

Environmental and Social Report Hillerød 2003



Novo Nordisk – a major workplace in Hillerød

Novo Nordisk's site in Hillerød is located in an industrial area to the southwest of the town. A great effort has been made to blend the site into the landscape, for example the surrounding recreational area of Brennum Park, which is open to the public. Novo Nordisk has helped to build a lake near Favrholt, and has also planted the area.

To the east, Novo Nordisk's property borders a residential area, while on the other three sides it is a minimum of 250 m to the nearest house. Novo Nordisk occupies a total area in Hillerød of 1,630,000 m² – 790,000 m² in urban zone and the remainder in agricultural zone. The number of employees at the end of 2003 was 1,259.

Novo Nordisk in Hillerød works on the research, development and manufacture of devices for treating diabetes, and on the production of the haemophilia medicine NovoSeven®. The site in Hillerød also has warehouses for raw materials and products, a central boiler plant, and administration. We operate in four main areas:

- Research and development of Novo Nordisk's delivery systems for pharmaceutical products – Protein Delivery Systems (PDS).
- Manufacture of pre-filled insulin pens – Diabetes Disposable Pens (DDP). In the manufacture of NovoLet® and FlexPen®, we injection-mould the plastic components, fill the insulin into cartridges, then assemble and pack the pre-filled pens.
- Manufacture of reusable pens and delivery systems – Medical Systems Production (MSP). NovoPen® and Innovo® are made from bought-in components. The products are assembled using automatic and manual processes, and then packed.
- Manufacture of Factor VII bulk – Site FVII. Factor VII is the active substance in the blood preparation NovoSeven®. Production is based on culture of genetically modified mammal cells, followed by a series of recovery processes. The recovered product is sent for final treatment and packing at Novo Nordisk's plant in Gentofte.

Quality control and assurance are an integrated part of production in all areas. In addition to water and energy, the plants use

raw materials and auxiliaries to manufacture the products, various types of plastic material and glass for the production of pen systems, and packaging in the form of paper and cardboard.

The environmental impacts from production are generally limited. The major impacts are air emissions of CO₂ and NO_x from our natural-gas boilers, and paper and plastic waste, the majority of which is sorted and sent for recycling.

The plants are covered by an ISO 9001:2000-certified quality management system, and in 2003 they were also environmentally certified according to ISO 14001. The site's operations are regulated by several environmental and genetic engineering approvals and one wastewater permit that set limits for our impact on the surrounding environment.

Our environmental status is approved and/or monitored by Hillerød Municipality (wastewater and rainwater to the public sewage system and solid waste disposal), the Danish Forest and Nature Agency (genetically modified organisms in production plants), Greater Copenhagen Development Council (Environmental Impact Assessment), and Frederiksborg County (other environmental issues).

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Among other things, Novo Nordisk in Hillerød produces the blood preparation NovoSeven® in our new plant, which we commissioned in 2003. The product is unique, and there is a special pioneering spirit among the employees. Generally in Novo Nordisk we strive to ensure that our production has minimal impact on humans and the environment, eg by recycling the majority of the waste from production in Hillerød.



Development in balance with humans and the environment

The year 2003 was all about the environment, with MSP, FVII and DDP all obtaining ISO 14001 environmental certification. This process involved all employees. Generally, Hillerød focused on employee development, and also began a major mapping of employee competences.

In this report we discuss our social and environmental performance in 2003, which is of major importance for our employees and for relations with our suppliers, our neighbours, the local community, and the environmental authorities. In the social area we focused on issues that concern our employees' health, well-being and development, and on the targets that we had set for 2003. In the environmental area we focused on documenting that we are meeting the environmental requirements laid down by the authorities and in Novo Nordisk's own Environmental Policy, and on the targets that we had set for 2003. We are again proud of our efforts, and plan to continue in the same vein in the coming years.

Novo Nordisk's Environmental Policy obliges us to promote environmental awareness, prevent pollution, and continuously improve our environmental performance. On a day-to-day basis, this means that we save on water and energy, and sort our waste. We carry out environmental assessments of all new activities, and set targets relating to our main environmental issues. Since 2002 we have also been systematically assessing the environmental and social performance of our suppliers. This assessment is based on questionnaires, and in 2004 the replies will form part of our auditing of selected suppliers.

Employees are involved in environmental work in several ways, and in 2003 we worked to make the Environmental Management System part of our everyday working life. Each area has an environmental group that works with the environmental representatives from the departments. There are also training and promotional activities so that employees are aware of the main environmental impacts of their work.

Annual environmental targets

A common environmental target for the production areas in 2003 was to obtain certification according to the ISO 14001 in-

ternational standard for environmental management systems. We are pleased and proud that we were able to complete the work of the last few years in DDP, MSP and Site FVII by obtaining this certification.

In 2003 all areas set targets for water and energy consumption measured in relation to the number of units produced. The targets were to reduce water and energy consumption per produced unit. These targets were achieved in all areas.

Breaches and complaints

In 2003 we recorded eight breaches of the regulatory limit value for pH in our wastewater. During the year we worked intensively to determine the cause of the high pH and resolve the problem. A change in our neutralisation plant has reduced the pH considerably, and measurements carried out at the end of 2003 show that the requirements are now being met.

We had two accidental releases into the sewage system of acidic liquid (pH 3) and propylene glycol respectively, and one release of ammonia into the air from a cooling system.

Wastewater in the news

Our high pH and our permit to discharge Triton X-100, which is needed for cleaning procedures in FVII production, became a topic of debate in the local media during 2003. It is important for us to show that we are taking care of this problem. In the middle of April we therefore held a meeting for our neighbours. This was a good opportunity to explain the issues and show our new plants to those who attended.

