

ANNUAL REPORT

2 0 0 0

MISTRA

MISTRA

MISTRA is a foundation. The Swedish Foundations Act is thus applicable to MISTRA as to all foundations. Every foundation, however, has its own statutes.

According to the Statutes the purpose of MISTRA is “to fund research of strategic importance for a good living environment. The Foundation shall promote the development of strong research environments of the highest international class with importance for Sweden’s future competitiveness. The research shall be of importance for finding solutions to important environmental problems and for a sustainable development of society. Opportunities for achieving industrial applications shall be taken advantage of.”

Furthermore, MISTRA shall “be distinguished by the special nature of its activities:

- Concentration of efforts so that research centres or research areas with international impact can be established;
- Projects and programs that span the boundaries between disciplines;
- Establishment of networks or more permanent forms of collaboration nationally and internationally, including establishment of an international researcher exchange program;
- Promotion of training and recruitment of researchers;
- Research centres or research areas in close association with universities and colleges;
- Collaboration between universities and colleges on the one hand, and industry on the other hand, when it comes to research within fields that are of particular interest to industry.”

MISTRA finances research, as stated above, that contributes to finding solutions to key environmental problems. MISTRA’s statutes provide a framework for determining what research receives support. At present, MISTRA disburses funds of some SEK 250 million per year, financing 24 major research programmes, each of which normally runs from six to eight years.

A MISTRA programme is a meeting place, an encounter between two cultures: that of research and that of practical action. The overarching aim is to enable the results of research at the highest scientific level to be implemented as applications by private enterprise, public agencies and non-governmental organisations. In our view, this is the best way for the research efforts carried out under the aegis of MISTRA to contribute to solving environmental problems.

For further information, please consult our web site: www.mistra-research.se

A meeting place for two worlds

MISTRA's mandate is to finance research that contributes to finding solutions to key environmental problems. Thus MISTRA is a meeting place for two worlds, each moved by different forces.

One of the worlds is that of the research community. There, the prime mover is the need to always be at the cutting edge of the knowledge front. The other world is that of real action, where problems have to be solved. The prime mover in that world is the need for implementation – measures have to be taken, products have to be launched in the marketplace, legislation requires amendment, conflicting interests must find ways to co-exist, and agreements have to be achieved through international negotiations.

As a meeting place, MISTRA is a forum for boundary crossing. Primarily, these are the boundaries between the world of the research community and that of real action. One aim of our programmes is to provide the latter with access to the latest scientific findings, both facts and insights – irrespective of the stringent sectoral boundaries that often characterise the world of real action. The second aim of our programmes is to provide the research community with access to the problem formulations of the world of real action – irrespective of the often sturdy disciplinary boundaries in the world of research.

Our meeting place is an experiment in the process of succeeding. It is evident from the results of our scientific assessments. Several programmes are developing results that may have great significance for the stakeholders. FOOD21 served as the mainstay of the Food Chain 21 conference hosted by the Swedish government during its EU presidency. SWECLIM is providing a basis for concrete discussion of climate change issues. Experiments cannot be qualified as successful until research results are transposed into real action, though. During the spring of 2001 we will be drawing up a communications strategy, and in the autumn we will set forth requirements and principles for how programmes are to be concluded. Sustainable building and Ways Ahead will be completed in 2001, and the year after KAM and RESE will draw to a close. The year 2003 will see the completion of programmes including SUCOZOMA and SWECLIM. MISTRA is facing a generation shift.

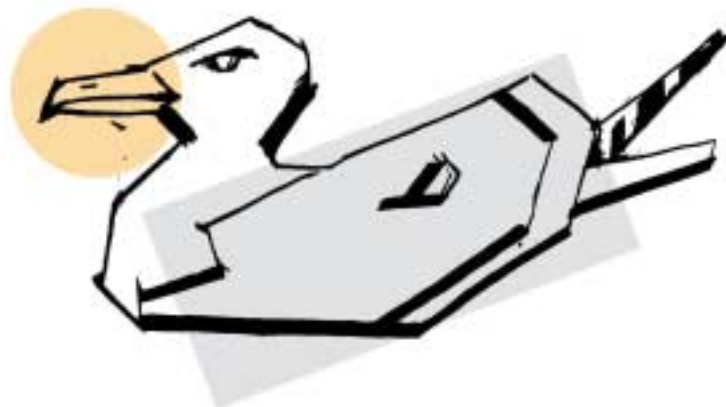
MISTRA has the scope to initiate three new programmes each year for the coming years. The next generation of programmes must respond to the environmental problems that will be pressing also towards the end of this decade. Two such problems are already making themselves obvious: climate and the “new biology”. We also believe that chemicals and the interplay between environmental and trade regulations will remain with us for many years, and require particularly focused efforts and allocations. Other programmes may develop out of new combinations of the current ones.

