

# 2001

A N N U A L R E P O R T



MISTRA 

**Måns Lönnroth, Managing Director of MISTRA:**

# Environmental research has to bridge the ‘valley of death’

Far too few research programmes produce results that can help to solve the environmental problems we face today. That is why finding and supporting research that does that is one of the principal tasks of MISTRA. But, says MISTRA’s Managing Director Måns Lönnroth, the research community also has a responsibility – to get across the ‘valley of death’ into which so many good ideas and research results have disappeared, never to be heard of again.

Måns Lönnroth has held the post of Managing Director at MISTRA for more than two years. Since his appointment, he has had time to gain a detailed insight into projects at the forefront of Swedish environmental research, tour to 17 Swedish universities and university colleges, ponder new areas of work for MISTRA – and see the foundation’s capital eroded by the decline on the world’s stock exchanges.

**Since its creation in 1994, MISTRA has assumed a dominant role as a funder of environmental research in Sweden. Do you find that a heavy responsibility?**

“A position of dominance is always a big responsibility. But MISTRA isn’t actually as dominant now as it once was. The new agency Formas – the Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning – has also become a significant player on the environmental research scene, partly thanks to the new money they’ve been given for biodiversity research. And then there’s the Environmental Protection Agency, which has had some of its research funding restored. So MISTRA is no longer dominant, which means we can now concentrate on our core task: selecting and supporting research that will help to solve environmental problems.”

**In several contexts, you have called for bolder programme proposals from researchers. What sort of a response has there been?**

“An increasingly encouraging one, but we would like to see an even larger number of daring proposals that cut across traditional boundaries. I feel that MISTRA has a tremendously important part to play in emphasizing to researchers that they need to build bridges between their work and the user community. The Spanish town of Ronda in Andalusia is divided by a deep ravine, with a bridge leading from one side to the other. That, I think, is a good picture of how many research results are handled. If researchers don’t manage to build a bridge between their world and that of the users of research, then the results will disappear into the ‘valley of death’ between the two – a valley already full of bleached bones and skulls that were once brilliant ideas, but never came to anything. And it’s thanks to the bridge that both sides are able to develop – without it, both would wither away. That’s why our research programmes are geared to the needs of three important user groups: we support work designed to develop commercial products, to produce scientific data and advice for international negotiators, and to offer a scientific basis for decisions on natural resource management.”



*Since its launch in 1994, MISTRA has provided funding of over a billion Swedish kronor for environmental research. ‘But making sure the results of this research find practical applications requires a constant effort on our part,’ says Måns Lönnroth, the foundation’s Managing Director.*

**The stock exchange hasn’t fared all that well in recent years. How will Swedish environmental research be affected if MISTRA’s capital dwindles? Do you intend to carry on providing funding of some SEK 250 million a year?**

“Obviously that will be difficult if the securities and capital markets don’t pick up. At most, we have had a capital of SEK 4.8 billion. Currently, the figure stands at around SEK 4 billion. MISTRA’s Board has said that we should aim for an annual level of research funding of around SEK 200 million in the years to come, to avoid eroding our capital base.

Admittedly, there's nothing in our Statutes to say that we have to maintain a sustainable rate of funding – we could in principle use up all our capital. But the Board has opted for a level of support that can be sustained, which means that we're now aiming to pay out a maximum of SEK 200 million a year in research grants."

**Last year MISTRA was criticized in the media for failing to take sufficient account of the environment and ethical issues in the management of its assets. Should a foundation that supports research designed to solve environmental problems not be doing that as a matter of course?**

"Yes, the criticism is justified. We intend to do better in this area, and to begin with we are scrutinizing MISTRA's holdings of shares from an environmental and ethical point of view. The next step will be to identify the companies that are 'best-in-class' in environmental terms and to actively invest in such companies. MISTRA's Board has said that, initially, 10–20 per cent of our portfolio of US and European shares should be chosen on the basis of positive environmental and ethical criteria. As we gain more experience, that percentage will increase."

"But this question is not entirely straightforward, and MISTRA has therefore taken a closer look at the analysts and groups who offer to make investment recommendations based on environmental, ethical and social criteria. If possible, we also want to help develop greater expertise in this area. In the long term, capital management, too, has to be an integral part of working towards sustainable development, and we are keen to make an active contribution to bringing that about."

**Environmental research has traditionally been dominated by the natural sciences. Do you see any change in that respect?**

"Yes, we can see a growing interest in environmental issues among social scientists. That's a good thing, because we need more balance. The fact is that many of the really difficult environmental problems we face have their basis in the social and human rather than the technical sphere. Often they are linked to societal processes and human behaviour, so obviously there is a need for more research focusing on these issues. Unfortunately, the societal dimension rarely receives sufficient attention in the funding applications submitted to us."

