

Reporting on the Triple Bottom Line 2001

dealing with dilemmas



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Many thanks for valuable contributions

The work represented in this report is the result of our ongoing dialogue and engagement with stakeholders within and outside Novo Nordisk. Without their contributions and involvement, we could not have made this report. We appreciate the commitment of those who devote their efforts to working with us to help us achieve the goals we share. We also acknowledge our own obligations to live up to our colleagues' and stakeholders' expectations.

If this report provokes any comments, queries or suggestions, please do not hesitate to contact us. Contact details are found on the inside back cover.



Shanthala Shamarao is one in a million

An individual with a unique personality and a story to tell. She is among the more than 100 million people living in the developing world suffering from a disease that many do not even know that they have, but which is likely to cost them their lives before they come of age. Diabetes – the disease known as the 'silent killer' – is a pandemic. It most frequently strikes people between 45 and 60 years of age in developing countries, and the urge to combat diabetes is growing stronger every day.

Are we making a sufficient case for action, or are we just exploiting an occasion to make an emotional appeal to our readers? Make your own judgment. We have made the promise of 'being there' for this girl and for everyone else who relies on us for an improved quality of life. With that promise we have committed ourselves to being more than just a healthcare company with a portfolio of products to offer to those who have access to and can afford treatment. In a highly competitive industry we have chosen a different road to achieving competitive business results: we call it living the Triple Bottom Line.

Dealing with dilemmas

contact

Lars Rebien Sørensen
CEO

lrs@novonordisk.com
+45 4442 3311

It has been said, and wisely so, that it is a company's values that underpin its approach to and understanding of sustainable development. In the case of Novo Nordisk this statement rings a truth that echoes back to when the company was founded in a basement nearly 80 years ago. We have been pursuing a consistent approach to implementing the Triple Bottom Line – social and environmental responsibility, and economic viability – for more than a decade, and we report annually on our performance. Our core values, the backbone of our business, have remained unchanged even in turbulent times. Through dedication to our vision, we feel that each day we are coming a bit closer to the ultimate goal: to defeat diabetes.

It makes a difference whether you live by your values, or merely talk about them. It also makes a difference whether corporate values are consistent with your personal view of the world. Put to the test, this is the ultimate determinant of success or failure.

We believe that a consistent, value-guided approach will maintain our position as a leader. Reputation counts, and one of the things that really matter is the recognition by our own employees. In the most recent employee survey, 85% agreed with the statement "Novo Nordisk's results within the social and environmental area are important to the future of the company".

We recognise the fact that we may do business while combating diabetes. We endorse and promote collaboration with research institutions across the world to find better ways of treatment and prevention, and between parties in the healthcare system to make treatment affordable, available and accessible.

A new regime is usually judged by its first hundred days in office. I began my term when Novo Nordisk had just been reorganised as a focused healthcare company, better shaped to meet the expectations of our customers, our employees and our shareholders.

A fine start, which was followed by tough times when a strong coalition of NGOs challenged the entire pharmaceutical industry on how we do business.

On our home turf, our company was attacked in the Danish media in the early spring of 2001 for joining the pharmaceutical industry's legal action against the South African government. We saw globalisation transformed into a war between 'good and evil', between rich and poor, and between big business and individual human rights. It exposed some of the very difficult dilemmas we need to deal with as a corporate citizen in a complex world.

At the time, I was quoted as saying that "we are not a humanitarian organisation". We cannot just give away our products, or give up our intellectual property. Yet we have made a promise of 'being there' for those who need the care and the treatment we can provide. With that promise our company has an extraordinary obligation to help facilitate better access to proper diabetes care in the poorest nations. We cannot keep up with the pace of diabetes. Even if we wanted to, we cannot supply essential care to the more than 150 million people suffering from the disease today. We need to develop new, sustainable business models. The future of millions of people – and that of the company – demands active intervention to change the dire reality in these countries by giving direct help via product supply and affordable pricing, along with investments in building diabetes care infrastructure.

To present a targeted and focused strategy to fight diabetes globally, we have launched an ambitious plan to address the urgent issue of improving access to health for all people. The Novo Nordisk LEAD initiative – Leadership in Education and Access to Diabetes care – is our response to ensuring better access to global healthcare. One element of the LEAD initiative is the establishment of the World Diabetes Foundation, through which the company will donate approximately DKK 500 million over the next ten years.



"We are attempting to define a model for corporate social responsibility that makes sense to our shareholders and employees, and to all those who benefit from our products. We focus on areas where there is a need for our abilities, competencies, and commercial interests. Evidently, there is self-interest in this approach. To me, that is what makes it sustainable."

Before we could make this significant financial commitment, we obviously needed our shareholders' support. I am happy to say that my consultations with our major institutional investors brought an affirmative response. They, too, are concerned. They, too, expect us to act on our responsibility as a global corporate citizen. This concern is shared by our employees, our business partners, our customers, NGOs and other key stakeholders. We know, because we frequently consult them on these issues.

Alleviating poverty is the greatest challenge for sustainable development. Economic inequality is rising rapidly. The anti-globalisation movement is one response to that. So is the increasing commitment to corporate social responsibility. In changing times we need to make new commitments and build more partnerships with those who share the same vision.

In a perfect world, the business of business may well be business. Yet the events of the year have certainly reminded me – like everyone else – that the world is far from perfect.

It needs a lot more work and a greater commitment by everyone subscribing to the values of democracy, tolerance and personal integrity. So while I still do not see our company as a not-for-profit humanitarian organisation, we can be a humane company – a company with a heart.

Lars Rebien Sørensen

Scope of report

This report accounts for Novo Nordisk's performance in the task of implementing the Triple Bottom Line. Issued in March 2002, it covers the company's activities on social and environmental responsibility and economic viability within the 2001 calendar year. As such, it complements the Annual Financial Report and the Annual Review, which present the company's business activities and financial performance for the year in more detail.

In compiling the information provided in this year's report, we follow up the targets set for 2001, and we present new, long-term targets for sustainable development while explaining our approach and positions. The report covers the milestones, major achievements and key issues during the year, but does not provide a full coverage of all our activities within this area. More information is available in the Internet version of this report, and on our web-site:

www.novonordisk.com/sustainability

Adhering to Global Guidelines

Novo Nordisk is a signatory to the UN Global Compact, and by adhering to the Global Reporting Initiative (GRI), this report aims to fulfil the participation requirements of the Global Compact. As a member of the GRI since its pilot stage, Novo Nordisk takes part in the development of the GRI Guidelines. A complete overview of how we meet the standards is available in the Internet report.

Independent verifications

Our quantitative data procedures, and the information systems used to produce the data presented in this report, are verified by a formal, independent verification procedure carried out by the accounting firm Deloitte & Touche. An independent quality assurance review has been undertaken by Simon Zadek. It has provided a further level of quality assurance, focusing on the relevance and completeness of the information in the report. A new dimension is assessing the company's underlying learning process and capacity to identify and set longer-term, 'stretch' social and environmental goals and targets.

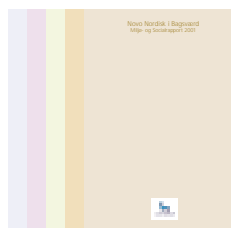
Data management – the CATCH concept

All Novo Nordisk data regarding Triple Bottom Line performance is managed through a common data management concept, CATCH.

CATCH consists of several elements: definitions, procedures and tools which ensure the validity of the reported data and support the internal focus on improving Novo Nordisk's performance on the Triple Bottom Line.

In 2001, we introduced an environmental information system as part of the CATCH concept. Through a web-tool, environmental data are submitted directly from all our production sites and transferred to a central data warehouse for further aggregation, analysis, follow-up and, finally, reporting and verification. All environmental data in Novo Nordisk's Triple Bottom Line reporting, except 'ozone-depleting substances', is managed through the environmental information system.

Performance data in this report covers only the years 2000 and 2001 due to the demerger in 2000. The year 2001, being the first as a focused healthcare company, will therefore be the new baseline, against which we will track performance.



With this report, available in English and Danish, we recognise that we address a very broad range of stakeholders. Some readers may wish to study the report, while others take it in at a glance. We have tried to meet the needs of both by making the printed report and the Internet version of the report complementary.

To account for impacts and activities at community level, our eight largest production sites have issued individual reports, published in local languages, on their environmental and social performance during 2001. Pdf-files of the site reports in English are available on the Internet.

Focused on healthcare

Novo Nordisk is a focused healthcare company. With the broadest diabetes product portfolio in the industry, Novo Nordisk is a world leader in diabetes care. In addition, Novo Nordisk has a leading position within haemostasis management, growth disorders and hormone replacement therapy.

Our production is based on biotechnology; fermentation is the basis of our pharmaceuticals, using genetically modified microorganisms.

Novo Nordisk's net turnover in 2001 was close to DKK 24 billion. We market our products in 179 countries, and 99% of sales take place outside Denmark. Our worldwide market share in insulin is 45%, and our market share in diabetes care is 14%, reflecting 5% in the USA, 35% in Europe and 25% in Japan.

Headquartered in Denmark and represented in 68 countries on five continents, Novo Nordisk employs more than 16,000 people worldwide. 65% work in Denmark, where most of the production takes place. The remaining production sites are in the USA, France, Japan, China and South Africa.

Product portfolio

Insulin, insulin analogues and devices for injection of insulin constitute 91% of sales in diabetes care. The rest is made up of NovoNorm® (Prandin® in the USA), an oral treatment for Type 2 diabetes.

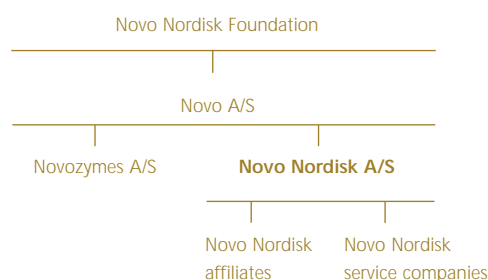
Two new devices for insulin injection therapy were launched in 2001: InDuo®, the world's first combined insulin injection system and blood glucose monitor, produced and marketed in partnership with LifeScan Inc., and FlexPen®, a new prefilled insulin injection device which is set to replace the current NovoLet® pen. Two other products are InnoLet® and Innovo®, both insulin dosers targeting different groups of insulin users. More advanced products are increasingly available to people with diabetes, such as our rapid-acting insulin analogue NovoRapid® (NovoLog® in the USA).

In 2001 a number of significant late stage projects reached important milestones: NN622, a novel dual-acting insulin sensitiser entered Phase 3 development in November.

Furthermore, AERx® iDMS, a pulmonary insulin delivery system, currently developed with Aradigm Corporation, has obtained Proof of Concept, and Phase 3 trials are expected to start in 2002.

NovoSeven® is increasingly being used for the treatment of acquired haemophilia. Also, confidence in its use for surgical procedures is growing, and a number of NovoSeven® clinical studies have been initiated.

Human growth hormone products are marketed by Novo Nordisk under the names Norditropin® and Norditropin® SimpleXx®. In hormone replacement therapy (HRT) our products include Activelle®, Vagifem® and Novofem™, a new, low-dose, sequential HRT to be launched across Europe in 2002.

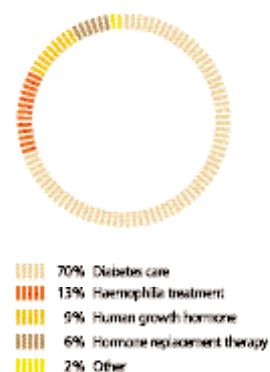


Ownership structure

Novo Nordisk's ownership is split between A shares and B shares. Novo Nordisk's A shares are held by Novo A/S, a private Danish limited liability company which is wholly owned by the Novo Nordisk Foundation. Novo Nordisk's B shares are quoted on the Copenhagen and London Stock Exchanges, and on the New York Stock Exchange as American Depository Receipts (ADRS).

In 2000, the enzyme division of Novo Nordisk was demerged, and Novozymes is now a sister company that is separately listed on the Copenhagen Stock Exchange. The two companies maintain a common set of core values, 'the Charter for companies in the Novo Group', and a common corporate governance system.

Novo Nordisk sales per therapy area



Executive summary

This year's reporting on Novo Nordisk's performance towards implementing the Triple Bottom Line in our business operations is structured according to the three overall commitments: social and environmental responsibility and economic viability. It also establishes new targets to guide our future direction.

Under the title 'Dealing with dilemmas' we aim to present our activities in a transparent light and to share with our key stakeholders the major issues we must address. As in previous years our reporting centres on Novo Nordisk's core values, aiming to illustrate how those values are put into action.

In the years to come, we believe the most significant themes to be addressed will be:

- ⊙ Globalisation, sustainable development and corporate governance
- ⊙ Industry's changing role and widening responsibilities
- ⊙ Stakeholders' demands for transparency, dialogue and accountability

This report recounts Novo Nordisk's response to these challenges. Business leadership in moving towards a more sustainable future is essential and the Triple Bottom Line can provide an appropriate framework for this type of assessment.

A three-tiered strategic framework

The strategic framework of our Triple Bottom Line rests on three core elements:

First, a corporate governance structure outlining our commitment to sustainable development and to international conventions. The pursuit of these overall objectives translates into corporate and individual goals which are built into the company's Balanced Scorecard and employees' annual appraisals. Second, a stakeholder engagement approach which enables us to be attentive to new concerns emerging on the agenda. The Novo Nordisk Learning Curve is a way of tracking the level of integration and learning in relation to key issues such as environment, bioethics, and social responsibility including human rights and global health.

Third, the company has follow-up procedures to ensure continuous improvement in the worldwide implementation of 'the Charter for companies in the Novo Group' and the exchange of better practice. A team of Novo Group consultants, called facilitators, systematically monitor and assess performance at unit level. The annual reporting on the Triple Bottom Line then demonstrates how we hold ourselves accountable to stakeholders for our values and actions.

Dealing with dilemmas

In the Novo Group Environmental and Social Report 2000, we stated that "We do not pretend to have all the answers". We still don't. Rather, we believe in the value of openly and honestly presenting the facts as well as the issues that confront us. Indeed, there is rarely an easy answer. In a global society ruled by complexity and constantly changing roles, making the right choices relies as much on a consistent set of values as on acknowledging that there may be other views of equal value. Informed decision-making is all about allowing these opposing views the opportunity to be reconciled. That is how we put our values into action.

We often find ourselves on the horns of a dilemma. Our activities are in areas where values and ethics are put to the test on a daily basis. In this report, we present some of the key issues for Novo Nordisk as a pharmaceutical company, as a global business, as a corporate citizen and as an employer of choice.

Representatives of views other than our own, whom we have met in our dealings during the year, have been asked to comment on how they see the key issues developing and how a solution might look in an ideal scenario. It will be our challenge to choose the road that will lead us in that direction.

- 1 How do we do business consistently in an unjust, unequal world and yet respect the diversity within that world?
- 2 How do we improve access to healthcare and make our products affordable, and yet continue to operate a profitable business?
- 3 How do we protect our intellectual property rights and yet help share knowledge that can save lives and generate income for others?
- 4 How do we stimulate diversity and equal opportunities and yet maintain a corporate culture of shared values?
- 5 How can we pay due respect to animal welfare and yet continue to use animals for testing in order to meet the safety requirements for pharmaceutical products?
- 6 How can we use biotechnology to create significant advances for humankind and yet respect the public's anxieties about genetic engineering?
- 7 How can we continue to increase production and our use of resources and yet contribute to sustainable development?

Major achievements in 2001

To enhance transparency, this performance report is qualified by extensive data. The complete data set is available in the Internet version of the report. Furthermore, the Internet report compares our performance against the GRI Guidelines, and provides comments and details on the status of follow-up of our targets.

Supporter of Global Compact

In 2001 Novo Nordisk extended its commitment to meeting the highest international standards by supporting the Global Compact, instituted by UN Secretary-General Kofi Annan.

Strategic tools

A new set of key performance indicators was developed to further integrate efforts to implement the Triple Bottom Line.

Stakeholder engagement

In 2001, we concluded DAWN, the largest-ever study of how diabetes affects those who have been diagnosed with the disease, their families and caretakers, complemented by the views of professionals in the healthcare sector. During the year we hosted a number of roundtables with NGOs on access to health in developing countries.

Access to health

With the launch of a portfolio of initiatives to match the WHO strategy for improved access to health, Novo Nordisk has made a significant commitment to improving the quality of life of people with diabetes, particularly in the developing world.

Social responsibility in the supply chain

With the successful completion of a pilot project to evaluate suppliers on their environmental and social performance, new criteria that address social responsibility issues are being applied, and a self-assessment tool has been developed for implementation during 2002.

Equal opportunities in the workplace

A toolbox has been developed which will help managers work to enhance diversity as a means to improve equal opportunities. Targets and action plans for 2002 are supported by internal training and corporate management focus.

Environmental management

The ISO14001 environmental management system is being implemented at all production facilities, a process that is to be completed by 2003. It is being integrated into the current ISO 9002 system. To be able to manage the entire supply chain effectively, subsidiaries and suppliers are involved in the project.

Animal welfare

New prototypes for the housing of animals have been developed and evaluated in collaboration with external experts. Animal testing for the product control of 24 selected material codes has been removed, and progress has been made on another 5 codes. Ethical review committees have been established for the internal ethical review of all experimentation and testing on animals.

Economic impact analyses

In our efforts to further develop the economic bottom line, a set of indicators has been developed in line with GRI's recommendations. This is supported by a preliminary analysis of the socio-economic impacts of the company's activities worldwide.

Performance highlights

Financial	2001	2000
Net turnover (DKK million)	23,776	20,811
Operating profit (DKK million)	5,614	4,816
Profit before tax (DKK million)	6,030	4,840
Net profit (DKK million)	3,865	3,087
Environmental		
Water consumption (1,000 m ³)	1,790	1,429
Energy consumption (1,000 GJ)	1,838	1,732
Eco-productivity index (EPI) for water*	102	110
Eco-productivity index (EPI) for energy*	114	111
By-products (biomass) (1,000 m ³)	147	141
Wastewater (1,000 m ³)	1,424	1,121
Social		
Number of employees (total)	16,693	13,752
Frequency of occupational injuries (per million working hours)	8.2	8.4
Frequency of occupational illnesses (per million working hours)	2.2	1.7

* EPI is an eco-productivity index that relates the scale of production to the consumption of resources. An increase in the index is a positive trend.

Reporting on the Triple Bottom Line

contact

Lise Kingo
Senior Vice President
Stakeholder Relations

lki@novonordisk.com
+45 4442 3861

At Novo Nordisk we have been pursuing a consistent approach to implementing the Triple Bottom Line for more than a decade. We have built this approach into our corporate governance structures and individual performance assessment. The path to sustainable development represents a learning curve where we work alongside partners and peers towards a common goal. We will drive actions to pursue objectives that are commercially desirable, ecologically necessary and morally compelling.

We began to approach sustainable development by addressing environmental issues and developed a method for integrating environmental management into our business decisions. When later we began to integrate new issues such as bioethics and social responsibility, we modelled our strategic approach and governance systems on this well-tried method. The method is illustrated in our learning curve, which helps us chart progress towards sustainable development.

We employ a systematic approach that helps implement Triple Bottom Line thinking in practice. In the section 'Managing the environment within sustainable limits' on p. 46 is an example of how this method is employed in practice.

Six processes are key to our strategy:

- ⊙ Embed: actively involve employees at all levels
- ⊙ Globalise: work on an international basis
- ⊙ Train: educate employees
- ⊙ Report: define targets, review and report annually
- ⊙ Integrate: balance financial, environmental, social and health policies in the business decision processes
- ⊙ Involve: conduct dialogue and partnerships with stakeholders relevant to the business.

Today we need to be concerned with globalisation, access to health, human rights, bioethics and animal welfare. Each issue poses dilemmas that we need to deal with to remain leaders in business. We need to be acutely aware that we are working with highly complex issues and problems, often with no clear-cut solutions. Corporate economic impact will be another key area, and is one in which we need to develop tools to measure and track performance in a way that takes us beyond the financial accounts of today.

As we tread these new paths, we are building the business case for sustainable development. This way, the Triple Bottom Line approach becomes integrated with the traditional definition of shareholder interest. We believe that a broader business approach modelled on the Triple Bottom Line is the right thing to do. It also makes good business sense and enables us to be a player in setting the new global agenda for pharmaceutical companies.

The Novo Nordisk learning curve



The learning curve illustrates progress on the path to sustainable development. In 2001 particular focus has been on the issues of social responsibility, including global health and human rights. In all three areas new initiatives have moved the issues higher on the company's agenda.

Following up targets

Novo Nordisk is committed to continuous improvement in our environmental, social and economic performance. Setting high objectives and targets and reporting on progress in meeting those goals are core elements of the Novo Nordisk Way of Management. The table shows how targets were met in 2001. For details, see the Internet version of this report.

Section	Target	Status
Integrated	2001 Develop a set of key performance indicators for social responsibility and the other elements of the Triple Bottom Line, p. 10	•••
Social	2001 Complete the initial review of social responsibility and develop a strategy for implementation, p. 8	•••
	2001 Ensure that there is no significant increase in the frequency of occupational injuries at work and wherever possible continue to achieve reductions, p. 30	•••
	2001 Collect background information from each production unit and country on factors that have relevance to the number of accidents reported, p. 30	•
	2001-02 Develop business strategies for equal opportunities in the workplace, p. 35	••
	2001-02 Engage in dialogue with selected key suppliers and carry out pilot projects regarding social considerations in supplier and contractor evaluation, p. 38	•••
	2001-02 Investigate how Novo Nordisk can improve the health of people in the organisation	••
	2001-02 Conclude and communicate the findings of the DAWN (Diabetes Attitudes, Wishes and Needs) study to uncover behavioural, social and psychosocial aspects of diabetes, p. 26	•••
	2001-02 Initiate the development of a 'sustainable business model' for helping people with diabetes in poor countries to gain access to diabetes care, p. 20	••
	2001-02 Assist in the development and implementation of national diabetes strategies, p. 26	••
Environmental	2001 Increase the eco-productivity for energy by 4 percentage points, p. 52	•••
	2001 Increase the eco-productivity for water by 5 percentage points, p. 52	•
	2001-02 Further involve employees in the implementation of ISO 14001 globally, p. 50	••
	2001-02 Improve methods for reporting transport emissions and use the results to reduce the environmental impact, in co-operation with our transport suppliers, p. 55	••
	2001 Continue working towards the replacement and/or removal of antibiotic resistance marker genes in our production strains, p. 49	•••
	2001 Establish Novo Nordisk principles for the future use of human materials in drug discovery and development as part of implementing the Council of Europe's Convention on Human Rights and Biomedicine, p. 44	•••
	2001 Remove animal testing for the product control of 29 selected material codes, p. 40	••
	2001-02 Implement improvements in the housing conditions for experimental animals in consideration of the needs of the animals, p. 40	••
	2001 Formalise and further develop an internal ethical review process for experiments on animals, p. 40	•••
	••• achieved	
	•• progress made	
	• not achieved, included in new targets	

Putting values into action: developing Triple Bottom Line indicators

contact

Lise Kingo
Senior Vice President
Stakeholder Relations

lki@novonordisk.com
+45 4442 3861

We believe our greatest responsibility is to address those areas where we have the greatest impact. We need a broad understanding of a great many issues in order to assess the degree of our impact on the environment, people and societies. We also need facts. Indicators are an important and concrete way of measuring our impact in order to inform our decision-making and support our visions.

