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SPORTMISTRA

A research programme on ways of reducing the environmental impact of sport and outdoor life

This report was commissioned by Mistra ahead of a possible research initiative on sports and outdoor recreation. It was written by Erik Arnberg, who is responsible for the content.

Introduction

Sporting and outdoor activities are widespread in Sweden and have grown steadily over the years. This country also has highly favourable conditions for sport and outdoor life: strong organisations; arenas and facilities; and other conditions, such as the Right of Public Access (the right, or freedom, to roam the countryside), conducive to such activities. These factors have also enabled the Swedes to hold major international events and host a growing influx of nature tourists from abroad. Central and local government strongly advocate using sport and outdoor life to promote key social goals, such as public health. Public-sector commitments and funding are extensive. Linked to sporting and outdoor activities, too, is a strong business sector with a major role in economic growth and job creation.

The challenge is that for sport and outdoor life to keep developing and expanding, the sector must respond to the overall environmental and climate goals adopted by the Riksdag (Swedish Parliament). This sector, unlike others, has done very little to reduce its own environmental impact, although its activities probably exacerbate environmental pressures.

A research programme on the environmental impact of sporting and outdoor activities is important for the following reasons:

- heavy environmental impact — inadequate knowledge
- large scale — many operators and practitioners
- significant potential for new innovative approaches to reduce environmental loads
- key public interests and ample public financial support
- major bearing on economic growth and for job opportunities in sparsely populated areas and elsewhere.

Sport and outdoor life are a sector of society that engages a large share of Sweden's population. Some 2.8 million people participate in sports and 1.8 million in outdoor recreation. State support for sport in 2016 amounted to SEK 1.9 billion and support for outdoor recreation to SEK 48 million. The municipalities' investments in the whole sector total at least SEK 11 billion a year. In 2009, the Swedes' total estimated spending on outdoor activities was almost SEK 100 billion, including more than SEK 70bn within Sweden. Consumption linked to outdoor life adds value estimated at approximately SEK 34bn a year to the Swedish economy.

Policy concerning sports and outdoor life is also highly publicised and influential in society. It serves such purposes as promoting democracy, integration and public health, but also enhancing public understanding of the environment, nature and sustainable development. Large-scale public resources are invested in support for sport and outdoor life organisations, and also for sports facilities and purchasing of natural land for outdoor recreational and other activities. Sport and outdoor life also entail significant conflicts of aims with other community interests, not least in the municipalities.

In contrast to other sectors of society, only very limited action has been taken to reduce the environmental impact of sporting and outdoor activities. There have been no estimates of the environmental loads from these activities, although the sector entails extensive transport operations; large arenas, facilities and events; and clothing and equipment that contain environmentally damaging substances. The sector also severely impacts biodiversity. There are therefore cogent reasons to assume that the environmental pressures are substantial, and that new innovative approaches offer great potential to reduce these pressures.

Trends in sport and outdoor life

Sporting and outdoor activities are undergoing major changes. Some are growing and others shrinking in scale, while new activities are coming into being. Another clear trend is that many sports and forms of outdoor recreation nowadays require more advanced equipment, special clothing and arenas or specially prepared terrain. The market for equipment and clothing for sport and outdoor life has expanded strongly, and several companies in this segment have their base in Sweden.

Some identifiable trends are as follows:

- Increasingly, activities now take place further away from people's homes, requiring more travel.
- Many activities require increasingly sophisticated equipment, which may lead to increased dispersion of dangerous chemicals.
- Sales of clothing and equipment for sports and outdoor activities have increased sharply.
- Major investments are being made to support sport and outdoor life in the form, for example, of artificial turf, artificial snow, slopes, walkways and trails that can have significant environmental impact.
- Ever more participants from abroad participate in sports events and outdoor activities.
- Sport and outdoor life are increasingly contributing to employment and economic growth, in sparsely populated areas and elsewhere.
- Sports and outdoor activities are changing: some activities are in decline and others appear.

Examples of these trends are that today, even in summer, it is possible to ski on artificially frozen ski trails and to follow the route of the Vasaloppet cross-country ski race in Dalarna (from Sälen to Mora), by mountain bike. The sport of mountain skiing makes increasing use of helicopters for transport, which causes noise disturbances. 'Sportification' of outdoor life is under way, with competitive elements, and adventure sports are growing.

All these trends are leading to increased commercialisation and new service and product opportunities. The sometimes rapid changes in sport and outdoor life spell a need for futures studies to tackle and cope with coming changes and prevent possible environmental disturbances.