**Are there any research programmes you are particularly pleased with?**

"Yes, there are many. One is the programme studying whether micro-organisms can be used to combat fungi that cause rot, mould and other problems in agriculture. Another is the one which has the aim of protecting crops from insect attack using scent compounds known as pheromones and kairomones. Both these programmes can help to develop new biological control methods and reduce the need for chemicals in farming. MISTRA is also supporting the programme Ångström Solar Centre to develop solar cells that are both highly efficient and cheap to produce – both essential

requirements if the technology is to be used on a large scale in electricity production around the world. Swedish research in this area is very much at the cutting edge internationally. Our programme to develop a closed-cycle pulp mill (KAM) shows that, in the future, pulp mills could further reduce their pollutant emissions, and at the same time become major suppliers of energy."

"In addition, we have a number of programmes designed to support international negotiations in the environmental sphere. One of these, ASTA, is intended to facilitate the forthcoming negotiations on EU agreements and protocols to the Convention on Long-Range Transboundary Air Pollution."

"Another programme is designed to develop quicker and cheaper methods of risk management for the chemicals sector."

"I would also like to mention FOOD 21, which is intended to help promote an environmentally and ethically sound system of food production. This programme is developing into a forum for synthesis of knowledge and communication between researchers and all the relevant stakeholders – in other words, it is becoming an engine for change in this area."

**MISTRA's purpose is to support research that helps to solve environmental problems. Are your programmes living up to that aim?**

"There's nothing automatic about it – getting research users involved in our programmes requires a constant effort on our part. Some researchers have a natural talent for thinking about who needs to find out about their results and, hopefully, apply them in practice. Others don't. We're fully aware at MISTRA that it is extremely important that our research programmes not only represent very good scientific ideas, but are also competently managed and produce usable results."

CLAES SJÖBERG

*Environmental journalist, Tomorrow Media AB*

# Managing MISTRA's assets

At the end of 2001, MISTRA's assets had a market value of SEK 4,183 million, to be compared with SEK 4,448 million at the beginning of the year. Naturally, declining markets and nervousness on the world's stock exchanges took their toll on the value of the foundation's capital. Overall, though, its development has been satisfactory: between 1994, MISTRA's first year of operation, and the spring of 2000, its capital showed steady growth, from SEK 2.5 billion to SEK 4.8 billion. Thanks to the foundation's low-risk asset management policy, the value of its endowment has not been as adversely affected by the turbulence on the stock exchanges as might otherwise have been the case. MISTRA's investment strategy is designed to limit sensitivity to share price volatility. In practical terms, this involves spreading investments across many different types of assets and different financial markets.

At the end of 2001, the MISTRA Board took a number of decisions concerning the future management of the foundation's assets. In particular, it decided that

- fixed-income (interest-bearing) investments should cover planned expenditure for the next five years and make up at least 30 per cent of the total capital;
- the share portfolio should be diversified, though with no fixed scale of percentages for different types of shares;
- 10–20 per cent of US and European shares should be selected on the basis of positive environmental and ethical criteria;
- MISTRA should exclude from its portfolio shares in companies which violate any international human rights convention to which Sweden is a party, or whose operations in Sweden contravene Swedish law.

The stipulated percentage of fixed-income investments means that the proportion of shares in MISTRA's portfolio is limited to a maximum of 70 per cent. Previously, the foundation has put up to 80 per cent of its capital into shares. MISTRA manages its own holdings of fixed-income securities, while its shares are managed by various fund managers in the United States and Europe. To assist it in the task of managing the foundation's capital, the MISTRA Board has a special Committee for Asset Management. The Committee has advised the Board that, with research funding at its present level of SEK 250 million a year, it could be difficult to preserve the real value of the capital. It has therefore proposed that annual disbursements for research should be reduced to SEK 200 million.

MISTRA's Statutes require the Board to ensure that 'the Foundation's assets are managed satisfactorily with limited risk and a good rate of return'. They also state, however, that the foundation's activities 'may eventually entail that the Foundation's endowment is used up'. These provisions are intended to emphasize that MISTRA's purpose is to support research that can help to solve major environmental problems and promote the sustainable development of society; asset management is not an end in itself. MISTRA's Board is thus free to decide how and at what rate asset management should contribute to the aims of the foundation. Nevertheless,

the Board has decided to pursue a sustainable funding policy, which means that the target figure for annual grant disbursements will be cut from SEK 250 million to SEK 200 million. This corresponds to a return on MISTRA's capital of around 5 per cent a year. In reality, this means that the rate of return needs to be higher, up to 6–7 per cent a year, to cover administration costs and preserve the real value of the endowment.

The Board's decision to select 10–20 per cent of MISTRA's share portfolio on the basis of positive criteria regarding companies' environmental policies and ethical positions followed a period of discussion within the foundation. Positive criteria relating to environmental performance lie well within the sphere in which the foundation operates and has access to expertise. When it comes to judging companies' performance in terms of social responsibility – which is also an aspect of sustainable development – the Board believes that MISTRA needs to build up a larger store of knowledge and experience.

MISTRA recently commissioned a study of firms offering services in the area of screening, i.e. scrutiny of how companies perform with regard to environmental and ethical issues. The foundation also commissioned a survey of a number of fund managers with in-house research capabilities in this field and of two independent analysts.

