Environmental policies in the Netherlands

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Contents

- Background
- Environmental policy
- Economic consequences for farmers
- Policy results and evaluation
- Evaluation
- Discussion and recommendations

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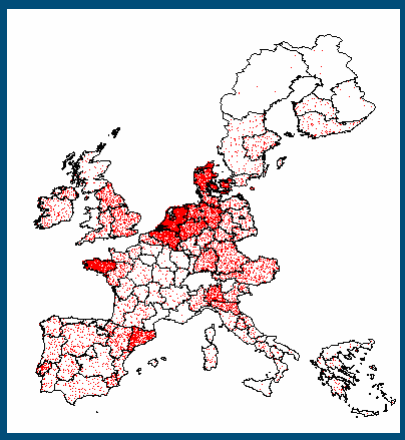
Characteristics of the Netherlands

- 65% of the land below sea level
- 15 million inhabitants (456 per km^2)
- 89% of population in urban areas
- 70% of the land is used for agriculture
- 86.000 farms with 1.9 million ha land
- 11.000 farms with over 11 million pigs
  - *3.000 specialized farms without land*
- 329 pigs per km^2 in 2003 (88 in 1960)
  - 38 in Europe, 6 in the USA



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Livestock farming in the Netherlands

- Reasons for historical development
  - Foundation of the European common market
  - Rotterdam Harbour
  - Dutch policy aimed at stimulating pigs/poultry farming
    - Investment subsidies, extension, education, research
  - Existing economies of scale
- Increased use of compound feed
- Improved labour productivity
- Good farm level disease control
- Specialization

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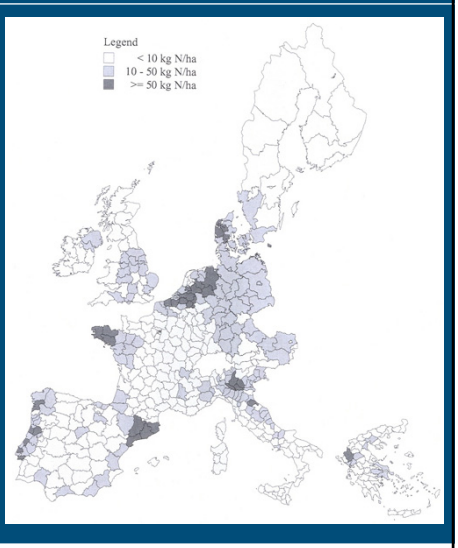
Public environmental concerns

- Location of the building
  - noise, appearance, smell
- Run-off from manure application
- Inadequate manure storage capacity
- Atmospheric emission of ammonia
  - acidification of the environment



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Nitrogen from pigs and poultry manure by region

Environmental policy instruments

- Regulatory instruments
  - Zoning and spatial planning
  - Standards and permits
  - Prohibiting particular production methods
- Economic instruments
  - Subsidies and levies
  - Tradable production quotas
  - Manure discharge contracts
- Communicative instruments
  - Extension
  - Education

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Regulatory instruments

- EU level
  - Directives (framework for national regulation: clean air, nitrate, water)
- National level
  - Standards, quota, subsidies, levies
- Province level
  - Zoning restrictions
- Municipality level
  - Building permits

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Manure policy objectives

- On intensive livestock farms, surplus manure has to be transferred to farms that accommodate this manure, or it has to be processed or exported.
- On farms that accept manure, N and P losses may not increase above specified levels.
- On all farms, N and P losses have to decrease, through improvement of N and P use efficiency

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Development of manure policy in the Netherlands

- 1974 Government note -> sense of urgency builds up
- 1984 Interim Law -> 30% increase production in 2 years
- 1987 Standards manure application -> surplus farms face disposal costs
- 1987 Tradable production quota quota -> poultry/hogs converted in sow
- 1995 Levy based MINAS system -> MINAS forbidden by the EU (2003)
- 2002 Manure Transfer Agreements -> high administrative burden
- 2006 MINAS and MTA replaced by specific crop and soil standards