In 2003 we drew up an action plan for our discharge of wastewater containing Triton X-100. The plan explains that we will be collecting waste streams containing Triton X-100 and either sending them to an approved treatment centre or treating them internally prior to discharge into the sewage system.



The management team in Hillerød (from the left): Palle Thorsen, Jesper Kløve, Henrik Risborg and Kim Steengaard.

The action plan was submitted to Hillerød Municipality in December.

In recent years Novo Nordisk in Hillerød has been characterised by a rise in the number of employees and expansion of our facilities. In 2003 we opened two new plants in MSP and Site FVII, and this is probably why we feel that there is a special entrepreneurial spirit among the employees here in Hillerød.

At Site FVII we focused on commissioning the new plant and on production for testing equipment and products. Once again in 2003 FVII increased its staff considerably. We acquired 22 new employees, which was an increase of 50%. We have obviously therefore invested a lot of energy on ensuring the sound integration of our new colleagues.

DDP's primary focus was on the development of FlexPen®, which is used with our insulin analogues NovoRapid® and NovoMix® 30. We also commissioned new facilities, with the entire new assembly unit in our plant in building 25A coming into production.

PDS is a relatively new unit that was set up two years ago. Here we focused on implementing our strategy and mission, and in this regard began a whole range of activities. We also worked to preserve the existing good culture, and among other things opened a new common room for all employees.

MSP focused on production optimisation and running-in of a new insulin pen. We therefore began renovation of the plant so that it is ready to produce the new product. In 2004 our employees will receive training on the new machines.

Changing market requires flexibility

In 2003 MSP unfortunately experienced a fall in sales of Innovo®, which meant that in the middle of the year we had to downgrade our forecasts for the product. Due to fluctuations in the market, we also had to downgrade production capacity,

which meant that during the year we moved and loaned out 55 employees to other positions. All employees were offered the chance to stay at Novo Nordisk. Some went to Gentofte, while a large number were taken on in Site VII and DDP, and so remained in Hillerød. The market in which we operate is becoming gradually more complex, and hence demand is becoming more difficult to predict. We must therefore prepare our employees to be flexible and ready for change. We can do this best by ensuring that they have a broad training – and this was a focus area in 2003.

Mapping of competences

In 2003 we worked intensively on employee development plans and mapping of competences. If we want to continue to be one of the world's leading companies in our field, it is vital that employees have the competences that are needed. Mapping identifies where we have 'gaps' so that we can plan the competences that we need to develop. However, competence mapping is not just about the company's needs – it is also about the employees' aspirations.

Based on the competence mapping, we have thus updated the employees' development plans in terms of both individual aspirations and future needs.

Future focus

ISO 14001 certification has made the environment a genuinely integrated part of the employees' working lives. From the assessment of environmental impacts we have acquired lots of exciting ideas for improvements from employees, which we will be working to evaluate and implement. In the social area we will continue to focus on the quality of employee training in order to promote the company's and the individual employees' competences.

Challenges create need to develop competences

Our employees are our most important resource – and employee development is therefore an area that has high priority. In 2003 we placed special focus on mapping their competences and improving training. Facilitations and employee surveys have shown that we are living Novo Nordisk's values.

In order to attract and retain the best employees, it is important that they feel that they can develop in their work. As in the rest of Novo Nordisk, we have annual development interviews with employees in which we run through their development requirements. In this way we ensure that the expectations of the employees and of the company for competence development are in accord.

Employee training

As mentioned, in 2003 we focused in particular on mapping employee competences with an eye on both the company's needs and the employees' individual aspirations. One of the conclusions of the mapping was that we should upgrade the training of our project managers. In PDS we therefore carried out special training, which all 21 project managers completed in 2003. Site FVII also set up internal courses for project managers. Furthermore, on the basis of the mapping we drew up a *Factor VII Compendium* – a textbook for new technicians, laboratory workers and chemists describing our product and working processes.

All areas have had employees on medico-operator training. This six-week course is designed to train participants to work in pharmaceutical production in Novo Nordisk.

Continuous focus on health & safety

Throughout Novo Nordisk we counteract health & safety risks associated with pollutant substances, dust and noise by including health & safety considerations when fitting out our production plants and by focusing on near-misses. All our production sites have been classified as Level 1 by the Danish Working Environment Service, which means that the company is efficiently managing its working environment and meeting the requirements of the Danish Working Environment Act.

In Hillerød we have continuous focus on health & safety. In

DDP we have worked to increase awareness of occupational injuries by introducing weekly safety rounds with representatives from both management and production. The comments from these rounds are compiled into an action list, which is posted on our notice boards with general information on safety. The increased focus has contributed towards a positive change of attitude among employees in respect of everyday safety issues.

Site FVII held a stress seminar for chemists at which a psychologist provided useful tools for employees to avoid stress in their everyday working lives. We have introduced a 'buddy scheme' in which each employee has a buddy – a colleague – with whom they talk at least once a month about how things are at work. In this way we hope to nip stress situations or other problems in the bud. The initiative, which was started by management, has been very well supported by the employees.