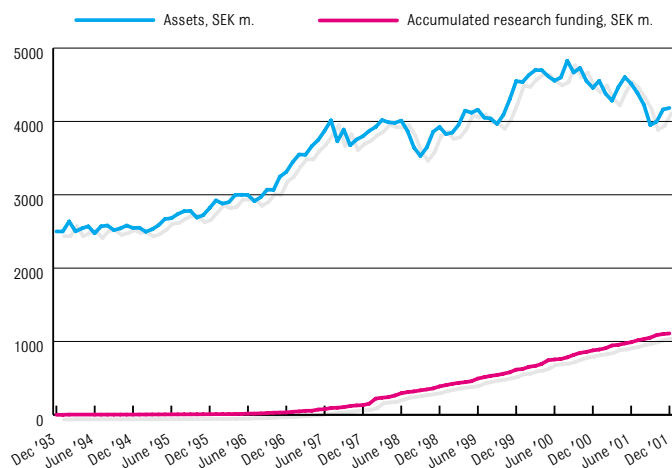
The new guidelines on positive environmental screening will begin to be applied by MISTRA's asset managers during 2002. The experience gained will then be evaluated to determine whether the foundation can apply a structured system of environmental and ethical screening to the majority of its share portfolio.

Fixed-income investments in Sweden	1 250 280 850
Shares in the Nordic countries	397 598 022
Shares in Europe (excl the Nordic countries)	763 092 764
Shares in the USA	1 093 364 126
Shares in Japan	189 616 665
Shares in developing markets	227 398 140
Low-correlated assets	262 166 994

*Breakdown of MISTRA's assets, SEK million, at 31 December 2001*

## MISTRA's assets and accumulated research funding, 1994–2001

Since it began to operate in 1994 and up to the end of 2001, MISTRA has distributed a total of SEK 1,109 million in research funding. Over the same period, its capital has grown from SEK 2,500 million to SEK 4,183 million.



## MISTRA's Committee for Asset Management

To assist it in planning, directing and monitoring the management of MISTRA's capital, the Board has a special Committee for Asset Management. It consists of three external experts and three members of the Board.

### External experts:

**Åke Altéus, Deputy Executive Director**, Chairman  
The Nobel Foundation

**Professor Bertil Näslund**  
Stockholm School of Economics

**Tomas Nicolin, Chief Executive Officer**  
Third Swedish National Pension Fund

### Members of MISTRA's Board:

**Johan Trouvé, Environmental Manager**  
Schenker AG

**Professor Sverker Sörlin**  
Director and Research Director  
SISTER – Swedish Institute for Studies of Education and Research

**Dr Margareta Wester**  
Chalmers University of Technology

## How reliable are screening companies?

Can investors combine social responsibility with a good financial return? There are fund managers and analysts who say they can help – how good are they?

A global market exists for products and services in the area of environmental and ethical asset management. Unit trusts or mutual funds based on assessments of environmental and ethical as well as financial factors are a well-known phenomenon. It is also possible to buy analyses of companies' performance on environmental and ethical issues – a service known as screening – either separately or combined with the management of a share portfolio.

To get a clearer picture of this market, MISTRA commissioned two consultancy firms, Miljöeko in Sweden and SustainAbility in the UK, to carry out a survey of the products and services available and to study more closely the players of most interest to the foundation. The results are presented in a report entitled *Screening of Screening Companies*.

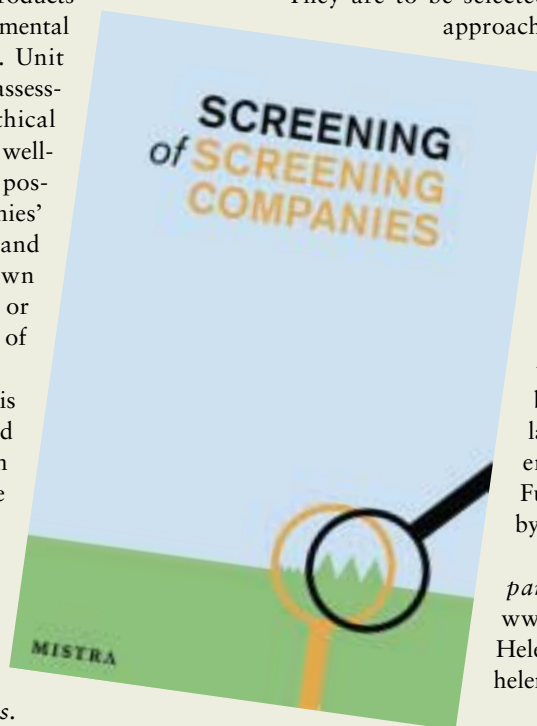
MISTRA has decided that environmental and ethical factors are now to be taken into account in its share

investment decisions. To begin with, roughly 10–20 per cent of the foundation's shares on the US and European markets are to be chosen on the basis of positive criteria. They are to be selected according to a 'best-in-class' approach, i.e. by identifying the companies

with the best performance in each sector. *Screening of Screening Companies* is intended to provide guidance on how this should be done.

Initially an additional screening process is to be applied, to exclude shares in companies that have contravened Swedish law or any international agreement entered into by Sweden. This approach was launched last summer by the Seventh Swedish National Pension Fund, and has now been adopted by several institutional investors.