The most recent MISTRA programme focuses on management of seminatural grassland. This programme was regarded as urgently needed both by the sector and by the authorities. The research group, in collaboration with an executive committee, has drawn up a programme proposal that was extremely well received by the scientific review panel. The programme has now been granted funding for a first three-year period.

As a meeting place, MISTRA will continue to broaden. The next generation of programmes will – by necessity – include more active participation from experts in the social sciences and the humanities. This is important, not least to gain an understanding of environmental issues as seen from the point of view of decision makers and players in the world of real action. There will also be stronger international elements in future programmes. Some may even be co-funded with financiers from abroad.

MISTRA has adopted an annual budget of SEK 250 million as an appropriate balance between funding needs and return on the capital managed by MISTRA. Over the last couple of years we have seen volatility on the stock markets. We cannot know what the future holds. There have been long periods during the post-war era when stock markets have not rallied at all – and there have even been periods of falling values! MISTRA's asset management policy will be undergoing review in 2001.

Måns Lönnroth
managing director



Managing MISTRA's assets

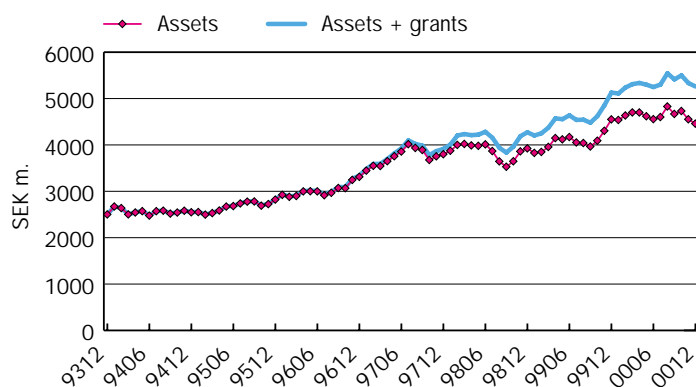
Between the inception of the foundation in 1994 and spring 2000, MISTRA's capital grew steadily from SEK 2.5 billion to nearly SEK 4.8 billion, an average annual growth of just over 10 per cent a year. By the end of 2000, some SEK 800 million in environmental research funding had been disbursed. Thus, one fourth of the increased value has been utilised, and the rest added to the capital. SEK 0.5 billion has been committed to research funding but has not yet been disbursed. MISTRA's budget for research funding has remained steady at SEK 250 million per year, with the exception of the years just around the turn of the millennium, when MISTRA also financed small research projects.

Turbulence on the stock exchange and capital decline

MISTRA's asset management is low-risk by design. The management and investment policy of the foundation has been drawn up so as to restrict sensitivity to volatility on stock markets as much as possible. This is accomplished by investing in many kinds of assets, and on many different financial markets. One result of this policy was that, in the late 1990s, MISTRA's capital did not increase as dramatically as some stock markets. Another, though, was that its value did not decline as drastically during the year 2000. This policy is intended to provide MISTRA's endowment with stability and a long-term ability to provide stable financing for strategic environmental research in Sweden.

Fixed-income investments are made by MISTRA on the Swedish market, and they are intended to cover the budgeted spending of MISTRA over the next five years. The management policy also determines the distribution between fixed-income assets, equities on different markets and other investments. A Committee for Asset Management has been appointed to bring this policy to realisation and to monitor compliance.

In 2000, MISTRA made payments totalling SEK 239 million, while asset management generated a surplus of SEK 148 million. Thus the result for the year was a decrease in capital of SEK 91 million (see table).



In 2000, MISTRA commissioned an assessment of its last three-year asset management period, and both return on investment and risk spread were quite positively evaluated. The MISTRA results proved to be in good accord with those of other foundations with similar prerequisites. Naturally, there are also shortcomings in MISTRA's management strategy, and these will be remedied.