Employees are the driving force behind optimisations

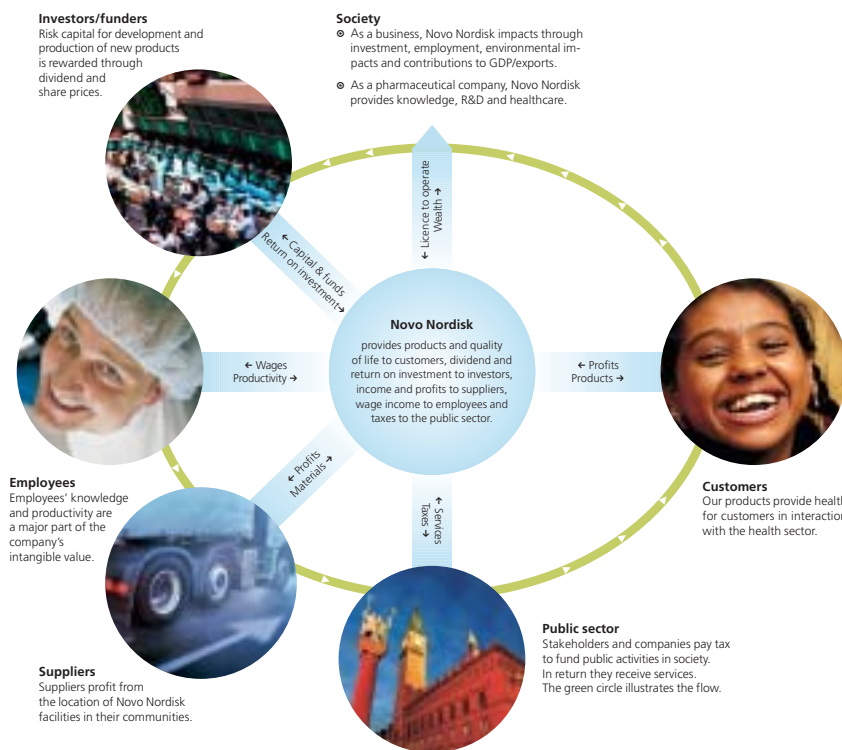
In serigraphy and assembly in DDP we have been working for a number of years with operator-managed maintenance. This means that our operators have co-responsibility for maintaining and optimising the various working processes in the plants. The employees are divided into multi-disciplinary groups with responsibility for a specific area of the plant or for specific machines. This makes the operators' daily work more challenging, and the operators themselves were the ultimate driving force in all the optimisation initiatives that were taken during the year. Among other things, one group systematised and simplified the batch change on all machines in building 24A.

Living our values

In 2003 Site FVII and PDS were scrutinised by the Novo Group's facilitator corps. Novo Nordisk's Executive Management has authorised this corps of former managers to investigate whether the individual functions are living the company's values in their →

Socio-economic contribution

Novo Nordisk's operations in Hillerød create jobs for our employees, at suppliers, shopkeepers and in the public sector. In 2002, our overall socio-economic contribution in Greater Copenhagen can be set at 2,448 jobs¹⁾. The chart below provides an overview of the interaction between key stakeholders, with detailed focus on employees, suppliers and the public sector.



Employees

Novo Nordisk employees (1,262 in 2002) account for around 5% of Hillerød Municipality's jobs. 268 of Novo Nordisk's employees live in Hillerød Municipality, 140 of whom work for Novo Nordisk in Hillerød. Employees pay around DKK 66m in tax to the municipalities in which they live, of which DKK 14m is income tax to Hillerød Municipality¹⁾. Their private consumption contributes to some 377 further jobs in the region, 10 of these in Hillerød Municipality. They also contribute property taxes etc, and the remainder of their income tax that goes to the state.

Suppliers

Novo Nordisk in Hillerød is estimated to create the basis for 105 jobs locally, and 810 jobs overall in Greater Copenhagen. These jobs are estimated to contribute municipal income tax of around DKK 18m in the region¹⁾, of which DKK 2m is to Hillerød Municipality. Additionally, income tax is paid to the state.

The public sector

The company, our own employees and local suppliers' employees pay taxes to the municipality¹⁾ totalling around DKK 47m. However, the contribution to the municipality is only DKK 32m because equalisation systems would compensate for the lower tax revenue if these citizens and companies did not live or carry on business in the municipality. Novo Nordisk pays around 13% of the company tax to the municipalities, and DKK 10m in energy and environmental taxes to the state (83%) and municipality (17%).

1) The socio-economic contributions of jobs and taxes are based on assumptions for local purchase habits and multipliers for Greater Copenhagen. Income and tax payments are reduced by the income and taxes that these persons would otherwise have; calculated here as unemployment benefit. All data are from 2002.

AN IMPORTANT ASSET FOR HILLERØD

Nick Hækkerup, Mayor of Hillerød Municipality

"In Hillerød Municipality we regard it as a privilege to have Novo Nordisk in the town, among other things because of our development plans for the municipality.

"The makeup of our population determines that we will have problems in the coming years unless we do something now. There is an increasing number of primary and lower secondary school pupils and old people, but fewer citizens of working age.

"One of the possibilities for changing this trend is to ensure that there is continuous development in the town – and in many ways Novo Nordisk is the standard-bearer for this.



"The job curve at Novo Nordisk is generally rising. It is a recognised company that can attract resourceful citizens to Hillerød. This is not just an asset for the municipality because these citizens pay tax – but also because it is these same people who are most often active in day-care centres, school boards of governors, the Scouts etc, and this has a very positive effect on the general well-being of

the local community. Novo Nordisk using local workers for its building work has helped to keep unemployment among local skilled workers down. Finally, we enjoy good relations and close dialogue with Novo Nordisk, not least in the area of environment. Although we do not always fully agree on things, we always encounter highly qualified cooperation or opposition," concludes Nick Hækkerup.