*Screening of Screening Companies* can be downloaded from [www.mistra.org](http://www.mistra.org) or ordered from Helena Lundin, tel +46-8-791 10 23, [helena.lundin@mistra.org](mailto:helena.lundin@mistra.org).



# MISTRA's programmes

A MISTRA programme is expected, on the one hand, to be of a high scientific quality and, on the other, to produce results that can find practical applications in various contexts in society. A MISTRA programme can expect funding over two 3-4-year periods - on condition that specified quality requirements have been fulfilled. In somewhat simplified terms, there are three different types of users who can benefit from the results of MISTRA's programmes:

## COMMERCIAL ENTITIES

Programmes benefiting this category of users have the aim of developing commercially marketable products or services. They need to combine a scientific and a commercial perspective.

## INTERNATIONAL NEGOTIATORS

Programmes aimed at this group are designed to produce a scientific base for international environmental negotiations. They have to command strong support from the international research community, while meeting the needs of those responsible for drafting international treaties, protocols and conventions.

## NATURAL RESOURCE MANAGEMENT POLICY MAKERS

Programmes of benefit to this class of users are intended to improve the scientific basis for decisions and policies relating to management of the environment and natural resources. They have to combine the need for scientific quality with the needs of stakeholders - often organized interest groups with conflicting but nonetheless legitimate concerns.

MISTRA is currently supporting 24 research programmes, which are grouped here according to the main user groups they are intended to benefit.



## COMMERCIAL ENTITIES

### Sustainable building

Buildings have very tangible impacts on the environment, both in the short term, when they are constructed or altered, and in the long term, throughout their lifetime. Substantial efforts need to be made to achieve sustainability in the construction sector. This programme is seeking to develop the necessary knowledge base to allow the sector to improve its environmental performance. The aim is to enable builders and property managers to make appreciably more efficient use of materials and energy and to significantly reduce the harmful emissions and waste volumes arising from their activities.

**Programme period, phase I + completion:** 1996-2002

**Main contractor:** Chalmers University of Technology (GTH)

**Programme director:** Professor Bengt Larsson, GTH

**E-mail:** [bengt@bem.chalmers.se](mailto:bengt@bem.chalmers.se)

**Web site:** [www.sustbuild.chalmers.se](http://www.sustbuild.chalmers.se)

**Executive committee chairman:** Hans Ewander, Swedish Building Material Producers Association

### Batteries and fuel cells for a better environment (JUNGNER)

Environmentally sounder energy conversion systems will require modern fuel cells and batteries, such as cost-effective polymer fuel cells, lithium-polymer batteries and nickel metal hydride batteries. Such technologies could play a crucial role in the energy systems of the future. This programme is intended to lead to new products and, potentially, new industries in Sweden, and several patents have already been obtained. Sweden is expected to develop cutting-edge expertise in this field.

**Programme period, phase I:** 1997-2002

**Main contractor:** Royal Institute of Technology, Stockholm (KTH)

**Programme director:** Dr Göran Johansson, Volvo Teknisk Utveckling AB

**E-mail:** [goran.bernt.johansson@volvo.com](mailto:goran.bernt.johansson@volvo.com)

**Web site:** [www.ket.kth.se/jungner/](http://www.ket.kth.se/jungner/)

**Executive committee chairman:** Lars Öjefors, Managing Director, Swedish Industrial Development Fund

### The ecocyclic pulp mill (KAM)

In the long term, this programme opens up the possibility of a new chemical pulping process, offering better product quality, lower investment costs and greater energy efficiency than the kraft process. Results achieved so far include a 'kidney' to remove metal ions from wood chips, separation of lignin for use as a fuel, and a new understanding of the magnesium chemistry of bleaching. These advances will benefit the environment by enabling large amounts of bioenergy to be produced at pulp mills, reducing discharges to water, and allowing minerals to be recycled to forest soils.

**Programme period, phases I-II:** 1996-2002

**Main contractor:** Swedish Pulp and Paper Research Institute (STFI)

**Programme director:** Associate Professor Peter Axegård

**E-mail:** [peter.axegard@stfi.se](mailto:peter.axegard@stfi.se)

**Web site:** [www.stfi.se/mistra/kamprog.htm](http://www.stfi.se/mistra/kamprog.htm)

**Executive committee chairman:** Göran Eriksson, Korsnäs AB

### Remote sensing for the environment (RESE)

As the research phase of this programme draws to a close, work is under way to introduce remote sensing as a rational, cost-effective and quality-assured environmental management tool. Methods, models and databases are being made available to public agencies and to different primary sectors. In forestry, for example, remote sensing has been incorporated in planning procedures for felling and other operations. County administrative boards now have access to data which they can use to monitor progress towards environmental objectives, draw up nature reserve strategies etc. The Information Office for the Baltic Proper can obtain up-to-date data on the algal bloom situation via the Internet. Remote sensing can also provide an objective basis for consultation in the reindeer herding sector, for example.