Future objectives in relation to finances, the environment and ethics

When the board of MISTRA considered the results of the assessment, they also drew up objectives for continued asset management:

- To maintain the real value of the current capital, totalling SEK 4.7 billion (see diagram), with annual real expenses of SEK 250 million.
- To reflect in the asset management the purpose of the foundation, to strive for a better environment, with a reasonable balance in relation to the stipulations of the statutes regarding good return on investment and limited risk-taking.

MISTRA has commissioned two studies with a view to environmental and ethical aspects of its future asset management. The first is to be a review of scientific research reports on return on investment and risk in equity funds taking environmental and ethical aspects into account. The second study is to provide a market overview with regard to green and/or ethical services and products, and also an analysis of the quality of the data and methods used to produce these services and products.

Assets, in SEK million	2000-12-31	1999-12-31	Difference
Fixed-income investments in Sweden	895	1,011	- 116
Shares in the Nordic countries	547	823	- 276
Shares in Europe, excl. the Nordic countries	1,021	1,012	+ 9
Shares in the USA	1,097	888	+ 209
Shares in Japan	303	257	+ 46
Shares in developing markets	228	248	- 20
Low-correlated assets	358	253	+ 105
Liquid assets	9	57	- 48
Total	4,458	4,549	- 91

MISTRA 2004

A long-term strategy for MISTRA was drawn up in 1997, but there have since been developments that have affected both MISTRA and other research financing bodies. We have now drawn up guidelines for work to be carried out at MISTRA between now and 2004, when the foundation will have its tenth anniversary. We have learnt a great deal since the inception of MISTRA in 1994, not least through the successive launch of the research programmes over the last five years. Seven years of hindsight and a three-year future perspective give us good reasons to consider and to reflect self-critically as we plan for the longer term.

Our *MISTRA 2004* strategic document has the following components:

- **Programme development.** We need a strategy for development of the next generation of MISTRA programmes, and the objectives for future programmes must be formulated in dialogue between the researchers and the end users. End users are defined as anyone who works for, or who could work for a better environment, including legislators, the private sector, governmental agencies, non-governmental organisations and the moulders of public opinion. We also emphasise the importance of including, from the very outset, social scientists, not least lawyers, and relevant representatives from the humanities in the proper formulation of research problems. MISTRA has appointed planning groups for climate and the new biology as two possible future programme themes.
- **Begin with an “idea grant”, then allocate programme funding?** MISTRA is considering supplementing the programme funding with new types of research grants. Although there is great research potential once a programme has been launched, the initiation threshold for our programmes is high. For this reason, MISTRA is initiating the concept of “idea grants”. This new form of funding is intended to enable researchers to begin by testing their hypothesis. Then, if the hypotheses prove viable, a new programme can be established. Idea grants will be available for a maximum of five years, to researchers from at least two disciplines. Great value will be attached to new approaches and creativity when this new form of financing is allocated.
- **The role of the programme management.** Programme management needs to be improved, including more distinct assignment of responsibilities between MISTRA, the executive committee and the programme director. The planning routines need to be simplified. The executive committees play a vital role in uniting the cultures of the research society and end users in the programmes. This, in turn, is the key to obtaining useful results. The responsibilities and authorities of the committees also need to be clarified in this respect.
- **Handing over the baton at the conclusion of a programme.** During the coming four-year period, twelve MISTRA programmes will be completed. Preparations are being actively made, to different extents during the programme periods, for both handing over the baton and ensuring that the research results are transposed into practical applications. Contact networks are being established and ideas circulated. After programme completion, there will still be needs and expectations in the world at large, which might be well served if we set up an “idea bank” on different ways of handling and further developing skills and knowledge that come into being within a programme.
- **Improved methodology for utility assessments.** We have very positive experience of the international mid-term assessments of scientific quality MISTRA has commissioned. They provide a quality control that gives the researchers clear advice for their continued work, and gives MISTRA a scientific assessment. In addition, they contribute to the development of a very large contact network. However, utility assessments (answering the question “will the results of a successful programme contribute to solving the problem under study?”), that are equally important for MISTRA decisions, are not developed to the same extent. For this reason, we are going to produce a handbook based on both Swedish and international experience.
- **More Swedish and international research and funding co-operation.** The new Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (Formas), the Swedish Environmental Protection Agency and MISTRA make up a three-leaf clover in the field of environmental research. Formas has been appointed co-ordinating body by the Swedish government. The future may include joint platforms in which MISTRA, for example, focuses on long-term, action-oriented programmes, the Swedish EPA focuses on applied research as a basis for public policy guidelines, and Formas is responsible for long-term knowledge building. At the same time, we must also examine the possibilities for MISTRA, in collaboration with like-minded funding bodies elsewhere in Europe, to sponsor major, closely interrelated environmental research programmes that would be simultaneously ongoing. Only with this kind of collaboration can we develop programmes with sufficient clout to impact on the many issues facing our societies today which, rather than being specifically Swedish, are problems which may be European or even global.