→ daily work. On the basis of interviews with employees, the facilitators draw up a report with an action plan describing the departments' strengths and areas for development. In both functions they found consistency between how the employees experience the workplace and the Novo Nordisk Way of Management. Both areas were also praised for the positive culture that exists among employees.

A common target at Novo Nordisk in 2003 was to carry out the eVoice electronic employee survey. This target was achieved by most departments in Hillerød, and the results were generally positive. Among other things, employees express the belief that social and environmental work is important for the future of the company. In 2003 we set the target that 80% of all managers should achieve a score of 3.0 or above in the survey's questions on winning culture. This target was achieved in most areas in Hillerød.

An effective supplier project

In 2002 Novo Nordisk launched a project that uses questionnaires to survey whether our main suppliers are meeting international standards and conventions for environmental and social responsibility. In MSP the project was soundly tested in 2003 when a reply indicated that a supplier for a development project was not observing the international regulations on working hours. It is our stated aim in the evaluation process to seek dialogue to improve relations with suppliers that are not meeting our requirements. We immediately began an audit to verify the information in the questionnaire, and fortunately this showed that matters were in order. The quick response meant that the development process was able to continue without delay.

TakeAction!

In 2003 Novo Nordisk launched the new TakeAction! programme. This challenges employees to integrate environmental and social responsibility into their daily work by initiating new

activities and by sharing experiences or ideas – big or small. The initiatives range from events raising money for people with diabetes to improving everyday environmental matters, switching off lights, PCs etc, and sorting waste. Employees in Hillerød arranged a jumble sale at which we collected money for Tanzania, and we also took part in activities on World Diabetes Day.

Another Novo Nordisk project is Equal Opportunities, which aims to ensure equal opportunities for all. In 2002 a key target for all large units was to draw up action plans for how they would implement this project. In 2003 the target was that 80% of the targets in the action plans should be met. We are proud to have achieved this target. We particularly focused on this theme in the management groups, where we discussed how we can use Equal Opportunities locally in Hillerød. This prompted good debate, which among other things has led to a re-assessment of our application procedures to ensure that all applicants have an equal opportunity to be called for interview.

Social targets 2004

- Identify critical competences for the introduction of an improvement culture for all employee groups in relevant areas.
- At least 80% of employees to attend a presentation on marketing of our products.
- All employees to take part in a climate survey in which they are questioned on the winning culture, and at least 80% to score above 3.
- All areas to have a plan for their work on equal opportunities and to implement 90% of the actions in the plan.
- Reduce the number of occupational injuries per 1 million working hours compared to 2003.

Social data

Our employees	1999	2000	2001	2002	2003	Development in % 2002-2003
Total number of employees	625	812	1,130	1,262	1,259	0
Number of full-time employees	606	778	1,082	1,222	1,214	-1
Number of part-time employees	19	34	48	40	45	13
Average age distribution (years)	37.3	37.1	37.2	37.9	38.6	2
Average years of service	5.3	4.7	4.4	4.6	5.3	15
Rate of employee turnover (%)	6.1	7.3	3.2	4.6	3.9	
Job functions and gender representation	Number of employees				2003	
Administration ¹⁾				84	23%	77%
Research and Development				181	30%	70%
Production ¹⁾				994	43%	57%
<i>Of the total number of employees:</i>						
Vice presidents/senior principal scientists				9	11%	89%
Managers/principal scientists				83	16%	84%
Occupational injuries	1999	2000	2001	2002	2003	Development in % 2002-2003
Frequency of occupational injuries	9.6	8.5	6.6	8.4	7.9	-6
Number of occupational injuries with absence	9	11	12	17	16	-6

1) In 2003 administration in production is included in production and not in administration as in previous years.



WORLD DIABETES DAY

Exercise for diabetes in India

It is a tradition at Novo Nordisk that employees take part in a jog-a-thon on 14 November, World Diabetes Day. The employees pay a small sum to take part, and Novo Nordisk gives an amount for each kilometre that the employees complete. In Hillerød there was once again great support for the event. We began the day with a joint warm-up, and then continued running or walking. 325 employees took part and helped to raise money for a diabetes clinic in Chennai in India. As well as the run, employees had the opportunity to have their blood sugar measured, and the canteen served a healthy, tasty Indian menu in honour of the day.

MARKETPLACE

Ideas for sale on 'innovation day'

Innovation is a keyword in the everyday working life of employees in PDS. We therefore invited everyone to an 'innovation day' at which employees worked in groups to complete various tasks relating to innovation. Later in the day, employees were able to buy and sell each other's ideas in a marketplace. The day was also spiced up with theoretical presentations on innovation, which gave employees a range of creative tools that they can use in their everyday work.

PLAYGROUND

A creative room for the mobile team

Since 1999 PDS has had Krea122, a mobile team that helps employees to solve various problems. The group comprises employees from different parts of PDS and has an average of one turnout a week. In 2003 we opened a creative playground for the team; a room with all manner of paraphernalia from joss sticks and colourful hats to humorous posters and a workbench. The aim is to inspire creative solution models.



FAMILY DAY

With mother and father at work

In the middle of June employees in DDP attended a family day involving activities, entertainment and a tour of building 25A. While the children let off steam in the bouncy castle and met the balloon clown, their parents enjoyed a barbecue in the hospitality tent. Each employee escorted their family on a tour of the plant, where we had set up stands exhibiting our products. Among other things, the visitors were able to try out a FlexPen®. The day was a huge success with over 600 visitors.