**Programme period, phases I-II:** 1997-2002

**Main contractor:** Metria Environmental Analysis, National Land Survey of Sweden

**Programme director:** Ulf von Sydow, Research Director, Metria Environmental Analysis

**E-mail:** [ulf.von.sydow@lm.se](mailto:ulf.von.sydow@lm.se)

**Web site:** [www.lantmateriet.se/rese](http://www.lantmateriet.se/rese)

**Executive committee chairman:** Erik Normark, Director of Forestry, Holmen Skog AB

## Pheromones and kairomones to control pest insects

This programme is developing ecologically safer methods of control for a variety of harmful insects, including fruit pests, insects that infest flour mills and bakeries, aphids and pine weevils. The new methods are based on the chemicals insects use to communicate; they are species-specific, and do not harm ecosystems or human beings. The researchers involved have set up a spin-off company, which is now selling fully developed methods in a number of countries. Other methods are close to commercialization.

**Programme period:** pilot phase 1996–1999, phase I 2000–2002

**Main contractor:** Swedish University of Agricultural Sciences (SLU)

**Programme director:** Professor Jan Löfqvist

**E-mail:** jan.lofqvist@vv.slu.se

**Web site:** <http://biosignal.org/>

**Executive committee chairman:** Professor Bruno Nilsson, Royal Swedish Academy of Agriculture and Forestry (KSLA)

## Soil remediation in a cold climate (COLDREM)

COLDREM is developing cost-effective methods to clean up contaminated former industrial sites. Biological, chemical and physical methods of treatment, as well as combinations of such methods, are being developed and evaluated. The programme is focusing on two locations: an old gasworks site, polluted with polycyclic aromatic hydrocarbons, and Eka Chemicals' site, contaminated with mercury and polychlorinated dibenzofurans. However, the techniques being developed will be of use in a much wider range of pollution situations.

**Programme period, phase I:** 1997–2002

**Main contractor:** Umeå University

**Programme director:** Professor Bo Mattiasson, Lund University

**E-mail:** bo.mattiasson@biotek.lu.se

**Web site:** [www.umu.se/coldrem/](http://www.umu.se/coldrem/)

**Executive committee chairman:** Thomas Berglin, Director R&D, Eka Chemicals AB

## Microbial antagonism against fungi

Existing methods to combat harmful fungi are not acceptable in the longer term. This programme is developing biological control methods, including products that make use of natural enemies of fungi, disease-suppressive soils, and completely new, untested ideas relating, for example, to gene regulation and expression in antagonists. So far, the work has resulted in a number of patents, several new products, three new biotech companies, and new, environmentally sounder crop production techniques.

**Programme period, phases I-II:** 1996–2003

**Main contractor:** Swedish University of Agricultural Sciences (SLU)

**Programme director:** Professor Berndt Gerhardson, SLU

**E-mail:** berndt.gerhardson@vpat.slu.se

**Web site:** [www-maaf.slu.se](http://www-maaf.slu.se)

**Executive committee chairman:** Gunnar Bengtsson, former Director-General, Swedish National Chemicals Inspectorate

## Mitigating the environmental impact of mining waste (MiMi)

The quantities of mining waste produced today are very large. Wastes from sulphide ore mines contain metals which may be toxic or environmentally harmful and which, as a result of weathering, may escape into soil and water over hundreds or thousands of years. This programme is seeking to refine remediation techniques so as to minimize long-term leaching, as well as elaborating methods to predict how these techniques will function over very long periods of time. The results are expected to be of major significance for policy making in Sweden and the EU.

**Programme period, phases I-II:** 1997–2003

**Main contractor:** Luleå University of Technology

**Programme director:** Lars Olof Höglund, MSc, Kemakta Konsult AB

**E-mail:** loh@kemakta.se

**Web site:** [www.mimi.kiruna.se](http://www.mimi.kiruna.se)

**Executive committee chairman:** Sten Bjurström, Managing Director, NUC Waste AB

## Ångström Solar Centre (ÅSC)

Renewable energy at acceptable prices is of crucial importance for the future. Through its projects on thin-film and nanostructured solar cells, the Ångström Solar Centre is developing the next generation of solar cell technology. Work is also being done on 'smart windows'. The main aim of the programme is to reduce the cost of producing solar cells. The industrial potential of solar-generated electricity is considerable. The results of this research should enable Sweden to be a key player in the global industrialization of solar energy.

**Programme period, phases I-II:** 1996–2004

**Main contractor:** Uppsala University

**Programme director:** Professor Lennart Malmqvist

**E-mail:** lennart.malmqvist@mail.bip.net

**Web site:** [www.asc.angstrom.uu.se](http://www.asc.angstrom.uu.se)

**Executive committee chairman:** Dag Sigurd, Director, Business Area IT, Swedish Industrial Development Fund

## Plasma enhanced reaction systems for environmental applications (PERSEA)

This programme is studying the feasibility of exhaust emission control using an entirely new, energy-efficient and cost-effective plasma technology. The technology can be optimized for different environmentally relevant mixtures of pollutants, and filters based on it are versatile, since they can be used for both stationary and mobile emission sources. A stable and comparatively cold plasma can be achieved in air at atmospheric pressure, using a hollow cathode with a special geometry, and it has been found that it is possible to control the rapid chemical reactions that occur when gases pass through this plasma.

