

Novo Nordisk



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Industrial Symbiosis, 25th May 2005



Agenda

- Novo Nordisk in brief
- Triple Bottom Line
- Diabetes Active Pharmaceutical Ingredients
- The Industrial Symbiosis

Novo Nordisk in brief



- Headquartered in Denmark
- > 20,000 employees
- Affiliates in 71 countries
- Active in 179 countries
- Four regional offices

A focused health care company

Diabetes care:

- 17% global market share
- More than half of the world's production of insulin
- Largest private research budget within diabetes
- First with full insulin analogue portfolio
- Leader in insulin delivery systems

Growth hormone therapy, HRT and other areas
15%

Haemostasis management
15%

Diabetes care
70%



History and commitment



Milestones in our history



- 1923 Nordisk Insulin Laboratory founded
- 1925 Novo Therapeutic Laboratory founded
- 1932 Nordisk Insulin Laboratory founds the Steno Memorial Hospital
- 1938 Novo founds Hvidøre Diabetes Sanatorium
- 1941 Novo launches its first enzyme product
- 1946 Nordisk develops Isophane insulin (NPH)
- 1953 Novo launches a long-acting insulin - Lente®
- 1973 Nordisk markets growth hormone derived from human glands
- 1973 Novo introduces the world's purest insulin: Monocomponent (MC)
- 1982 Novo launches the first insulin identical to human insulin
- 1985 Novo launches pen injection system: NovoPen®
- 1989 Novo Industri A/S and Nordisk Gentofte A/S merge
- 1996 Novo Nordisk launches NovoSeven®
- 2000 Novo Nordisk is split into three separate companies: Novo Nordisk A/S, Novozymes A/S and Novo A/S

Our Vision

We will be the world's leading diabetes care company.

We will offer products and services in other areas where we can make a difference.

We will achieve competitive business results.

A job here is never just a job.

Our values are expressed in all our actions.

Taking responsibility

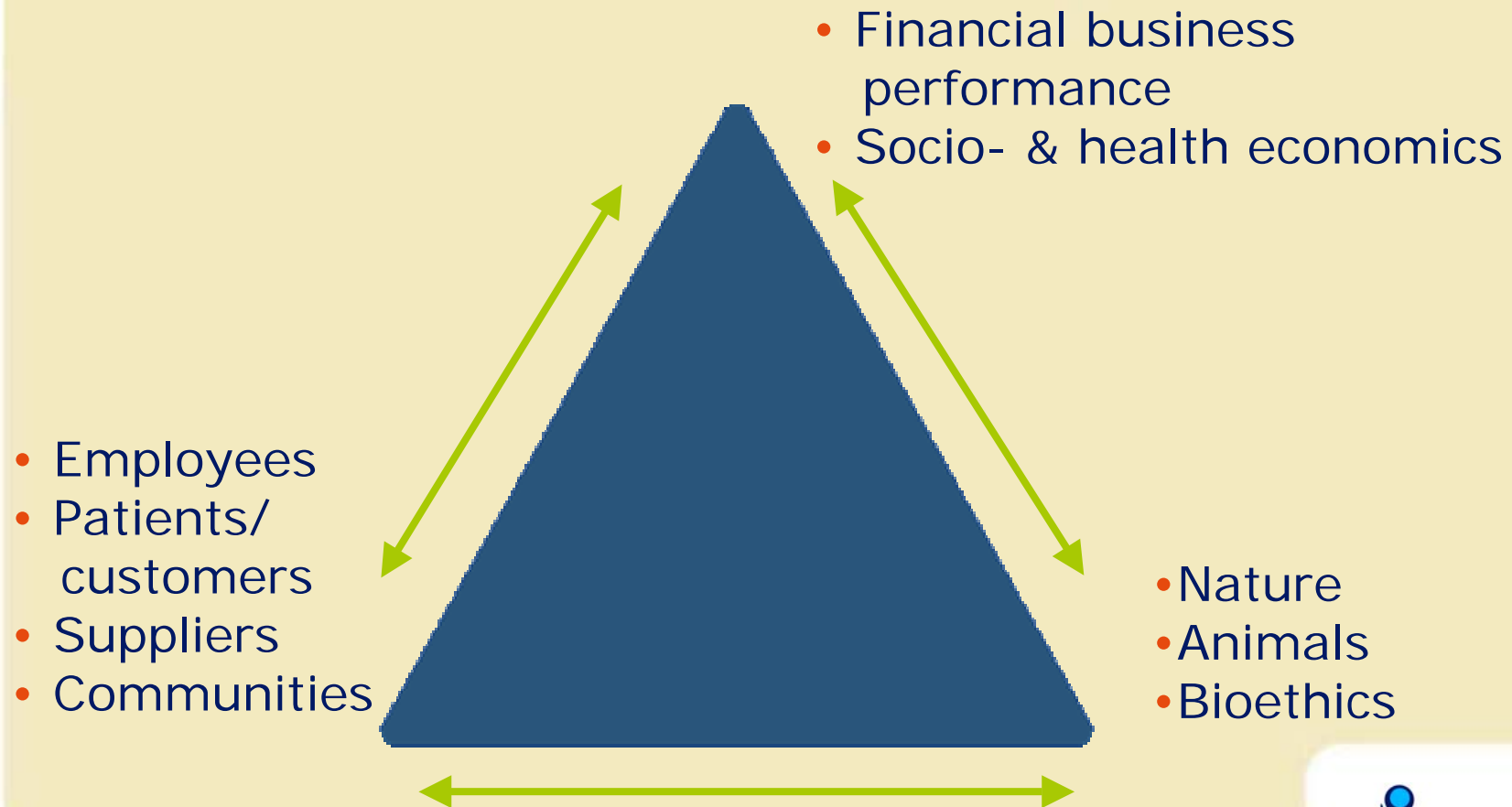
"To me, Novo Nordisk's promise of being there is about being responsible, committed and accountable. To people whose healthcare needs we serve, to employees, to our shareholders, and to society at large."