For this year's report, we have identified a set of top-level indicators that can help us measure topics that are crucial to Novo Nordisk's approach to sustainable development. These indicators, listed in the table on the opposite page, have been selected to demonstrate whether we are actually putting our values into action – internally as well as externally. Some indicators can measure this directly, while others are more indirect and help form the general picture.

Living our values

Three new indicators will show how we live up to the company's values and the extent to which our employees see environmental and social issues as important to the company's future success.

Our employees

Four indicators will tell us how well we take care of our employees in terms of health and safety in the workplace, how well employees feel trained and developed, how many people leave us and how equal opportunities are perceived.

Our use of animals

Two key indicators are selected to track what we are doing to reduce the number of animals used for testing and improve their housing conditions.

Eco-efficiency and compliance

Our two high-level environmental indicators are based on eco-efficiency thinking. We want to decouple our resource consumption from environmental impact. In this way we will demonstrate how far we are able to 'do more with less'. Furthermore, it is our stated policy to be in full compliance with local laws and regulations.

Economic contributions

As the least developed of the three bottom lines, we are striving to develop economic, rather than purely financial, indicators. Such indicators are particularly important as they are often linked to social and environmental issues and in this sense help qualify decisions regarding the welfare of people or the environment.

We have chosen five traditional financial measures for reporting to shareholders and the financial markets. Some of these may well indicate parts of our contribution to society and other stakeholder groups who benefit from our activities economically. Still, our economic measures need to be further developed in order to account more fully for our economic impact.

Challenges

We are facing two major challenges. First, we need to develop meaningful and useful indicators for measuring performance in areas where there is yet no precedence for reporting, and implement them in our CATCH data management concept. Second, we need to find ways of dealing with the challenges of collecting worldwide data in a decentralised organisation and the fact that not all data can be aggregated. For instance, wages and benefits are influenced by local regulations and needs. We overcome some of these local-global barriers by publishing local site reports and data from our eight largest sites. These reports are available on the Internet.

New targets

To guide our future direction, we set specific, measurable medium-range targets. In the table we list top-level targets, while targets and milestones for specific areas are given in the articles.

Novo Nordisk Triple Bottom Line indicators

This set of top-level Triple Bottom Line indicators links into Novo Nordisk's Balanced Business Scorecard that also focuses on sustainable development.

	Indicator	Impact	Performance 2001	Medium-range target
Living our values	% of employees who agree or strongly agree that social and environmental issues are important for the future of the company, p. 31	Implementation of considerations regarding sustainable development in all decisions	85% ¹	Follow up through mandatory surveys
	% of employees who feel that management demonstrates in words and action that they live up to the Novo Nordisk values, p. 31	Implementation of considerations regarding sustainable development in all decisions	53% ¹	Follow up through mandatory surveys
	% of fulfilment of action points planned for 2001 arising from facilitations of the company Charter and core values, p. 15	Implementation of considerations regarding sustainable development in all decisions	89.95%	Follow up through mandatory surveys
Our employees	Frequency of occupational injuries, p. 30	Increased quality of life for employees, improved work flow and productivity, and saved sick leave for company	8,2 ²	
	Employee turnover rate, p. 32	Influx and outflux of knowledge	7.7	Reduction of unwanted turnover
	% of employees who agree or strongly agree that their work gives them an opportunity to use and develop their competencies/skills, p. 33	Increased competence level for employees and increased competency capital in company	65% ¹	Follow up through mandatory surveys
	% of employees who agree or strongly agree that men and women have equal opportunities at NN (divided F/M), p. 36	Increased gender diversity in the workplace	M: 73% ¹ F: 60% ¹	Follow up through mandatory surveys
Our use of animals	Number of animal tests removed from external and internal specifications, p. 40	Animal welfare	Animal testing removed for the product control of 24 selected codes. <i>In vitro</i> cell assay to replace the glucagon bioassay; progress made on the remaining 5	Contribute to a total removal of animal tests for biological product control by 2004
	Housing conditions for experimental animals considering the needs of the animals, p. 42	Animal welfare	New prototypes developed and evaluated	Full implementation of new Novo Nordisk standards for optimal housing
Eco-efficiency and compliance	Water EPI, p. 52	Water use efficiency	2%	5%
	Energy EPI, p. 52	Energy use efficiency	14%	4%
	Compliance, p. 53	Compliance with regulatory limits	60 breaches of regulatory limits 5 accidental releases	Zero breaches and accidental releases
	ISO 14001, p. 50	Fewer breaches of regulatory limits and decreased use of raw materials, water and energy	Cross-functional ISO 14001 procedures and instructions in place; training; environmental impact assessment	Certification of ISO 14001 standard at all production sites worldwide by 2003
Economic contribution	Operating profit margin, p. 60 ³	Contribution to company efficiency, growth and investors' economic capacity	23.6%	25% ³
	Growth in operating profit (2000 to 2001), p. 60	Contribution to company growth and investors' economic capacity ³	16.6%	15% per year ³
	Total taxes as % of turnover, p. 60 (corporation tax in profit and loss/net turnover)	Contribution to national economic capacity	9.1%	
	Return on invested capital (ROIC), p. 60	Efficiency of invested capital, contribution to asset base, and investors' economic capacity	23.1%	25% per year ³
	Cash to earnings (three-year average), p. 60	Contribution to the company's degree of freedom in terms of available cash funds (resources)	56.4%	60% ³

1) The figures are from the employee survey, eVoice 2001. The results are based on responses from more than 80% of our employees.

2) The figure covers all Danish employees and employees at production sites outside Denmark.

3) The financial targets are long-term growth targets.

An emerging agenda: globalisation and the role of corporations

Globalisation is a force with particular implications for pharmaceutical companies, as their products and expertise are vitally important to helping to alleviate poverty and improve the quality of life for millions of people in the developing world.

The debate on access to health, highlighted by the South African government's steps to bypass international patent agreements, was just one example of the kind of forceful drama that put the entire industry, including Novo Nordisk, into the uncomfortable glare of intense public scrutiny. The incident brought media attention to a range of issues faced by the industry and highlighted some of the dilemmas associated with operating a business that claims a sincere commitment to decency and to social and environmental responsibility and economic viability – the Triple Bottom Line.

Novo Nordisk firmly believes that the advantages of the globalisation process outweigh the potential downsides and that our activities create considerable value in societies where we are active. We wish to strike the balance between staying competitive in the market place and helping those who are – and will be – affected by diseases within our areas of expertise, primarily diabetes. This approach is a central part of our vision and true to our values.

Competitiveness requires a global framework

To stay competitive, Novo Nordisk is increasingly dependent on a global economy with a stronger and more efficient cross-border legal and institutional framework to ensure fair competition and support our ability to develop still better products and services. The major elements of this framework are:

- Trade rules
- Intellectual property laws
- Treaties on the environment and human rights, charters for conducting sustainable business
- International institutions that can effectively enforce legislation and impose sanctions on violators
- International organisations that coordinate the development of new agreements among member nations or organisations.

As a relatively small company, our ability to influence these matters is limited, but Novo Nordisk currently chairs a working group on TRIPS (Trade-Related Intellectual Property agreement) and the pharmaceutical industry on behalf of EFPIA and contributes to the United Nations subcommittee's work on a declaration for human rights and business.

Compassion is a long-term investment

In many developing countries, even basic healthcare and the cheapest copy medicine are inaccessible to a majority of the population. The main reason is poverty – low income combined with lack of basic healthcare facilities, trained personnel and distribution systems. The challenges are huge, and there are no quick fixes.

There is a growing consensus about the necessary action as expressed in a recent report, 'Investing in Health for Economic Development', from the Commission on Macroeconomics and Health to the WHO. In a perfect world, health investments would rise dramatically in poor countries, funded mainly by increased aid from governments in rich countries, but local governments would also re-prioritise their budgets. International organisations would drive and coordinate activities across borders, and the pharmaceutical industry would reduce prices in the poorest countries and employ their expertise in developing national strategies on fighting specific diseases; building local capacity in the health sector; improving distribution of medicines; and providing additional funding for both prevention and treatment.

Progress is painstakingly slow. In the context of Novo Nordisk's key business area, diabetes care, there is an urgent need for action. We cannot sit back and watch the catastrophe unfold. In direct response to WHO recommendations, we have taken some important first steps to invest in creating long-term benefits for everyone involved. See 'Helping to ensure the right to health' on p. 20.

But we cannot do it alone. All parties have a responsibility to contribute and work together to develop sustainable solutions.

Dilemma 1 2 3 4 5 6 7

How do we do business consistently in an unjust, unequal world and yet respect the diversity within that world?

“Over the last three years we have watched as politics has returned to the centre-stage of the world. Whether it is Microsoft or pharmaceutical companies or telecommunications giants or energy conglomerates, the role of government has been revealed to be central. Sometimes the state takes on the role of regulator, sometimes deregulator. Sometimes it is prosecuting companies, other times subsidising them. But it is always a permanent player on the board.

States exist first and foremost to provide for security. That function had been considered obvious, almost superficial in the post-Cold War era. Now it takes on a new urgency for two reasons. First, the targets of the new terrorism are likely to be economic. In Osama Bin Laden's last video-taped message he pointed proudly to the economic damage that the World Trade Center bombings had caused. Second, the enemy, unlike many in the past, is shadowy and can hide within a country just as easily as outside. This means that governments are likely to have considerable leeway in protecting commerce and in policing citizens.

Companies that are skilled at negotiating with governments and international organisations like the European Union will thrive in this new world. Businesses must assess how much of their business is likely to be impacted by the new costs of commerce. Do they have just-in-time delivery systems that are slowing down? Can they work with governments to speed up the inspection processes at borders? Do they face new problems with insurance? All these problems are in their infancy right now but they will grow with time.



Businesses will also have to find ways to partner with governments more broadly and to manage public opinion. Businesses have been confronted with a new set of issues in the late 1990s, as activists and non profits of various kinds lobbied them to change certain policies. There have been efforts to make alliances and networks between businesses and these new groups. They are worthwhile and useful. But to have real impact, to produce real change, the state has to get involved as well. It is the dominant player in almost every country because it writes and enforces the rules. It is also the only one that can arbitrate between competing groups and interests. Any business that wants to have a role in society must learn how to deal with government. Business is important; society is important; but the state is sovereign. And power matters, even in the 21st century.”

Dr Fareed Zakaria,
Editor, Newsweek International, USA

Vision and values: a living corporate governance model

contact

Lars Rebien Sørensen
CEO

lrs@novonordisk.com
+45 4442 3311

At Novo Nordisk we believe that strong corporate governance is essential in providing a guiding vision of how the company should be managed in an increasingly complex and globalised world. Good corporate governance is expressed through explicit corporate values that guide decision-making within the company and provide the basis for a set of policies and systems which translate those values into action.

'The Charter for companies in the Novo Group' forms the framework for Novo Nordisk's corporate governance model, which commits our Board of Directors to oversee the business, including continuous improvement of social, environmental, and economic performance. It is the underlying structuring principle for making business decisions and driving performance, as expressed in the 'Novo Nordisk Way of Management'. The Charter describes our Values, Commitments, Fundamentals and Follow-up methodologies – our basic management principles.

The Charter for companies in the Novo Group

Core Values

Accountable, Ambitious, Responsible,
Engaged with Stakeholders, Open & Honest,
Ready for Change

Commitments

Financial, Environmental and Social Responsibility

The 10 Fundamentals

Methodology

Triple Bottom Line Reporting

Facilitations
Organisational Audit
Succession Management

Commitments

Financial responsibility

We will work to continuously improve our financial performance by setting high objectives for growth and value creation and by delivering competitive performance in these areas. We will maintain an open dialogue with our stakeholders and comply with international reporting standards.

Environmental responsibility

We will work to continuously improve our environmental performance by setting high objectives and integrating environmental and bioethical considerations into our daily business. We will maintain an open dialogue with our stakeholders and report annually on our environmental performance.

- ⊙ We subscribe to the International Chamber of Commerce's Business Charter for Sustainable Development
- ⊙ We support the United Nations Convention on Biological Diversity

Social responsibility

We will work to continuously improve our social performance by setting high objectives and integrating social, human rights and health & safety considerations into our daily business. We will maintain an open dialogue with our stakeholders and report annually on our social performance.

- ⊙ We support the United Nations Universal Declaration of Human Rights

A guiding vision

Our key business objectives are expressed in our vision. This vision, in turn, guides 13 central policies of the company where mutual understanding will help us operate: communication, engineering, environment, finance, health and safety, information technology, legal, patents, people, purchasing, quality, regulatory and risk management. The policies give operational guidelines within these areas.

The Novo Nordisk 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

Corporate governance

Transforming our Vision, the Charter and our Policies into action is the job of every employee. However, building on this foundation to develop a corporate governance model attuned to the demands from society is the task of the Chief Executive Officer, our Executive Committee, and our committees related to sustainable development. The Environment and Bioethics Committee, the Health Policy Committee, and the Social and Industrial Relations Committee play a central role in identifying issues, establishing policies and devising strategies, targets and action plans. Each is chaired by a member of the Executive Committee and ensures management back-up and funding for agreed activities.

The Novo Nordisk Board of Directors has adopted the recommendations for 'good corporate governance' as published in the recent Nørby Committee's report on Corporate Governance in Denmark. It covers areas such as the relation between shareholders and management, the role of stakeholders, openness and transparency, tasks and responsibilities of boards and their composition, remuneration to directors and managers, and risk management. See Annual Financial Review.

Balanced Scorecard links strategy with action

We have also built social and environmental goals into the Balanced Scorecard, a management system which balances focus on financial measures with a focus on 'non-financial' measures and drivers of future performance. The Balanced Scorecard is an important part of our governance model, ensuring consistency between the strategic focus of Novo Nordisk and operational behaviour throughout the organisation.

These objectives are integrated in each manager's individual performance goals, which are subject to annual appraisal. Depending on the nature of the job, more focus, as appropriate, may be put on environmental or social issues, linked to the specific impacts of the manager's unit.

Facilitations

To provide insight into the performance of the company, regular evaluations, called facilitations, are undertaken. The facilitator function was established five years ago as one of the follow-up methodologies to the Charter. The team of facilitators work in pairs and interview employees at all levels in the organisation in order to ensure that each and every unit lives up to Novo Nordisk standards. Each unit is facilitated every three to four years. Facilitators are also requested to track processes or projects, to identify problem areas and to make recommendations for improvements or resolve identified problems. Thus, their work contributes to sharing better management practices.

A strategy of reaching out

Stakeholder Relations is a strategic unit reporting directly to the CEO and represented in the above three committees. Its mission is to drive, challenge and monitor the Triple Bottom Line strategy at Novo Nordisk and help line implementation of new activities. A key task is to keep the organisation alert to new sustainable development trends and to help senior management understand and manage the complex new business agenda. Interaction with relevant stakeholder groups and annual reporting and communications on Triple Bottom Line issues are also part of the unit's activities.

Novo Academy: a learning environment

To help the company's top-level executives and committees perform their responsibilities, we established the Novo Group Academy in 2001, an informal forum where top-level management and the Boards of Directors from all Novo Group companies have the opportunity to meet, learn and develop networks. The Academy has three main purposes. It provides a global business and societal perspective for the very top levels of the Novo Group; it introduces relevant, forefront trends in markets, culture, politics and knowledge; and it provides a space for top management to reflect on societal issues and a networking opportunity.

The Novo Group Academy held three symposia in 2001, all centred around globalisation and corporate governance.

Trendspotting

The Academy symposia are backed by the 'Trendspotter' newsletter, which addresses issues related to the overall themes. As part of this, a network of 'trendspotters' has been established outside and inside the Group. They provide us with their input on major global trends as reflected in 'Trendspotter'.

Sharing responsibilities through partnerships

contact

Lise Kingo
Senior Vice President
Stakeholder Relations

lki@novonordisk.com
+45 4442 3861

As roles in global society change, both business and NGOs are gaining power, and with power comes a responsibility to seek legitimacy in the public debate. Governance has become an issue for corporations and NGOs alike. While the means may differ, our visions and goals may ultimately look the same, and so it makes sense to collaborate and create meaningful new contexts. Trends are shifting from confrontation to collaboration, from single-issue initiatives to multi-issue approaches, and from a project basis to a more strategic platform.

For many years, Novo Nordisk has based its business conduct on a multi-stakeholder approach by engaging in dialogue with key stakeholders such as NGOs, neighbours, governmental regulators, doctors, nurses and patients. To be successful, such activities must rely on an unbiased attitude, a willingness to share, and a commitment to change. These are some of the key points that we take away from ten years of constructive dialogue with our stakeholders. We have also learned that investing time to build trust is the key ingredient for partnerships.

Understanding multiple agendas

For Novo Nordisk, systematic stakeholder engagement is a significant strategic tool for understanding new trends, and collecting and using knowledge and information from stakeholders. The multi-stakeholder approach helps us to align with multiple agendas and to prioritise. Listening to stakeholders' needs and viewing business performance against the Triple Bottom Line helps us to manage business risks, to stay tuned to the concerns of society, and to spot opportunities and potential problems. This approach fits well with the new governance models we are seeking to develop for business in the 21st century.

Stakeholder dialogue may take many forms – from factory visits to presentations at conferences, and from roundtable meetings to formal engagement through partnerships. We have active partnerships throughout the scope of living the Triple Bottom Line: on healthcare, on animal welfare, on environmental issues, on social issues and on developing business responses to the challenges of sustainable development. Several examples are given throughout this report. See the Internet report for a list of partnerships.

Real leadership is about recognising our own impact and resources and identifying those that may help reconcile the dilemmas confronting us. In doing that we will not only react to change, we will also drive change and help provide direction. We will continue to work across sectors, through networks and partnerships. We will also be guided by a shared vision of prosperity based on sustainable development.

Being at the UN World Summit

There is a close link between environmental deterioration and social insecurity. Each of today's greatest environmental and social problems is challenging enough to keep governments and international agencies busy, but the combination of these problems multiplies the scale of consequences. How we deal with these issues in this decade will be critical to our future sustainability. The UN World Summit for Sustainable Development (WSSD) in Johannesburg, South Africa, in 2002 marks the tenth anniversary of the Rio process. In spite of a broadening global commitment to sustainable development, social imbalances in – and between – states is on the rise, and the depletion of natural resources continues to accelerate. We find that as a global business, we have an obligation to help reverse these trends. Thus, we engage in a number of activities to move the world along the path towards sustainable development.

A matter of trust

A good partnership builds on dialogue and trust. Sharing the risks and responsibilities as well as the benefits in the attempt to achieve mutual goals is a matter of trust. In efforts to promote development which relies on the principles of sustainability, partnerships such as those between NGOs and business have many advantages.

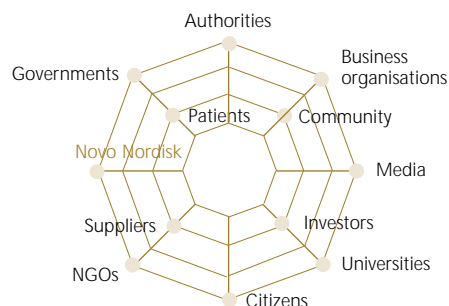
To be successful, a partnership needs time and commitment from both parties. It requires a clear definition of rules, and acknowledgment of differences, transparency and financial independence. Among the tangible benefits, partners gain new knowledge, skills and expertise, and gain the opportunity to learn from stakeholders. A partnership must be guided by transparency, representation and accountability both for the partners and externally. It also requires that key challenges such as power, responsibility and values be addressed upfront, and that there is a common understanding of how the ultimate responsibility for the project's success – or failure – is to be shared. Eventually, this leads to more sustainable solutions than would be the outcome if only one side was behind them.

Sharing responsibility for global development through the Nordic Partnership

Novo Nordisk has taken a leading role in a multi-stakeholder Nordic partnership with the aim of developing a Nordic business model for sustainable development. The model can serve as a tool for assessing 'sustainability-readiness' and as a checklist for identifying impacts and challenges. As one of the four major sponsors of a programme which presently includes 15 prominent Nordic companies, Novo Nordisk is heavily involved in the Nordic Partnership Forum in Copenhagen in April 2002, leading up to the World Summit in Johannesburg. The intention is to solicit commitment from the Nordic governments to bring the results of the conference to the table at the UN Summit.

The initiative was founded by the World Wide Fund for Nature (WWF) in the Nordic countries and House of Mandag Morgen, an independent Danish thinktank. The objective of the project is to develop a new business model which – based on Nordic values and attitudes – constitutes sustainability as an integral part of the way businesses are managed, organised and developed. The goal is to expose the dilemmas, barriers and opportunities that companies meet when working with sustainability, as well as to offer a specific proposal for how businesses can contribute to global sustainable development.

An interactive stakeholder model



How we engage in stakeholder relations depends on the nature of our relationships and the topic in question. From the stakeholder map, which helps identify the different interests in relation to our company's activities, we have now developed a more sophisticated model. It illustrates the complexity of stakeholder interests and reminds us that relations with stakeholders are not static. An individual may represent several stakeholder interests, and new stakeholders may suddenly emerge on the scene. Likewise, the level of transparency is a factor that determines the relationship. NGO visits have provided vital input to our strategies. While previously these visits were about building a common understanding and establishing a fact-based dialogue, today we are being asked not 'what' we do, but rather 'why' we conduct our business as we do. Nurturing stakeholder relations depends on understanding the quality of the relationship, and this is a key emphasis in our Triple Bottom Line approach.

Social responsibility beyond borders

In our 2000 report, we began to address more systematically the issue of access to health for all, which we see as one of the key social responsibility issues for the pharmaceutical industry. Access to health is closely linked to the globalisation debate and its impact on the present unequal distribution of the world's wealth. These are issues that all parties in society urgently need to address. The pharmaceutical industry has a particular obligation to tackle this problem as it offers products that deliver value to society and improve people's quality of life. A decent quality of life should not only be the privilege of those who have access to and can afford healthcare. Against this background, we have taken a range of initiatives known as LEAD – Leadership in Education and Access to Diabetes care – including the launch of the World Diabetes Foundation.

Social responsibility is about acting on our commitment to be responsible corporate citizens in every action, dialogue or engagement that we undertake. Novo Nordisk defines social responsibility as putting values into action from the perspective of our values, human rights, and our relationships with society at large.

As targeted, in 2001 we completed a comprehensive review of our social responsibility obligations. This helped us focus on two key issues: global health and equal opportunities in the workplace. It also led us to identify challenges and priorities for the future, which are now part of our strategy for corporate social responsibility.

As a global corporate citizen, we hold ourselves responsible to the international community and the societies in which we operate, as well as to our customers, employees, suppliers and business partners. So we must be accountable for our actions.