**Test phase:** 2000–2002

**Main contractor:** Ångström Laboratory, Uppsala University

**Research director:** Dr Hana Baránková

**E-mail:** hana.barankova@angstrom.uu.se

**Steering group chairman:** Olle Åslander, Director, Swedish Environmental Protection Agency



## International and national abatement strategies for transboundary air pollution (ASTA)

ASTA has an important part to play in securing a good scientific basis for the continuing effort to reduce air pollution across Europe. Its results, models and model calculations will be among the scientific data used to support negotiations in this area. At the national level, the programme is providing support for work relating to environmental objectives, among other things. In addition, its results are of significance for the National Board of Forestry's acidification countermeasures programme and the Swedish Energy Agency's programme for sustainable production of forest-based biofuels.

**Programme period, phase I:** 1999–2002

**Main contractor:** IVL Swedish Environmental Research Institute Ltd

**Programme director:** Professor Peringe Grennfelt, IVL

**E-mail:** grennfelt@ivl.se

**Web site:** <http://asta.ivl.se>

**Executive committee chairman:** Lars Lindau, Director, Swedish Environmental Protection Agency

## Land use strategies to reduce greenhouse gas emissions (LUSTRA)

The purpose of LUSTRA is to develop scientific data in support of the Kyoto process. The programme's researchers are assessing the impacts of different forestry measures on net fluxes of the greenhouse gases carbon dioxide, methane and nitrous oxide. Under Kyoto, Sweden is required to provide information about its greenhouse gas sinks and to verify what action it has taken. LUSTRA is studying the quantities of carbon dioxide taken up by soils and forests, and developing methods for making inventories of sinks.

**Programme period, phase I:** 1999–2002

**Main contractor:** Swedish University of Agricultural Sciences (SLU)

**Programme director:** Professor Mats Olsson, SLU

**E-mail:** mats.olsson@sml.slu.se

**Web site:** [www.sml.slu.se/lustra/](http://www.sml.slu.se/lustra/)

**Executive committee chairman:** Olof Johansson, former Swedish Environment Minister

## Marine research on eutrophication (MARE)

This programme is developing a decision-support system that will help to identify the most cost-effective measures for achieving any given standard of environmental quality in the Baltic Sea, with a focus on eutrophication. The system takes account of both coastal waters and open sea areas, and could prove an important tool in the design of action programmes in the HELCOM context. Adapted to the planned river basin districts, it could also be of use in implementing the EU's Water Framework Directive. The system allows users to define different alternatives in terms of environmental quality, types of action and where action is to be taken. The programme also includes a study of the effects of eutrophication in relation to those of fisheries.

**Programme period, phase I:** 1999–2002

**Main contractor:** Stockholm University

**Programme director:** Dr Sif Johansson, Swedish Environmental Protection Agency

**E-mail:** sif.johansson@naturvarvverket.se

**Web site:** [www.mare.su.se](http://www.mare.su.se)

**Executive committee chairman:** Sven-Erik Skogsfors, former Chief Director, Stockholm International Water Institute

## New strategy for risk management of chemicals (NewS)

Modern society uses a wide range of chemicals, and existing procedures to assess the risks associated with them are far too slow. This programme will change the way chemicals are managed, by allowing simpler rules, quicker procedures and simplified tests to be introduced. Communication between scientists and decision-makers is expected to be improved. New, scientifically based decision-making arrangements are to be developed. The Baltic Sea is being used as a test region, and the work is focusing on the spread and effects of toxic and persistent organic pollutants.

**Programme period, phase I:** 1999–2002

**Main contractor:** Lund University

**Programme director:** Professor Anders Södergren

**E-mail:** anders.sodergren@ecotox.lu.se

**Web site:** <http://newstrategy.ecotox.lu.se>

**Executive committee chairman:** Gunnar Bengtsson, former Director-General, Swedish National Chemicals Inspectorate

## Swedish regional climate modelling programme (SWECLIM)

SWECLIM aims to put industry, government agencies, political bodies and the general public in a better position to understand the climate issue, relate global climate change to their own spheres of activity, and draw up action strategies. Regional climate modelling and other studies are being used to produce climate scenarios describing variables such as temperature, precipitation, frequency of extreme events, water resources, and the state of the Baltic Sea. These scenarios can in turn be used to analyse possible consequences for Sweden. Thanks to a broad-based information effort, this programme has had a considerable impact in the wider society. New climate scenarios are being prepared, and for the remainder of the programme period the main emphasis will be on contacts with users.

**Programme period, phases I+II:** 1996–2003

**Main contractor:** Swedish Meteorological and Hydrological Institute (SMHI)

**Programme director:** Dr Markku Rummukainen, SMHI

**E-mail:** markku.rummukainen@smhi.se

**Web site:** [www.smhi.se/sweclim](http://www.smhi.se/sweclim)

**Executive committee chairman:** Hans Sandebring, Director-General, SMHI

## NATURAL RESOURCE MANAGEMENT POLICY MAKERS

### Paths to sustainable development (Ways ahead)

This programme has studied issues within the social sciences and humanities that are of fundamental significance for the environment. It has tackled questions such as: What factors affect people's behaviour patterns and lifestyle choices? How are our lives shaped by existing infrastructural systems? To what extent can society be made more sustainable by means of legislation and regulations? The programme has helped to promote more integrated research in the social sciences and humanities, as well as encouraging a dialogue with natural scientists and engineers.