The MISTRA programmes

During the year 2000, a number of MISTRA programmes have been assessed by international review panels. Such reviews normally take place during the fourth year of the programme, to provide a basis for MISTRA's decisions on continued funding for a second period.

The SUFOR programme was very positively assessed from the scientific point of view. The results to date indicate a need for changes in silviculture, if long-term forest production capacity is to be compatible with other demands. FOOD 21 was described as unique in scope and approach, with results that may be of major importance, even to those far beyond the borders of Sweden. The SUCOZOMA programme comprises research relating, *inter alia*, to the use of mussels as water filters to minimise eutrophication. On the basis of findings obtained, public agencies and private enterprises, working together, have already drawn up a business plan for mussel farming in the west coast county of Bohuslän. In tough international competition, the Ångström Solar Center (ÅSC) is successfully spearheading work in thin film solar cell technology, and combining this research with the risk-filled process of commercialisation.

These programmes are just a few examples of the diverse areas in which the research results from MISTRA programmes will be applied. A highly developed communications network for researchers and users is crucial to making a programme successful. A successful MISTRA programme is characterised by both high scientific quality and results on their way towards implementation. There are roughly three main categories of users (stakeholders) in relation to the results of the MISTRA programmes:

- *Commercial entities* – who will benefit from programmes aimed at developing a commercial product or service to be marketed. These programmes have to bridge the scientific and commercial perspectives.
- *International negotiators* – who will benefit from programmes aimed at producing scientific data for international environmental negotiation rounds. These programmes have to bridge the need for broad support from the international research community with the needs of those responsible for drafting international treaties, protocols and conventions.
- *Natural resource management policy makers* – who will benefit from programmes aimed at improving the scientific basis for decisions and policies on natural resource management. These programmes have to bridge the need for scientific quality with the needs for frequently highly complex structures on the part of stakeholders who are many, varied, and more or less well-defined and organised.

The next generation of programmes MISTRA has the financial latitude to initiate three new programmes each year for the coming years. The next generation of MISTRA programmes must respond to the environmental problems that will be pressing also towards



the end of this decade. These may span the spectrum from being new combinations of aspects of current programmes to being ones with entirely new approaches.

The next generation of MISTRA programmes also has to reach out to the social sciences, the humanities and law. This is an important change, not least from the point of view of the decision makers. Thanks to the Ways Ahead programme we can already make use of new knowledge and skills in this sphere when planning and implementing the new generation of MISTRA programmes.

Two areas for future programmes are also evident – the development of climate change policies, and the utilisation of the “new biology”. Two MISTRA planning groups (including researchers and stakeholders) will submit proposals for programme themes in these areas.

The SWECLIM programme has resulted in new insight into what the regional effects of global climate change might be for Sweden and the entire region around the Baltic Sea. The next step will be attempts to combat these problems by implementing measures based on the new knowledge obtained about local changes. Other climate-related issues will also require new depths of knowledge. The “new biology” is a field with enormous potential – including some possible solutions to environmental and resource problems – but also associated with uncertainties regarding implications and risks. We need to learn more about how to balance these considerations. Other priority areas include chemicals management, and the interplay between environmental and trade regulations. These problems will remain with us for the foreseeable future, and may require particularly focused efforts and allocations.

Sustainable building

The programme aims at ensuring that most phases throughout the lifetime of a building – from drawing table to demolition – are optimised in relation to the external environment. This work includes studies of the impacts of the building on land, air and water, life cycle analysis of the environmental impacts of components and building materials, and analyses of how to achieve better environmental adaptation of construction and building management.

Programme period, Phases I+II: 1996-2001

Main contractor: Chalmers University of Technology.

Programme director: Assistant Professor Bengt Larsson, Chalmers University of Technology.