Importance of sport and outdoor life for awareness of nature and the environment

Many people today have a markedly urban lifestyle and very few contacts with the natural landscape. This is true of many young people who grow up in towns and cities, attending schools that sometimes entirely lack playgrounds. It also applies to many newly arrived Swedes who have no relationship with Swedish nature.

This means that large groups in our society have a very limited understanding of the need to protect the environment and nature, and also of the changes needed in society to achieve public goals for the environment, climate and sustainable development. These growing groups risk eroding the democratic basis for environmental policy.

Sporting and outdoor activities can play a major role for these groups. They bring them into contact with the natural landscape, giving them a better understanding of protection for nature and the environment. Environmental awareness enhances comprehension of the need for sustainable development and a sustainable lifestyle.

Importance of sport and outdoor life for business and economic growth

Sporting and outdoor activities have a major bearing on business, jobs and economic growth.

In this country, there are several manufacturers of equipment and clothing for sport and outdoor life with a major international export market. If equipment and clothing manufacturers can improve their products' environmental performance, this can be a significant competitive advantage.

Many major sporting events earn substantial revenues. Sweden is in a highly favourable position for organising international events and competitions, especially if these events have a high environmental profile.

Sweden's natural environment and the right to roam mean that nature tourism for visitors from abroad has good prospects of expanding and bringing growth to the tourism and hospitality industry. This, in turn, will give a major boost to the business sector and job creation, not least in sparsely populated areas. Innovative approaches should be able to provide new commercial opportunities and contribute to economic growth.

Organisers

Sport

Organised sports take place largely under the aegis of the Swedish Sports Confederation, which has a total of 2.8 million members. Within it almost every sport is represented, from football and ice hockey to golf, motor sports and sailing. The Confederation comprises 71 specialised sports federations that organise 250 different sports.

Outdoor recreation

Open-air recreation is largely organised within Svenskt Friluftsliv ('Swedish Outdoor Life'), which comprises 25 associations with a total of 1.8 million members. These associations include the Swedish Association for the Promotion of Outdoor Life, the Guides and Scouts of Sweden, the Swedish Anglers' Association, the Swedish Association for Hunting and Wildlife Management and the Swedish Tourist Association.

Swedish sport and outdoor life organisations display marked similarities. They are popular movements with extensive roots in the community. But there are also several differences:

- Sport has a strong and established organisation — the Swedish Sports Confederation — and is often conducted in large facilities with numerous spectators, with competitive events at its core.
- Outdoor recreation has a weak and relatively new organisation — Svenskt Friluftsliv — and its activities involve virtually no competitive events, are not practised in facilities, rarely have spectators and have experiencing nature at their core.

Public agencies

There is no agency responsible for sport. However, the Swedish Sports Confederation has some agency-like functions, such as funding research on sport. The agency in charge of outdoor life is the Swedish Environmental Protection Agency. Agencies responsible for funding research are the Swedish Sports Confederation (sport) and the Swedish Environmental Protection Agency (outdoor life), and to some extent also Vinnova, Sweden's innovation agency, and the Swedish Research Councils Formas (for Environment, Agricultural Sciences and Spatial Planning) and Forte (for Health, Working Life and Welfare). However, no national research of importance on the environmental impact of sport and outdoor life has been conducted in Sweden.

Research organisations

Research on sporting and outdoor activities is conducted at Mid Sweden University in Östersund, which has research centres focusing on tourism (the European Tourism Research Institute, ETOUR), winter sports (the Swedish Winter Sports Research Centre, NVC) and sports technology (the Sports Tech Research Centre). Research is also carried out at the Swedish School of Sport and Health Sciences (GIH) and a few smaller centres at other universities.

Research on the environmental impact of sport and outdoor life

Although, in all probability, the environmental impact of sport and outdoor life is high, no concerted efforts have been made to reduce it. However, it should be noted that the Swedish Sports Confederation has an environmental and climate policy and has issued a publication on 'Sustainable Sport'. Some organisations, such as the Swedish Golf Federation, have also made efforts to reduce environmental impact. In its programme for outdoor recreation policy, Svenskt Friluftsliv has a section on environmental policy. What bearing these measures have had on action taken by the various sport federations is unclear. Efforts to promote ecotourism and nature tourism have also been made in the tourism sector.

There have been no calculations or estimates of the extent of environmental impact from sport and outdoor life. Nor is there any knowledge of which emission sources are most important. Indeed, there is no research in Sweden on the environmental impact of sporting and outdoor activities. There is thus an acute need for increased knowledge and research in this area, especially given the immense scale of sport and outdoor life in society and the considerable public funding of these activities.