FOR TANZANIA

Jumble sale for a good cause

As part of the TakeAction! programme, employees from MSP in Hillerød arranged a jumble sale that was to empty the site's recycling warehouse. Nearly 200 Novo Nordisk employees and their families from the whole of Hillerød braved the wind and rain to support the event, which was in support of a new diabetes clinic in Tanzania. The event raised nearly DKK 22,500, two thirds of the cost of a new clinic. The Quality Department had collected two recipes from all its employees. These were published in a *Quality Cookbook – Dogma Version*, which was sold for at least DKK 20 a copy.



The employee's tools for environmental improvements

Determined work on the environment in recent years has meant that employees now regard this area as an integral part of their everyday working life. As part of ISO 14001 certification, all employees have been trained and taken an active part in the process of identifying potential environment-improving initiatives.

In recent years MSP, DDP and Site FVII have worked purposefully towards ISO 14001 certification, and in 2003 all three areas were duly certified. The purpose of environmental management is to create a basis for continuous improvements and to reduce environmental impacts. All employees in the areas have been involved in the implementation work, which was headed up by the environmental coordinators in the respective areas. It is they among others who have been responsible for motivating employees to take an active part in the process. It is important that everyone is aware of the environmental impact of their own work and how they can help to limit it, and that they are familiar with our Environmental Policy, objectives and focus areas. The environmental coordinators have arranged and implemented training for all employees. This training has been carried out differently from area to area, and has varied from large meetings to local training within the departments. The final phase in particular, in which the training was marked by dialogue, has motivated employees to take part in the process.

Valuable cooperation

The three environmental coordinators in Hillerød have worked closely together because it is important that we have common procedures and targets for resolving problems that affect the whole of Novo Nordisk in Hillerød. This cooperation is also valuable because we can swap experiences and inspire one another, both in the implementation of ISO 14001 and in future environmental work.

As well as our excellent teamwork in Hillerød, the environmental coordinators have close cooperation with the central External Environment Department. Novo Nordisk's international environmental network, EnviroNet, ensures regular dialogue with environmental coordinators in the other plants.

Environmentally appropriate waste management

The majority of waste is made up of plastic, which is collected and sent to Expladan in Haarlev for recycling. Paper and cardboard are sent to AFAV I/S for recycling. Refuse and other combustible waste is sent for incineration at I/S Vestforbrænding Incineration Plant in Glostrup.

Waste management was one of the main training themes in the run-up to certification. We explained why it is important to sort waste, and provided clear information on what may and may not be placed in the various waste containers. In DDP we created a new position with responsibility for managing our waste in building 25A, and this has had an overwhelmingly positive result.

The total amount of waste from Hillerød increased from 769 tons in 2002 to 868 tons in 2003 due to increased production. The amount of waste that is sent for incineration fell by 10%, while the amount for recycling increased by 34%. This trend shows that our efforts in the area of waste are producing good results.

Ideas from employees

Employees have been challenged to come up with ideas for environment-improving initiatives, and the numerous suggestions show that they have fully embraced the environmental work. Ideas have come from all employee groups and range from remembering to switch off lights and double-sided printing to large projects such as saving resources by reducing humidification in production. Many of the ideas have already been implemented, while we are in the process of assessing others.

Making it fun

It is important for us that employees are committed to the environmental work, and we are happy to adopt novel approaches to involve them. At the entrance to our canteen in MSP we have set up a large 'barometer' alongside our environmental post-box, where employees can follow our progress towards achieving our environmental targets. In 2004 we will be introducing a waste quiz that will increase awareness of our waste instructions.

Production must have minimal environmental impact

Wherever possible at the plants in Hillerød we use 'cleaner technology' to minimise our resource consumption and environmental impact. Thus we use laser-printing instead of the normal printing process with organic solvents, and chlorine-free granulates for manufacturing plastic components. Environmental considerations also come into play whenever we pur- →



The environmental work involves everyone. Through our ISO 14001 Environmental Management Systems, employees have the opportunity to contribute ideas and suggestions for improvements in production. The environmental coordinators in Hillerød meet regularly (above left) to swap experiences and inspire one another.



- chase new machines or plan new plants. The most recent examples are from the setting up of the two new plants in 2003:
 - Control of air compressors, ventilators and pumps so that performance is constantly matched to need.
 - Use of heat-recovery and recycling of hot waste streams where possible, eg ventilation systems, natural-gas boilers and clean-water distillation columns.
 - Differentiated heating of production premises according to need, and installation of energy-efficient lighting with movement sensors.
 - Design of buildings to optimise light influx and limit use of artificial lighting.

Permanent focus on resource consumption

The major consumption of resources at Novo Nordisk's plants in Hillerød consists of water and energy. Generally increased activity is the reason why both water and energy consumption increased in 2003 – by 10% and 18% respectively.

We also use large amounts of plastic materials for producing injection pens, as well as paper and cardboard for packaging. In the Factor VII plant we use various raw materials in the production of NovoSeven®, eg glucose, and bases and acids, which are used for cleaning process equipment etc.

During the year MSP mapped the consumption of energy and water in our processes. The result showed that our greatest consumption is on the supply side, namely ventilation, lighting, room heating and steam production for humidification. In 2003 we set ourselves a target to reduce consumption of water and natural gas for humidification in the winter months by 35% compared to budgeted consumption. We reduced the relative air humidity from 45% to 30%, which meant a saving of 36% in natural gas consumption for steam production and 31% in water consumption for steam production. We were unable to achieve both targets since we were forced to raise the relative air humidity again for health & safety reasons because several employees were experiencing dry mucous membranes.