**Programme period, phases I+II:** 1996–2001 Completed

**Programme director:** Professor Bengt Hansson, Lund University

**E-mail:** [bengt.hansson@fil.lu.se](mailto:bengt.hansson@fil.lu.se)

**Web site:** [www.waysahead.org](http://www.waysahead.org)

Towards the end of the programme period, the programme management group consisted of representatives of six funding bodies, with a representative of MISTRA as chair.



## Water management research programme (VASTRA)

To implement the EU's Water Framework Directive, planning tools are needed. VASTRA is developing a set of tools that can be used to determine what measures should be given priority, in particular with a view to reducing diffuse inputs of nutrients to lakes, rivers and coastal waters and hence alleviating the problems of eutrophication that occur there. The aim is to establish what actions will have the best possible environmental effect at the lowest cost. The programme is also seeking to develop a better understanding of how close cooperation can be achieved and serious conflicts avoided between different stakeholders.

**Programme period, phases I-II:** 1996–2004

**Main contractor:** Göteborg University

**Programme director:** Dr Anna Jöborn

**E-mail:** anna.joborn@pol.gu.se

**Web site:** www.vastra.org

**Executive committee chairman:** Olle Åslander, Director, Swedish Environmental Protection Agency

## Sustainable urban water management (Urban Water)

This programme is developing a scientific basis for strategic decisions on the water supply and sewage disposal systems of the future. It will deliver a set of tested tools for analysis and evaluation, along with recommendations on their use. The programme will also present examples of how sustainable urban water systems can be designed and decided on. The decision-making tools being developed assess water and sewage systems from the environmental, public health, economic, technical and sociocultural points of view. They are being used and tested in a number of model urban areas in Sweden.

**Programme period, phases I-II:** 1998–2005

**Main contractor:** Chalmers University of Technology (CTH)

**Programme director:** Professor Per-Arne Malmqvist, CTH

**E-mail:** pam@urbanwater.chalmers.se

**Web site:** www.urbanwater.org

**Executive committee chairman:** Lars Gunnarsson, Managing Director, PURAC AB

## Sustainable management of the mountain region

The aim of this programme is to lay a foundation for the management and planning of natural resource use, with a view to promoting sustainable development of Sweden's mountain region. The work is intended to result in more effective multiple-use management of natural resources and to make the conflicts that exist between reindeer herding, forestry, hunting, fishing and tourism easier to handle. Results to date include proposals for a management strategy for reindeer pastures, recommendations on limits on willow grouse/ptarmigan hunting, and proposals to restore an Arctic-char lake.

**Programme period, phase I:** 2000–2002

**Main contractor:** Swedish University of Agricultural Sciences (SLU)

**Programme director:** Dr Tomas Willebrand, SLU

**E-mail:** tomas.willebrand@szoek.slu.se

**Web site:** www-fjallmistra.slu.se

**Executive committee chairman:** Kari Marklund, County Governor, County of Norrbotten

## Sustainable coastal zone management (SUZOZOMA)

SUZOZOMA is studying various aspects of conflict management in the coastal zone and developing criteria for integrated management of coastal zones that can be applied at the local and regional levels. Coastal resources have to be used in ways that are sustainable in terms of both the social interests of local populations and the tolerance limits of ecosystems. Within the programme, selective fishing methods, restoration of spawning grounds for fish and new methods of preventing eutrophication are being studied.

**Programme period, phases I-II:** 1997–2003

**Main contractor:** Göteborg University

**Programme director:** Anders Carlberg, The Västerhavet Association

**E-mail:** anders.carlberg@o.lst.se

**Web site:** www.sucozoma.tmbi.gu.se

**Executive committee chairman:** Göran Bengtsson, Deputy County Governor, Västra Götaland County Administrative Board

## Management of seminatural grasslands – economics and ecology

The aim of this programme is to identify the best possible system solutions for different types of meadow- and pastureland. These solutions should conserve biodiversity and other assets, take account of land-use history, achieve sustainability through economically viable production methods, and ensure stability by means of ecologically appropriate management. Efforts will also be made to ensure that the results are put to use in the agricultural landscape of the future. The programme is collaborating with and serves as a hub for a large number of other projects in this area.

**Programme period, phase I:** 2001–2003

**Main contractor:** Swedish University of Agricultural Sciences (SLU)

**Programme director:** Urban Emanuelsson, Director, Swedish Biodiversity Centre, SLU

**E-mail:** urban.emanuelsson@cbm.slu.se

**Web site:** www.cbm.slu.se/hagmarksmistra.htm

**Executive committee chairman:** Bengt K. Å. Johansson, Ambassador, Swedish Ministry of Industry, Employment and Communications

## Sustainable forestry in southern Sweden (SUFOR)

SUFOR's aim is to develop approaches and planning instruments that will make forestry in southern Sweden ecologically and economically more sustainable for landowners and society at large. Among other things, researchers are studying the use of forest land from the viewpoint of conserving its nutrient capital and biodiversity. Modelling is being used to demonstrate the impacts of the proposed alternative methods of forest management. Forest owners should be able to identify possible and economically sustainable alternatives, which will vary according to soil type and climate. The models presented should be accessible to a wide range of users.