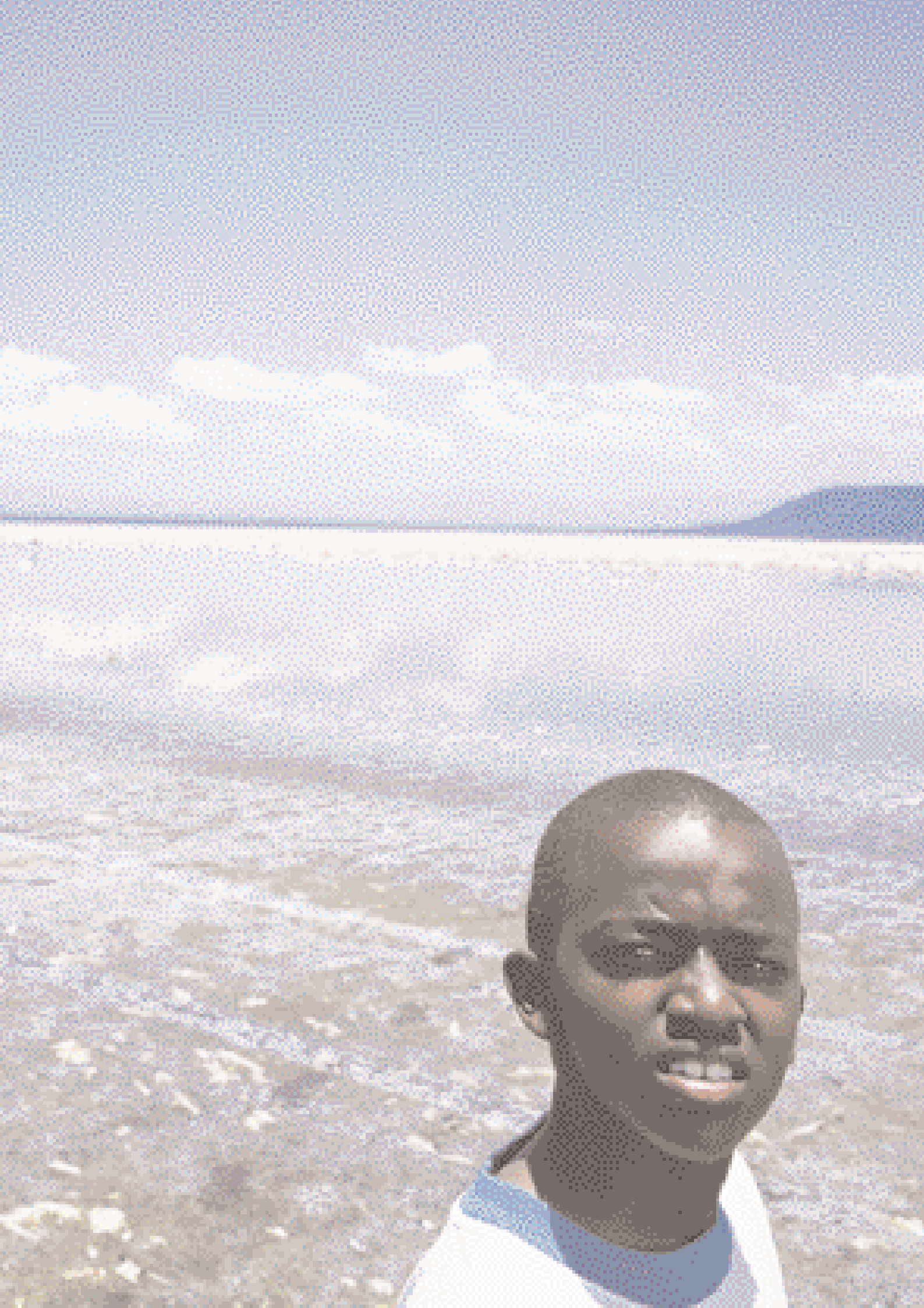
This widening circle of responsibility is reflected in this year's report on our social performance. It extends from global access to health, to the health and safety of our employees; and from equal opportunities in the workplace to systematic evaluation of suppliers' social and environmental responsibility. It describes how we are creating a learning culture and sharing best practices to better manage knowledge – one of our most critical resources. Our growing responsibilities also include managing a host of bioethical issues, from animal testing through the use of human materials in drug discovery and development, to the proper conduct of clinical trials.

In these areas, we face a multitude of dilemmas. They all derive from the changing roles of corporations in society and the acknowledgement that business must play an ever greater role in the society in which it operates. Some of the most pertinent dilemmas are described in this section:

- ⊙ How do we improve access to healthcare and make our products affordable, and yet continue to operate a profitable business?
- ⊙ How do we protect our intellectual property rights and yet help share knowledge that can save lives and generate income for others?
- ⊙ How do we stimulate diversity and equal opportunities and yet maintain a corporate culture of shared values?
- ⊙ How can we pay due respect to animal welfare and yet continue to use animals for testing in order to meet the safety requirements for pharmaceutical products?

The pharmaceutical industry is certain to change dramatically in adapting to the new socio-economic reality. Public-private partnerships and multi-stakeholder initiatives are likely to bring about more sustainable solutions to the world's major challenges – including the overriding issue of overcoming the global 'divides'.

Steve Kamau from Kenya has Type 1 diabetes.



Helping to ensure the right to health

contact

Lars Almbom Jørgensen
Chief Operating Officer

laj@novonordisk.com
+45 4442 7058

In 2001, Novo Nordisk launched an initiative known as LEAD – Leadership in Education and Access to Diabetes care – which aims to improve diabetes care in developing countries. This initiative reflects our company's vision of being there for our customers, often through involvement with local communities and other key stakeholders. Through increased funding and affordable pricing, and by working in partnership with key stakeholders to establish national diabetes programmes, we hope that LEAD will contribute to a more sustainable system of global healthcare.

The problems facing the world today are daunting. Over one billion people live in absolute poverty, and the gap between rich and poor is widening dramatically. Poverty and economic inequity compound the problem of access to healthcare and essential drugs. Developing countries face a double burden of disease: not only do people suffer from common infections and malnutrition, but they must also cope with the emerging problems of non-communicable diseases, of which diabetes is one of the most common.

Diabetes: a pandemic

More than 100 million people in the developing world have diabetes. The World Health Organization (WHO) predicts that without effective prevention and control programmes this number is likely to double in the next 10 to 25 years. This will impact heavily on the already fragile healthcare infrastructure of these countries. Population growth, coupled with rapid urbanisation and a change in lifestyle, are at the root of this development.

The huge challenge of tackling diabetes poses numerous dilemmas for the governments of the developing world as they struggle to identify priorities, define policies, and ensure funding to meet a growing number of competing health needs for their citizens. For a company such as ours, committed to social responsibility, the situation also presents dilemmas.

What role should we assume in developing countries? Will greater involvement from our side be welcomed? How can we develop new sustainable business models that include more partnership, more involvement and less revenue? How will our investors respond to such business models?

In the past, the role of a healthcare company was simply to treat illness; now it is about taking responsibility for sustaining health. Today's challenges require new thinking and new forms of action from all of us. This is what we hope to achieve with our LEAD initiative, but as there is no single solution to the problem of global access to health, we need the partnership of many stakeholders to help us succeed.

Defeating diabetes

Novo Nordisk has a long history of helping improve diabetes care in the developing world. We have an aspiration to defeat diabetes and we believe that we can play an important role in achieving this goal in developing countries. How to deal with the 'right to health' is probably the biggest and most important social issue that the company faces. That is why we have decided to integrate the issue of 'global health' in our Triple Bottom Line strategy as part of the company's social responsibility.

In order to catalogue what we have achieved so far through collaboration with key players in the healthcare sector, in 2001 we published 'Being there', a compendium of Novo Nordisk initiatives in developing countries. The compendium describes more than 100 examples of partnerships, capacity building and educational programmes, grants for diabetes research, and donations in Asia, Africa and the Middle East, Latin America and the transitional economies of Europe and Asia.

The initiatives range from a Novo Nordisk Diabetes Information Centre in Egypt staffed by a physician, two patient educators and a product specialist, which has educated over 500 nurses, 1,000 junior doctors and 500 children with diabetes, to the development and funding of the first Chinese-language diabetes information website by Novo Nordisk China.

Taking a LEAD

Our LEAD initiative is modelled on the four priorities of the World Health Organization (WHO) for improving access to healthcare in developing countries. These are:

- Development of national healthcare strategies
- Building of national healthcare capacity
- Best possible pricing
- Additional funding

Within the framework of LEAD, we have developed specific programmes to deliver action on the four WHO priorities.

Access to health

WHO priorities

Development of national healthcare strategies	<>
Building of national healthcare capacity	<>
Best possible pricing	<>
Additional funding	<>

World Partner Programme

Many developing nations need to build the necessary infrastructure to face the challenges of diabetes. This is done in partnership with local governments and other key players in the healthcare sector. We made significant progress in meeting our 2001-2002 target of developing a sustainable business model for diabetes care in the developing world through the launch of the World Partner Programme in 2001. We concluded an in-depth fact-finding analysis of the diabetes care situation in six developing countries: Bangladesh, Malaysia, Tanzania, Zambia, El Salvador and Costa Rica. Based on these analyses, in 2002 we plan to develop sustainable business models that will guide us in improving access to diabetes care while remaining a viable and profitable business. See 'A window on the developing world' on p. 24.

Novo Nordisk response

National Diabetes Strategies
DAWN, World Partner Programme
Affordable pricing
World Diabetes Foundation

National Diabetes Strategies

Through our National Diabetes Strategies project, we are collaborating with healthcare professionals, patient organisations and authorities in some 40 countries around the world to set up projects aimed at developing or implementing national diabetes programmes. Only through partnership will we be able to face the future challenge of a global diabetes epidemic. See 'A diabetes care toolbox' on p. 26.

DAWN study

To further our understanding of the needs, concerns and challenges of people with diabetes, and to lay the groundwork for establishing national diabetes programmes, we conducted a pioneering study called DAWN (Diabetes Attitudes, Wishes and Needs). Involving more than 9,000 people with diabetes, healthcare professionals and policymakers worldwide, this is the largest study ever conducted in this field. The aim of DAWN is to achieve a better understanding of the psycho-social aspects of the disease, resulting in earlier diagnosis of diabetes, as well as better compliance by patients with the necessary treatments and changes in lifestyle. See 'DAWN of understanding' on p. 26.

Affordable pricing

The costs of therapy may also constitute a barrier for better healthcare in the developing world. Strengthening healthcare infrastructure needs to be facilitated by affordable pricing. As a result, in 2001 we decided to offer our insulin products to the public health systems in the 49 Least Developed Countries (as defined by the United Nations) at prices not to exceed 20% of the average price in the industrialised countries of North America, Europe and Japan.

We chose that percentage as it allows us to maintain our overall profitability while still achieving our goal of affordable pricing. It should be noted that the price of our insulin in these countries is already substantially reduced. We believe, however, that the offer of a price not exceeding 20% of the cost in the developed countries will make a meaningful difference in affordability for some of the poorest countries.



Targets

Develop a 'sustainable business model' in 2002 for helping people with diabetes in poor countries to gain access to diabetes care.

All affiliates are to make a plan in 2002 to assess how they can assist in the development and implementation of National Diabetes Strategies.

Communicate findings in 2002 of the DAWN study at workshops and conferences, and engage in a dialogue with the involved parties on how to improve the quality of diabetes care.

World Diabetes Foundation

Nonetheless, we recognise that even a significantly reduced price may be out of reach for the poorest people. To help meet the needs of these people, Novo Nordisk is establishing the World Diabetes Foundation, subject to shareholder approval in March 2002. Its purpose is to support projects that will improve diabetes care in developing countries. Novo Nordisk will donate approximately DKK 500 million (approximately EUR 67 million) to the WDF over the next ten years for the implementation of projects.

Implementing the strategy

Via this four-pronged strategy we intend to share our knowledge and experience accumulated over 75 years regarding the prevention and treatment of diabetes. We will assist local health systems to develop the necessary infrastructure to deal with chronic disease, offer our insulin products at affordable prices, and use the WDF to increase financial support to the healthcare systems of the poorest countries.

The LEAD initiative will be a success if we see a growing number of governments fund and implement national diabetes strategies; if we see an increase in national healthcare infrastructure for chronic diseases in the developing world; if more people are able to afford insulin because of reduced prices; and if the projects funded through the World Diabetes Foundation yield concrete results in terms of increased awareness of diabetes, improved treatment and better outcomes for some of the neediest people with diabetes.

Measures to follow up

We intend to measure and report on the progress of the LEAD initiative. For example, we will report the results of the 40 countries that in 2001 chose to develop with us or to implement their own national diabetes programmes. We will attempt to measure whether the findings of DAWN are reflected in the guidelines for national diabetes programmes, and we will make sure that the information collected in the survey is published and developed into suggestions which could lead to improved local conditions for people with diabetes.

We will measure how many of the least developed countries have chosen to purchase our insulin under the affordable pricing programme. This will be an indicator of the need for such pricing, and whether the price level we have selected is fair. Finally, possible ways of measuring and reporting on WDF's success will depend on the specific projects funded. They could include a measurable improvement in the prevention, diagnosis and treatment of diabetes, and in the number of healthcare providers educated and trained, as well as activities undertaken to increase diabetes awareness in the target countries.

How WDF will help

The World Diabetes Foundation (WDF) will be established by Novo Nordisk to improve diabetes care in developing countries. With its DKK 500 million endowment, the WDF will support projects aimed at increasing awareness and knowledge of diabetes. It will also support projects that prevent, diagnose and treat diabetes, educate and train health professionals, and improve distribution of medicine and access to proper diabetes care.

This independent foundation will be established in Denmark as a registered trust. The Board will consist of leading diabetes specialists, NGO representatives and representatives of Novo Nordisk, in order to ensure the involvement and partnership of a wide range of stakeholders. NGOs, diabetes organisations or companies may apply for funding from WDF. The secretariat will evaluate project applications based on criteria to be established by the Board. Projects meeting the criteria will be presented to the Board for consideration for funding. Apart from contributions from Novo Nordisk, the WDF will seek to raise additional resources from other sources.

For more information, visit

www.worlddiabetesfoundation.org



Dilemma 1 2 3 4 5 6 7

How do we improve access to healthcare and make our products affordable, and yet continue to operate a profitable business?

“Diabetes exerts a considerable toll on health resources of the developing countries of Sub-Saharan Africa. The chronicity of the disease, its complications and the toll it exerts on the patient and his/her family are considerable. The rate at which new cases of diabetes are emerging poses an additional burden on the society already stretched to the edge by other diseases such as malaria, tuberculosis and HIV/AIDS. The already scarce resources (human resources, health infrastructure) get further depleted.

The unfortunate aspect of diabetes in developing countries is that the ‘new cases’ and the rate of increase in the prevalence of the disease is predominantly in the age group 45-64 years. Individuals in this age group are expected to be the most productive part of the society and to contribute immensely to the economic well-being. With this productive age group being affected so early, the impact of the disease, its complications with their chronicity and the economic costs incurred are too high for poor developing countries to sustain. In many of the third world developing countries, annual treatment for a patient with diabetes far exceeds the annual per capita health budget.

The industry can assist in many ways. It can strengthen local diabetes associations by providing initial input such as financial and infrastructure development. It can host and sponsor public awareness programmes, eg during World Diabetes Day. It can establish centres of excellence in different areas of the region for comprehensive diabetes care. It can fund the training of different categories of healthcare providers. It can provide support for development of training manuals and clinical care guidelines and assist in their dissemination. And it can provide for some funds to assist those patients whose life depends on continuous availability of drugs (insulin, syringes, oral drugs) and who cannot afford treatment.

It is a tall order for the pharmaceutical industry. Of course, the objective of any business is to make profits but there has to be a ‘human touch’ as well. There has to be an ethical and moral obligation and part of the profits must be pumped back into the system to ensure that there is an access to at least a Minimum Standard of care for those who cannot afford it.”

**Dr Kaushik Ramaiya,
Shindu Medical Center, Tanzania**

A window on the developing world – a status on the World Partner Programme

During 2001, we established the World Partner Programme, which is aimed at creating sustainable business models for improving access to diabetes care in the developing world. We undertook case studies of six developing countries in order to gain a better understanding of diabetes in those countries and to forge partnerships with local, national and international players in the healthcare field. We chose to focus on Bangladesh, Malaysia, Tanzania, Zambia, El Salvador and Costa Rica in order to gain a geographical spread on the three continents of Asia, Africa and Central America, which all face a growing diabetes challenge. Indeed, it is estimated that 75% of the increase in Type 2 diabetes cases will occur in the developing world as a result of lifestyle changes such as weight gain, less physical activity and dietary changes.



Khalfani Saidi Muhingo from Tanzania has Type 2 diabetes.

Lack of awareness and knowledge

We performed extensive research, although a lack of reliable data in some countries made a thorough analysis difficult. We conducted interviews with patients, patient organisations, nurses and doctors, and healthcare authorities. We visited clinics and hospitals. Our fact-finding mission revealed that several of these countries share common challenges but there are also huge differences. For example, Tanzania and Zambia are overwhelmed with the double burden of dealing with both infectious diseases as well as non-communicable (NCD) and chronic, life-style related diseases. With the exception of Costa Rica and Malaysia,

which have achieved a relatively high standard of living over the past 15 years, the other countries visited face pervasive poverty and rapid population growth. These factors affect a country's ability to provide a stable and well-functioning healthcare system. Four of the six countries are beset by poor healthcare infrastructure, lack of access to public healthcare, and irregular and erratic supply of medicine. There is a lack of awareness and knowledge about diabetes in these societies which is the reason why many people with diabetes remain undiagnosed. Even those who are diagnosed and treated have poor control over their disease and experience high rates of late complications. Access to medicine and equipment is compromised by periodic shortages in public health facilities, and the situation is sometimes aggravated by natural disasters, as in the case of Bangladesh and El Salvador.

Yet countries such as Costa Rica offer a ray of hope for meeting the challenge of providing quality diabetes care in the developing world. Since the late 19th century, only two brief periods of violence have marred its democratic development. It enjoys a basically stable economy and has achieved a relatively high standard of living. Poverty has been substantially reduced over the past 15 years, and a strong social safety net has been put into place. Virtually all Costa Ricans have access to a far-reaching and basically effective system of socialised medicine that is the envy of other countries, not only in Central America but also elsewhere in the developing world. The socialised system ensures equitable access to quality diabetes care, including facilities, healthcare professionals, equipment and medicine for virtually all people with diabetes.

Critical success factors

On the basis of our survey, we identified critical success factors for effective diabetes care. These include the presence of local champions such as an individual doctor, healthcare official, or enterprising local diabetes association. These champions advocate the establishment of national diabetes prevention and control programmes, as well as continuous improvement in diabetes care. For example, in El Salvador and Bangladesh the local diabetes associations help subsidise the supply of insulin to poor patients by providing a preferential price or offering it free of charge to the poorest patients. They also play an important role in providing healthcare services and education.

Other critical success factors include providing affordable and accessible care for those diagnosed with diabetes, a well-organised and managed public healthcare infrastructure, and training and education programmes for both professionals and people with diabetes. Finally, success requires the political will to allocate significant economic resources to overcoming the burden of diabetes.



Nassoro Juma from Tanzania has Type 2 diabetes.

Our study of these six countries showed that where the political will exists, it does make a difference. For example, Malaysia's Ministry of Health has declared diabetes a top healthcare priority and has formulated a national action plan and strategies for improving diabetes care. Recognising the significant impact of non-communicable diseases on people's health, the authorities in Costa Rica have established a national commission on NCD to formulate strategies and action plans for the prevention and control of NCD over the next ten years. Costa Rica also has a national diabetes plan. Even Zambia, struggling simply to provide for the basic healthcare needs of its people and to combat the devastating consequences of infectious diseases such as HIV/AIDS, tuberculosis and malaria, has formed an NCD Task Force. In El Salvador too, a national programme on prevention and control of NCD is being drafted, including a national diabetes plan.

How Novo Nordisk can contribute

Identifying the critical success factors helps us to see how Novo Nordisk can contribute most effectively, in partnership with others, to improving diabetes care in the developing world. For example, we can (and do) work with local diabetes associa-

tions to inform and educate national health authorities about the magnitude of diabetes, with the goal of gaining their commitment to establish a nationwide diabetes healthcare infrastructure.

We are already helping local champions in some of the countries to provide services and medicine. For example, Novo Nordisk at no cost provides 10% of the insulin that the Bangladesh diabetes association offers the poorest people with diabetes treated by its central medical institute. The institute treats some 450,000 diabetic people, or about 15% of the diabetic population. We also support education, awareness and research programmes in Bangladesh, in partnership with the association.

Other opportunities for public-private partnerships exist in the funding, development and distribution of public awareness programmes. For example, in Malaysia we identified a need for integrating diabetes and cardiovascular prevention programmes, and in El Salvador for targeting education efforts at high-risk groups, as well as providing professional continuing education for doctors and nurses.

Finally, we can – and do – collaborate with other stakeholders in offering technical assistance in the design of protocols for data collection, development of standard treatment guidelines for diabetes, and performing diabetes care studies.

As we continue to develop our World Partner Programme, we aim to work with many other stakeholders to scale up the access of the world's poor to essential healthcare services. The role of community involvement and the importance of mobilising a broad partnership of public and private sectors and civil society should not be underestimated in the effort to accelerate greater access to health in these six countries, and many others like them.

DAWN of understanding

DAWN (Diabetes Attitudes, Wishes and Needs), the largest study of the psycho-social dimensions of diabetes ever conducted, was completed on target in 2001. We communicated the findings on World Diabetes Day 2001. Financed by Novo Nordisk and conducted independently with an external advisory panel, DAWN surveyed 9,298 people with diabetes, healthcare professionals and policymakers world-wide. Among the key findings were:

- ⊙ Social support and emotional well-being are pivotal to achieving effective self-management.
- ⊙ Current standards for diabetes care do not include evidence-based approaches to dealing with psycho-social issues.
- ⊙ Improved outcomes in diabetes may be achieved by combining specific psycho-social support with appropriate medical care.



Chen Zexing from China has Type 2 diabetes.

Diabetes, like many other chronic diseases, requires a mixture of medical attention from a professional team and management of the disease by the people with diabetes themselves. This covers everything from diet and exercise to insulin treatment. A family network or other support is crucial in helping a person cope with the demands of the disease such as dietary restrictions, remembering to take medication, keeping up an exercise regime, and ensuring regular attendance at the diabetes clinic.

It is clear from these findings that healthcare professionals still need to understand more about the psychological aspects of people with diabetes, and tailor the management of the disease accordingly.

Novo Nordisk will engage in collaborative efforts with all stakeholders to ensure that the results and their implications are widely communicated. The study will be discussed with patient groups, key opinion leaders, general practitioners and healthcare providers, and we will seek their advice on how to make best use of the results. Plans can then be drawn up and partners can agree on the roles they will play in improving diabetes care around the world. The DAWN study is one of the most important investments for the diabetes cause that Novo Nordisk has ever made, and we hope to see it provide new ways to improve the lives of people with diabetes and their families.

For more information, visit

www.dawnstudy.com

A diabetes care toolbox

Inspired by the Australian National Diabetes Strategy, Novo Nordisk has initiated a National Diabetes Programmes Toolbox, which is designed to assist people involved with developing national diabetes strategies around the world in developing their own national diabetes programmes. The toolbox is a set of practical generic frameworks covering aspects of healthcare that are integral to developing and conducting national diabetes programmes. This marks significant progress in achieving our target for 2001 of assisting in developing and implementing such strategies.