In 2003 DDP began energy mapping of our plants so that, if possible, we can introduce environment-improving initiatives here. The mapping is expected to be completed in 2004.

Material consumption

In 2003 Hillerød used a total of 2,163 tons of raw materials and auxiliaries, and 1,188 tons of packaging. Compared to 2002, this was an increase in the consumption of raw materials and auxiliaries of 17% and in packaging of 27%, which was due to increased production.

Focus on wastewater

The wastewater for the whole site consists of water from cleaning glass cartridges and production equipment, plus sanitary wastewater. The wastewater is piped via the public sewage system to Hillerød Central Wastewater Treatment Plant, from where the treated wastewater is discharged via Pøleå Stream to Lake Arresø. Rainwater from roads, car parks and roofs runs via a sand trap and oil separators to a holding basin, and from there via the municipal rainwater system to Havelse Stream.

In 2003 we discharged 75,000 m³ of wastewater, which was 4% more than in 2002.

In 2003 we seriously focused on wastewater. We carry out our own inspections of wastewater 12 times a year, which is a requirement of our wastewater permit from Hillerød Municipality. In 2003 we recorded eight breaches of regulatory limit values for pH in discharged wastewater. For 2003 we had set the target of improving control and inspection of the neutralisation plant for wastewater. An extensive survey identified several possible sources of the pH non-conformities, including our neutralisation plant. By lengthening an overflow pipe in the mixing tank in the plant, we reduced the pH value considerably. Our most recent measurements indicated that the pH value was within the stipulated limits of $6.5 \leq \text{pH} \leq 9$.

In December 2003 Novo Nordisk submitted an action plan for the discharge of wastewater containing Triton X-100, which is to be used in Factor VII production. The plan explains that we will collect waste streams containing Triton X-100 and either send them to an approved treatment centre or treat them internally before discharge into the sewage system. The action plan is required by the revised permit for connection of wastewater to the municipal wastewater system, which Novo Nordisk received from Hillerød Municipality on 19 December 2002. The Danish Society for the Conservation of Nature and the Arresø Association have contested the decision with the Danish Environmental Protection Agency, where the case is currently being processed. The complaints concern among other things permission to exceed the limit values for pH and temperature, and the presence of the substance Triton X-100 in the wastewater.

Controlling soil pollution

We have diesel oil pollution on our property from a discontinued tank system for filling fuel into vehicles which belonged to the State Pilot Dairy previously occupying the site. In 2001 we mapped the pollution, which affects an area of approx. 175 m². We are aware of the potential problem if the soil is one day to be moved, but it presents no risk while the area is used as it is today, and so we are not planning to remove the pollution at present. When mapping the pollution, we found that there were leaks in a sewage pipe and an oil separator. These were renovated in 2003, and Frederiksborg County has been kept continually informed of the matter.

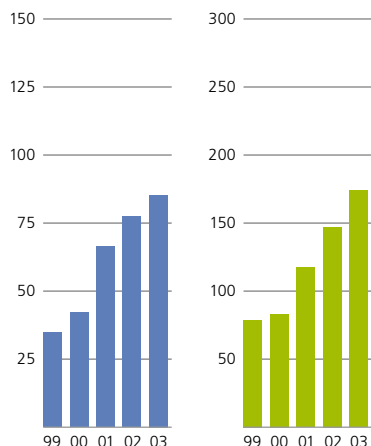
Accidental releases

In 2003 we had three accidental releases. In Factor VII production, 300–400 litres of liquid coolant (35% propylene glycol) was discharged into the sewage system as a result of a fault following maintenance work on a cooling system. Factor VII production also had a release into the sewage system of 100–200 litres of acid liquid (pH 3) resulting from an overflow from a neutralisation tank for wastewater after clearing up an internal spill of hydrochloric acid from a storage tank. In DDP there was a release of 100 kg ammonia into the air over a 30-day period from a cooling system in building 24A due to defective safety valves that have now been replaced. Subsequently, we fitted an ammonia detector so that in future we can identify any defective valves.

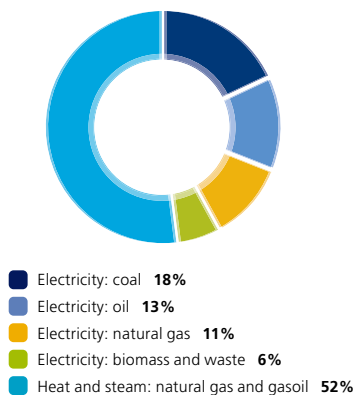
Minimal air pollution

The major sources of air emissions in Hillerød are activities connected with our own production of heat and steam based on →

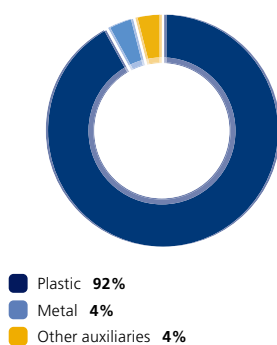
Water and energy consumption
1,000 m³ 1,000 GJ



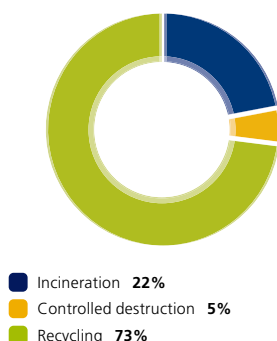
Breakdown of energy sources 2003



Breakdown of raw materials 2003



Waste disposal 2003



KNOWLEDGE COMPILED

Disposable pens and the environment

In recent years we have received a number of inquiries from customers and employees about the environmental consequences of using disposable pens. In 2003 we set up a multi-disciplinary group to coordinate environmental considerations in the development of new pens and packaging. The group has drawn up a document answering the most frequently asked questions. It explains among other things that the needle should be removed before the pen is disposed of as household waste. For normal waste incineration, it is possible to recover 50% of the energy that has gone into producing the materials as district heating. The document is accessible to all employees on our intranet, and in 2004 customers and other stakeholders will be able to find more information on Novo Nordisk's website.

