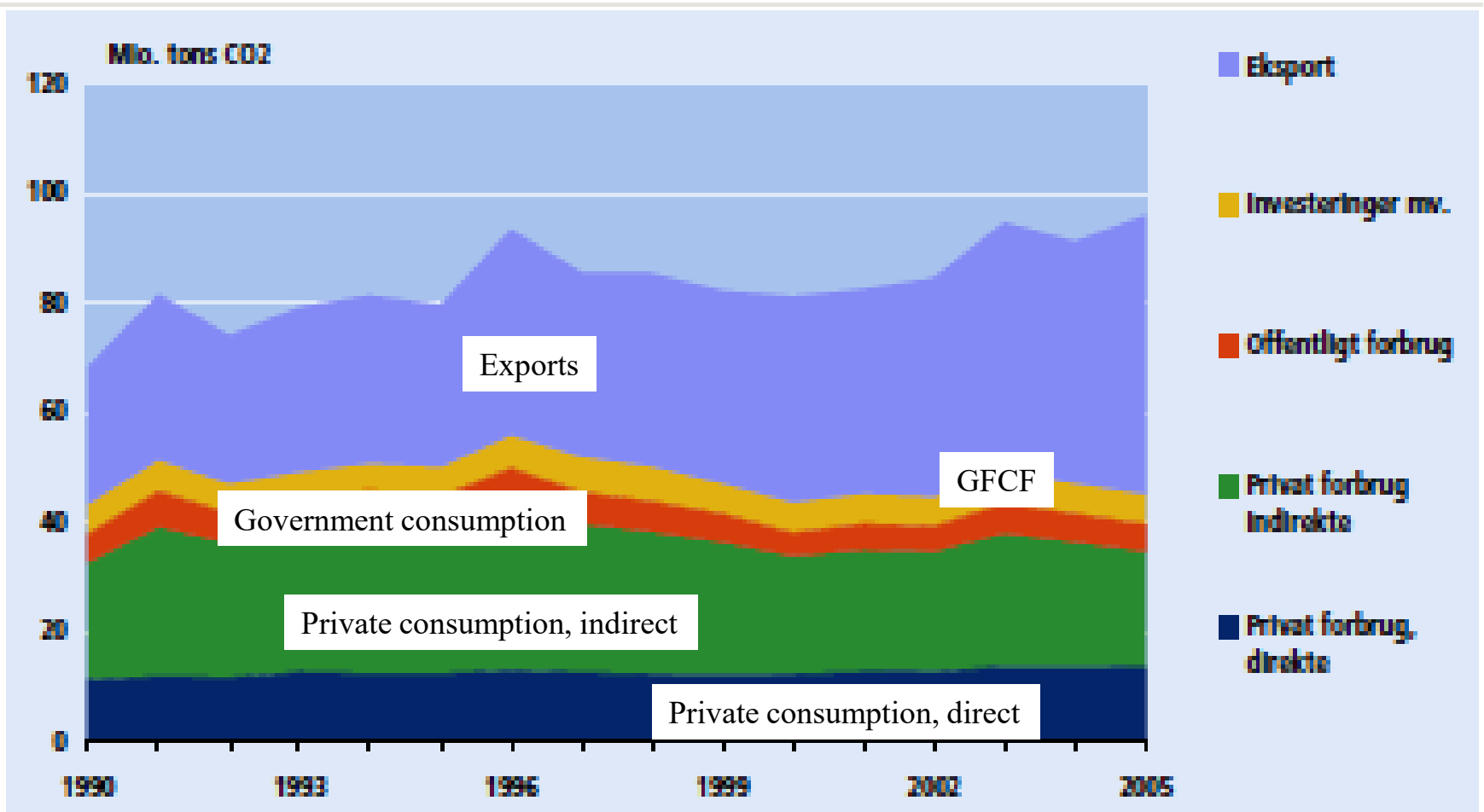


Denmark's contribution to greenhouse gas effect by sources.