Lars Rebien Sørensen,
president and CEO



The Triple Bottom Line

- an integrated business principle



Building a sustainable business – a learning process



Our sustainability vision

To position Novo Nordisk as the leader in the fight against diabetes and a model for 21st century business:
a truly sustainable company, a preferred business partner and one that is recognised as a pharmaceutical company with a heart.



Diabetes API

- Responsible for production of all Active Pharmaceutical Ingredients for our insulin products
 - from yeast to insulin crystals.
- We produce half of all the insulin used in the whole world in Kalundborg.
- 2,015 employees.
- 7 factories, 6 in Kalundborg and 1 in Bagsværd.
- 3 more factories to come.
- We have the largest insulin factory in the world.

Flow chart of insulin production

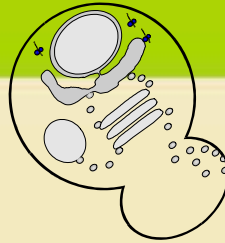
Fermentation



Recovery



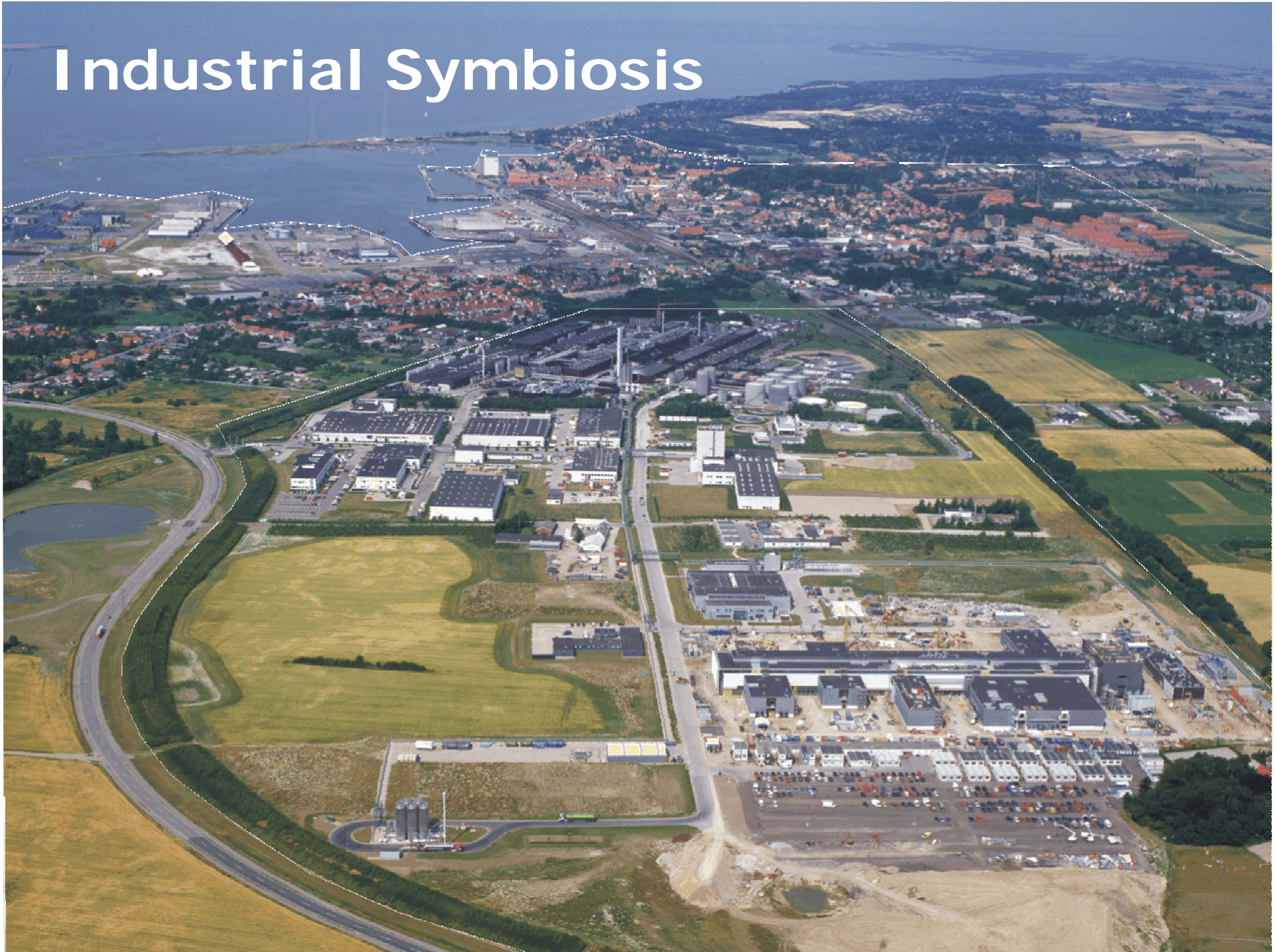
Purification



Geography

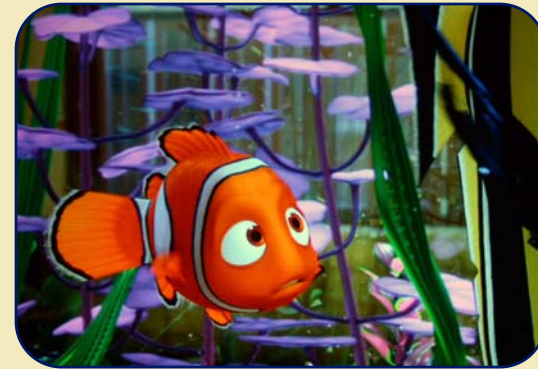


Industrial Symbiosis



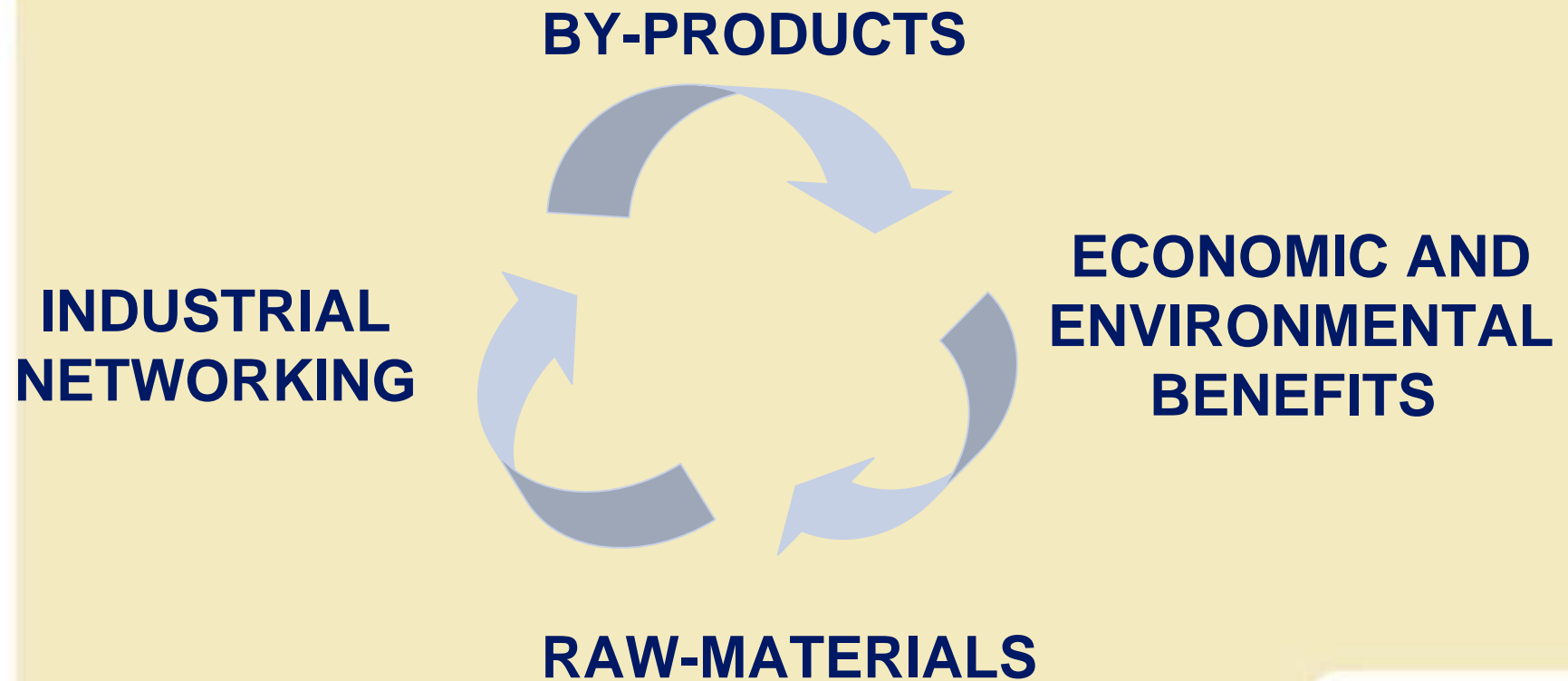
Industrial Symbiosis

Symbiosis is collaboration between different organisms for mutual benefit.