The purpose of the toolbox is to encourage and support the development of national diabetes activities, such as education programmes for people with diabetes, diabetes training programmes for healthcare professionals, and community awareness campaigns. The toolbox is not an exhaustive list of activities that must be undertaken. Rather, it focuses on key stages in the development of national diabetes programmes. Workshops to share 'best practices' have been conducted with Novo Nordisk affiliates around the world. By the end of 2001, 40 affiliates had drafted a plan for how they will help implement a programme in their own countries.

Patents put to the test

Few issues in recent years have put the spotlight on our pursuit of corporate social responsibility as much as our decision in 1998 to participate in legal action against the government of South Africa in defence of patent rights. The case was settled in 2001, but what began as the straightforward issue of protecting the principle of patents increasingly became a debate about denying poor people access to essential drugs – in this case, AIDS drugs to South Africans.

In the Spring of 2001 we found ourselves caught up in a case that sparked extensive media coverage and prompted some well-orchestrated and successful campaigns by NGOs such as Oxfam to appeal for more inexpensive drugs for developing countries, and to challenge the role of multinationals in these countries. In this highly charged environment, we found it difficult to get our viewpoint across to some of our more critical stakeholders. The case, and what followed, gave us much to reflect on, and furthered our thinking on how the private sector can do more to address the problem of access to healthcare and essential medicines. It also emphasised the need to continue our stakeholder dialogue and continually monitor the concerns of the world around us. This was further developed in 2001 with the introduction of our 'Trendspotter' network and regularly published 'Trendspotter' newsletters on relevant issues for members of the Novo Academy, the company's senior management and committees. See 'Vision and values: a living corporate governance model' on p. 14.

We place great importance on being alert to our stakeholders' concerns and believe that the controversy surrounding the lawsuit raised a number of valuable issues about improving access to health for the world's poorest people, a problem which our company takes very seriously. See 'Helping to ensure the right to health' on p. 20. Patents – the focal point in this case – are only one part of the overall issue concerning access to health.

In 1998, Novo Nordisk and 40 other pharmaceutical companies took legal action against the South African government, which had sought to use a 1997 law (the Medicines and Related Substances Control Amendment Act), to allow South Africa to obtain the cheapest possible medicines for all purposes from abroad and from local suppliers, including AIDS medicine. This law gives the South African health minister the right to override pharmaceutical patents when the government considers that public health is at stake.

However, the pharmaceutical industry felt that the 1997 law gave the South African government 'carte blanche' to abrogate patent rights for any pharmaceutical products, regardless of whether there was a national health emergency. The industry argued that the World Trade Organization's Trade-Related Intellectual Property agreement (TRIPS) already allows patents to be overridden in the case of national health emergencies such as the AIDS epidemic.

Novo Nordisk does not manufacture AIDS medicines, but we joined the suit because we believe that the protection of intellectual property rights as set out in treaties and international conventions already allows wide flexibility to meet the needs of developing countries. The least developed countries have been given an extended deadline for implementation of TRIPS, and there is a mechanism to allow a country to issue compulsory licences for medicines for public health or emergency reasons.

The case was settled in 2001, with the South African government agreeing to honour its obligations under TRIPS and to consult with the pharmaceutical industry on the implementation of the disputed law. It is our belief that the South African government could have produced generic AIDS drugs under the TRIPS agreement if it had recognised AIDS as an epidemic disease. We believe that most public health problems require a political will to find solutions, as well as the presence of a strong healthcare system and infrastructure that can provide the necessary products and services.

contact

Lars Kellberg
Vice President
Business Development
and Patents

lake@novonordisk.com
+45 4442 1822



But we also understand critics who believe that intellectual property rights (IPR) – and particularly strong patent protection – create monopolistic advantage and concentrated market control, leading to high prices that make it difficult for the world's poorest people to obtain desperately needed medicines and new technologies. This presents a crucial dilemma. We continually need new knowledge and innovation to address health issues and other aspects of the quality of life, but we have created mechanisms for the privatisation of knowledge. We must deliver healthy financial returns to our shareholders while at the same time finding ways to unlock the necessary privatisation of knowledge that patents entail.

However, in South Africa, and in many developing countries, patent protection is not the reason why so many people lack access to essential medicines. In fact, 95% of the products regarded by WHO as essential for a population's health are not protected by patents. The patent terms of these products have simply expired. It should also be noted that there are no patents on insulin in the developing world. The gap in healthcare provision is more often caused by a complex set of factors, including lack of awareness, lack of development in the healthcare sector, and a lack of strategies and services to deal with public health problems in an appropriate fashion. Here, we believe the pharmaceutical industry has an important role to play by providing expertise to governments to improve healthcare infrastructure. See 'Helping to ensure the right to health' on p. 20.

We believe that support should be given to the developing countries to allow them to take advantage of their rights under TRIPS to address their public health needs. We also believe that the South African case has underlined the need for the pharmaceutical industry to work more closely with all its stakeholders to resolve the complex issues that were sparked by the lawsuit. In particular, it must contribute with prices for patented drugs that are sustainable and reasonable – something that we and other companies have already shown a willingness to do.

Intellectual property rights, together with sound public and international policies, are fundamental to progress. In the health area, the discovery and development of new and better medicines are to a large extent dependent on the private sector's investments, which are made with the expectation that inventions can be protected by patents.

The ability to patent inventions stimulates innovation and competition, while also protecting the successful inventor's recovery of the investment. To safeguard further progress, patents ensure the publication of new knowledge. Intellectual property rights are essential to guide future research into areas of specific interest to the developing countries. We believe it is possible to sustain the delicate balance between the need to protect intellectual property and the need for improved access to essential medicines in developing countries. For us, the case highlighted the need to engage with all our stakeholders and be alert to their needs and concerns. In this way we can better convey our views, and also learn from others when controversial issues have the potential to derail rather than enhance mutual understanding.

Under ATTAC in the Danish media

On 15 February, the headline on the front page of the leading liberal Danish newspaper, Politiken, said: "Danish companies impede delivery of essential drugs." It triggered what was to be nine weeks of very vocal criticism against Novo Nordisk and the entire pharmaceutical industry for filing what was perceived as an unethical lawsuit against the South African government. Indeed, this has been the longest and most severe media storm our company has ever faced. The case is an example of how globalisation impacts the public debate. There was a convergence of very diverse interests and issues in this single case, and it also underscored the efficiency of the Internet for rapid, well-targeted communication. In Denmark, the case led to the emergence of a national chapter of the anti-globalisation movement, ATTAC. In the following weeks, other media picked up on the theme of the AIDS-afflicted South African poor locked in combat with the Goliaths of big pharmaceuticals, and Novo Nordisk's reputation as "a company with a heart" was put to the test. The emotional appeal and the 'human touch' stories spoke to the public in words and pictures far more appealingly than the rational arguments for the principle of intellectual property rights. The climax was reached during a demonstration against our company outside the factory in Copenhagen. CEO Lars Rebién Sørensen was there to listen to and talk to the demonstrators, to get the feel of the nature of people's sentiments and arguments against globalisation.

The negative media coverage did not affect Novo Nordisk's business results. In terms of share prices or the number of applications for jobs, no downturn is reported. Paradoxically, it seems that our company has come out strengthened. Novo Nordisk was awarded the first place in the Danish business daily Børsen's annual image rating, and there were several similar recognitions during the year. But indeed, we have seen in real life the truth that reputation is fragile when ethics are challenged.

How do we protect our intellectual property rights and yet help share knowledge that can save lives and generate income for others?

“Novo Nordisk rightly highlights the jolt given to the company by their decision to sue the South African government alongside 38 other drug companies. The challenge to South Africa’s Medicines Act came to be seen as ruthless bullying by an industry prepared to put profit before the lives of 4.5 million South Africans dying of HIV/AIDS. The public outrage was loud and condemnation worldwide.

The case – a dispute over patent protection – was the first high profile test case of the WTO agreement on intellectual property (TRIPS). This agreement, which gives the industry a minimum of 20 years global patent protection, stands to severely curtail the already restricted access of poor people to much needed medicines. By keeping lower cost (generic) equivalents of patented drugs out of the market, TRIPS will lead to higher prices for most patented and all new medicines. Products affected include many current anti-HIV drugs and all future drugs for HIV/AIDS, malaria and TB.

The worst thing about TRIPS is that its blanket global provision will disproportionately hurt the poor – furthermore is it unnecessary. Developing countries represent a small proportion of the global pharmaceutical market (Sub-Saharan Africa, for example, accounts for less than 1%). Industry incentives to finance research and development already exist in abundance in industrialised markets.

Novo Nordisk could play a vital role in the debate about access to medicines. Not only through important initiatives such as the World Diabetes Foundation, but also by taking a lead on intellectual property issues. It could argue for a review of the public health impact of TRIPS and publicly acknowledge that TRIPS places an unfair burden of proof on those least able to afford expensive lawyers and trade experts: poor countries.”

Sophia Tickell,
Senior Policy Adviser, Oxfam, UK



Putting health into the hands of our employees

contact

Henrik Salomonsen
Vice President
Occupational Health Service

hsal@novonordisk.com
+45 4443 5201

Targets

Collect background information from each production unit and country on factors that have relevance to the number of accidents reported.

Set a baseline for global H&S indicators by 2002.

We believe that Health and Safety (H&S) programmes stand a greater chance of succeeding if decisions on these issues are left in the hands of those who are most affected: employees themselves.

A working environment council, headed by a Corporate Executive Vice President, and with relevant Vice Presidents and elected employee representatives, supports our policy on H&S. The council is a forum for debate on policies, standards and procedures, but has no executive function. If the line organisation cannot solve a specific problem, it is taken to the council. Our Occupational Health Service assists with professional advice. Our Health & Safety strategy also includes further qualifying employees to participate in H&S work. Today, all production workers in Denmark are trained in H&S work. Similar initiatives are ongoing at all production sites around the world. See site reports for details.

Health & Safety performance

	2001	2000
Frequency of occupational injuries	8.2	8.4
Frequency of occupational illnesses	2.2	1.7

Indicators for the working environment

- Frequency of occupational injuries and incidents in production units (ratio accidents/incidents)
- Access to H&S competencies (professionals/services) for both employees and managers
- Systematic H&S work, eg regular workplace evaluation
- Employee participation

Getting the balance right

In our Health & Safety policy we state that we will "not compromise health and safety for economic or productivity reasons". However, all policies must be transformed into concrete actions to be real, and here we meet a dilemma which we must continually deal with.

Although everybody understands and agrees that a healthy working environment is a prerequisite for a healthy company, there is always the risk that productivity takes precedence over safety in everyday decisions, or that people disagree about the level of acceptable risk.

However difficult this is, the health of our employees comes first. With responsibility for the working environment fully integrated in line management, issues are discussed as they arise. Although this implies the need for more discussion we believe that we will make better decisions this way. It is also the best way to successfully implement health and safety measures and ensure continuous improvement.

To support this goal in Denmark, all managers are trained to carry out H&S work. External inspections by the National Working Environment Authority have found no failures in our H&S work. Working conditions and safety levels met their approval. As in other Danish companies, employee representatives are protected by their terms of employment.

What gets measured, gets done

We believe that we can support the balance between working environment and productivity considerations through systematic preventive efforts. To support these efforts we have begun to develop a set of global H&S indicators. In the first instance they are targeted at production sites. In 2002 a baseline will be set, and then we will be able to report on an annual basis.

The voice of our employees: opportunities for development

More than any other stakeholder group, our employees are the essence of Novo Nordisk. We therefore consider it crucial to monitor how Novo Nordisk employees worldwide think about the company, their job, and their opportunities to develop their skills and competencies.

The results of the Novo Nordisk employee survey, eVoice 2001, demonstrate that employees support Novo Nordisk's vision and values. The survey found that 85% of our employees agree that Novo Nordisk's social and environmental performance is important to the future of the company. In fact, this was the highest overall scoring question in the survey, along with "I take pride in our products". The questions are consistent top scorers across all geographical regions. This strong support clearly indicates that the Triple Bottom Line approach is widely appreciated within the organisation. See 'Putting values into action' on p. 10. More than 80% of employees responded in the survey.

The survey also found that the number of employees who felt pride in their work increased from 1999, when the previous employee survey was undertaken. On a scale from 1 to 5 the average score increased from 3.9 to 4.2. The overall results are positive and correspond well with the

Fortune Magazine nomination of Novo Nordisk as one of 10 great companies to work for in Europe. 79% of our employees are located in Europe.

Main survey results 2001

These are the mandatory categories from eVoice 2001 and the average scores on a scale from 1 to 5:

Vision	4.0
Values	4.0
Decision-making	3.6
Stress and workload	3.6
Development of employees	3.5

People development as a defined strategy

Development of employees is one of five focus areas in the Novo Nordisk People Strategy. The other four focus areas are: Winning Culture, Customer Relations, Attraction and Retention of the Best People, and Equal Opportunities. These focus areas are all defined as critical for our long-term performance. Key Performance Indicators (KPIs) and targets were created in 2001 to measure performance. eVoice was used to measure performance for 'Development of employees'.

contact

Peter Møller
Vice President
Business & Organisation

pmq@novonordisk.com
+45 4442 3196



More local influence on survey design

The Novo Nordisk employee survey, eVoice 2001, was conducted as a follow-up survey to the 1999 employee survey. The web-based eVoice 2001 survey was made available in six language versions to Novo Nordisk's workforce across the globe. The first objective of the survey was to facilitate discussion of the work environment at departmental level. Unlike the 1999 'one-size-fits-all' questionnaire, this year's survey was designed to enable business units to adapt the contents to local requirements.

Comparisons between the 1999 and 2001 surveys are made cautiously, as the wording of some questions has been changed. Furthermore, only 80% of employees were included in 1999, whereas all employees were included in 2001. Experience from eVoice 2001 has stressed the value of decentralising the survey as units have been able to act locally on issues arising from the results. In 2002, we will conduct a new employee survey.

Targets

To follow up in 2002 on the results of eVoice 2001 through mandatory climate surveys.

80% of all employees are to have a dialogue with patients – ie meet with and have an opportunity to ask questions – in 2002.

80% of all units, which had a personnel turnover of more than 10% in 2001, are to reduce their unwanted turnover in 2002 by 20%. Exit interviews are to be conducted with 80% of people who leave Novo Nordisk (voluntarily or involuntarily) in 2002.

90% of all managers with direct reports are to establish one business goal related to how they will develop their people.

90% of all Vice Presidents, Senior Vice Presidents and General Managers are to identify one team target with a related reward/recognition by 30 March 2002. 80% of this group are to evaluate the team target before 1 December 2002.

The eVoice 2001 survey included six questions regarding development of employees (see box on p.33). Compared to the 1999 survey, eVoice 2001 indicates that employees experience more opportunities to use and develop their skills as well as to keep updated with the latest developments in their professional fields.

Although the overall results indicated that we are on the right track, 'Development of employees' is the lowest scoring of the five mandatory themes. This is mainly due to the low score on identifying the competencies needed in 2-3 years' time. This indicates that the organisation is better at making and implementing short-term than long-term development plans. In 2002, we will look into improving our ability to identify and develop competencies needed on the longer term.

From identifying problems to positive action

eVoice 2001 followed up the 1999 employee survey with mandatory questions on our ability to develop employees. In units where the average score for employee development was below 3 on a scale from 1 to 5, an e-mail was automatically released from the eVoice system to the management of the department requesting that an action plan for how to remedy the situation be prepared by the end of the year. This method was adopted to ensure prompt action unaffected by any personal judgment – simply an 'alert lamp' flashing. This happened in 83 cases, representing 8.8% of all business units.

Monitoring employee development

It is part of our strategy to recruit the most talented people and offer them challenging jobs at Novo Nordisk. Climate surveys like eVoice are some of the tools used to measure our ability to develop employees. Another approach is to assess our ability to develop people for management positions.

In 2000, we measured our ability to select qualified candidates for management positions and to fill vacant management positions with these candidates. Candidates on the succession planning list filled approximately 67% of these positions. This issue continues to be discussed at our annual organisational reviews.

In 2001, we have improved the quality of key employees' development plans, which include the positions for which the employee is listed as a successor. In the development plans we set new quality criteria to be met by the development plans for our key employees. Today, more than 94% of all key employees' development plans meet these criteria.

These are the questions relating to 'Development of people' and the average scores on a scale from 1 to 5

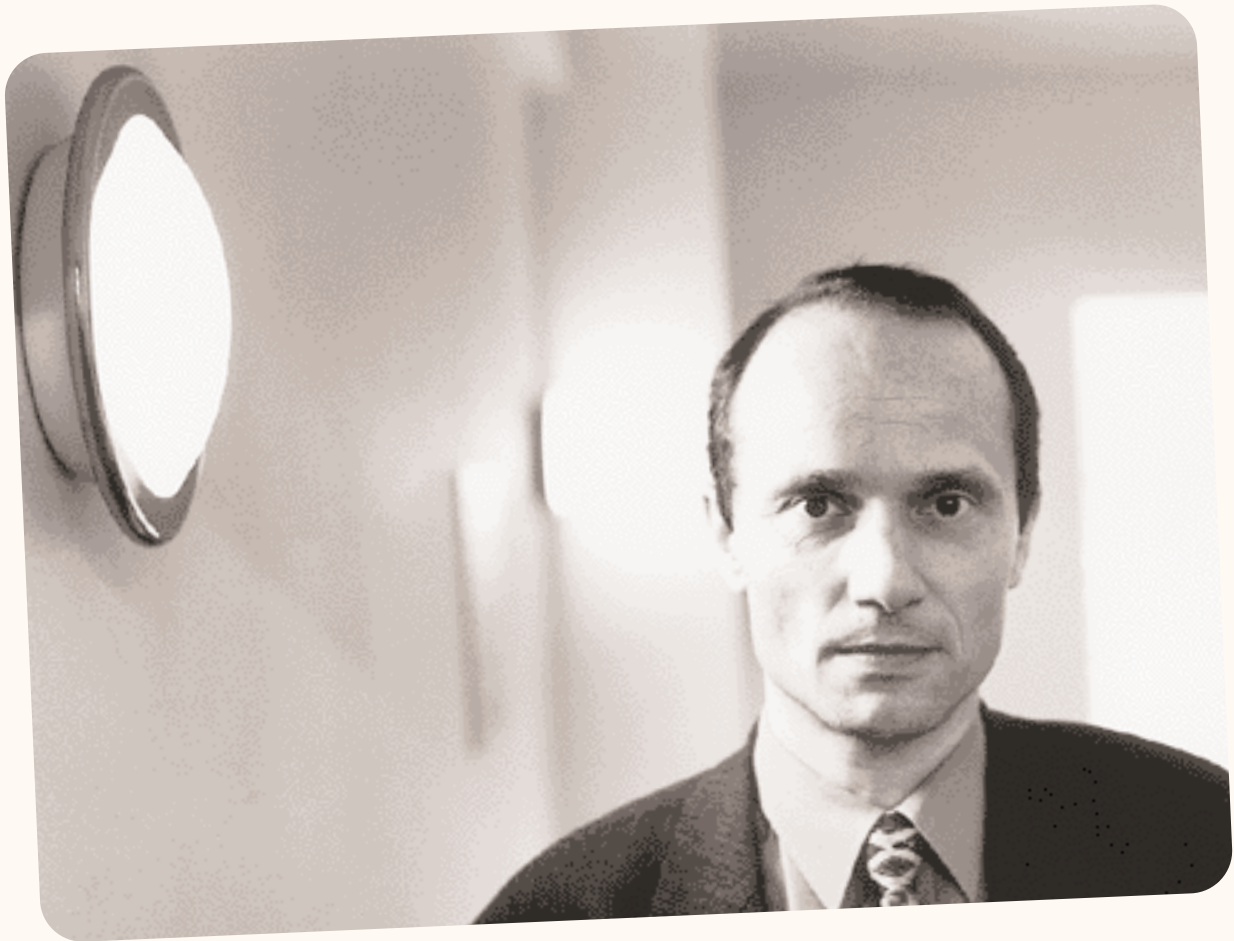
" My manager ensures that I have a development/training plan that is based on my needs and wishes as well as the needs of the company"	3.6
" It is possible for me to keep up-to-date with the latest developments in my field of work"	3.6
" My development/training plan contributes to my ability to solve new tasks"	3.5
" In my work unit we have identified the competencies/skills we will need in 2-3 years' time"	2.9
" My manager follows up to ensure most of the activities in my development/training plan are carried out as planned"	3.3
" My work gives me the opportunity of using and developing my competencies/skills"	3.8

Stress and workload are recurring issues

The results of eVoice 2001 indicate that there is still room for improvement regarding stress and workload. However, compared to 1999, the new survey indicates that we have made some progress on these issues. Scores vary greatly between individual units, as do the causes of stress. The stress-related problems are therefore dealt with at unit level.

For instance, at our production site in Kalundborg, Denmark, all managers have a personal target of implementing a better work-life balance at the site. Many units have hired new people to alleviate the workload, but introducing and training new people adds extra work too. The Kalundborg production site, which had high stress scores, has therefore worked intensively on new induction systems so that new employees can be properly introduced while not imposing too much extra work on current employees.

The issue of stress was debated with CEO Lars Rebie Sørensen at local employee meetings during the year. It has been decided to analyse the eVoice results in order to assess the extent of the problem and identify possible trends. Based on this analysis a toolbox for how to prevent and cope with stress will be developed and offered to all units in 2002.



How do we stimulate diversity and equal opportunities and yet maintain a corporate culture of shared values?

Dilemma 1 2 3 4 5 6 7

“The history of the world is filled with painful experience demonstrating how discrimination has undermined democracies and eroded the stability of societies, to the detriment of us all. That is why it is so important that we do our utmost to fight discrimination.

In the current Danish debate on integration of refugees and immigrants, which has accelerated during 2001 and was highlighted in the November general election, we tend to blame the problems on ‘them’ – the immigrants. They must learn our language in order to qualify for jobs and education and adapt to the Danish way of life – to become what we term ‘integrated’ or assimilated into our culture. It seems far more difficult for us to recognise the barriers within ourselves that we are not aware of, and which lead to the exclusion of ethnic minorities from the privileges enjoyed by the majority of the population.

Employment and the ability to be self-supporting are essential for creating self-esteem and a strong sense of identity. One of the principal keys to the integration of ethnic minorities is access to the labour market. To that end, the business world plays an important role. Companies must be willing to share responsibility for ensuring integration. It is essential that each individual company questions its traditional way of recruiting and treating its workforce, assesses areas with room for improvement, and considers which initiatives can be introduced in order to promote diversity in the workplace.

For European companies diversity in the workplace may even be a question of long-term survival, due to the population’s ageing, combined with low fertility. No doubt companies which respectfully integrate ethnic minorities and create a multi-cultural working environment will be those able to attract the best candidates in the future.”

Morten Kjærum
Director, Danish Centre for Human Rights

Working actively with equal opportunities

Securing equal opportunities in the workplace is an essential part of fulfilling our social responsibility and a main focus area of our employee development strategy. By the end of 2002, the majority of our business units will have an action plan for working with equal opportunities.