**Programme period, phases I-II:** 1997–2004

**Main contractor:** Lund University

**Programme director:** Professor Bengt Nihlgård, Lund University

**E-mail:** bengt.nihlgard@planteco.lu.se

**Web site:** www.sufor.nu

**Executive committee chairman:** Sven Sjunnesson, former Forestry Director, Swedish Federation of Forest Owners



## FOOD 21 – sustainable food production

This programme is looking for ways of remedying unsustainable practices in the existing agricultural system, and seeking to promote the practical application of both known and new solutions. For the farmer, the programme will propose improved methods of livestock and crop production. These will be developed on the basis of research and systems analysis which test the consequences of different choices of production method against defined sustainability objectives. For the food industry, the programme will for example identify where in the system energy is currently being consumed and where it can be saved. FOOD 21 is also studying consumer attitudes and behaviour.

**Programme period, phases I-II:** 1997–2004

**Main contractor:** Swedish University of Agricultural Sciences (SLU)

**Programme director:** Professor Rune Andersson, SLU

**E-mail:** rune.andersson@lmv.slu.se

**Web site:** www-mat21.slu.se

**Executive committee chairman:** Björn Sundell, Research Director, Federation of Swedish Farmers (LRF)

## Soundscape – support to health

This programme is developing a tool that will make it possible, within a reasonable time, to achieve politically agreed targets for reduced levels of noise disturbance due to traffic in urban areas. Assuming the results are used, they should promote healthier 'soundscapes' in residential areas. One approach involves creating a varied soundscape by ensuring that buildings have quiet sides to compensate for their noisy sides. A foundation is to be laid for applying the results of the programme in housing construction and alteration projects and in transport and urban planning.

**Programme period, phase I:** 1999–2005

**Main contractor:** Chalmers University of Technology (GTH)

**Programme director:** Kjell Spång, Consultant, Ingemansson Technology AB

**E-mail:** kjell.spang@swipnet.se

**Web site:** www.soundscape.nu

**Executive committee chairman:** Professor Barbro Westerholm

## Pay a visit to [www.mistra.org](http://www.mistra.org)

MISTRA's new web site, [www.mistra.org](http://www.mistra.org), offers continuously updated information on the foundation's research programmes and other activities.

The site is designed to be of use to anyone looking for information about any of the 24 research programmes currently supported by MISTRA. As well as brief outlines of programme aims, there are direct links to the programmes' own web sites. Via our site it is also possible to download

the annual reports which all the research programmes produce.

Other features of the MISTRA site include up-to-date details of MISTRA's own publications, including annual reports, and information on how to apply for research funding and the conditions on which grants are awarded. Finally, there are links to other research agencies, foundations and other bodies involved in environmental research.

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A MISTRA programme is a meeting place between two worlds. One is the research community, which is driven by the need to constantly be at the cutting edge of knowledge. The other one is the world of real action, which is driven by the need to solve environmental problems.

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The Foundation for Strategic Environmental Research, MISTRA, supports strategic environmental research with a long-term perspective, aiming to solve major environmental problems. The main part of MISTRA's funding is focused on broad-based interdisciplinary programmes.

An endowment of more than SEK 4.7 billion, as of Jan. 1, 2001, makes it possible to allocate an annual sum of some SEK 250 million to funding of research. This makes MISTRA the largest source of funding for environmental research in Sweden.

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# MISTRA's Board 2001

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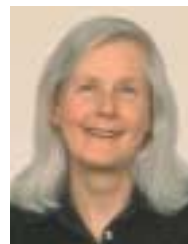
Sverker Sörlin



Lena Torell



Johan Trouvé



Margareta Wedborg



Margareta Wester



From left to right: Ulrika Strömqvist, Måns Lönnroth, Marie Uhrwing, Helena Lundin, Britt Marie Bertilsson, Jan Nilsson and Eva Thörnelöf.

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MISTRA – the Swedish Foundation for Strategic Environmental Research – was established to fund ‘research of strategic importance for a good living environment’. Its Statutes require it to promote the development of strong research environments of the highest international class and of importance for Sweden’s future competitiveness. The research supported should be of significance in finding solutions to major environmental problems and promoting the sustainable development of society. Opportunities for industrial applications are to be utilized to the full.

MISTRA currently disburses a total of SEK 250 million per year, funding a large number of substantial research programmes, each of which can run for between six and eight years. A MISTRA programme is a meeting place, an encounter between two cultures: that of research and that of practical action. The aim is to enable the results of research, undertaken at the highest scientific level, to be put to practical use by companies, public agencies and non-governmental organizations. In this way, the programmes supported by MISTRA can play a part in solving a range of environmental problems.

For further information, visit our web site: [www.mistra.org](http://www.mistra.org)

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