E-mail: bengt@bem.chalmers.se

Web site: www.sustbuild.chalmers.se

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

Batteries and fuel cells for a better environment (JUNGNER)

Cost-effective lithium-polymer batteries, nickel metal hydride batteries and solid polymer fuel cells may determine the development of future energy systems. The aim of this programme is to utilise the strong Swedish research tradition in electrochemistry to develop environmentally-adapted batteries and fuel cells for portable equipment, equipment for stationary energy production and vehicles.

Programme period, Phase I: 1997-2001

Main contractor: Royal Institute of Technology (KTH)

Programme director: Dr. Bertil Nygren, Jungner Centre, KTH

E-mail: bertil.nygren@seccr.abb.se

Web site: www.ket.kth.se/jungner/

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

The ecocyclic pulp mill (KAM)

Pulp and paper plants can be made far more energy efficient, and can become producers rather than consumers of electricity. At KAM, methods are being developed to enable better utilisation of surplus energy from biomass, and to adapt production through closure of process water, separation of substances alien to the process, better utilisation of energy and solid waste products, more efficient delignification, and analysis of mineral flows.

Programme period, Phases I+II: 1996-2002

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

Programme director: Assistant Professor Peter Axegård, STFI

E-mail: peter.axegard@stfi.se

Web site: www.stfi.se/mistra/kamprog.htm

Executive committee chairman: Göran Eriksson, Director, Korsnäs AB

Remote sensing for the environment (RESE)

Remote sensing through satellite data provides great potential for regional and global environmental mapping and surveillance. The transition to practical applications requires advanced mathematical models and competence in environmental sciences for description and understanding. The focus is on different thematic areas: open landscapes, forests, mountains, seas and inland waters – in collaboration with a project on methodology and techniques. Applications are being developed in co-operation with different stakeholders, including companies and authorities.

Programme period, Phases I+II: 1996-2002

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

Programme director: Research Director Ulf von Sydow, Metria.

E-mail: ulf.von.sydow@lm.se

Web site: http://rese.satellus.se

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

Pheromones and kairomones to control pest insects

Insects that attack fruits, grains, tree seedlings and stored food products are a major problem in agriculture and silviculture today. These insects have also developed resistance to many chemical pesticides. Insects release scents to attract mating partners, and plants also give off chemicals to attract insects. This programme uses our understanding of these substances to develop new methods for biological insect control and reduce the need for chemical pesticides.

Programme period, Phases I+II: 1996-2002

Main contractor: Swedish University of Agricultural Sciences (SLU)

Programme director: Professor Jan Löfqvist, SLU.

E-mail: jan.lofqvist@vsv.slu.se

Web site: www.vsv.slu.se/mistra/index.htm

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

Soil remediation in a cold climate (COLDREM)

There is a substantial need for cost-effective remediation methods for old, contaminated industrial sites in a Nordic climate. Biological, chemical and physical treatment methods, as well as combinations of such methods, are being evaluated and developed within the programme. The work is based on the problems in two typical target sites: an old gasworks site contaminated with high concentrations of polycyclic aromatic hydrocarbons, cyanides and metals, and Eka Chemicals' site, contaminated with polychlorinated dibenzofurans and mercury.

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/

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

Microbial antagonism against fungi

Fungi that cause rot, mould or disease are extremely harmful in agriculture and forestry, as well as in storage of foodstuffs and feeds. In the long term, it will be possible to replace most chemical fungicides with methods using biologically-based antagonism. In this programme, products to combat harmful fungi using their own natural enemies are being developed. Some new products have already been commercially launched.

Programme period, Phases I+II: 1996-2003

Main contractor: Swedish University of Agricultural Sciences (SLU)

Programme director: Professor Berndt Gerhardsson, SLU.

E-mail: berndt.gerhardsson@vpat.slu.se

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

Mitigating the environmental impact of mining waste (MiMi)

One determining factor in relation to the competitiveness of the Swedish mining industry in the future will be the ability to find environmentally sound and cost-effective means of dealing with the leaching of acidic mine wastes containing metals into the soil and water in the vicinity of the deposits. Robust, effective and predictable measures for minimisation of leaching over the long term are being developed.

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

Executive committee chairman: Sten Bjurström, Svensk Kärnbränslehantering AB

Ångström Solar Centre (ÅSC)

If the technology being developed at the ÅSC is to experience a breakthrough in relation to the global electricity production system, the conversion efficiency of solar cells must be high, and their production cost-effective. The current status of Swedish research in thin film technology implies the realisation of this possibility. The programme, co-financed by the Swedish National Energy Administration, is also testing a potential next generation of solar cells and technology for regulating the admission of sunlight through smart windows.