For Novo Nordisk, as for many companies worldwide, one of the great challenges will be to promote awareness within the company of discrimination and the importance of valuing other cultures. Diversity should be seen not as a problem, but as an opportunity. Creating a corporate culture that supports diversity will be vital to securing equal opportunities for all. We have held team-building exercises, workshops, department meetings and executive coaching on the topic of equal opportunities and diversity during 2001. We will continue to involve employees at all levels in discussing attitudes towards diversity and finding solutions to problems.

Equal opportunities on a global scale

We have set a 2002 target for each affiliate and unit to develop an action plan for addressing equal opportunities. At our International Meeting in January 2002, which involved all managers from director level upwards (more than 300 managers), we introduced an Intranet-based toolbox available to all business units. The EO Toolbox will help management to define the relevant equal opportunity issues for their individual units and to identify strategic steps prior to developing an action plan.

The EO Toolbox is linked to other companies working actively on these issues. In addition, links to international organisations dealing with diversity and equal opportunities will encourage business units to engage in stakeholder dialogue at local level.

Equal opportunities and diversity will also be a focus area for our facilitator team, which assists each unit in ensuring that our policies and values are applied and that we fulfill our commitment to the Triple Bottom Line throughout the business. See 'Vision and values: a living corporate governance model' on p. 14.

During 2001, we developed a strategy in Novo Nordisk Denmark to integrate equal opportunity issues into our daily business. In 2001, we completed a survey of our Danish workforce and found that ethnic minority representation in our workforce is less than the average in Danish society. As an international company, Novo Nordisk aims to at least reflect the surrounding society in terms of minority representation, where possible. However, the skills and competencies required to fill a position with Novo Nordisk, as with other pharmaceutical companies, may be a barrier to meeting that objective.

Interviews with minority employees

We engaged an external consultant to conduct a series of interviews with ethnic minority employees at Novo Nordisk, which were then benchmarked against employee statements from other Danish companies. Our aim was to get an understanding of the barriers to and visions for equal opportunities. In general, all interviewees expressed satisfaction with working for Novo Nordisk. Nonetheless, a number of employees experience a lack of positive recognition of their diverse backgrounds. In their dealings with colleagues, they are often met with questions as to their ethnic background leading to a feeling of being perceived as 'different', and they find that they must give up norms and values to be accepted.

Integration through education

In our Danish organisation, several specific projects have been initiated during the year:

- ⊙ In cooperation with the Technical University of Denmark we offer a two-year Master of Science education programme to engineers from an immigrant background.
- ⊙ We work actively with equal opportunities in relation to trainees by targeting presentations and recruitment material at young graduates from ethnic backgrounds other than Danish.
- ⊙ Our largest production site in Kalundborg collaborates with local training centres and companies to prepare immigrants for training as process operators. Of the 18 persons who completed the basic course in 2001, Novo Nordisk has recruited 7 trainees in our production area.

contact

Kåre Schultz
Chief of Staffs

ksz@novonordisk.com
+45 4442 3489



Target

Each Executive Vice President and Senior Vice President has to establish a plan with targets for their organisation to address equal opportunities issues in 2002.

Gender representation in management

Another indicator of equal opportunities is the extent to which men and women are perceived to have equal career opportunities. At Novo Nordisk, we are pursuing the goal of increasing the representation of women at management level. The table below illustrates the current status of women in management. One of the parameters of our succession planning system is to increase the number of women candidates selected as successors for vacant management positions.

In our employee survey, eVoice 2001, we asked our employees to state on a scale from 1 to 5 the extent to which they see men and women as having equal opportunities at Novo Nordisk. Of the more than 80% employees who returned the eVoice questionnaire, 67% responded positively to this statement. However, men tend to agree more than women with the statement that Novo Nordisk is pursuing equal opportunities. About three quarters, or 73%, of the male respondents responded positively, compared to 60% of the female respondents.

Dealing with harassment or other discriminatory behaviour in the workplace

Any employee who believes he or she has been or is being harassed or discriminated against should promptly take action. The EO Toolbox offers a series of steps to either confront the person doing the harassing, or report the behaviour to superiors or to the Human Resources department. If the issue is not resolved, as a final solution the issue may be brought to the attention of the Novo Nordisk Ombudsman. He will be responsible for investigating the issue, hearing the parties involved and suggesting a satisfactory solution.

Representation of men/women as at 1 January 2001

NN top management (Danish organisation)	Total	Men	Women
CEO/Executive			
Vice Presidents	5	5	0
Senior Vice Presidents			
Presidents	13	11	2
Vice Presidents/ Senior Principal Scientists	174	137	37
Managers/Principal Scientists	752	527	225

Representation of immigrants/descendants of immigrants as at 1 January 2001

	Representation of immigrants/descendants of immigrants	Of which from LDC ¹	Representation of immigrants/descendants of immigrants at management levels	Of which from LDC ¹
Novo Nordisk Denmark	5.6%	1.5%	6.0%	0.8%
Denmark total ²	7.3%	3.9%	-	-

These figures are the only obtainable approximation to ethnicity allowed by Danish law.

These figures will continue to be collected as part of future evaluation of equal opportunities programmes.

1) Less Developed Countries (UN definition)

2) The figures represent the population group 15-65 years of age

A multicultural approach to the European market

Novo Nordisk's regional office in Brussels is a truly multicultural organisation, reflecting the diversity of the European market supported by the office. In 1998, the regional office for Europe was located at Novo Nordisk's headquarters in Denmark. The unit employed eight people – three women and five men, all Danish citizens.

Today Novo Nordisk Europe (NNEU) is headquartered in Brussels and the staff has grown to 32 persons comprising 17 nationalities, representing most of the 23 countries covered by the regional office.

This is the result of a strategy aimed at creating a multicultural working environment in the heart of Novo Nordisk's European market. A continuing challenge is to improve the gender distribution of the staff. Today, there are 14 female (44%) and 18 male (56%) employees. However, the diversity is not yet reflected at management level. Of the five members of NNEU's management, only one is female, and three are Danish citizens.

Being multicultural is especially important for an office that serves more than 20 European Novo Nordisk affiliates. The fact that the NNEU employees are exposed to diversity in their home organisation facilitates their interaction with colleagues in the affiliates.

In terms of equal opportunities and diversity, the employees interviewed noted that the management group in Brussels is predominantly male. One of the challenges for NNEU is to ensure equal career opportunities for all employees, through, for example, more systematic succession planning, increased focus on employee development and job rotation across affiliates. Employees describe the office as a fast-moving, dynamic and internationally oriented working environment, where the employees consider themselves European rather than Belgian, Polish, Greek or another nationality. This attitude is supported by the results of the employee survey, eVoice 2001, where all of the employees at NNEU responded affirmatively to the statement "Novo Nordisk values people with different backgrounds".

"I enjoy the diversity we have here," says Anja Strotker, manager of External Affairs at Novo Nordisk Europe and a Dutch citizen. "People with different backgrounds see things differently. It creates a stimulating working environment, and you learn a lot. From a business perspective, the multicultural setting enables us to meet colleagues and customers in the various markets on their own terms.

There is still room for improvement on the gender issue, especially at management level. As a company with a strong focus on values and the Triple Bottom Line, we have to demonstrate good practice in our own organisation in order to be a credible corporate citizen. If we really want to be European, it is absolutely essential to be open and to reflect the European scene. We have to develop as an international business, not as a Danish company," says Anja.

contact

Klaus Ehrlich
Senior Vice President
Novo Nordisk Europe

kehr@novonordisk.com
+32 2 6613 700

Evaluating our suppliers' social responsibility

contact

Kim Tosti
Vice President
Global Support
Product Supply

kito@novonordisk.com
+45 4442 6140

Targets

90% of key raw material suppliers and a range of key suppliers in service and engineering to be evaluated on environmental and social performance by the end of 2002.

All license productions to be evaluated on environmental and social performance by the end of 2003.

Full implementation of environmental and social evaluation system for suppliers as well as appropriate management systems in place by the end of 2005.

As part of our commitment to addressing social responsibility in our supply chain, we have begun a process of evaluating our first-tier suppliers' social performance. In early 2002, we sent a questionnaire on social and environmental issues to a large number of our key production, engineering and service suppliers and contractors worldwide. The questionnaire followed a study of the nature of our supply chain and the role we can play in improving our suppliers' social performance. The environmental evaluation, which has already run for a few years, has been improved and combined with the social evaluation.

We began by exploring how we could fulfil our commitment to social responsibility as outlined in our Charter. Since we support the UN Declaration of Human Rights, human rights were used as the guiding principles for our evaluation of social performance. Traditionally, demands on the supply chain focus on core labour rights, ie child and forced labour, freedom of association, and equal opportunities. We apply these basic human rights in evaluating suppliers, regardless of where they operate, and have added issues beyond the core labour rights to a questionnaire which includes the following issues:

- ⊙ Wages and benefits
- ⊙ Working hours
- ⊙ Health and safety
- ⊙ Child labour
- ⊙ Forced labour
- ⊙ Freedom of association and collective bargaining
- ⊙ Discrimination/equal opportunities
- ⊙ Disciplinary measures
- ⊙ Privacy

In developing our approach to our supply chain and the questionnaire, we consulted some of our key suppliers around the world as well as external experts in the field and key Novo Nordisk personnel. The overall result is an evaluation system based on a questionnaire which covers many of the considerations that arose during workshops held with key suppliers. At this time, we are only evaluating our first-tier suppliers, but we do ask these suppliers whether they evaluate their own suppliers on the same issues. The next step will be to build the evaluation of first-tier suppliers' observance of human rights into our audit system.

Global and local approach

Making a real difference to our supply chain's management of social performance, rather than simply managing risk, emerged as a central dilemma on developing our supplier evaluation programme. For risk management purposes we need information from a wide range of suppliers to ensure that there are no basic human rights violations in our first-tier of suppliers. Consequently, the evaluation must be uniform and fairly easy to rate for purchasers; otherwise we would be taking on a huge administrative burden.

On the other hand, it is clear that the immediate significance of human rights issues varies with geography. A relevant approach to corporate social responsibility is about responding appropriately to needs in the local region. This means that each questionnaire could be adjusted and rated according to local standards and issues.

Nevertheless, we have chosen to evaluate suppliers using a single questionnaire and a single rating system. The questionnaire addresses basic human rights issues, and the point of using universal standards is that we can expect them to be applied anywhere in the world.

When performance is 'not satisfactory'

Our aim is to help improve the performance of our suppliers, not to terminate business. We want to create a climate of trust where suppliers feel free to approach us with a problem. In cases of serious violations, we have established an internal committee consisting of high-level managers and social and supply chain experts who decide which action should be taken. Wherever possible, we will work with our suppliers and contractors to find a solution. Results from the first evaluation round will give us an indication of the extent to which this will be necessary.

We are aware that self-assessment is only the first step towards determining observance of human rights in our supply chain. Therefore we intend to build social considerations into our quality audit system. A new procedure will be installed in 2002 that will enable us to track suppliers' social and environmental performance. This will allow us to have aggregated data on social and environmental performance that we are unable to report on today. In 2002 we will evaluate 90% of our key raw material suppliers as well as a range of key suppliers in service and engineering.

Workshops from Sweden to Mexico

We conducted workshops with suppliers from Denmark, Germany, Sweden, France, Mexico, India and Japan. All workshops except one were conducted at the suppliers' location. The nature of the suppliers' products varied, but included agricultural products, machinery, cleaning services, glass, needles and biotech products. Here are some of the key dilemmas from the workshops:

Self-assessment or social audits

It soon became clear that evaluation of a company's social performance, particularly in the area of human rights, is a very subjective discipline. It depends to a large extent on regional standards and the people who perform the evaluation. We found that the only way to limit local bias would be to adhere to the universally accepted rights as stated in the UN Declaration of Human Rights.

The validity of self-assessment can always be questioned. We have chosen, however, to accept this method, at least initially. Conducting social audits with all our suppliers is not realistic at this time. Nevertheless, nearly all suppliers recommended that we carry out social audits in the future.

National legislation or company guidelines

Initially we wanted to ask the companies if they have guidelines on each of the human rights issues. This is a measure of the level of governance in the company. However, many of the companies do not have their own guidelines as the issues are covered adequately by national legislation, to which they comply.

The framing of questions should therefore include the possibility that while companies do not have specific guidelines on certain issues, they are meeting these standards in accordance with national laws. If we did not take this into consideration, the results might accord low ratings to companies which in fact are performing according to a high standard of human rights. On the other hand, company guidelines help promote issues that are difficult to tackle, such as equal opportunities, and encourage the company to focus on areas where national legislation is ineffective.

The minimum or beyond

The majority of the suppliers went beyond national minimum standards, as well as the minimum standards recommended by the International Labour Organisation (ILO).

For this group of suppliers it seemed quite important not only to address the minimum, but also to give them the opportunity to show that they did more than required by law.

From idea to product: an ethical balancing act

contact

Hanne Gürtler
Bioethics Director

hg@novonordisk.com
+45 4442 2305

In the journey from idea to the development of a new pharmaceutical product, pharmaceutical companies face a range of ethical issues and dilemmas. For example, animal experiments are today necessary for testing the safety and efficacy of many products, yet such experiments can cause pain and suffering to animals. To what extent can we reduce the use of animal experiments and still ensure the safety and efficacy of our products? The use of human material in drug discovery and development is one way in which we can reduce the number of animal experiments.

For us, the overriding principle for dealing with any bioethical dilemma is to balance the needs of the patient for whom a drug is being developed with respect and concern for the people involved in trials, for the people and patients supplying human material for research, for the animals involved in experiments, as well as for the environment. For further discussion of genetic engineering and the environment, see 'Fermentation: our core technology' on p. 48.

Building on this principle, we strive to find specific answers to each of the ethical questions we encounter through the development of specific policies, procedures, and codes of conduct. The Environment and Bioethics Committee, with its separate subcommittees on animal ethics, medical ethics and environmental ethics, are part of this work.

In 2001 Novo Nordisk has:

- ⊙ Established a clinical trial policy. See 'Ethics of clinical research' on p. 44.
- ⊙ Established codes of conduct for off-label use of our products and the potential future use of gene therapy.
- ⊙ Developed a guide for the ethical use of human material in accordance with the spirit and the values of the Convention on Human Rights and Biomedicine (Bioethics Convention). See 'Use of human material' on p. 44.
- ⊙ Established Ethical Review Committees (ERCs) for internal ethical review of all experimentation and testing on animals. The ERCs will review the different categories of animal experiments and our testing procedures to ensure high ethical standards.
- ⊙ Removed animal testing for the product control of 24 selected material codes.
- ⊙ Developed and evaluated new prototypes for the housing of animals in collaboration with external experts, and made plans for their implementation.

Transparency and openness

We are sensitive to all our stakeholders' concerns and believe it is important for us to be open and honest about our actions.

We recognise that we must constantly expand our risk assessment processes to embrace stakeholder concerns in defining what is considered acceptable practice. Dialogue with others provides valuable input to our efforts to deal with various bioethical dilemmas. During 2001, there were many examples of dialogue, partnerships and collaboration with other companies, regulators, experts, patient organisations and animal welfare groups.





How can we pay due respect to animal welfare and yet continue to use animals for testing in order to meet the safety requirements for pharmaceutical products?

Dilemma 1 2 3 4 5 6 7

“Pharmaceutical research and testing causes suffering to millions of animals. They suffer not only as a result of experiments, but also because they are often kept in barren, inappropriate environments. Animals are not laboratory tools and far greater priority, time and resources should be devoted to reducing the impact of drug development upon them. This means developing a clearly defined strategy aimed at reducing animal use overall with a demonstrable commitment to developing and implementing alternatives which will replace animals rather than merely developing *in vitro* techniques that will not have an impact on animal use.

In safety assessment, it is essential that industry be more prepared to question the need for data from animals and to challenge the way the monumentally bureaucratic regulatory process operates. The pharmaceutical industry should stop using the demands of international regulators as a convenient shield to hide behind. To take the use of dogs as a second species as an example: companies say that they would rather not use dogs, but none are really prepared to challenge the ‘need’ to use them.

Good standards of housing and care – appropriate quantity and quality of the environment, with well trained, caring staff who have empathy with animals – are crucial in reducing the overall impact of experiments on animals. The importance of satisfying animals’ behavioural as well as physiological needs is accepted in principle, yet there is still resistance to providing appropriate husbandry

systems for all species due to cost and/or convenience. Even the minimum standards required by EU legislation are not uniformly implemented throughout Europe. The pharmaceutical industry has the resources to take the lead and ensure that animals are provided with a life worth living. Good practice that improves on the legal minimum standards should be implemented immediately both in-house and within establishments to which work is contracted, setting an example to the rest of the research community.

For most people concerned about animals, a fundamental issue is whether it is justifiable to cause animal pain, suffering and distress to benefit humans or other animals. For some this can never be justified. Even where society as a whole accepts animal use there are many factors that must be considered and judgments will change over time, as attitudes to animals inevitably shift and knowledge about their wants and needs increases. It is imperative that all proposed research be subjected to the widest possible scrutiny by all relevant stakeholders, to ensure that pharmaceutical companies are in touch with people’s legitimate concerns about the animals who suffer in their name, and to ensure that the conflict of interests between animals and humans is drastically reduced.”

**Dr Maggy Jennings,
Head of Research Animals Department, and
Dr Penny Hawkins,
Senior Scientific Officer, Royal Society for the Prevention
of Cruelty to Animals (RSPCA), UK**

Targets

Contribute to the total removal of animal tests for biological product control by 2004.

Establish and fully implement new Novo Nordisk standards for optimal housing in consideration of the needs of the animals we use by 2005.

Develop and implement improved measures and standards in relation to animal experimentation at external contractors such as CROs by 2005.

We continued our collaboration with the Danish Animal Welfare Society and a variety of leading international experts with special knowledge of the needs and behaviour of animals, with the goal of improving the housing of experimental animals. We originally chose to concentrate on housing conditions because this is so important to the well-being of experimental animals, but also because of the current negotiations in the Council of Europe to revise the guidelines in this area.

We have developed new prototypes based primarily on the needs of the animals rather than financial and technical considerations, which is a new approach to this field. The new prototypes have been evaluated by experts from universities and animal welfare organisations in Europe, who expressed satisfaction with our animal housing prototypes.

Furthermore, we have actively participated in the Danish debate on transparency and openness on animal experimentation and testing, initiated by the Minister of Justice and through the Danish Pharmaceutical Industry organisation, which made proposals for more openness and for improved administration.

Dialogue prevails

In the past year, we have been challenged by some NGOs on our use of certain contract research organisations (CROs) which these NGOs accuse of inhumane treatment of animals. Sometimes, we face organisations whose strategies for influence are different from our collaborative approach. While we totally oppose the violent approaches of some more radical NGOs, we remain committed to undertaking dialogue with a wide variety of stakeholders.

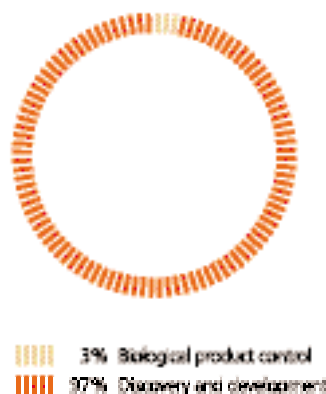
The public debate concerning the issue of CROs and animal welfare has, however, once again brought our attention to how we select partners for contract research, and we are working to further tighten our procedures for animal experimentation and testing at contract research organisations. In the past year, we have been in dialogue with several animal welfare and animal rights organisations to identify and listen to their concerns which are often in line with our own thinking and positions on animal welfare. Where we find issues to be concerned with, we will strive to address the concerns of these external stakeholders in our future policies and practices regarding CROs.

This type of engagement is important in order to make sure that animal experiments – whether in our own or outside labs – are conducted in a way that lives up to our ethical standards.

Total number of animals purchased by Novo Nordisk and by Contract Research Organisations (CROs)

	1999	2000	2001
In-house	51,346	43,328	43,968
CROs	8,884	13,184	11,908
Total	60,230	61,512	55,876
Percentage change from previous year		2.1%	-9.2%

How animals were used in 2001



Exploring public perceptions

Part of our learning process consists of finding out not only how organisations or regulators perceive bioethics issues, but also what is on the general public's mind. To support our learning, we have partnered with the Centre for Bioethics and Risk Assessment at the Royal Veterinary and Agricultural University of Denmark on selected projects. One deals with discovering the public perception of genetic engineering based on a number of group interviews carried out in 2001.

This provided us with two interesting points:

- ⊙ Even though the public generally approves of the use of genetic engineering for developing medicines, this approval is not based solely on risk assessment, but also on other criteria such as justice, power and democracy.
- ⊙ The public does not perceive NGOs as their spokesmen, nor do the NGOs see themselves as speaking for the public in the political processes concerning genetic engineering.

This last finding underlines how important it is for our company to take a wide range of stakeholders' views into account and not to rely solely on input from any single organisation.

What do patients think?

In dealing with bioethics it is also important to include patients as many of today's bioethical dilemmas derive from our efforts to find better ways of treating and eventually curing disease. Consequently, together with the Danish Animal Welfare Society, we are looking into ways to ask patients about ethical issues related to the use of experimental animals.

We intend to explore this area in the coming years. Hopefully, this will take us one step further in our search for ways to reconcile the bioethical dilemmas involved in developing pharmaceuticals.

Ethics of clinical research

contact

Anders Dejgaard
Vice President
Clinical Development

ade@novonordisk.com
+45 4442 3759

In 2001, in line with our target, we approved a clinical trial policy which describes the principles for conduct of Novo Nordisk-sponsored clinical trials to ensure the safety, rights, integrity, confidentiality and well-being of trial subjects. It also describes the quality system activities implemented to ensure that data is generated, verified, managed, interpreted and reported in compliance with external guidelines and regulations.

We are obliged by the regulatory authorities to undertake clinical trials with healthy human volunteers and patients as part of the clinical development programme to document the safety and efficacy of new drugs before marketing. Furthermore, Novo Nordisk sponsors clinical trials after approval to market a drug has been granted in order to gain more clinical knowledge and experience of these products.

All of these trials are conducted according to the established official guidelines that are reflected in our Clinical Trial Standard Operating Procedures and are audited internally and externally on a regular basis.

Our approach ensures that we conduct our clinical trials in compliance with international and national guidelines as well as regulations and laws addressing ethical issues in clinical research such as the World Medical Association Declaration of Helsinki (latest revision in 2000). None of our trials are initiated before they are approved by an internal review board, relevant healthcare authorities and by external local ethical committees.

Use of human material

In 2001, we established Novo Nordisk's overriding principles for the use of human material in drug discovery and development as part of implementing the Council of Europe's Convention on Human Rights and Biomedicine. In accordance with the spirit and values of the Convention the following principles are guiding our use of human material obtained after December 1999 (at which time the convention became legally binding):

- ⊙ The well-being, privacy and dignity of the human being donating human tissue takes precedence over the interest of Novo Nordisk.
- ⊙ Only human material for which informed, freely given consent has been given will be used.
- ⊙ The human material is only used for the purpose(s) for which consent has been given.
- ⊙ The acceptance of donor or next of kin to donate human material must not be influenced by financial incitements and give rise to financial gain for the donor or next of kin.
- ⊙ The human body and its parts shall not as such give rise to financial gain.