The clown fish and sea anemones

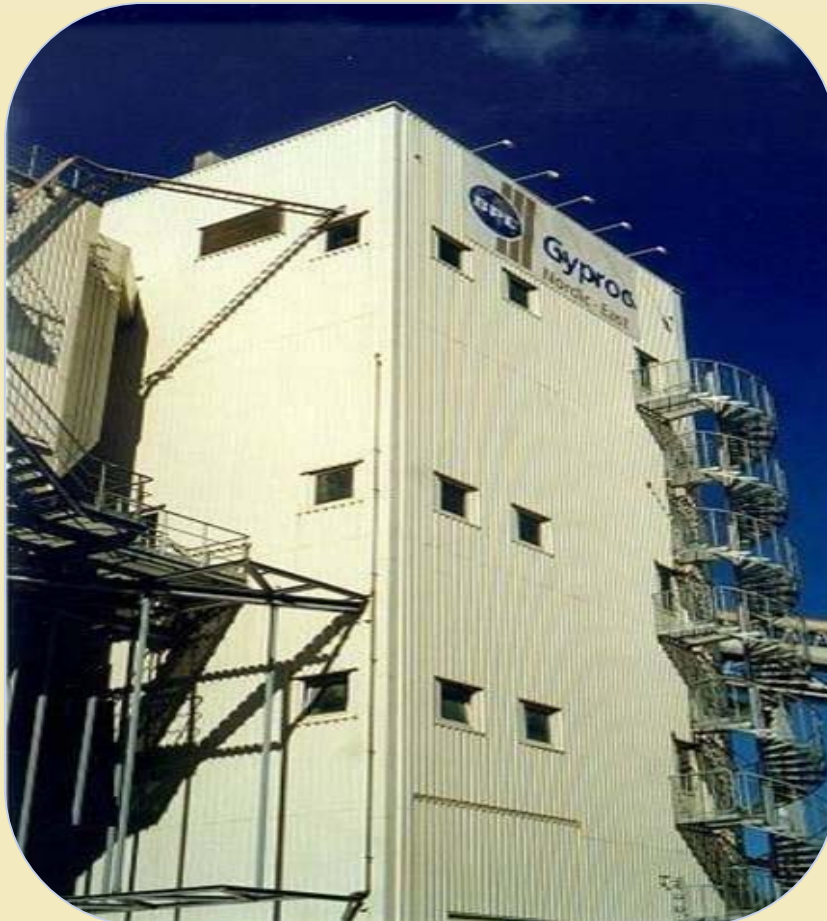
Industrial Symbiosis



Industrial Symbiosis

- The Industrial Symbiosis was created as a “non-project” made by a “non-organization”.
- The Industrial Symbiosis is based upon commercial agreements between independent partner.

Gyproc



Production of
plaster boards.

165 employees.



Asnæs Power Station



Production of
electricity and
heat.

250 employees.

Denmark's
largest power
station.

ENERGI E2



Statoil Refinery



Production of gasoline and other oil-based products.

330 employees.

Denmark's largest oil refinery.



Novozymes

Production of industrial enzymes



Alltogether
3000
employees



Novo Nordisk
Production of insulin etc.

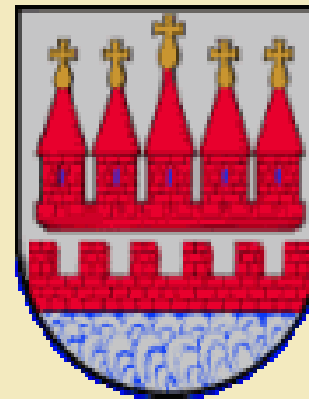


Municipality of Kalundborg



Distribution of
water and energy.

Population: 20,000.



Soilrem A/S



Remediation of
oil and metal
polluted soil.