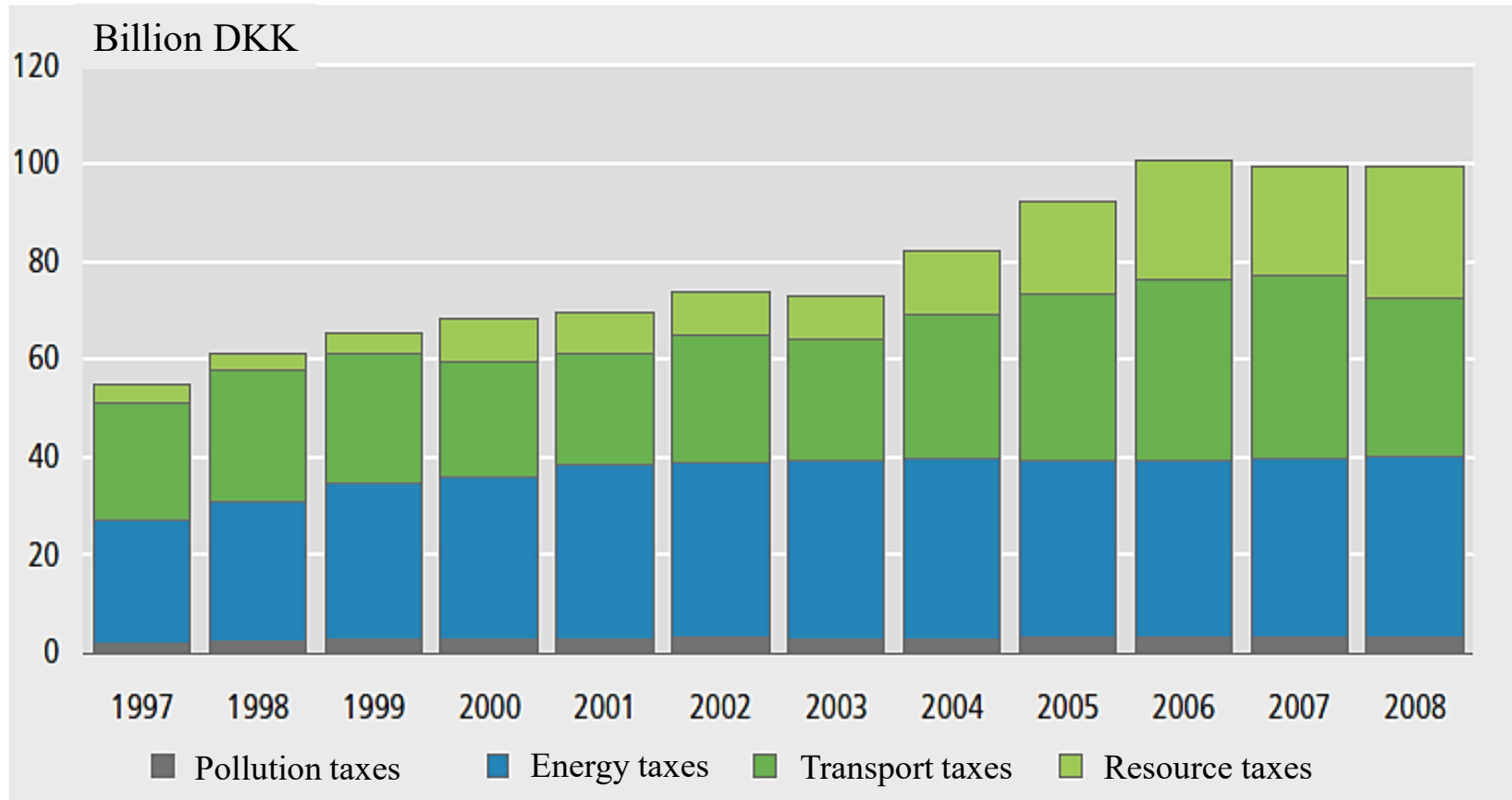


CO₂-emissions by causing final demand





Danish environmental taxes by main categories



Material flows of Danish Economy 1998 vs. 2008

53 million tonnes
10 tonnes per person

Imports

73 million tonnes

13 tonnes per person

115 million tonnes

22 tonnes per person

**Danish
ressources**

122 million tonnes

22 tonnes per person

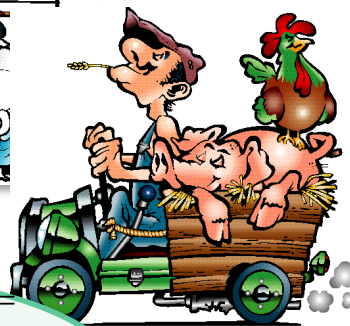
1998

Total Inputs =
Total accum. and
Outputs
168 million
tonnes



2008

Total Inputs =
Total accum. and
Outputs
195 million
tonnes



34 million tonnes

6 tonnes per person

Exports

43 million tonnes

8 tonnes per person

134 million tonnes

25 tonnes per person

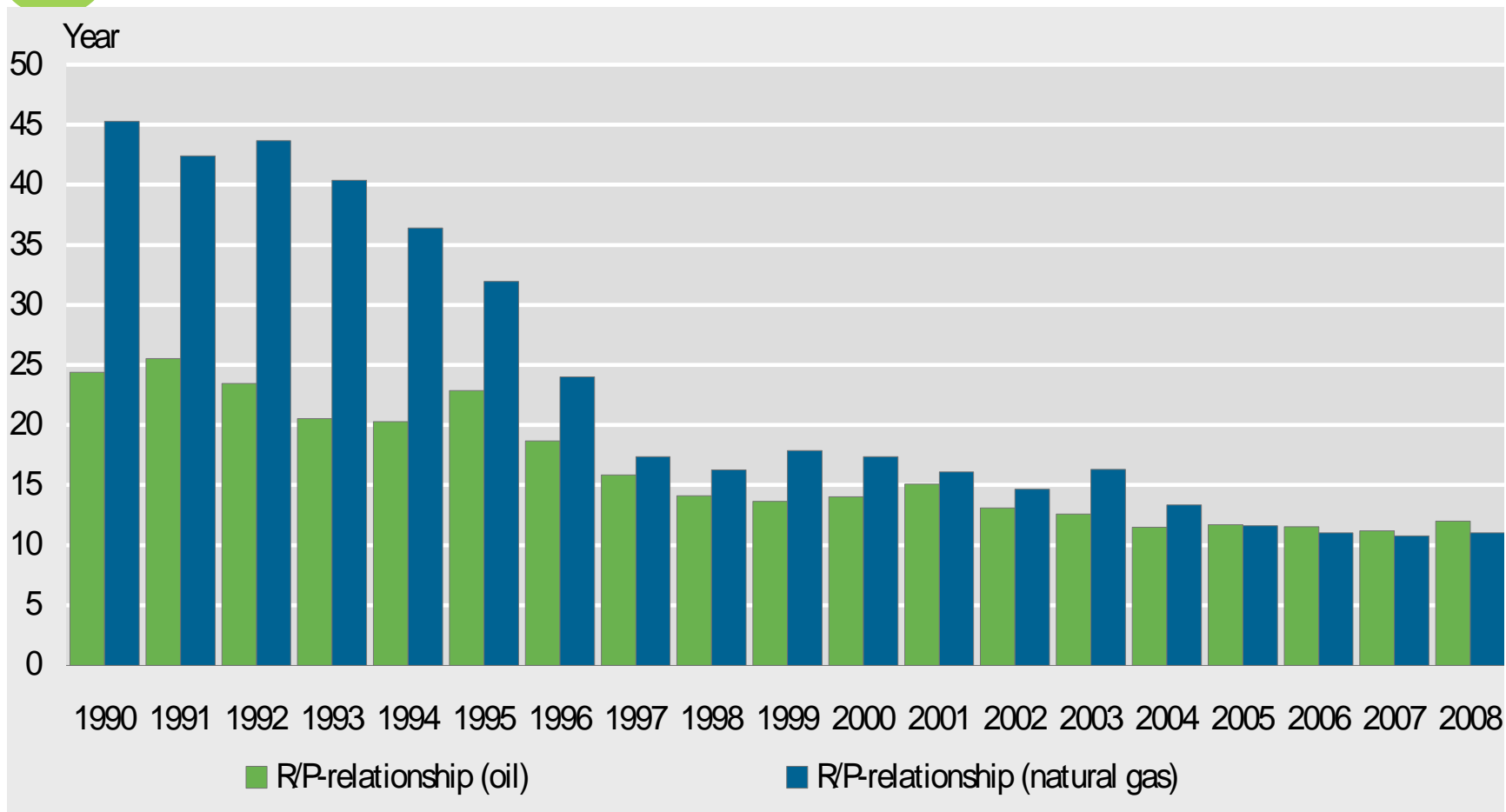
**Accumulation
and
waste**

152 million tonnes

28 tonnes per person



Danish energy reserves: remaining lifetime at constant production



The value of Danish oil and natural gas reserves

	1998	2002	2006	2007*	2008*
	million DKK				
Opening stock (1)	61 025	233 746	277 806	331 627	354 726
Extraction (2)	3 164	22 092	47 352	47 774	53 307
Discoveries and other economic appearances (+)/disappearances (-) (3)	-1 770	-3 252	-2 735	-13 798	41 503
Revaluation (4)	-6 324	27 154	103 908	-84 670	48 674
Closing stock (5)=(1)-(2)+(3)+(4)	49 766	235 556	331 627	354 726	391 622
	per cent				
Closing stock in per cent of GDP	4.3	17.2	20.4	21.0	23.2