GREEN IMAGE

Trees and shrubs planted at the site

Novo Nordisk's site in Hillerød is located in beautiful surroundings with views over fields and forests. When expanding our facilities we have endeavoured to retain this beautiful setting. In recent years we have planted more than 700 trees and 50,000 shrubs at our site and in Peder Oxes Allé, which adjoins our facilities.

THE BOTTOM LINE

Environmental initiative in Værløse does the trick

In 2003 the employees in Værløse proved wonderfully that environment-improving initiatives can save the company a lot of money. In connection with our focus on waste management, they began to sell their plastic waste to Expladan. Previously, all waste was thrown into a general container, whereas now it is sorted systematically. The initiative has resulted in savings over a six-month period of around DKK 27,000.



DOUBLE-SIDED PRINTING

Saving on printing paper in MSP

In 2003 we set ourselves the target in MSP of reducing consumption of printing paper per employee by 5% compared to the first quarter of 2003. We more than achieved this target, reducing consumption by 22%. Employees have been good at reminding each another to use both sides of paper or read documents directly off the computer screen.

ENVIRONMENTALLY FRIENDLY AGENTS

Initiative reduces use of pesticides

Following environmental mapping in 2002, we took the initiative to reduce consumption of environmentally harmful agents for combating weeds and insects. The target was to replace the traditional pesticides Empire 20 and Roundup Bio with more environmentally friendly products. 'Kryb og Kravl Spray' is made exclusively from plant oils, and 'Ukrudt-stop' concentrate is made from naturally occurring fatty acids. This initiative has reduced consumption of environmentally harmful agents for combating weeds and insects by 49% and 23% respectively.

→ natural gas and gasoil. In 2003 we carried out first-time measurements of stipulated limit values for the flue gases CO and NO_x for the boiler plant in the Factor VII plant, and the measurements showed that we are observing the stipulated requirements by a good margin.

Our environmental approval sets limits for air emissions of metacresol and phenol, which are used as preservatives in insulin preparations, and formaldehyde, which is given off in small concentrations when injection-moulding plastic components. As part of our self-monitoring, in 2000 and 2001 we carried out first-time measurements of air emissions of these substances. The measurements showed that we are observing the applicable requirements by a high margin.

Noise

The site's activities do not normally entail nuisances which may give cause for complaint and we did not receive any complaints about nuisances from our production activities on the site in

2003. However, it is still important that we are continually aware of any noise sources so that we can prevent any need for complaints. It is a requirement of our environmental approval from Frederiksborg County that we carry out annual control measurements and calculations of the external noise contributions towards neighbours. One such measurement in 2002 necessitated noise-damping of a chimney and some ventilators. The damping was carried out during 2003, and the noise measurement for 2003 shows that we are now observing the applicable noise requirement.

Environmental targets 2004

- Improve utilisation of water and energy per produced unit.
- Continue to focus on correct sorting-at-source of our waste and ensure valid data when recording the waste.
- Carry out energy mapping of buildings 25A and 24A.
- Separate off and collect Triton X-100 in building 25K.

Statement by the authorities on the green accounts for 2003 for Novo Nordisk in Hillerød

Frederiksborg County has examined the company's green accounts for 2003 and consequently takes its position on the following information contained in the accounts. References to Statutory Order no. 594 of 5 July 2002 are given in parentheses.

Basic information

- The category/categories for which the company is environmentally approved (§5, no. 2)
- Information on the most significant environmental approvals granted to the company, including information on the recipient of direct discharges of wastewater and on connection permits for public wastewater systems (§5, no. 4)
- Date of the latest revision of the company's environmental approval(s) (§5, no. 5)
- Brief, qualitative description of the most significant resource and environment parameters characterising the primary activities of the company and the secondary activities, where relevant (§5, no. 6)

Management statement

- A statement of what the company has done in the accounting year to remedy regulatory breaches that have occurred and to prevent repeats (§6, no. 6)

Information on environmental issues

- Data on the major consumption by the company of energy, water and raw materials (§7, para. 1, no.1)
- Data on significant types and volumes of pollutants to the extent they
 - form part of the production processes (§7, para. 1, no. 1a)
 - are discharged by the company to air, water and soil (§7, para. 1, no. 1b)

- form part of the company's products (§7, para. 1, no. 1c)
- form part of wastes from the company (§7, para. 1, no. 1d)
- Data on the company's waste production and management (§7, para. 1, no. 3), including data on
 - The total volume of waste (§7, para. 1, no. 3a)
 - The proportions of the total volume that go for recycling, incineration or landfill (§7, para. 1, no. 3b)
 - Division of the waste volume into main fractions (§7, para. 1, no. 1c)
 - The company's efforts to sort the waste (§7, para. 1, 1d)
- Data on noise, dust and odour (§7, para. 4)
- Information on all environmental issues in §7, para. 1 – regardless of whether they occur on not (§7, para. 2).

Summary of self-monitoring

The summary of the results of the company's self-monitoring, which outlines how the company's measuring results compare with the conditions of its approval (§9).