We will do our utmost to ensure that these overriding principles are followed by each of our collaborating parties.

Research into stem cells

As a research area that might be important to Novo Nordisk in the future, we have actively taken part in the present debate on cloning and the use of stem cells, eg by participating in the conference held by the European Commission in 2001, 'Stem cells therapies for the future'. We have also closely followed the implementation of the Council of Europe's Bioethics Convention.

Setting R&D priorities

Life sciences companies are being increasingly challenged to demonstrate that social and environmental concerns impact the way they set priorities within R&D. Our stakeholders are demanding greater accountability for the strategic direction as well as the conduct of actual research.

We recognise that the choices we make about the overall direction of our R&D programme profoundly influence the future likelihood of successful treatment of diabetes. Guided by a commitment to transparency and engagement in multi-stakeholder dialogue we address the focus, conduct and purpose of our R&D programme from the perspective of its implications for society and the environment.

We are looking for ways to fight diabetes at all stages of its progression. Our detailed knowledge of the structure and function of the hormone insulin has provided us with a basis for the design of new insulin analogues with time-action profiles that meet the individual needs of people with diabetes. At the same time, we are dedicated to developing new delivery systems for insulin; both new and more convenient injection devices and a unique pulmonary administration system (AERx®) that will allow precise dosing of insulin by inhalation.

Novo Nordisk offers the industry's broadest range of diabetes discovery and development projects and our investments in diabetes research and development exceeds investments made by any other major pharmaceutical company.

Tackling Type 2 diabetes

We are also trying to better understand the causes of Type 2 diabetes and its progression. This is the fastest-growing type of diabetes, in both the developed and the developing world. Our research on Type 2 diabetes is leading to new therapies that complement existing ones. Obesity is known to be a contributing factor to the cause of Type 2 diabetes; the adoption of Western lifestyles with less healthy eating habits in parts of the developing world is also leading to a growing rate of Type 2 diabetes in those countries. Therefore, part of our research is focusing on the mechanisms responsible for regulating appetite and energy expenditure.

Collaborating with external partners

We support independent research and collaborate with universities and with other biotechnology companies to develop new products and delivery systems. Close to 25% of our research budget is dedicated to such collaboration, and 95% of this collaboration takes place outside Denmark. For several years, we have had a research facility in China to complement our product site there. We currently fund about 75 students from all over the world in their doctoral and other postgraduate programmes. We firmly believe that our education-related R&D is a form of social investment that will greatly benefit not only Novo Nordisk but society at large.

Social and environmental concerns drive R&D

As access to health is one of our major concerns as a company, our current R&D priorities investigate ways to offer better drugs and delivery systems for the developing world.

We involve external stakeholders in our R&D process from an early stage. We find it essential to use patient organisations and medical professionals as sounding boards for the products in our pipeline. In our industry, we cannot afford purely basic research if it cannot be turned into something of future benefit to people with diabetes or other diseases within our area of expertise.

When applying gene technology in the expression and production of the various insulins, we have a high level of focus on environmental considerations, such as eliminating antibiotic resistance marker genes, making the most efficient use of raw materials and reducing the consumption of water and energy. See 'An international approach to environmental management' on p. 50.

Our research and development into the causes and treatment of diabetes is of equal value to both the developed and the developing world. We make no distinction in how we weigh our R&D priorities. It is our aspiration to have product offerings tailored to meet the needs and affordability of people with diabetes throughout the world.

Indicators of innovation

In the past five years, new products constitute 30% of our turnover. Currently, we have 8 key product candidates in the pipeline. See Annual Financial Report.

contact

Mads Krogsgaard Thomsen
Chief Science Officer

mkt@novonordisk.com
+45 4442 3988

Managing the environment within sustainable limits

Biotechnology has the potential to create significant advances for humankind through the development of products that can enhance quality of life by making better products and reducing the use of natural resources in production. Yet these beneficial qualities of biotechnology must be balanced with the ecological risks. At Novo Nordisk we are trying to reconcile the ethical dilemmas surrounding the use of biotechnology, in part by devising clear policies in response to controversial issues and by consulting key stakeholders to analyse the dilemmas with us.

Environmental responsibility covers our impact on the external environment, as well as the bioethical implications of our activities. Our impact on the external environment includes global climate change, change in biodiversity, ozone layer depletion, acidification and eutrophication, the uses of freshwater and fossil fuels, and the waste generated by production and consumption. We attempt to mitigate our contribution to these local and global environmental problems by incorporating appropriate measures in our environmental management systems.

Sustainable development implies decoupling resource consumption from environmental impact. Continued growth at the expense of nature's capital is clearly unsustainable. This presents a dilemma. In order to meet the needs of our customers, we must increase production of life-saving drugs. Yet we must make those products without increasing our use of natural resources to an unsustainable level.

We are working continuously to address this dilemma by reducing the consumption of scarce resources such as freshwater of drinking quality and fossil fuels. This is done by using the best available technologies and environmentally sound materials, and by optimising our processes. These tasks are accomplished by committed employees at our sites all over the world.

For more than a decade, we have followed a pro-active environmental strategy aiming to be one of the front-runners in defining, engaging and reporting on how business can address global environmental challenges.

The following six processes are key elements of our systematic approach to implementing this strategy in all our activities:

- ◉ **Embed**
We actively involve employees about sustainable development at all levels. This guides our strategy for implementing ISO 14001. See p. 50.
- ◉ **Globalise**
We work on an international basis and have established an international environmental network across all our production sites. See p. 50.
- ◉ **Train**
We educate employees on issues in relation to sustainable development at all levels. See p. 50.
- ◉ **Report**
We publish annual reports that provide definition of targets, follow up on targets, performance documentation and external reviews.
- ◉ **Integrate**
Triple Bottom Line thinking is integrated in our decision-making processes in such areas as product development, life cycle assessment and building new production facilities. See p. 54.
- ◉ **Involve**
We conduct dialogue and partnerships with our stakeholders. For example, in 2001 we developed educational materials on genetic engineering in a partnership with an NGO. See p. 49.

This section gives a brief description of how we work with these processes in practice.



Fermentation: our core technology

contact

Jens Hartvig Jørgensen
Vice President
External Environment

jhj@novonordisk.com
+45 4443 5240

We focus our reporting on the environmental performance of our production processes as this is where the majority of our environmental impacts are generated. Our basic production, which involves fermentation, recovery and purification of products, accounts for the majority of our total consumption of water, energy and raw materials.

The core technology used by Novo Nordisk is microbial fermentation to produce therapeutic proteins, the active ingredient in our pharmaceutical products. For each product, we grow specific genetically modified microorganisms (GMMs) which are suitable for producing that particular product. The main raw materials we use in our closed fermentation tanks are water, nutrients and sugar. During the recovery and purification processes we use organic chemicals (primarily ethanol), inorganic chemicals such as acids, bases and salts, and filter materials such as kieselgel.

The main by-product from our production is a nutrient-rich organic material known as yeast sludge, which is recycled either as pig feed (yeast cream) or as raw material for biogas generation. Before being recycled the biomass is inactivated by heating, ensuring that all microorganisms are killed.

This section presents a summary of how Novo Nordisk has performed over the past two years in terms of consumption of raw materials, energy and water, and our emissions to the environment. The table on p. 51 gives an overview of our major environmental impacts and the indicators we use for reporting and monitoring our environmental performance.

Healthcare products

The application of genetic engineering enables us to produce a variety of active proteins used for the production of pharmaceuticals: various types of insulin for the treatment of diabetes, growth hormone, and blood-clotting factors for treatment of haemophilia. Our products do not contain GMMs as these are separated from the final products in the recovery processes.

Our production also comprises the manufacturing of hormone tablets and a range of medical devices such as multiple-use or disposable insulin pens, electronic insulin dosers and other administration devices, and product packaging and chemicals for eg disinfection.

Genetic engineering makes it possible to tailor organisms to be more specific and more productive than unmodified organisms. Modified organisms can be given the ability to produce valuable substances that would otherwise be in short supply, or even impossible to produce. Without genetic engineering, it would not be possible to provide a sufficient and stable supply of high-quality insulin to the global market.

Safety – an important issue

In managing modern biotechnology, safety is always an important issue. GMMs and the way we use them fulfil the widely adopted international criteria for microorganisms to be classified as safe or demonstrating the lowest potential risk. National laws regulate the use of GMMs for production purposes. The aim of legislation and government approvals is to protect human health and the environment from any adverse effects.

Every production facility has to be approved, and approvals are based on risk evaluation by the authorities. For risk evaluations we must provide the authorities with detailed information about the following: the process of genetic engineering, the GMMs, the production facility and the production process, and the safety procedures applied.

Closed production facilities

Novo Nordisk only uses GMMs in closed production facilities – a production method called ‘contained use’. Since our GMMs are safe and well-known – presenting no risk to human health or to the environment – the release of a limited amount of GMMs from air emissions, solid and liquid waste is allowed. The limits are set by the authorities and regularly controlled. Novo Nordisk monitors whether emitted GMMs have survived outside the production facilities. No viable production organisms have ever been identified in the collected samples.

No dissemination of antibiotic resistance genes

In genetic engineering specific uses of genes coding for resistance to antibiotics are considered to be associated with potential risk. Genes that make microorganisms resistant to some antibiotics (called 'marker genes') are normally used in genetic engineering to make selection of successfully modified microorganisms possible. Yet because antibiotics are used for medical treatment of infections, it is important not to increase the level of antibiotic resistance among microorganisms in the external environment. Recognising this potential risk, it is Novo Nordisk's policy to avoid the use of genes coding for antibiotic resistance when developing new production strains. Fulfilling our 2001 target, the genes coding for antibiotic resistance have been successfully removed from the yeast cell which is used for the production of insulin.

The new modified yeast strain is expected to be tested in production in 2002 and will eventually substitute the existing production strains when the health authorities have approved the use.

Natural microorganisms can potentially be contaminated with antibiotic resistance genes via the disposal of waste products, especially yeast cream. A modification of the yeast cream process to ensure optimal degradation of the antibiotic resistance genes in full-scale production will be implemented during 2002/2003.

Dilemma 1 2 3 4 5 6 7

How can we use biotechnology to create significant advances for humankind and yet respect the public's anxieties about genetic engineering?

Inviting young people to join the debate

Recognising the need for a public debate on genetic engineering, the Novo Group together with the Danish Society for the Conservation of Nature (DN) produced in 2001 a set of teaching materials for adolescent schoolchildren: 'Genius – a future with gene technology'.

Our aim in participating in the Genius project is to inform teenage schoolchildren about the advantages as well as the dilemmas of genetic engineering. Our sometimes opposing views helped to create a set of balanced educational materials so that young people can form their own judgments about genetic engineering.

A core component of the project is a website, updated weekly, and a magazine for students and teachers. The website has a number of features promoting dialogue and active engagement. All 9th and 10th grade classes in Denmark are invited to write a manuscript for a TV programme debating the issues. The winning manuscript will be aired on public service TV during the spring of 2002.

The project has been a success, with more than 11,500 magazines sold so far. The students have praised the style and layout of the magazine. One commented, "I read the whole thing even though it wasn't a homework assignment!"

The project is funded by the Novo Group, the Danish Ministry of Education and a public fund under the Ministry of the Environment.

For more information, visit

www.geniusweb.dk



An international approach to environmental management

Target

Certification of ISO 14001 standard at all production sites worldwide by 2003.

Novo Nordisk recognises that our business activities have impacts on the environment and we continuously strive to minimise these impacts in accordance with Novo Nordisk's environmental policy wherever we operate in the world. Environmental management has been a high priority at Novo Nordisk for many years. Our first environmental policy was implemented in 1975 and has been amended several times since then in order to keep pace with the development of knowledge, standards and requirements within this area.

We are currently implementing ISO 14001 environmental management systems at all production facilities. An ISO 14001 certification is expected to be in place for all production sites during 2002 and 2003, starting with the Kalundborg site in Denmark and finishing with the Hillerød site in Denmark. The ISO 14001 system will be integrated into the current ISO 9002 system.

Internal learning processes

The management at each site has appointed the environmental coordinator to be responsible for the local implementation of the ISO 14001 system. One of the first steps in the process has been to establish environmental working groups to coordinate the work and deal with environmental issues related to the site activities. To be able to manage the entire supply chain effectively, suppliers will be involved in the project. Our policy is to help and encourage suppliers to improve their environmental performance. See 'Evaluating our suppliers' social responsibility' on p. 38.

The Environment and Bioethics Committee is the company's highest authority dealing with environmental affairs and the Novo Nordisk international environmental network reports to the committee. All sites are represented in the network with an environmental coordinator and members of the environmental working groups. The network meets twice a year and acts as a key driver for raising environmental awareness and sharing better practices.

Environmental considerations are integrated into every stage of our product development, manufacture, use and final disposal.

Research and development

Integration of environmental considerations is very important at this stage. We make continuous efforts regarding:

Development of production organisms producing high yields

Introduction of environmentally sound raw materials and substitution of hazardous substances

Improvement of fermentation and recovery processes to increase product output per unit of resources consumed.

Production

Water and energy saving programmes

Purchase of environmentally certified hydroelectric power and other environmentally sound energy sources

Substitution of CFCs (chlorofluorocarbons, also known as Freon) by alternative cooling agents

Internal reuse of water, energy and certain chemicals

External recycling of waste material

Development of environmentally sound packaging materials together with suppliers.

Transport

Preference to subcontractors with responsible environmental practices.

Annual evaluations of our subcontractors.

End-use and final disposal

Environmental risk assessment of selected products, including life-cycle assessments

Tracking environmental performance

There is ample evidence that the carrying capacity of the environment cannot keep pace with the adverse impacts of society's economic activities in the long term. Addressing problems such as climate change, biodiversity loss and waste generation is an enormous undertaking for society and for industry.

For Novo Nordisk, compliance with local regulations will always be a first prerequisite to fulfilling our environmental targets. However, we also consider international agendas and objectives. For example, we subscribe to the Global Compact and to the International Chamber of Commerce's Business Charter for Sustainable Development, and we support the United Nations Convention on Biological Diversity.

We attempt to mitigate our contribution to a number of global environmental problems. One example is Novo Nordisk's efforts to support the Kyoto Protocol by minimising CO₂ emissions through optimising our production processes and changing to more environmentally sound energy sources.

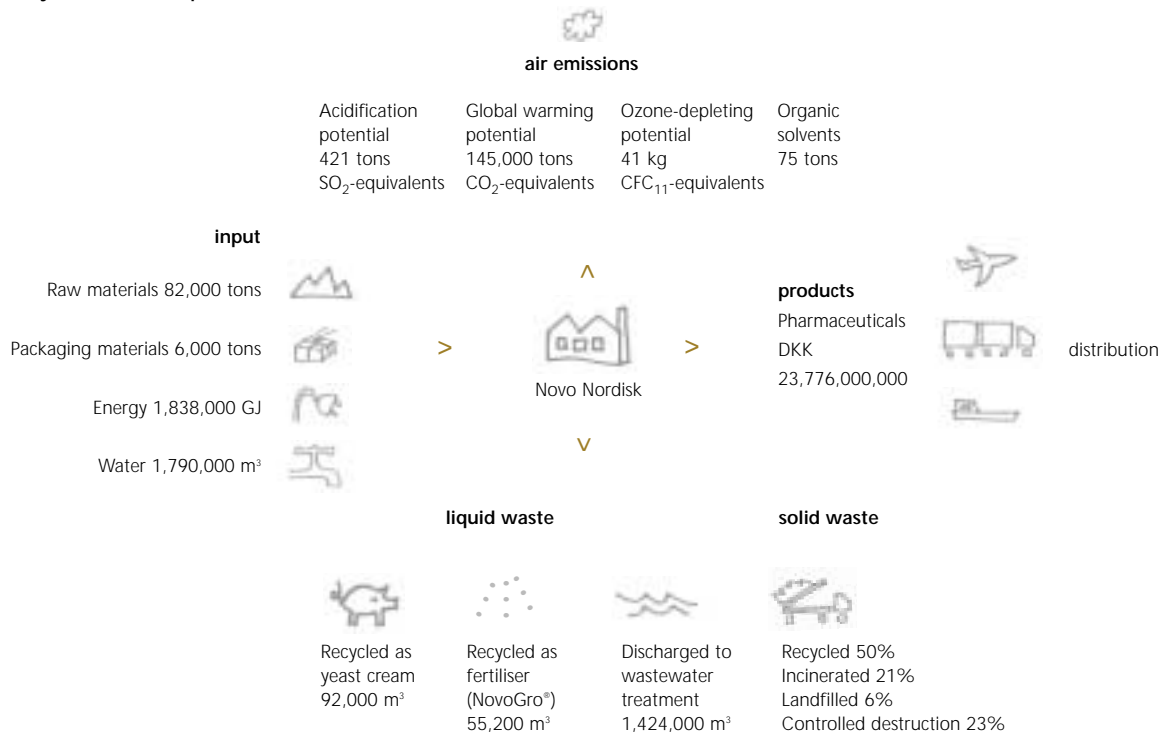
Measuring progress through eco-efficiency

As Novo Nordisk's sales and production expand, so does our consumption of resources. Efficient use of our resources is therefore one of our main environmental goals. Our strong focus on eco-efficiency is directly related to national and international political objectives for protecting scarce resources and limiting pollution.

The sum of our efforts to reduce the environmental impact of our activities is a measure of eco-efficiency, a concept that helps us progress towards a more sustainable future. Our eco-productivity indices (EPIs) express eco-efficiency as our ability to effectively utilise resources. EPIs relate the scale of production to the consumption of resources. An increase in an index is a positive trend and means that we have been able to produce more with less.



Key environmental performance indicators



Targets

5% improvement in the EPI for water by 2005.

4% improvement in the EPI for energy by 2005.

Use of water

The total water consumption for Novo Nordisk in 2001 amounted to 1,790,000 m³, which is an increase of 25% compared with 2000. For 2001, the target was an increase in eco-productivity for water by 5 percentage points compared to 2000. This, however, was not met, as the eco-productivity increase during the year was but 2%. The reason for that is primarily the validation and implementation of a new purification facility for insulin in Kalundborg, Denmark, a new water purification system in Clayton, North Carolina, USA, and a new water distribution system at FeF Chemicals in Køge, Denmark. Validation and implementation of new facilities are often very water consuming but as soon as the new facilities are fully operational we expect an improved water efficiency due to the use of best available technology.

Throughout the company, production sites have worked to reduce water consumption. Water-saving campaigns and projects resulted in reduced water consumption in general, and reduced consumption of scarce groundwater resources in particular.

Use of energy

The total energy consumption for Novo Nordisk in 2001 amounted to 1,838,000 GJ, which is an increase of 6% compared with 2000. For 2001, the target was an increase in the eco-productivity index (EPI) for energy by 4 percentage points compared with 2000. We achieved this target since the EPI for energy has improved by 14%. The improvement indicates that we have been better at utilising energy – at producing more with less energy.

Although the energy consumption has increased by 6%, the total CO₂ emissions have increased by 3% only and the SO₂ emissions have even declined by 9% compared with 2000. This is due to the fact that increasingly we are using energy from more environment-friendly sources such as renewable energy.

62% of the energy used by Novo Nordisk is supplied by external power stations as electricity and in few cases also as heat or steam. The remaining 38% comprises heat and steam produced by combustion plants at our production sites. Heat and steam generated at our sites are based on natural and town gas (98%) and mineral oil (2%).

With the liberalisation of the electricity market in Europe, Novo Nordisk in Denmark took the opportunity to purchase electricity from a Swedish supplier (Elektra) which supplies electricity based on hydropower. In 2001 approximately 43% of the energy consumption at our largest production site in Kalundborg is electricity of which approximately 72% was based on hydropower from Elektra in Sweden, while the remaining 28% was delivered from the Danish energy network and based on other environmentally sound energy types such as wind energy, and energy from incineration of natural gas, biomass and waste. This initiative resulted in a 29% decrease in energy-related air emissions from the Kalundborg site compared with 2000.

For indicators such as emissions to air, wastewater, spent biomass and other waste and environmental impact potentials, see the table 'Key performance data' on p. 67. Further details of data collection are given in the Internet version of this report.

EPIs for water and energy

	2001	2000
Water	1.02	1.10
Energy	1.14	1.11

EPI is an eco-productivity index that relates the scale of production to the consumption of resources. An increase in the index is a positive trend.

Towards full compliance

A fundamental aspect of the Novo Nordisk Way of Management is the responsibility of every manager to establish and maintain procedures in each unit for meeting relevant laws, regulations and overall company policies.

We have selected a number of indicators to evaluate our environmental compliance: breaches of regulatory limit values, regulatory limit values with repeated breaches, and accidental releases. In addition we report the number of complaints, although this is not directly linked to regulatory compliance.

Breaches of regulatory limit values

Environmental authorities worldwide stipulate a number of conditions in the production approvals of our factories. For some conditions, regulatory limits are set for emissions of particular substances to the environment. We regularly monitor and document our compliance with environmental requirements.

A total of 60 breaches of regulatory limits occurred during 2001, of which 42 related to breaches of the limit for wastewater flow at our production site in Clayton, North Carolina. The breaches were caused by an expanding production. The local authorities have accepted the breaches and have subsequently increased the permitted flow limit.

Accidental releases

We recorded no accidental release of genetically modified microorganisms (GMMs) in 2001.

We have had 5 other accidental releases of liquid waste and chemicals to the external environment. All accidental releases are reported to the environmental authorities and actions are taken in order to limit the environmental impact and to avoid similar incidents in future.

Complaints from neighbours

We strive to maintain good relations with the communities around our factories. The number of complaints from neighbours is therefore an important indicator of our environmental performance. Regrettably, we received a total of 32 complaints in 2001, which is a significant increase from 2 complaints in 2000.

A large proportion of the complaints (24) concerned noise from construction work, particularly from the Danish sites Gentofte and Kalundborg. Others (6) concerned odours from the wastewater treatment plant located at Novo Nordisk's and Novozymes' common production area in Kalundborg.

For more detailed information on compliance and complaints, see the individual site reports.

Compliance status worldwide

	2001	2000
Breaches of regulatory limits	60	9
Regulatory limits with repeated breaches	4	4
Accidental releases	5	2
Complaints	32	2

Target

Zero breaches of regulatory limits and accidental releases by 2005.

The use of hormone products may have environmental consequences

Products which enhance the well-being and quality of life for humans may put other living species at risk when these products are disposed of in the natural environment. This may be the case for oestrogenic hormones.

Environmental authorities and the media have focused in recent years on reproductive disorders of the males of different animal species all over the world. The prevailing hypothesis is that the disorders are caused by female sex hormones like oestrogens released from the urine of pregnant women, women using the contraceptive pill or hormone therapy. Oestrogenic-like chemicals such as phthalates, alkylphenols and PCBs are also suspected to have the same effects.

As a producer of oestrogenic hormone products, and as an environmentally responsible and accountable company, Novo Nordisk must consider the potential environmental implications of the use of our hormone products – since the most significant environmental impact is not in the production processes, but during use and disposal.

Our hormone production takes place in Denmark. In compliance with requirements from the environmental authorities, all waste from our production with a significant content of hormones is collected and sent for destruction at Kommunekemi in Nyborg, Denmark. Consequently, the emission of hormones from our production to the environment is negligible.