Programme period, Phases I+II: 1996-2004

Main contractor: Uppsala University

Programme director: Professor Lennart Malmqvist.

E-mail: lennart.malmqvist@mail.bjp.net

Web site: www.asc.angstrom.uu.se

Executive committee chairman: Dag Sigurd, Director, Swedish Industrial Development Fund

Plasma enhanced reaction systems for environmental applications (PERSEA)

The aim of this programme is to develop plasma technology for exhaust emission control (including oxides of nitrogen and volatile hydrocarbons). Using a hollow cathode with a special geometry, extremely rapid reactions may be achieved with low energy consumption, thus enabling cost-effective purification of exhaust emissions.

Test phase: 2000-2002

Contractor: Ångström Laboratory, Uppsala University

Research directors: Dr. Hana Baránková and Dr. Ladislav Bardos

E-mail: Hana.Barankova@angstrom.uu.se,

Ladislav.Bardos@angstrom.uu.se

INTERNATIONAL NEGOTIATORS

International and national abatement strategies for trans- boundary air pollution (ASTA)

EU agreements and protocols relating to the Convention on Long-Range Transboundary Air Pollution will be up for renegotiation in a few years. Wide international support for the scientific base of this round of negotiation will be required. This programme is studying the effects criteria and ecosystem recovery after reduced deposition of air pollutants. Integrated analyses of the impact of abatement measures are being performed, with a view to providing support for the negotiation process.

Programme period, Phase I: 1999-2002

Main contractor: IVL Swedish Environmental Research Institute

Programme director: Professor Peringe Grennfelt, IVL Swedish Environmental Research Institute.

E-mail: grennfelt@ivl.se

Web site: www.ivl.se/proj/asta

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

Land use strategies to reduce greenhouse gas emissions (LUSTRA)

A large number of scientific questions must be answered if the international negotiators on climate issues are to be able to consider how the processes that determine the uptake and emission of greenhouse gases from cultivated land and forests be affected. The primary focus of this study is on how forest land may serve as sinks for reduction of the net flows of carbon dioxide, nitrous oxide (laughing gas) and methane from forest land. Various methods of forest management are being studied.

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/index.phtml

Executive committee chairman: Olof Johansson, former Swedish Environment Minister

Marine research on eutrophication (MARE)

Eutrophication is a serious environmental problem in the Baltic Sea, and the waterborne inputs of nutrients are to be decreased by half (as compared to the input level in 1987). A decision-support system is being elaborated, aiming at enabling actors around the Baltic to implement cost-effective measures related to the environmental effects at different loads. The scientific basis will be coupled to the work done within the Helsinki Commission (HELCOM) and the EU Water Framework Directive.

Programme period, Phase I: 1999-2002

Main contractor: Stockholm University

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

E-mail: sif.johansson@environ.se

Web site: www.mare.su.se

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

New strategy for risk management of chemicals (NewS)

The underlying assumption of the EU white paper on chemicals is that international regulation of chemicals management has reached a cul de sac. New, quicker and more cost-effective methods are needed for risk assessment and risk management in relation to chemical substances. This programme is to develop an integrated model to this end, using long-lived bio-accumulative compounds as test substances and the Baltic Sea as the field of inquiry.

Programme period, Phase I: 1999-2002

Main contractor: Lund University

Programme director: Professor Anders Södergren, Lund University.

E-mail: Anders.Sodergren@ecotox.lu.se

Web site: http://newstrategy.ecotox.lu.se

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

Swedish regional climate modelling programme (SWECLIM)

Although emissions of greenhouse gases are expected to result in global climate change, little is known about the possible regional changes. In this programme, regional climate scenarios are being developed to allow more stringent analyses of the possible consequences in Sweden in terms, *inter alia*, of temperature, precipitation, water resources, and the Baltic Sea. Potentially extreme situations are receiving special attention. The scenarios will provide trade and industry, public agencies and political decision makers with useful information for drawing up long-term strategies for adaptation.

Programme period, Phases I+II: 1996-2003

Main contractor: Swedish Meteorological and Hydrological Institute (SMHI)

Programme director: Markku Rummukainen, PhD, SMHI.