Frederiksborg County's comments

Frederiksborg County has examined the company's green accounts for 2003 and found that the information they contain on the company's environmental issues corresponds to the information that the County possesses and that the accounts generally give a very good picture of the company's environmental issues. However, Frederiksborg County observes that the accounts do not provide information on pollutants that occur in the company's production processes (cf. §7, para. 1, no. 1a) or products (cf. §7, para. 1, no. 1c). This involves very few substances and relatively small volumes, but since this is regarded as environmentally important, the information should in future be included in the accounts.

Environmental data for Novo Nordisk in Hillerød 1999–2003

	Method	Unit	1999	2000	2001	2002	2003
Water							
Drinking water	M	1,000 m ³	35	42	67	77	85
Energy							
Energy (total)	M	1,000 GJ	79.1	83.5	117	147	174
External (electricity)	M	1,000 GJ	39.3	45.7	55.5	73.7	84.3
Internal (subtotal)	M	1,000 GJ	39.8	37.8	61.5	73.3	89.4
Gasoil	M	1,000 GJ	1.1	0.9	0.9	1.0	1.0
Natural gas	M	1,000 GJ	38.7	36.9	60.6	72.3	88.4
Materials							
Materials (total)	M	tons	1,425	1,788	2,611	2,787	3,351
Raw materials	M	tons	700	1,223	1,693	1,855	2,163
Packaging materials	M	tons	725	565	918	932	1,188
Wastewater¹⁾							
Volume	B	1,000 m ³	31	39	51	72	75
Suspended solids	B	tons	10	5	6	5	6
COD	B	tons	17	9	10	17	19
Nitrogen	B	tons	2	2	2	1	4
Phosphorus	B	tons	0.5	0.2	0.3	0.2	0.4
Waste							
Waste (total)	M	tons	431	535	724	769	868
Incineration	M	tons	160	195	205	209	188
Landfill	M	tons	3	0	0	0	0.3
Controlled destruction	M	tons	24	13	60	85	45
Recycling (subtotal)	M	tons	244	327	459	475	635
Construction waste	M	tons	1	27	39	1	18
Electronic equipment	M	tons	0	3	2	2	6
Fat	M	tons	–	–	–	–	21
Polluted soil	M	tons	–	–	–	–	15
Glass	M	tons	0	0	0.1	0.3	0.4
Food	M	tons	3	6	7	8	13
Metal	M	tons	4	0	4	6	23
Oil	M	tons	–	–	–	–	1
Paper and cardboard	M	tons	63	68	112	132	166
Plastic	M	tons	173	223	295	326	361
Sludge	M	tons	–	–	–	–	6
Wood	M	tons	–	–	–	–	5
Emissions to air							
Organic solvents (ethanol)	B	tons	–	–	–	–	0.7
Ozone-depleting substances (HCFC)	A	kg	31	0	47	103	11
Carbon dioxide (CO ₂) from energy production	A	1,000 tons	8.1	8.9	13.5	16.4	17.9
CO ₂ from external production	A	1,000 tons	5.8	6.7	10.0	12.2	5.1
CO ₂ from internal production	B	1,000 tons	2.3	2.2	3.5	4.2	12.8
Sulphur dioxide (SO ₂) from energy production	A	tons	13	15	19	10	10
SO ₂ from external production	A	tons	13	15	19	10	10
SO ₂ from internal production	B	tons	0	0	0	0	0
Nitrogen oxides (NO _x) from energy production	A	tons	16	17	13	23	25
NO _x from external production	A	tons	12	13	10	19	20
NO _x from internal production	A	tons	4	4	3	4	5
Environmental Impact Potentials							
Global warming	A	1,000 tons CO ₂ -eqv.	8	9	14	16	18
Ozone layer depletion	A	kg CFC ₁₁ -eqv.	1	0	2	4	0.4
Acidification	A	tons SO ₂ -eqv.	24	27	28	27	27
Eutrophication	A	tons NO ₃ -eqv.	21	52	54	83	53
Compliance and complaints							
Breaches of regulatory limits	M		0	4	5	12	8
Regulatory limits with repeated breaches	M		0	2	1	1	1
Accidental releases	M		0	0	0	2	3
Complaints	M		0	0	0	1	0
Stockpile of Ozone Layer-degrading Substances							
CFC	A	kg	13	13	10	13	13
HCFC	A	kg	662	670	686	697	682

1) Wastewater data have been corrected for 2000–2002, amending from standard components to measured values.

In the 'Method' column, the following categories are used in accordance with the Danish Environmental Protection Agency's guideline on green accounts: Measured (M), Calculated (B) and Estimated (A).

Data in this report were included in the assurance engagement performed by Deloitte. The full Assurance Statement from Deloitte can be found on page 58 of Novo Nordisk's *Sustainability Report 2003*.

Novo Nordisk is an international biotechnological and pharmaceutical company. We offer a wide range of insulin products, as well as products for growth disorders, hormone replacement therapy and haemostasis management. We are headquartered in Bagsværd, Denmark, and have production facilities in Denmark, France, the US, Brazil, South Africa, Japan and China. We have around 19,000 employees and are part of the holding company Novo A/S, which is also headquartered in Bagsværd. We are committed to the integration of sustainable development into the management of our company. This is being done on the basis of the 'Charter' for companies in the Novo Group. The Charter sets out our Values, Commitments and Fundamentals, as well as the Novo Nordisk Way of Management, which includes the company's Vision and Policies. We aim to be sustainable not only financially but also in terms of social and environmental responsibility. This report (including the annex) also constitutes the company's green accounts for 2003.



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