Proposed focus areas

To enable the research community to tackle and contribute to solutions to the environmental problems of sport and outdoor life, four focus areas are proposed. These are broadly shared by sporting and outdoor activities alike:

- transport, climate impact
- chemicals
- biodiversity
- planning, legislation, conflicting aims.

1. Transport, climate impact

Sport and outdoor life involve extensive transport requirements. These range widely, from parents giving their children lifts to various competitions, golfers travelling to and from golf courses, and hikers being transported to the mountains, to other travellers going to various events. Very often, this transport takes place by car. The extent of this vehicle transport is unknown, but it is likely to represent a significant part of total road travel in Sweden.

Some sports contribute directly to climate impact; examples are various motor sports. But emissions from transport to and from these activities are probably on a larger scale than direct emissions from the competitions. Facilities such as sports halls and swimming pools also contribute to climate impact but should not be covered by this research programme, since their emissions are linked primarily to energy use.

To achieve society's goal of reduced climate impact, this transport needs to be reduced and made more efficient, even if the vehicle fleet becomes more environmentally friendly in the future.

Research inputs should be focused mainly on finding new innovative solutions to reduce and rationalise transport associated with sporting and outdoor activities. The inputs may, for example, concern digital car-sharing solutions, relocation of facilities and events, and new, more efficient transport systems.

This part of the research programme is linked to Mistra Mobility.

2. Chemicals

The rapid proliferation of advanced equipment for sport and outdoor life is probably causing dangerous chemicals to spread on a large scale. Environmental pollutants, such as silver compounds and fluorinated chemicals, are present in textiles. Other equipment and substances, such as ski wax, contain environmentally hazardous substances as well. The fast-growing use of artificial turf causes extensive dispersion of plastic fragments into the environment. Moreover, other activities connected with sport and outdoor life lead to the spread of unwanted chemicals that require attention, for example at golf courses, in the creation of ski trails and artificial snow, and in impregnation substances used for materials on paths and tracks. Many of these environmentally hazardous chemicals should be phased out and replaced by harmless, biodegradable products.

Research efforts should focus on identifying the largest and most serious sources of the spread of dangerous chemicals, and contribute to them being phased out and superseded by harmless substances. The spread of plastic fragments from various sources should also be dealt with. There is scope for more extensive rental of equipment for sports and outdoor activities, which is an interesting alternative connected with the new sharing economy.

This part of the research programme is connected with Mistra Fashion.

3. Biodiversity

Sporting and outdoor activities have an extensive impact on biodiversity, as well as on the landscape. The impact can be positive — many national parks and nature reserves have been created to promote outdoor life and sport alike. But there can also be negative results, such as disturbances due to major orienteering races, and noise and exhaust emissions from motor sports. An area that should receive special attention is the influence on the coastal and marine environment of sporting and outdoor activities, such as boat sports and recreational fishing.

Outdoor life and sometimes also sport often have stringent requirements in terms of unspoilt nature and the appearance of the landscape. How these values should be asserted and appraised is an important issue when prioritisation among various types of exploitation, such as forest felling, establishing wind power and providing ski slopes, is needed. Various activities in sport

and outdoor life also cause conflicts of aims and disturbances, such as those due to motor sports and helicopter transport. Sport and outdoor life can also help raise awareness of the need to protect nature and biodiversity.

Research should focus on finding ways to reduce environmental impact from sporting and outdoor activities, for example by creating tools and taking action for better planning — green infrastructure — to minimise impact on biodiversity. Efforts should also be made to create opportunities for shared exploitation of land areas for various activities, such as golf, exercise and horse riding. Attention should also be paid to the question of how to boost the positive impact of sport and outdoor life on biodiversity.

4. Planning, legislation, conflicting aims

Activities in sport and outdoor life often lead to significant conflicts of aims with other social interests, not least in the municipalities. Urban areas' sporting and outdoor recreational needs often compete with plans for construction and infrastructure. Statutory shore protection, the Planning and Building Act and the Right of Public Access also come into conflict with sporting and outdoor activities. There is a great need to develop tools for better planning — green infrastructure — to handle and counter conflicting aims, not least at municipal level. The sport and outdoor life organisations also need better support and tools to develop and plan their activities in consultation with the state and municipalities.