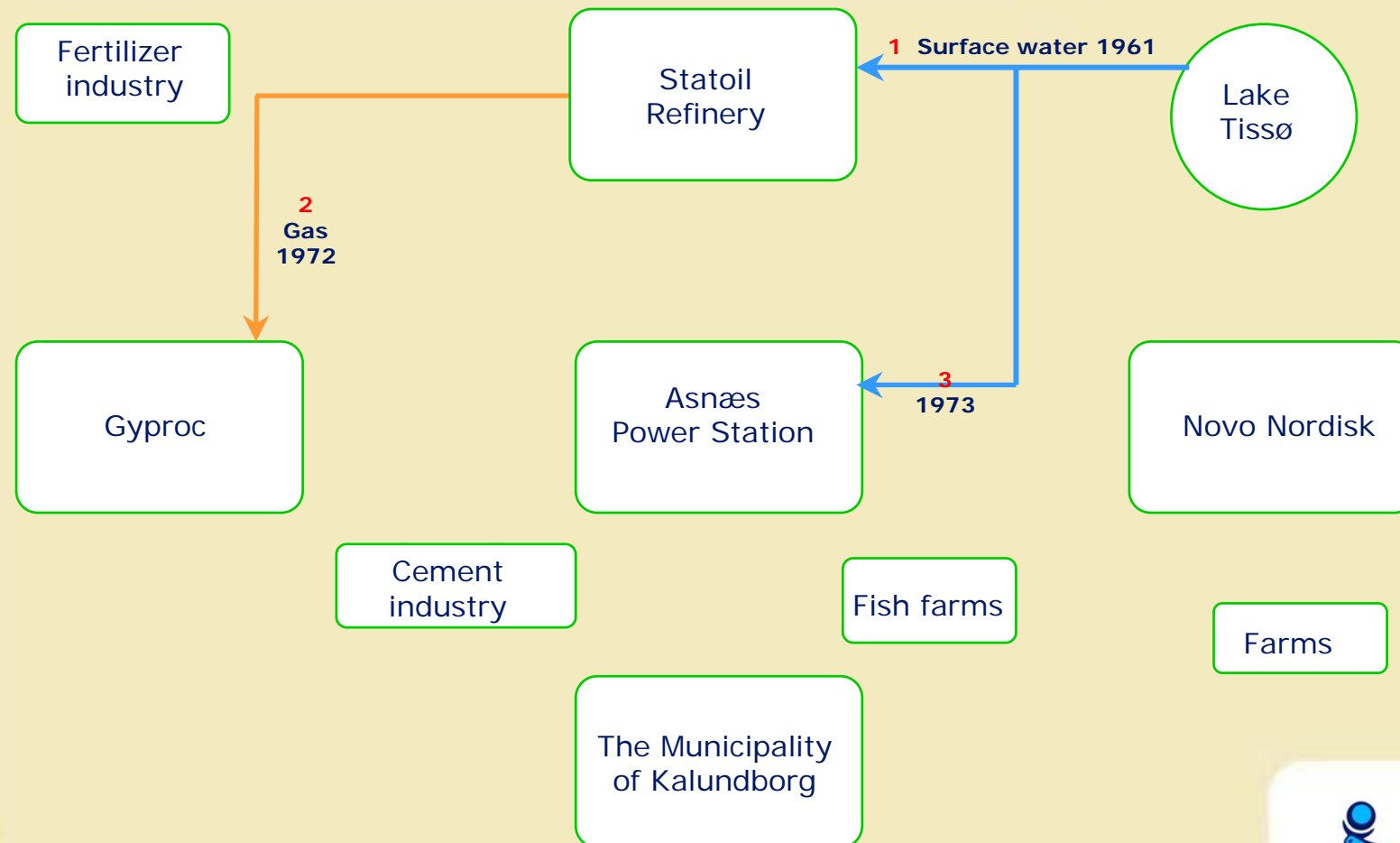
65 employees.