To gain more knowledge we performed a literature study to investigate the current knowledge of ecotoxic effects of estradiol and its primary metabolite estrone. Furthermore, we are conducting a number of ecotoxicological tests. The objective is to provide ecotoxicological information for environmental risk assessment of estradiol and estrone according to specific EU guidelines.

New Life-Cycle Assessment tool

For several years, Novo Nordisk has been working actively to develop tools for Life-Cycle Assessments (LCA) of the potential impacts of our products on the environment. According to EU directives we are obliged to apply LCA as the basis for our choice of materials when developing new electronic medical devices or packaging for our products. In 2001, we developed a simplified LCA tool for the environmental screening of our medical devices and packaging materials. It was developed by the Danish consultant dk-TEKNIK Energy & Environment, which has many years of experience in the LCA field. We believe that this simplified method is reliable and fulfils the requirements of the EU directives.

The LCA tool offers an operational and easily accessible solution focusing on energy as the overall indicator for the estimation of environmental impacts related to production and use covering the entire life cycle from 'cradle to grave'. The less energy used in the life cycle, the better the product, from an environmental point of view.

In 2001, the new LCA tool was tested with good results on three of our successful insulin pen systems: NovoLet®, FlexPen® and InnoLet®. However, when dealing with medical devices which are vital for people with diabetes, efforts to optimise material consumption and reduce environmental impact must never compromise the medical specifications and user-friendliness of our products.

Biogas for wastewater treatment

Novo Nordisk in Kalundborg is working with new technologies for treatment of process wastewater from our insulin production. In 2001 we tested a pilot biogas facility which partially decomposes the organic substances polluting the wastewater. The preliminary test results are promising and indicate two major benefits: the system considerably reduces the amount of sludge, while producing a clean gas which can be used for generating energy.

The testing of the new biogas method will continue in the first part of 2002. Depending on the results, we will decide whether to establish a full-scale biogas plant. This may enable us to produce part of the energy which today is purchased from external sources. We estimate that utilising the biogas for energy supply will reduce Novo Nordisk's total emission of CO₂ by up to 4-5%. Given a successful outcome of the test, the biogas system represents an improved technology for wastewater treatment of by-products, resulting in less impact on the environment.

Transportation: a significant environmental impact

Producing pharmaceutical products for the world market is greatly dependent on transportation, which has environmental impacts from atmospheric emissions of eg CO₂, CO, SO₂, NO_x and hydrocarbons originating from combustion of fossil fuels. These emissions contribute to environmental impacts such as global warming, acidification and photochemical smog.

We acknowledge that Novo Nordisk has a responsibility to minimise the environmental burden from transportation related to the company's activities all over the world. In accordance with Novo Nordisk's environmental and purchasing policies we will encourage environmental and social responsibility from our customers, subcontractors and licensees, and will prefer subcontractors with responsible environmental and social management. The complete versions of the environmental and purchasing policies are presented in the Internet version of the report.

Since 2000, environmental aspects have been an integral part of our annual evaluation of the transport companies involved in transportation of raw materials to the Danish production sites (import), and intermediary or final products to subsidiaries and customers outside Denmark (export).

As part of the evaluation, we request information on the companies' environmental policy as well as key figures and statistics for calculation and reporting of the environmental burden of transport related to Novo Nordisk. In 2001 we evaluated 25 transport companies out of 30-40 suppliers. In 2000 the evaluation included 20 companies.

The target for 2001-2002 was to improve methods for reporting transport emissions and use the results to reduce the environmental impact, in cooperation with our transport suppliers. Until now we have only been able to report raw materials transported by lorry to the Danish production sites (import). As a result of the evaluation process in 2001, as of 2002 we will be able to expand our reporting to also include intermediary or final products for subsidiaries and customers outside Denmark (export).

So far we have not been able to procure data related to transport by ship and aircraft. In cooperation with our transport companies we will seek to include these transport forms in the evaluation process within the next four years.

Transport (import) of raw materials and related emissions:

	Unit	2001
Quantity	Tons	34,700
Distance	1,000 km	1,276
Fuel consumption	Kg/ton	11.4
Emission		
CO ₂	Kg/ton	36.1
NO _x	Kg/ton	0.46
CO	Kg/ton	0.02
Hydrocarbons	Kg/ton	0.01

contact

Carsten Kristensen
Manager
Shipping & Customer
Service Export

ckri@novonordisk.com
+45 4442 6070

Targets

To report on lorry transport of intermediary and final products from Danish sites to subsidiaries and customers in 2005.

To report on transport by ship and by aircraft in 2005.

To evaluate and report on lorry transport of raw materials to and products from production sites outside Denmark in the evaluation procedure and environmental reporting in 2002.

Measuring our economic footprint

Economic growth alone is an inadequate indicator of progress towards sustainable development. From an environmental and social perspective, the growth in man-made capital may imply either improvement or deterioration. Although damage is rarely deliberate, the long-term consequences can be irreversible. Yet, efforts to remedy environmental damages or alleviate social inequity require financial resources, generated through economic prosperity.

Economic growth, therefore, is not a goal in itself. Rather we need to look at how the benefits are achieved and how we can offset any harm done. Companies today are rewarded for their financial performance – even if what they are delivering to society may be socially or environmentally damaging. In addition, current price structures do not reflect, for example, the real costs of clean air and freshwater.

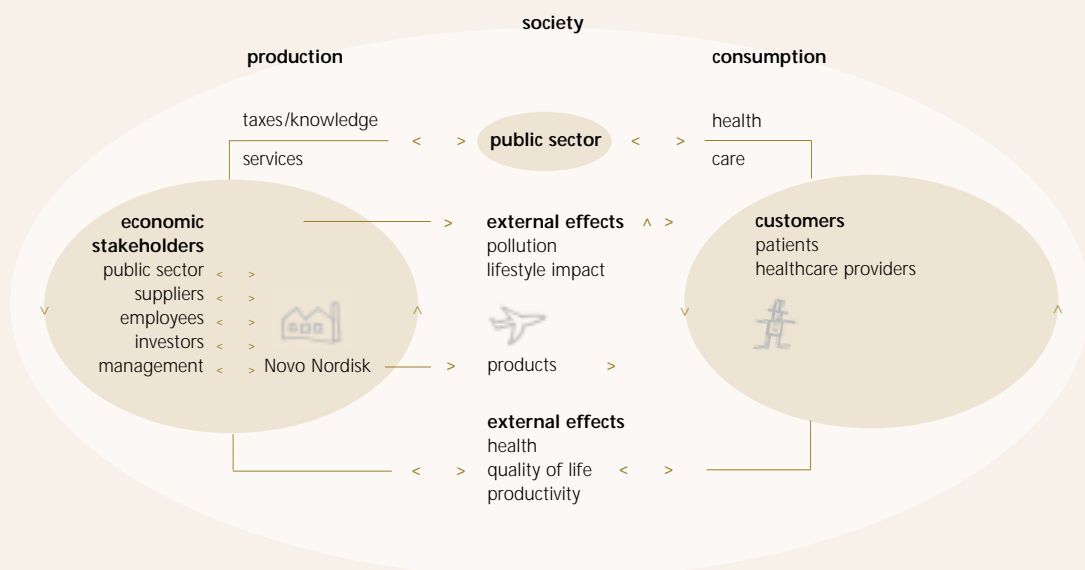
Creating an environment in which companies and consumers are rewarded for alleviating social and environmental problems, and penalised for negative impacts, poses a major challenge for governments and businesses alike. One way in which to create this environment is to begin assessing not only the financial but the economic impact of a company. We are committed to moving in this

direction by looking beyond pure profit on the financial bottom line to our wider economic impact in society. This is a difficult task and presently no single method can be applied. Yet, it is imperative that we accept the challenge and attempt to provide more transparent accounting from an economic perspective.

The economic component of the Triple Bottom Line is often assumed to be the same as the company's financial performance. But economics and finance are not simply the same. The financial concerns the market valuation of transactions that pass through a company's books. Economics, on the other hand, is the means by which society uses human and natural resources in the pursuit of human welfare. As such, economics extends beyond a single organisation and is linked to both the environmental and social elements of sustainable development. This implies the need for a much broader approach to accounting, which integrates environmental and social impacts.

In our 1999 and 2000 reports, we began to tackle the wider socio-economic aspects of our business with case studies at the local level. This year, pursuing our goal of developing key performance indicators for social responsibility and the other elements of the Triple Bottom Line, we have begun to use financial data to measure our economic footprint.

The Novo Nordisk economic stakeholder model



Tieamchan Warin from Thailand has Type 2 diabetes and gets hormone replacement treatment.



Economics as a decision-making tool

contact

Peter Haahr
Vice President
Investor Relations

pehr@novonordisk.com
+45 4442 1207

A company's economic impact may be seen as either positive or negative, but neither is measured in today's traditional financial accounts. A company's investment in a community can serve as an engine of growth in the economy, through employment, boosting local supply chains and developing a new skills base. The goods and services that companies produce can also contribute to a higher quality of life.

Yet growth in economic activity and wealth does not necessarily reduce poverty, provide a cleaner environment, or achieve greater equality or better quality of life. In fact, there is widespread disagreement about the type of economic growth that supports sustainable development.

It is only by attempting to understand, manage and communicate our economic impact that we can begin to identify the areas in which our activities have positive environmental and social outcomes, and where in fact there is room for improvement. Obtaining information about our economic impact requires that we measure in concrete quantitative terms the operational outcome of our decision-making. By reporting on various economic indicators we gain a picture of the status of our operations and can use this knowledge to measure whether we conduct our business in a way that supports our vision.

Setting a framework

As yet, there is no systematic approach to accounting for and reporting on a company's economic performance. We use the Global Reporting Initiative (GRI) as a framework for analysing our impact on the creation of economic wealth and on the economic stakeholders that benefit from our activities. We are also active in contributing to the development of the GRI.

Taking our inspiration from the GRI, we are beginning to create a systematic approach that begins by analysing our direct economic impacts. As a company our most direct contribution to wealth creation is through employing people's skills in creating goods and services and investing in new plants and equipment. Indirect impacts, in turn, refer to when a company's operations affect the economic activities and performance of others, both individuals and organisations. The kind of data and indicators available today make accounting for the direct

impact a manageable task, but it will be a challenge for us to get a better grasp of our indirect impacts.

The direct effects of Novo Nordisk's activities impact certain groups of economic stakeholders, as defined by GRI, which have a direct financial interest in the company. These include suppliers, employees, shareholders, the public sector and a company's management – as they control what is retained in the company for future growth and investment.

We believe the GRI framework will help us achieve the following goals:

- ① Measure and report our economic performance in terms of the financial wealth created by the company, defined by where we manufacture our products and where we earn our income.
- ② Examine the direct and indirect impact of company wealth on selected stakeholders in different regions and countries to obtain information about those who benefit from our activities and where these stakeholders are located.
- ③ Address the economic impact of the consumption of Novo Nordisk's products from a general economic perspective and health economics perspective.

Maximising impacts

The consumption of our pharmaceutical products has direct and indirect impacts on people and affects quality of life. Indeed, the impact we have on human health is perhaps our greatest economic impact as a company. We have addressed health economic issues for many years now and we intend to examine these impacts in greater depth. While the indirect economic impact is difficult to quantify, we have formed projects to further develop our knowledge in this area. See 'The economics of health' on p. 64.

However, in trying to extend the positive economic impact of our products, we face a dilemma. How a product is used is a function of the product itself, its price and its distribution – not all of which are within a company's control. For example, it is not always possible to control wastage or the damage to a product due to improper storage. But as a profit-maximising company, we do exercise influence over the price of the product. Herein lies a dilemma: it is our vision to have a positive impact on human health through the use of our products, particularly in the developing world, and therefore we cannot disregard how we impact human health

through our pricing. We need to find an affordable product price level that allows us to remain profitable and deliver a healthy return to our investors. We believe we have found a way to begin resolving this dilemma through our new pricing strategy for the least developed countries. See 'Helping to ensure the right to health' on p. 20.

Building on financial reporting

In the Novo Group Environmental and Social Report 2000 we presented a case study analysing the general economic impact of the Novo Nordisk insulin plant in Clayton, North Carolina, USA. In our 1999 report, we made a similar analysis of our plant in Kalundborg, Denmark. The Clayton analysis demonstrated that the local plant has numerous impacts on the local community, such as taxes paid by the company as well as by employees and suppliers, and the stimulus to local trade and industry. Furthermore, employee salaries and wages and income to suppliers spent locally multiply through the local economy as they become consumers.

Building on the Clayton model, we are developing indicators that will help us analyse the wider economic impacts of our company. Below, we present data that provides an initial snapshot of our economic impact on a global scale.

Distribution of created wealth

We provide this data in the form of a cash value distribution, the approach described by GRI and adopted by South African Breweries. The cash value distribution is derived from the statement of consolidated cash flow and financial resources in the Annual Financial Report for 2001.

The company cash received is distributed with 47% to external economic stakeholders (suppliers) and 53% to various economic stakeholder groups profiting from company value added. The impact of company wealth on selected stakeholders in different regions provides information about where those economic stakeholders are located.

Customers

Our customers represent the most important economic stakeholder group of our company through turnover growing by 14% in 2001 compared to 2000 primarily in Europe and the USA. More than 99% of our sales are outside Denmark, with our largest market being Europe. The major part of our production takes place in Denmark, indicated by both the number of employees in Denmark (63%) and by the fact that 86% of the company's tangible assets are located in Denmark.

Suppliers

Suppliers are an important stakeholder group because their share of the total company cash received indicates their contribution to the generation of company wealth and is a measure of how suppliers profit from the location of Novo Nordisk's plants in their neighbourhood. The geographical distribution of procurement for production indicates that suppliers in production primarily are located in Denmark where our main production activities take place.

The surplus – in terms of cash added value after the suppliers have been paid – is distributed among economic stakeholders, such as employees (59%), funders (lenders and shareholders) (8%), the public sector (15%) and the company management (18%).



Cash value distribution		2001	Cash received	Cash added value
Customers	1: Cash received for products and services ¹	23,290	100%	
Suppliers	2: Cash payments for materials, facilities and services ²	10,875	47%	
Company cash	Cash added value 1-2	12,415		100%
Employees	3: Remuneration	7,203	31%	59%
Funders	4: Dividend and lenders	1,021	4%	8%
Public sector	5: Taxes	1,900	8%	15%
Management	6: Future growth	2,291	10%	18%

1) Cash received from net turnover.

2) Cash payments outside the Group. The figure includes cash flow from license fee and other operating income and prepayments to public authorities.

Targets

Operating profit margin of 25%.

Growth in operating profit of 15% per year.

Return on invested capital (ROIC) of 25% per year.

Cash to earnings of 60%.

Employee income

Employee income (59% of cash added value) is a measure of the market value of people's productive capabilities. The geographical distribution of this wealth points to a concentration in the developed world and in particular in Denmark, which is where the majority of our employees reside and our production takes place.

Investments

The level of investment is a measure of future economic capacity and development directions and can be broken down into investment in physical assets, in human capital and in knowledge (R&D).

Physical assets and investments

In 2001 Novo Nordisk invested DKK 3.8 billion in new facilities, a substantial increase from DKK 2.1 billion in 2000, primarily in Danish production facilities. We are a predominantly Danish company, but it is of particular interest for the future that Novo Nordisk, for example, signed an investment agreement worth DKK 262 million in the Brazilian company Biobrás in December 2001. This acquisition marks a major expansion of Novo Nordisk's activities in the large and growing market for diabetes care products in Brazil and other Latin American countries.

Human capital and R&D

Human capital consists of all the skills, expertise and competencies of the employees of our company. There is a growing understanding of the influence of human capital or intangibles as drivers in the creation of company wealth. In this perspective employees become key factors not just for current operations but for creating the innovation required for our future competitive strength.

The trend shows how Novo Nordisk has extended its employment quite substantially, particularly from 2000 to 2001 (17%) and in absolute terms primarily

in Denmark, USA and in the rest of the world (16%, 49% and 22% respectively). The share of employees in Denmark and in the rest of Europe is fairly constant, while the share in the USA in particular and in the rest of the world is growing. The share in Japan has fallen.

Expenditure for R&D is an important capacity builder from a societal point of view and a major part of the innovative capital creating our future wealth. The wage share of R&D may be particularly important as an indicator of the company's impact as a capacity builder in a region or a community. Although R&D's relative share of net turnover has fallen from 1998 until 2001, the absolute level has risen in the period.

Charting a future path

We will strive to improve our reporting on the economic bottom line both by further developing our reporting of the direct economic impacts and by trying to assess more closely the indirect economic impacts, such as external effects – that is, costs and benefits of economic activity not taken into account in the market prices – multipliers, which describe how income earned in society is used to create new income, and community effects. According to the GRI, each company has to determine what constitutes its own specific communities. A company that operates in multiple sites, in multiple countries, has a diverse supply chain, or an unusual set of stakeholder groups, may need to perform analyses that address these specific communities.

We will continue to monitor trends in global reporting and actively participate through networks such as the GRI, the World Business Council for Sustainable Development (WBCSD) and the Business for Social Responsibility (BSR).

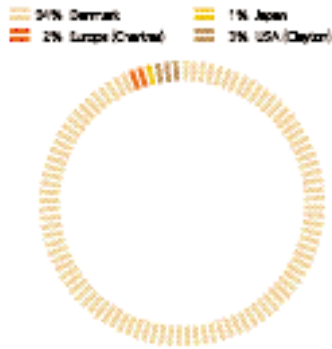
We recognise that our stakeholders are interested in any step we take to act on our commitments and to achieve maximum economic added value that goes beyond the internal financial profit or shareholder value. We also know that it will be some years until the financial community will be a driver in this field. The challenge is to bridge the needs of our shareholders and financial analysts for hard-core financial data with the interests of other stakeholders in the broader economic implications of our commercial activities.

Socially responsible investments

Socially responsible investors lead the way in assessing more than the crude financial results, risks and assets. While Novo Nordisk in 2001 performed very well in financial terms, our inclusion in several socially responsible investment funds and indexes, including UBS, SAM/Dow Jones, and FTSE4Good was achieved upon scrutiny of the company's performance against the Triple Bottom Line.



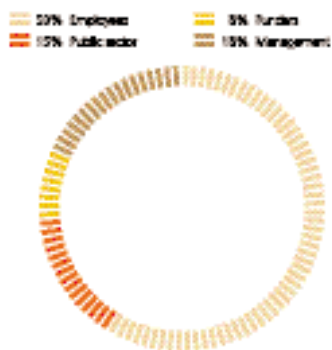
Regional distribution of procurement for production 2001



Turnover by geographical distribution in DKK million



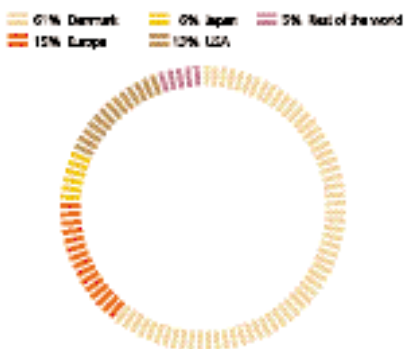
Distribution of company cash added value among economic stakeholders 2001



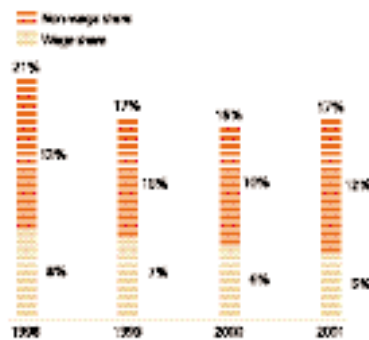
Geographical distribution of employees



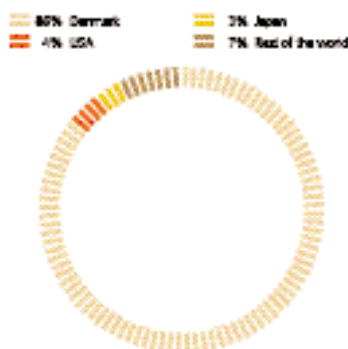
Regional distribution of remuneration 2001



R&D as a % of turnover

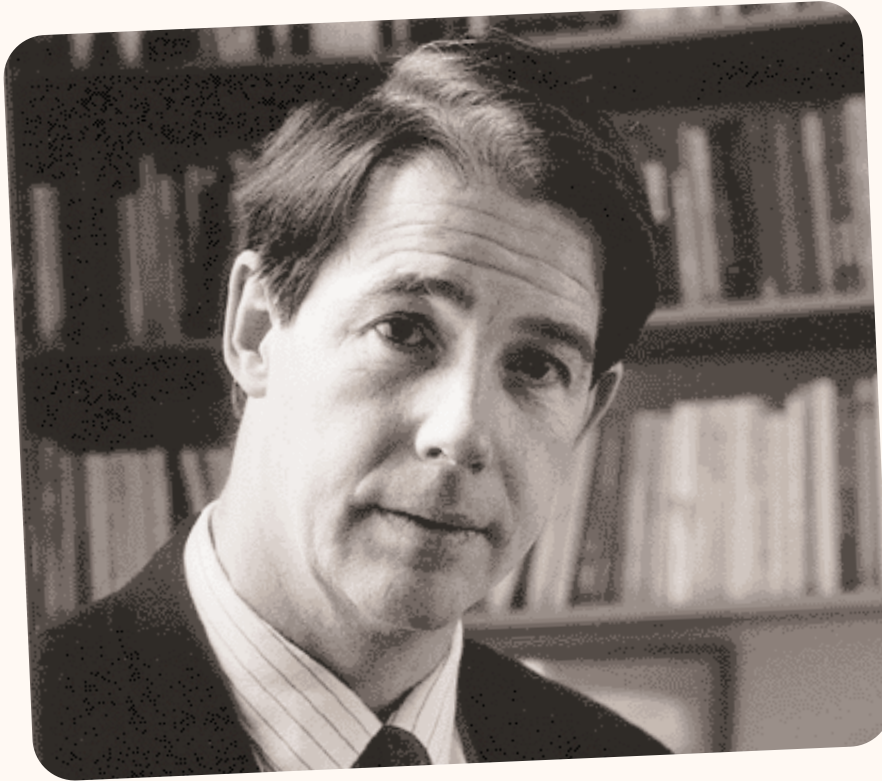


Tangible fixed assets by geographic area 2001



Regions

Europe (the EU, Central and Eastern Europe, and Russia), USA, Japan, Rest of the world (approx. 150 countries, including Canada, Australia and New Zealand).



How can we continue to increase production and our use of resources and yet contribute to sustainable development?

Dilemma 1 2 3 4 5 6 7

“There’s an unspoken contradiction at the heart of contemporary thinking about sustainable development: it’s assumed that as long as enough companies make a big enough improvement in their environmental and social performance, then we can go on indefinitely stimulating the kind of growth economy we’ve come to know and love since the second world war. Indeed, some of the most socially responsible companies in the world enthusiastically pursue ‘double-digit growth’ – projected indefinitely into the future – without any sense either of hypocrisy or infeasibility.