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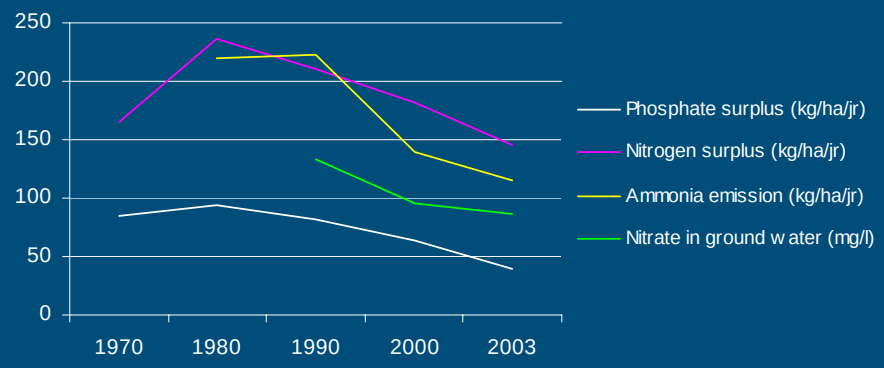
Development of nutrient emission in the Netherlands



NB: Nitrate in ground water: 1990=1992 en 2003=2002

Source: RIVM

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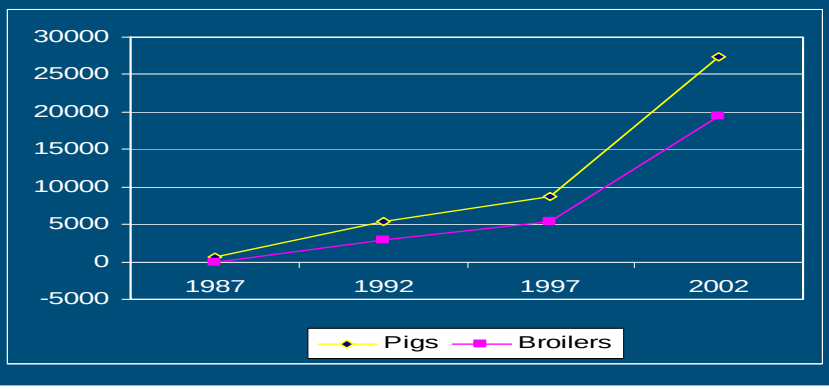
Manure discharge costs in the Netherlands

Increased income transfer from livestock farmers to crop farmers



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Costs of ammonia and manure treatment (euro)

Environmental costs per pig place per year	euro	%
Existing measures *transport, storage, paying crop farmers*	20 – 30	6 - 9
Air washers (NH_3, dust)	8 – 10	2 - 3
Full manure treatment *aeration, anaerobic biodigestors, solid separation and composting*	25 – 35	8 - 11
Total (corrected for double counts)	48 – 70	14 – 21

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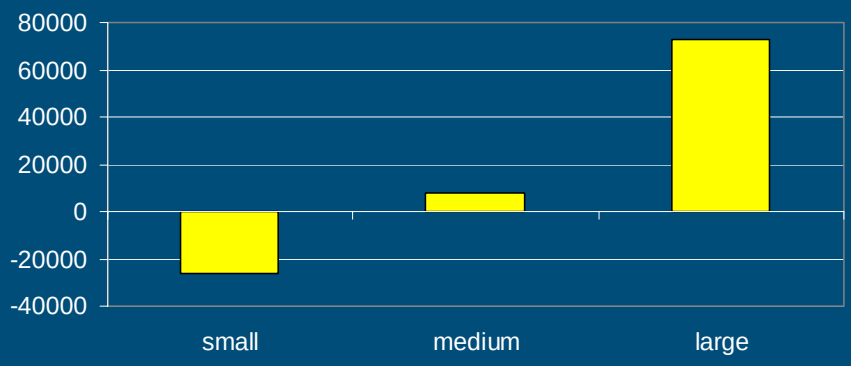
Annual farm income by size (2003, in euro)



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Evaluation (1)

- Environmental quality improved substantially
- Policy development long process of trial and error (1984 - ….?)
  - Ten years doing too little (1974-1984) raised huge problems afterwards
- Institutional development initially lagged behind
  - Relationship policy-farmer-environment not clear
  - Huge impact public-private interaction on policy effectiveness
- We have still a viable farming community!

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Evaluation (2)

- Logical development over time: Three phases
  - Sense of urgency starts building up
    - Ecological disasters fuel public opinion, and result in political pressure
  - Legislation encounters strategic behaviour of farmers
    - Psychology of change
    - Complexity of the policy problem
  - Path dependencies make policy changes difficult
    - Changing envorinmental policy approach very costly

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Discussion

- Asia is in phase 1 of the environmental policy process
  - *building up sense of urgency*
- Not incorporating environmental costs burden for next generation
  - *'Wait and see' is a disastrous policy strategy*
  - *Be prepared for the necessity of shock therapy somewhere in the future*

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Recommendations

1. Take phased development into account
2. Incorporate environmental costs and enforce compliance with regulations
3. Zoning and spatial planning
4. Integral environmental permits combined with manure discharge contracts

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