E-mail: markku.rummukainen@smhi.se

Web site: www.smhi.se/sweclim/

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

NATURAL RESOURCE MANAGEMENT POLICY MAKERS

Paths to sustainable development

What happens between words and actions, between intention and implementation? This programme is developing an area of competence spanning the social sciences and the humanities, to better utilise these research disciplines in efforts to attain sustainable development and to expand the scope of future environmental research. Knowledge within the areas of the environment and natural resources is combined with an understanding of the driving forces guiding behaviour and actions at both the individual and societal levels.

Programme period, Phases I+II: 1996-2001

Programme director: Professor Bengt Hansson, Lund University.

E-mail: bengt.hansson@fil.lu.se

Web site: www.waysahead.org

The Programme Management Group now consists of representatives of six funding authorities and research councils, with a MISTRA representative as chair.

Water management research programme (VASTRA)

The amounts of nutrients flowing into our seas, lakes and other watercourses must be radically reduced. The EU Water Framework Directive stipulates new demands for the management of catchment basins. Decision makers need both reliable statistics on utilisation of water resources and new tools for studying impacts. In this programme, models are being developed for optimisation of measures implemented and for monitoring effects. Experiments are also being performed to develop new, decentralised management models, where knowledge from the social sciences is being considered.

Programme period, Phase I: 1996-2001

Main contractor: Linköping University

Programme director: Anna Jöborn, Västra Götaland County Administrative Board.

E-mail: anna.joborn@o.lst.se

Web site: www.tema.ltu.se/vastra

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

Sustainable urban water management

Will the demands for sustainable natural resource use and protection of health and the environment result in new criteria and new solutions regarding the structure of future water and sewage systems? Or will the systems of tomorrow be essentially the same as those of today? This broad-based programme embracing socio-economics, technology, hygiene and risk assessment is tied together by systems analysis (as applied to various model urban areas, the first being Hammarby Sjöstad) and an interdisciplinary postgraduate programme for research students.

Programme period, Phase I: 1998-2002

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, Anglian Water

Sustainable management of the mountain region

For diversified utilisation of the Swedish mountain region, the demands of reindeer herders, foresters, hunters, fishermen and those involved in the tourist industry must be handled in a comprehensive manner. This programme is creating an interdisciplinary platform on the basis of which it will be possible to analyse and manage conflicts of interest. Management models are being tested and developed.

Programme period, Phase I: 1998-2002

Main contractor: Swedish University of Agricultural Sciences (SLU)

Programme director: Professor Leif Mattsson, SLU Umeå.

E-mail: leif.mattsson@sekon.slu.se

Web site: www.fjallmistra.slu.se

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

Sustainable coastal zone management (SUZOZOMA)

Technical methods and resource management techniques must be developed to enable people living in coastal regions to make their livings, while remaining within the bounds of what the ecosystem can tolerate. Examples include methods for selective fishery, restoration of fish spawning sites, optimisation of sewage treatment plants, and mussel farm siting to reduce eutrophication. Management of conflicts of interest in the coastal zone and administrative reform are vital aspects of the work required.

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 develop new, cost-efficient measures and strategies for management of seminatural grasslands with a view to maintaining biodiversity. New production and business models are being developed to overcome current practical obstacles and simultaneously develop financially sustainable management systems.

Programme period, Phase I: 2001-2003

Main contractor: Swedish University of Agricultural Sciences (SLU)

Programme director: Dr. Urban Emanuelsson, SLU.

E-mail: Urban.Emanuelsson@cbm.slu.se

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

Sustainable forestry in southern Sweden (SUFOR)

If forestry in southern Sweden is to be able to balance the equation of good finances and high long-term production capacity on the one hand and biodiversity, ready access to edible fungi, berries and game as well as recreational space and good soil and water quality on the other, new facts and tools are required. This programme will result in the drawing up of concrete guidelines for forestry, based on sophisticated syntheses and mathematical models. No effort will be spared to ensure that these results are then implemented in practical applications in forestry.

Programme period, Phases I+II: 1996-2004

Main contractor: Lund University

Programme director: Professor Bengt Nihlgård, Lund University.

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

Web site: www.planteco.lu.se/sufor

Executive committee chairman: Sven Sjunnesson, Forest Officer

FOOD21 – sustainable food production

In the future, the food production chain will be environmentally and ethically sound. Attaining this goal requires a paradigm shift. The links in the chain must make it possible to enable foodstuffs produced in Sweden to combine good financial return, high product quality and ethically acceptable animal rearing. The production capacity of our arable land must be maintained and improved, and impacts on surface and ground water minimised.