Yet permanent exponential economic growth of that kind is impossible. No sub-system can grow at a faster rate than the system of which it is a part. Contrary to the inane rubbish we hear from most economists, the global economy is a sub-system of the totality of natural systems and cycles that make up life on earth – not the other way round! And the laws of thermodynamics tell us categorically that our use of the earth’s natural resources and its natural ‘sinks’ (on which we depend to absorb our waste) cannot go on growing. There are – and always will be – natural limits to man-made economic growth.

No one, but no one in business wants to talk about this! Understandably, because how can they possibly do right by their shareholders without an expectation of that kind of growth? And how can governments hope to improve the lot of their citizens without the promise of progress through growth? That leaves a company like Novo Nordisk in an interesting position. There’s no real difficulty about it making a significant contribution to sustainable development.

It can drive down externalities incrementally; it can achieve eco-efficiency gains to ensure that its environmental and social impact per unit of production is reduced even as production volumes increase. It can substitute renewable sources of energy for carbon-intensive fossil fuels, minimise distribution impacts, design for ever greater recyclability in use – all of these things clearly contribute to sustainable development. And the more effectively they’re done, the greater the contribution.

But from the systems, thermodynamic point of view, there’s a world of difference between ‘becoming less unsustainable’ and becoming genuinely sustainable! There’s not a large company on earth that can achieve the latter in today’s global economy, with today’s prevailing economic and political priorities. And it would help if we could all be just a little bit more honest about this.”

**Jonathon Porritt,
Director, Forum for the Future, UK**

Accounting for the environment

In 2001 we managed to raise production volumes and yet reduce energy and water consumption. However, in the same period, prices have increased, and consequently the environmental gains have not resulted in substantial financial savings.

A comparison with the 2000 figures shows how the total environmental costs in absolute terms have increased by 40%, while the ratio of environmental costs as compared to total production costs has increased from 1.8% to 2.2% in 2001. This increase is due to higher costs for the disposal of spent biomass and wastewater, but also due to increases in energy taxes. Further, the increase is a result of heavy investments in new production facilities, and validation and implementation of new plants, which is often very water-consuming. See 'An international approach to environmental management' on p. 50. Due to the demerger of Novozymes in 2000, the costs of running the environmental department have decreased by approximately 24%.

We use our eco-productivity indices (EPIs) to measure the impact of efficiency gains or losses in our production. Analyses show that the efficiency gain

in consumption did not result in similar actual savings in costs, as prices on energy and water have increased significantly during 2001. Had prices in 2001 remained at a year-2000 level, our efficiency gain would have resulted in actual savings on water of DKK 1.2 million, and actual savings on energy of DKK 11.4 million. In 2001 prices our actual savings on energy were DKK 0.8 million, while there was an increase in the costs of water of DKK 1.7 million.

Environmental investments

Environmental investments amounted to DKK 44.3 million in 2001; an increase of 47%. Roughly, it matches the increase in the company's total investments in tangible assets which amounted to 60% in 2001.

Investments of DKK 8.2 million were made in improved environmental safety measures, DKK 0.7 million was invested in restoration of polluted soil, and DKK 35.4 million was end-of-pipe measures. At the production site in Kalundborg, which accounts for the majority of both investments and environmental costs, investments were made in a significant enlargement of production facilities and projects to optimise production.

contact

Jens Hartvig Jørgensen
Vice President
External Environment

jhj@novonordisk.com
+45 4443 5240

Environmental costs and investments

DKK million	2001	2000
Running of the environmental department	9.3	12.3
Net cost of wastewater treatment at municipal plants	10.7	10.1
Biomass management (including transportation, treatment and capacity costs)	4.8	19.8
Handling and disposal of solid waste	27.8	23.1
Energy, SO ₂ and CO ₂ taxes (non-refundable)	43.0	27.5
Remediation cost for polluted sites	0.3	0.4
Total environmental costs	129.7	93.2
Environmental costs/Total production costs	2.2%	1.8%
Environmental costs/Net turnover	0.5%	0.4%
Environmental costs/Operating income	2.3%	1.9%
Environmental investments	44.3	30.1
Environmental investments/Total investments in tangible assets	1.3%	1.3%

The economics of health

contact

Stefan Bjørk
Head of Global Health
Economics
Stakeholder Relations

stbj@novonordisk.com
+45 4442 1324

The economic productivity of a nation and the health of its workforce is largely dependent on the investment made in the health of its people. The importance of the economic investment in healthcare is borne out by the recent findings of the Commission on Macroeconomics and Health, a group of leading economists and health experts, which reported to the World Health Organisation in December 2001 that by 2015-2020, increased health investments of USD 66 billion could generate at least USD 360 billion annually and save approximately 8 million lives per year.

According to the World Health Organization (WHO), diabetes is one of the four major killers in the world, called the 'silent killer' as it kills through the late complications caused by inefficient care. The WHO estimates that the numbers of adults (20 years and older) with diabetes (ie a mix of Type 1 and Type 2) will rise to 300 million by 2025 from 135 million in 1995, a 120% increase over 30 years. It is estimated that about 80% of those individuals will be living in developing countries by 2025. The top three countries in the world with diabetes are India, China and the USA.

Those seeking to head off this pandemic face a dilemma. We know how to optimise care but this does not happen often enough, for various reasons: lack of information, education, funding, infrastructure and medicine. But sometimes poor decisions are made due to lack of knowledge about the options available for addressing disease in the most economical way. Health economics, which presents the costs and consequences of diabetes, is one way to show how investments in healthcare can improve the overall level of care. Economic data that outline the costs associated with diabetes and the economic value of diabetes intervention are widely used to underscore the importance of the disease and its impact on the healthcare system. Health economics illuminates the choices to be made regarding limited healthcare resources, the effectiveness of healthcare treatments, the pricing of products and many other factors. Novo Nordisk has long used health economics as a decision-making tool for focusing our efforts, as well as a basis for informing decision-makers about the economic consequences of their choices.

These figures add urgency to the task of gathering precise economic data on how to best treat diabetes. On average, people with diabetes are three times more likely to be hospitalised compared to non-diabetic individuals. In addition, the risk of premature death due to diabetes is higher compared to those without diabetes, eg for the USA, the average life span is 10 to 15 years shorter for people with diabetes.

The cost to society can be estimated either through direct costs or indirect costs. Direct economic costs of diabetes are those generated by the resources used in treating or coping with a disease, including expenditures for medical care as well as transportation costs and the costs of care-giving by the family. Indirect costs address the potential resources that are lost as a result of diabetes. These include the cost of morbidity, disability and premature mortality. Unlike direct costs, which can be measured by surveys and patient studies, these indirect costs are more difficult to measure. Indirect costs represent the present and future impact of opportunities lost to an individual as a result of diabetes.

Analysing best alternatives

Through health economics, we are able to analyse the best alternatives for providing products, services and other programmes to people with diabetes. The largest study of diabetes ever undertaken in India, 'The Cost of Diabetes in India' (CODI), supported by Novo Nordisk, found, among other things, that to properly treat all the people with diabetes in India would cost substantially more than the total healthcare budget for the country.

This study also found that the wealthier and more educated a person with diabetes, the greater the level of detection and management. It also showed that most of those people who had had diabetes the longest and had the most complications were poor, uneducated, had little money to spend on treatment and lived outside the cities. Those living in rural areas had more complications due to diabetes partly because of the difficulty of travelling to the cities where the healthcare services are largely available. The study supports the finding that rurally based clinics would improve the outcome of these patients, and thus reduce the costs incurred by society.

Providing direction

Access to health depends on disposable income. The impact of treatment measured in monetary terms is one way of establishing the value of treatment. Specifying costs according to effectiveness of treatment can provide direction on how to improve diagnosis and treatment on a continuous basis. Economic analyses can be used not only to describe costs, but also to assist in planning budgets and assess whether costs are prohibitive. Health economics can also be useful in evaluating programmes, prioritising expenditures, and aiding decision-making.

Recent studies show that healthcare expenditures can be five times higher for people with diabetes than for people without diabetes. Thus, diabetes ought to be one of the major concerns for ministers of health, especially in developing countries

and particularly in India and China. Increasing the spending on diabetes and improving the available treatments are vital if we want to reduce future costs due to under-treated diabetes. This basic lesson of health economics is quite simple: introduce and improve treatment. This will lead to increased health and quality of life, which will decrease costs in the national healthcare budgets.

We do hope that our LEAD programme, which aims to improve access to health in developing countries, might be able to improve this situation. See 'Helping to ensure the right to health' on p. 20.

Estimated direct costs of diabetes

	USD billion (1999) ¹	Population, million (1999) ²	Spending per capita (1999)
Denmark	0.54	5,320	0.10
Finland	0.46	5,158	0.09
France	7.30	59,101	0.12
Germany	10.67	82,797	0.13
Italy	4.50	57,578	0.08
Japan	16.94	126,314	0.13
Spain	2.04	39,953	0.05
Sweden	0.88	8,871	0.10
United Kingdom	4.65	59,355	0.08
United States	60.00	275,563	0.22

1) Source: *Diabetes Health Economics: Facts, figures and forecasts*, International Diabetes Federation, 1999. Adapted from: Jönsson B, *The economic impact of diabetes. Diabetes Care 1998; 21 suppl 3: C7-C10.*

2) Source: www.census.gov/ftp/pub/ipc/www/idbsum.html

Verification statements

As an innovation, this year we have adopted a triple approach to the quality assurance of our Report. A broader overview that seeks to provide stakeholders with some assurance of the relevance and completeness of the Report and its underlying processes. A formal external verification that focuses on the accuracy of the quantitative data. And a high-level assurance engagement of our environmental information system, CATCH. The scope of these independent statements also covers the additional information in the Internet report.

Statement from Simon Zadek

This Statement focuses on the completeness and relevance of Novo Nordisk's Triple Bottom Line report, and on the company's underlying learning and capacity to work with longer-term, 'stretch' goals and targets. In the Internet report is a description of the Review's approach.

On substantive issues, significant advances have been made in the area of 'access to health'. Its approach reflects the company's fundamental business principles, builds on WHO's recommendations, and was accentuated and accelerated by the Danish debate following the legal case brought by the pharmaceutical industry against the South African government concerning intellectual property rights. Learning from this should in the future inform its overall approach to risk assessment and management. The company has further progressed its approach to animal care, deepening its engagement to include challenging and also productive dialogue with activists. Incremental progress has been made in environmental management and performance, and there is a renewed need to explore new opportunities and strategic directions. Considerable progress has been made in handling labour standards in supply chains, and the weight now given to this in supplier screening is to be commended. Also notable are further developments in the company's global approach to equal opportunities.

On accounting and reporting, the strategic dilemmas approach has proved valuable in exploring the link between values, governance, and strategy. The commitment to account for licensees, contractors, and suppliers is a welcome development. The greater focus on the crucial area of health-related impacts is a significant development, although the company might reflect on how best to satisfy growing demands from stakeholders for greater transparency about health-related R&D activities.

The report complies with the main GRI Reporting Guidelines, and the underlying accountability process has been consistent with AA1000 principles.

Overall, Novo Nordisk continues to be a leader in public reporting, and can sustain this by considering future developments in the following areas.

- ◉ Further development of reported long-term strategic goals and associated targets.
- ◉ Continuing this year's effective approach that reports performance in the context of strategic dilemmas.
- ◉ Annual reporting on progress in its 'access to health' initiatives.
- ◉ Reporting on how R&D policy and practice fits within the Novo Charter.
- ◉ Report on internal incentive and career development in relation to social and environmental policies and performance.
- ◉ Strengthening engagement with mainstream investment community about risks and opportunities associated with social and environmental performance.
- ◉ Extension of quality assurance process to all report-based corporate communications about social and environmental issues and performance.

London, 1 March 2002



Dr Simon Zadek

Statement from Deloitte & Touche

Agreed upon procedures related to the 'Report' and supporting documentation

We have been engaged to perform certain agreed upon procedures on the Novo Nordisk Triple Bottom Line Report 2001 and the related supplementary information on the Novo Nordisk website (all referred to as the 'Report'). Our work has been performed according to Professional Guidance applied to State Authorised Public Accountants in Denmark. The scope of the agreed upon procedures was agreed with the management of Novo Nordisk.

- ◉ We interviewed corporate officials at corporate headquarters and employees at a sample of sites responsible for compiling data (environmental, social and economic data) for the Report, and we analysed and tested samples of supporting documentation.
- ◉ We ascertained whether the data collection procedures, as described in 'Scope of Report', were used at corporate level to collect figures from reporting units. We compared the figures in the Report on investments and costs pertaining to environmental work to the source documentation presented to us. We assessed whether figures collected this way are appropriately reflected in the Report.
- ◉ We reviewed the internal control procedures established at corporate level to verify relevant figures submitted from reporting units. On a test basis, we compared the 2001 figures reported from a sample of two reporting units, Kalundborg and Bagsværd, to the source documentation supporting the submitted figures.

The agreed-upon scope and work performed preclude us from stating an opinion as to whether all figures in the Report are complete and accurate.

We find that Novo Nordisk applied detailed data collection procedures for the purpose of collecting 2000 and 2001 figures from the reporting units for inclusion and appropriate reflection in the Report; and made

reasonable endeavours at corporate level to verify the figures. For the two reporting units identified above, submitted figures were consistent with the source documentation presented to us.

High-level assurance engagement on the environmental information system (CATCH)

We have been engaged to perform a high-level assurance engagement of CATCH. CATCH is a corporate level system as asserted in 'Scope of Report' and in detail in the Internet version of the Report. The Report and the assertion are the responsibility of and have been approved by Novo Nordisk's management. Our responsibility is to express an opinion on the assertion based on our engagement. Our work has been performed according to Professional Guidance applied to State Authorised Public Accountants in Denmark.

Our engagement included, on a test basis, an examination of the evidence supporting the assertion and performance of other such procedures, as deemed necessary by us. We believe that our examination provides a reasonable basis for our opinion.

In our opinion, in all material respects, CATCH is functioning as described in 'Scope of report', and the system ensures an appropriate data collection process at corporate level.

Copenhagen, 1 March 2002

DELOITTE & TOUCHE

Statsautoriseret Revisionsaktieselskab



Preben J. Sørensen

State Authorised Public Accountant (Denmark)
Environment & Sustainability

Key performance data

Financial	Profit and loss figures			2001	2000
	Net turnover	DKK million		23,776	20,811
	Employee costs	DKK million		7,435	6,352
	Research and development costs	DKK million		3,970	3,390
	Operating profit	DKK million		5,614	4,816
	Profit before tax	DKK million		6,030	4,840
	Net profit	DKK million		3,865	3,087
	Profit and loss key figures				
	Research and development costs	% of turnover		16.7	16.3
	Operating profit margin	%		23.6	23.1
	Net profit margin	%		16.3	14.8
	Effective tax rate	%		35.9	36.2
	Balance figures				
	Cash and current asset investments	DKK million		3,062	3,845
	Current liabilities	DKK million		6,006	6,412
	Total assets	DKK million		28,905	24,593
	Balance key figures				
Equity ratio	%		69.7	64.0	
ROIC	%		23.1	22.3	
Share data					
Earnings (net profit) per share	DKK		11.18	44.20	
Dividends per share	DKK		3.35	13.25	
Share capital (nominal) at year-end	DKK million		709	754	
Quoted price at year-end for B shares	DKK		342	1,425	
Environmental	Resources				
	Water consumption	1,000 m ³		1,790	1,429
	Energy consumption	1,000 GJ		1,838	1,732
	Raw and packaging materials	1,000 tons		88	76
	Wastewater				
	Volume	1,000 m ³		1,424	1,121
	COD	Tons		830	723
	Nitrogen	Tons		86	63
	Phosphorus	Tons		15	11
	By-products (biomass)				
	Volume	1,000 m ³		147	141
	Nitrogen	Tons		1,415	1,167
	Phosphorus	Tons		423	353
	Waste				
	Waste (total)	Tons		14,866	10,551
	Non-hazardous waste ¹	Tons		7,300	-
	Hazardous waste ¹	Tons		7,566	-
Recycling percentage of total waste	%		50	45	
Emissions to air					
Organic solvents	Tons		75	78	
Ozone-depleting substances (total)	Kg		915	1,561	
CO ₂	1,000 tons		143	139	
SO ₂	Tons		245	270	
NO _x	Tons		251	272	
Environmental Impact Potentials					
Global warming ²	1,000 tons CO ₂ -eqv.		145	142	
Ozone layer depletion	Kg CFC ₁₁ -eqv.		41	153	
Acidification	Tons SO ₂ -eqv.		421	460	
Eutrophication	Tons NO ₃ -eqv.		1,291	1,040	
Social	Basic employee statistics				
	Number of employees (total) ³			16,693	13,752
	Female	%		50.7	50.8
	Male	%		49.3	49.2
	Rate of absence	%		3.8	4.0
	Rate of staff turnover	%		7.7	10.6
	Health & Safety				
	Frequency of occupational injuries			8.2	8.4
	Frequency of occupational illnesses			2.2	1.7
	Training costs				
Average spent on annual staff training per employee	DKK		8,201	8,393	

Notes

- 1) In 2001 we have redefined our way of reporting our waste. We now have two main categories of waste: Non-hazardous and Hazardous waste. The sum of the two categories equals Waste (total), which can be compared to last year's Waste (total).
- 2) Due to an error in the calculation of Bagsværd's part of global warming the total for Novo Nordisk in 2000 has changed from 139 to 142 (1,000 tons CO₂-eqv.)
- 3) The number of employees (total) is the headcount at the end of 2001 and equals 16,693.
The Full Time Equivalent of this headcount equals 16,141.

The complete data set for Novo Nordisk's environmental and social performance is found in the Internet report, which contains aggregated data at corporate level and specified data submitted for each production site. A more detailed description of the accuracy of data is also available in the Internet report. For more information on the financial performance, see the Annual Financial Report, also available with extensive data on the Internet at:

contact

Hanne Schou-Rode
Vice President
Stakeholder Relations

hsr@novonordisk.com
+45 4442 3087

Definitions

Balanced Scorecard is a management tool in which major issues are vision, values, and business strategies. A basic principle is that management of a company has to be based on measurements of its score or performance in relation to different business perspectives. There are four perspectives: stakeholder or customer, economic, internal processes, and organisation and people.

Bioethics covers all ethical issues related to the use of life sciences technologies for the development and production of biotechnological and pharmaceutical products.

Biotechnology and genetic engineering refer to the application of living organisms and their cellular, sub-cellular or molecular components to create products and processes. Historically, the first use of biotechnology took place centuries ago with the discovery of fermentation of wine and beer. Modern biotechnology is often used synonymously with genetic engineering.

Contained use is a highly specific term from national and international regulation. It means that physical barriers (such as Novo Nordisk's fermentation tanks) or a combination of physical, chemical or biological barriers are used to limit the contact of genetically modified microorganisms (GMMs) with the surrounding environment. The regulatory authorities set limits for emissions of GMMs. A chemical barrier might be chemical treatment to kill organisms. A biological barrier is an inherent characteristic of an organism, which means that the organism's ability to survive in nature is limited.

Corporate governance is the system or process by which companies are directed and controlled. It is based on the principle that companies are accountable for their actions and therefore broad-based systems of accountability need to be built into the governance structures of companies.

Eco-efficiency is defined by the World Business Council for Sustainable Development (WBCSD), as "the delivery of competitively-priced goods and services that satisfy human needs and bring quality of life, while progressively reducing ecological impacts and resource intensity throughout the life cycle to a level at least in line with the Earth's estimated carrying capacity".

Economics is the means by which society uses human and natural resources in the pursuit of human welfare. As such, economics extends beyond the boundaries of a single organisation and is inextricably linked to both the environmental and social elements of sustainable development.

Eco-productivity index (EPI) The site-based EPI is an expression of our ability to utilise resources. It is calculated by relating the total yield of product to the respective consumption of water and energy.

Environmental responsibility covers our impact on the external environment and the bioethical implications of our activities.

Equal opportunities Based on international conventions Novo Nordisk defines equal opportunities as "equal opportunity in recruiting, terms of employment, promotion, and termination is practised without any distinction, exclusion or preference made on the basis of gender, sexual orientation, age, disability, marital status, religious beliefs, creed, colour, race or ethnic origin or political orientation, except when justified by requirements intrinsic to a specific job".

Global Compact is a UN-sponsored platform for encouraging and promoting good corporate practices and learning experiences in the areas of human rights, labour and the environment.

Global Reporting Initiative (GRI) is an international, multi-stakeholder effort to create a common framework for voluntary reporting of the economic, environmental, and social impact of organisation-level activity. It is convened by the Coalition for Environmentally Responsible Economies (CERES) in partnership with the United Nations Environment Programme (UNEP).

GMM and GMO Genetically Modified Microorganisms (GMMs) are a subgroup of Genetically Modified Organisms (GMOs). At Novo Nordisk microorganisms such as bacteria (*Bacillus*, *E. coli*) and microfungi (yeast, *Aspergillus*) have been encoded with genes for producing pharmaceutical proteins. GMMs are classified as safe or demonstrating the lowest potential risk only if certain criteria are fulfilled according to the scientific risk analysis. The GMM must not be pathogenic to humans, animals or plants, or in any way harmful to the environment. Further, the original microorganism should be non-pathogenic, and the genes inserted should not be expected to cause any harm.

Social responsibility is about improving the quality of relations with key stakeholders. Novo Nordisk defines it as putting values into action in the perspective of human resources, human rights, health & safety, and our relations with society at large.

Stakeholder A stakeholder is an individual, a group of individuals or an organisation affected by or affecting the behaviour of a company or an organisation. Novo Nordisk's most significant stakeholder groups are shareholders, employees, customers, suppliers, the media, authorities, non-governmental organisations and local communities around our production sites.

Sustainable development was defined in the Brundtland report from 1987 as "development that meets the needs of the present world without compromising the ability of future generations to meet their own needs". Novo Nordisk interprets this definition as the Triple Bottom Line approach.

Triple Bottom Line The Triple Bottom Line concept reflects an integrated understanding of business performance, in which social, environmental and economic bottom lines are interdependent. The aim of a Triple Bottom Line approach is to ensure a business performance that is socially responsible, environmentally sound and economically viable.

Contacts

Lise Kingo	Vernon Jennings	Stig Pramming
Senior Vice President	Vice President	Vice President
Stakeholder Relations	Stakeholder Relations	Stakeholder Relations
Novo Nordisk A/S	Novo Nordisk A/S	Novo Nordisk A/S
Tel. +45 4442 3861	Tel. +45 4442 8199	Tel. +45 4442 6534
E-mail: lki@novonordisk.com	E-mail: vj@novonordisk.com	E-mail: spr@novonordisk.com

Feedback

We encourage readers to contact us for more information or to discuss the report and our work on sustainable development.

Contact persons can be reached by telephone or through the e-mail addresses provided with each article.

More copies of this or other reports from Novo Nordisk can be ordered from our website at:

www.novonordisk.com/sustainability

The Internet version of this report also has more information and data.

Dealing with dilemmas
Reporting on the Triple Bottom Line
Novo Nordisk 2001

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Eco-management and Audit Scheme

Novo Nordisk A/S
Novo Allé
DK-2880 Bagsværd

Tel +45 4444 8888
Fax +45 4442 8990

www.novonordisk.com

CVR No. 24256790