Examples of Uses

- Decoupling indicators and industrial profiles
 - Environmental pressures relative to economic growth, etc.
- IO-analysis – direct and indirect physical flows from economic activities
 - Energy, water, Material flows, air emissions
- IO-decomposition analysis
 - Which factors lie behind the development?
- Households' environmental performance
 - Environmental performance score
- Economic consequences of CO₂-reduction
 - Macroeconomic - environmental modelling

Example: Households' Environmental Pressure Performance

Method: Environmental accounts data and IO-analysis combined with national consumption survey statistics and background data on income, age, housing, etc.

Young, high income households:

	Acidi- fication mol / 1000 DKK	Green- house effect kg / 1000 DKK	Ozone depletion mg / 1000 DKK	Photo- chemical oxidation g / 1000 DKK	Water use m3 / 1000 DKK	TMR kg / 1000 DKK	Cadmium mg / 1000 DKK	PAH's mg / 1000 DKK
Urban flat	9	66	107	41	1.17	286	0.9	3.8
Urban house	13	97	103	107	0.86	304	1.0	4.4
Rural house	11	85	115	97	0.48	309	1.1	5.1

Source: Modelling results by M. Wier and L.B. Christoffersen, AKF, Institute of Local Government Studies

Joint project: University of Copenhagen, Institute of Local Government Studies, National Environmental Research Institute and Statistics Denmark