Programme period, Phases I+II: 1996-2004

Main contractor: Swedish University of Agricultural Sciences (SLU)

Programme director: Professor Rune Andersson, SLU.

E-mail: rune.andersson@mv.slu.se

Web site: www.mat21.slu.se

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

Soundscape support to health

Cost-effective reduction of problems associated with traffic noise can be achieved through optimal renewal of building areas resulting in healthier “soundscapes”. Varied “soundscapes”, including quiet and noisy sides of buildings are being studied from the points of view of economics, health, and noise perception. The ideas are also being tested in projects where existing building areas are being renewed in a way that gives the residents access to a quiet side of the living space. A successful programme will have an important impact on the future design of building areas.

Programme period, Phase I: 2000-2004

Main contractor: Chalmers University of Technology (CTH)

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

E-mail: kjell.spang@ingemansson.se

Web site: www.soundscape.nu

Executive committee chairman: Professor Barbro Westerholm

MISTRA'S BOARD

Anneli Hulthén, *Chairman*
European Parliament

Åke Bergman, *Professor*
Stockholm university
Department of Environmental Chemistry

Göran Enander, *Director*
Swedish Society for Nature Conservation

Ulla-Britt Fräjdin-Hellqvist, *Director*
Volvo

Lars-Erik Liljelund, *Director-General*
Swedish Environmental Protection Agency

Bengt Silfverstrand, *MP*
Swedish Parliament

Lena Sommestad, *Managing Director*
Institute for Futures Studies

Sverker Sörlin, *Professor*
Umeå University

Lena Torell, *Professor*
European Commission - JRC

Margareta Wedborg, *Professor*
Göteborg University
Analytical and Marine Chemistry

Margareta Wester, *Director*
Chalmers University of Technology
Centre for Environmental Assessment of
Product and Material Systems



Standing from the left: Margareta Wedborg, Åke Bergman, Johan Trouvé (appointed in 2001), Lars-Erik Liljelund and Margareta Wester. Sitting from the left: Lena Sommestad, Sverker Sörlin, Anneli Hulthén and Lena Torell. Board members not in this picture: Ulla-Britt Fräjdin-Hellqvist, Göran Enander and Bengt Silfverstrand.

MISTRA'S COMMITTEE FOR ASSET MANAGEMENT

EXTERNAL ADVISORS:

Åke Altéus, *Director, Chairman*
Nobel Foundation

Bertil Näslund, *Professor*
Stockholm School of Economics

Tomas Nicolin, *Director*
Third National Pension Fund (AP3)

MEMBERS OF THE MISTRA BOARD

Göran Enander, *Director*
Swedish Society for Nature Conservation

Sverker Sörlin, *Professor*
Umeå University

Margareta Wester, *Director*
Chalmers Institute of Technology

MISTRA'S STAFF

Måns Lönnroth, *Managing Director*
Tel: +46 8 791 10 24
m.lonnroth@mistra.org

Britt Marie Bertilsson
Tel: +46 8 791 10 21
bm.bertilsson@mistra.org

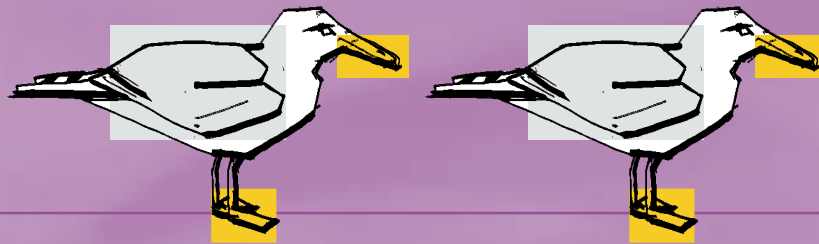
Björn Englund
Tel: +46 8 791 10 26
b.englund@mistra.org

Helena Lundin
Tel: +46 8 791 10 23
h.lundin@mistra.org

Kerstin Lövgren
Tel: +46 8 791 10 25
k.lovgren@mistra.org

Jan Nilsson
Tel: +46 8 791 10 22
j.nilsson@mistra.org





MISTRA

THE SWEDISH FOUNDATION FOR STRATEGIC ENVIRONMENTAL RESEARCH

Gamla Brogatan 36-38, se-111 20 Stockholm, Sweden

Tel: +46 8 791 10 20

Fax: +46 8 791 10 29

E-mail: mail@mistra.org

Web site: www.mistra.org