The research should focus on finding tools to create better planning processes and handle conflicts of aims between the interests of sport and outdoor life and those of central and local government. Sporting and outdoor activities are highly dependent on the right to roam and on shore protection. But the research should also highlight the problems posed for sport and outdoor recreation by current legislation — the Planning and Building Act, the Shore Protection Act and the Right of Public Access — and how to manage these problems. The right to roam, with its notion of landscape as characterised by consideration and multiple uses, and the discussion of 'commons' by Elinor Ostrom and others should also be noted. The needs of our new multicultural society are another important area.

Collaboration with other researchers

For this programme's research, cooperation should be actively sought with other research groups in Sweden, but also the Nordic region and EU, and worldwide. Applying for co-funding within the EU Framework Programme for Research and Innovation is particularly important.

Mistra's role

The natural role of Mistra in this research programme is to invest in research on innovative measures to reduce the environmental impact of sport and outdoor life.

The programme should be delimited so that it mainly comprises sport and outdoor life

- within Sweden
- in the form of activities, organisations and practitioners under the aegis of the Swedish Sports Confederation and Svenskt Friluftsliv.

With this delimitation, the majority of all sports and outdoor activities will be covered by the programme. Everyday forms of exercise that are not specifically included in the programme will still be able to benefit from the results it will yield.

A Mistra initiative for a research programme on the environmental impact of sport and outdoor life is highly likely to attract great attention and interest. There are solid grounds for assuming that other stakeholders, especially the Swedish Environmental Protection Agency, the Swedish Sports Confederation, Svenskt Friluftsliv, the Swedish Association of Local Authorities and Regions (SALAR) and Formas, will also show an active interest in working together, in various ways, on a Mistra programme on sport, outdoor life and the environment.

It would also be highly desirable for this research programme to be initiated and organised by Mistra as the main funder, but also in direct cooperation with the Swedish Sports Confederation, Svenskt Friluftsliv and SALAR. This would give the programme greater legitimacy and increased commitment from the main stakeholders. It would also help to give the programme results a natural domicile and boost their dissemination, through the organisations' agency, to the active practitioners. This would give the research programme greater influence.

A research programme on the environmental impact of sport and outdoor life has several links with other Mistra programmes, such as Sustainable Accessibility and Mobility Services (SAMS), Mistra Future Fashion and Mistra Future Forests.

Benefits of the research programme

Research in the programme should provide clear, useful innovative tools and solutions that will be put to use and confer benefits in such a way as to reduce environmental impact.

The results of the research should

- provide innovative and useful tools for the national federations, the specialised associations and the active practitioners of sport and outdoor life
- be useful to central and local government, improving their capacity to plan sporting and outdoor activities
- generate new commercial opportunities for the business sector and contribute to competitiveness, job creation and economic growth
- help to reduce the environmental impact of sport and outdoor life.

Vision and objective

Vision

Associations and members of the sports and outdoor organisations will be more aware of, and committed to reducing, the environmental impact of various activities and products. Systematic action and changed behaviour will reduce environmental impact. Improved green infrastructure will be created at municipal level.

Objective

Active environmental work and innovative solutions will lessen environmental impact.

Participants at the workshop on 24 October 2016

Peter Fredman, Professor, ETOUR, Mid Sweden University

Klas Sandell, Professor, Karlstad University

Peter Schantz, Professor, Swedish School of Sport and Health Sciences (GIH)

Christine Dartsch, Manager at the Swedish Research Council for Sport Science (CIF), GIH

Ulf Silvander, Secretary General, Svenskt Friluftsliv

Eva Thörnclöf, Swedish Environmental Protection Agency

Sverker Sörlin, Professor, KTH Royal Institute of Technology

Daniel Glimvert, Facilities Manager, Swedish Sports Confederation

People who were contacted and who provided documentation and comments

Nils-Olof Zethrin, expert on sport and outdoor life, Swedish Association of Local Authorities and Regions (SALAR)

Eva Marie Rigné, R&D Coordinator, SALAR

Stefan Bergh, Secretary General, Swedish Sports Confederation

Ingrid Petersson, Director General, Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (Formas)

Tove Hammarberg, Research Officer, Swedish Research Council for Health, Working Life and Welfare (Forte)

Eva Stighäll, Outdoor Life Coordinator, Swedish Environmental Protection Agency

Mats Andersson, Head of Research Unit, Swedish Environmental Protection Agency

Per Klingbjer, Chairman of Svenskt Friluftsliv and the Swedish Alpine Club

Peter Nygårds, Chairman of the Swedish Tourist Association and Mid Sweden University

Marie Stenseke, Professor, University of Gothenburg

Micke Jonsson, Peak Innovation

Martin Kössler, Scandinavian Outdoor Group

Claes Forsberg, CEO, Svenskt Sportforum