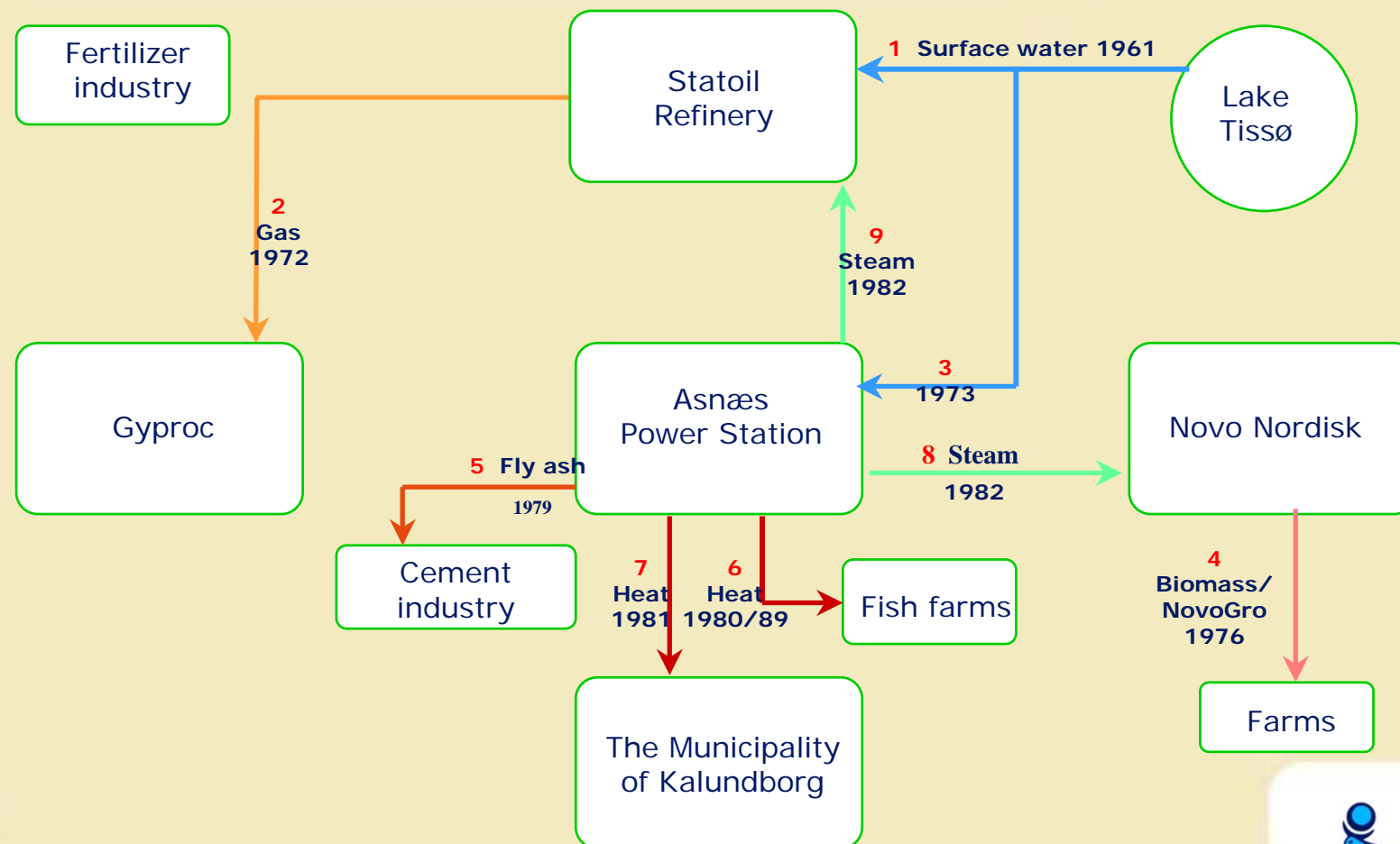
Milestones in our history

1961	Water -> Statoil
1972	Gas -> Gyproc
1973	Water -> ASV
1976	Biomass
1979	Fly ash
1980	Fish farm
1981	District Heating
1982	Novo-stream
1983	Statoil-stream
1986	Water-Novo-ASV
1987	Cooling Water
1988	Yeast Slurry
1990	Liquid Sulphur
1991	Waste Water
1992	Gas
1993	Gypsum
1994	Wastewater Novo
1994	Re-use basin
1995	Flyash Nickel, Vanadium
1996	Symbiosis Institute
1998	Slugde
2001	Novoren
2002	Pure Water

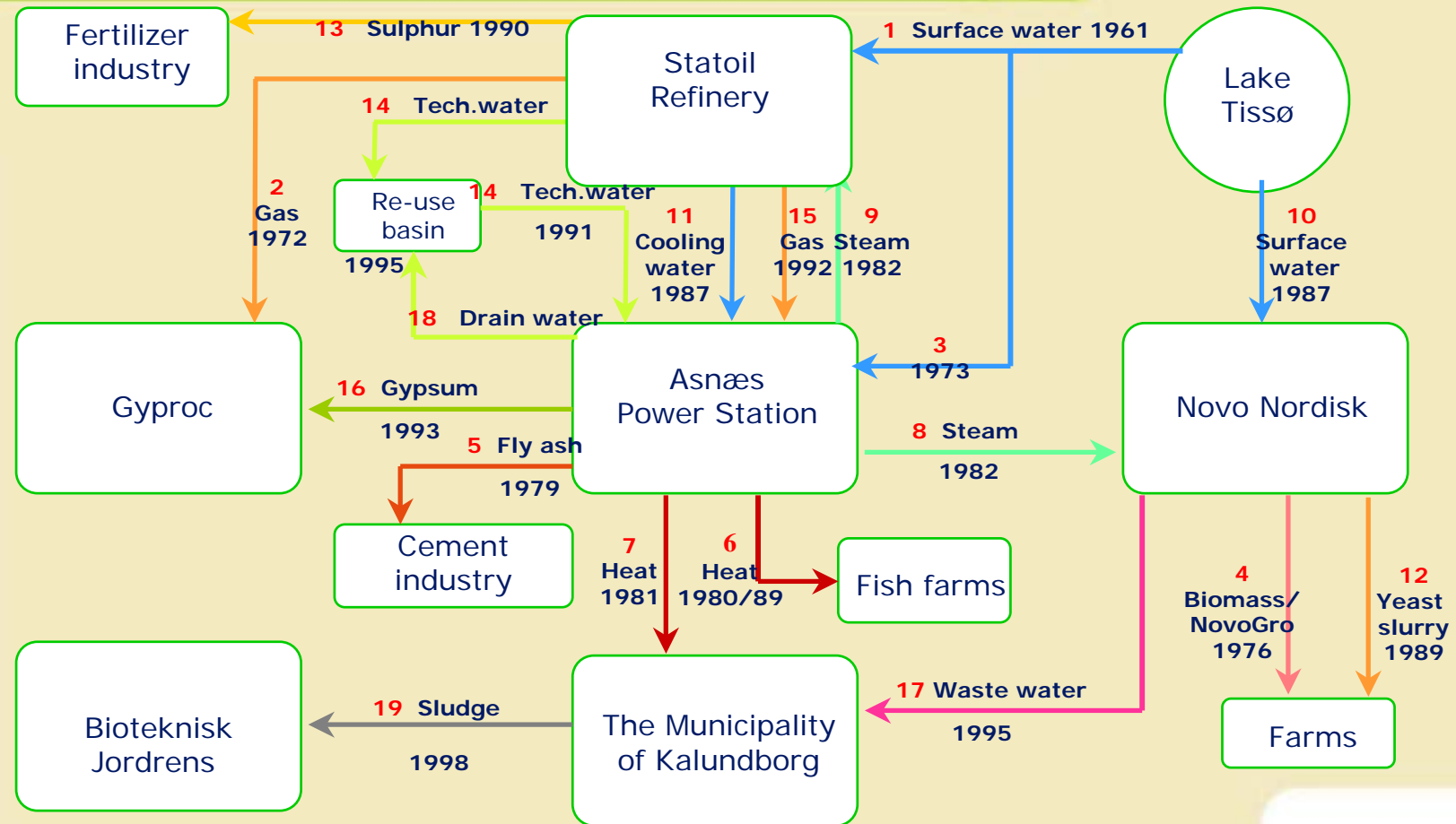
Industrial Symbiosis 1975



Industrial Symbiosis 1985



Industrial Symbiosis 2000



The Symbiosis Institute

- The Symbiosis Institute is organized under the auspices of the Industrial Development Council Kalundborg Region.
- Financed by the 8 symbiosis partners and partly by its own activities.

Industrial Symbiosis Institute

- To collect data on the Industrial Symbiosis and other examples of industrial ecology.
- To communicate the experiences of the Symbiosis project.
- To co-ordinate studies of the Industrial Symbiosis.
- To arrange study visits to the Industrial Symbiosis.
- To contribute to new symbiosis projects.
- To act as symbiosis consultant.

Industrial Symbiosis



Annual savings

• Economy:	Approx. 15 mio US\$
• Ground water:	1,9 mill. m ³ /year
• Surface water:	1,0 mill. m ³ /year
• Oil:	20,000 ton/year
• Gypsum:	200,000 ton/year

Industrial Symbiosis



- Participants must fit together but be different.
- Each project must be economically viable.
- There has to be a short physical distance between the participants.
- There has to be a short mental distance between the participants.

Novo Nordisk



Benefits

- Cost-reductions.
- Outsourcing.
- Support sustainability and improved environmental performance.
- Shareholders might be satisfied by the fact that industrial symbiosis implies economic saving/direct benefits for the company.
- Imply a strong stakeholder appeal/dialog.

Accounting for our performance



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