Work Report

ENVIRONMENTAL INDICATORS

in

The Faroe Islands

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February 2004

The Environmental Department
Food, Veterinary and Environmental Agency
Faroe Islands

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Preface

The scope of this work is to establish a foundation for a continuous record of environmental statistics in the Faroe Islands. The record is important in the administration, in follow-up on initiatives and the reporting responsibilities connected to international conventions agreed by the Faroese Parliament. The environmental statistical record is to be illustrated by use of environmental indicators describing the state and changes in the environment.

The work includes a description of relevant environmental data and suggestion for a continuous record of statistics to be used in the reporting requirements in international conventions. The work also includes a description of a registration and reporting system including financial obligations, and assignment of responsibilities. The system can also be used in publishing the statistical record for further use.

The present project has been funded by the Danish Ministry of Environment as part of the environmental support program Dancea - Danish Cooperation for Environment in the Arctic. The author is solely responsible for all results and conclusions presented in the report and do not necessary reflect the position of the Danish Ministry of the Environment.

The project has been reviewed by a steering group, which has contributed experience and inspiration to achieve the goals in the project. The steering group met 3 times during the project time.

Members of the steering group

Hermann Oskarsson, Director, Statistic Faroe Islands
Herálvur Joensen, Director General, The Environmental Authorities
John Egholm, Danish Ministry of the Environment
Kate Sanderson, Principal, The Prime Minister's Office
Maria Dam, Leader of Research, The Food-, Veterinary- and Environmental Agency

Jacob Pauli Joensen, Head of Environmental Department, The Food, Veterinary and Environmental Agency, was heading the steering group and has been responsible of the project.

Author of the project: Lena Lastein

Supervision of the English Text: Anne Philbrow

The project was carried out at the Food, Veterinary and Environmental Agency, Faroe Islands from 1/1/2003-31/12/2003.

Introduction

Environmental statistical analysis is used as a tool to monitor the state of the environment. The statistics are most commonly chosen in accordance with the present government policy to monitor whether initiatives set in force are achieving the objectives or to decide if initiatives on the area are to be applied. Environmental statistics also include information about energy consumption and economic aspects, and are closely related to sustainable development issues.

The aim of this work is to analyse the type of statistics needed to describe the environmental state and to clarify the international data reporting responsibilities concerning environmental issues. A system to publish and report the data is suggested, together with placement of responsibility of evaluating the statistical record needed. The aim is thereby to describe a system, including relevant environmental statistics, publicly available, which can be used to analyse the fulfilments of the obligations required by international conventions and agreements committed to by the Faroese Parliament. The work is also intended to serve as a basis for future initiatives concerning environmental statistic.

The environmental statistics described are chosen on the basis on the data reporting obligations in international conventions and the Nordic Strategy on Sustainable Development signed by the Faroese Parliament (Appendix D). As a first step, it is suggested that these data serve as a foundation for future evaluations of statistics on environmental and sustainable issues.

By analysing the commitments in the international conventions the following four conventions are found to be included with data reporting responsibilities:

VIENNA CONVENTION FOR THE PROTECTION OF THE OZONE LAYER
(The Vienna Convention, 1988)
Concerning reductions in the use of ozone destroying gases.

UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE
(The Climate Convention, 1992)
Concerning reduction of emissions of greenhouse gases

CONVENTION ON LONG-RANGE TRANSBOUNDARY AIR POLLUTION
(The Geneva Convention, 1979)
Concerning reduction in emissions of long-range transboundary air pollutants.

CONVENTION FOR THE PROTECTION OF THE MARINE ENVIRONMENT OF THE NORTH EAST ATLANTIC
(The OSPAR Convention, 1992)
Concerning protection of the marine environment

The Faroese Parliament has also signed the Nordic Strategy on Sustainable Development, which includes cooperation on developing indicators analysing whether the strategy is followed up. Two reports have been published, including suggestions on indicators concerning the follow-up on the strategy (Achieving the Objectives, 2002; 2003). The following areas in the Nordic indicator sets are chosen to group the presented environmental indicators in this report:

- Climate Changes
- The Sea
- Chemicals
- Energy
- Transport
- Industry
- Fishery
- Resource Efficiency
- Environment and Health
- Public Participation and Knowledge Base

Summary

The international conventions agreed by the parliament demand a large amount of data to be sampled or measured to fulfil the commitments. Furthermore, the follow-up on the Nordic Strategy on Sustainable Development covers a broad range of indicators not available in the administration today.

In analysing environmental data available for data reporting it was found that data were missing to several of the environmental areas of concern. It was also found that some data were not up to date (some of them 3 years delayed). Therefore procedures should be initiated to fulfil the time of reporting stated in the conventions. In the work of analysing data available for current statistics, it was also confirmed that permission was not available to access some relevant data. Resources must therefore be made available to permit access to information necessary to fulfil the data reporting obligations. Furthermore, resources to gather the statistics to be reported must be assigned as working areas at the relevant ministries.

The present work suggests a model to develop and maintain an environmental statistical record. The system is intended to store statistics describing the environmental state and issues concerning sustainable development. It is suggested that the system will be administrated by the Statistics Faroe Islands. The statistics stored in the system are intended to be available for the public and should also include tools for reporting data to international conventions and strategies to be used by those institutions responsible for the data submission (Appendix B). The submission part of the system will serve as documentation of the data included in the environmental statistics. The responsibility for reporting data to the international organisations is not currently assigned, but is suggested for the future in Appendix F.

It is suggested that a home page will be developed to store information on environmental and sustainable development issues, which the Faroe Islands have agreed to report according to international conventions. Special pages covering more detailed information on the statistical areas included on the main page should be evaluated later at the individual institutes (ministries) as an extension of the home page. Detailed information can be placed and administrated by the individual authorities responsible for the data of concern.

Part of the present work has been to analyse and describe the existing statistics concerning environmental issues. The analysed data are therefore included and presented as a part of the description of the individual indicators.

Recommendations

It is necessary to monitor the fulfilments of the conventions and agreements by use of statistical data. The data are to be used to clarify trends and states concerning the relevant areas.

All of the data needed to describe the environmental state are not available today (Appendix E) and actions must be taken to establish the statistic needed. Responsibilities for the data collection must be assigned and laws set in force to permit the access of relevant data. The actions required fulfilling the data reporting responsibilities to international conventions and to join the work concerning evaluation of the Nordic Indicator Set are:

Establishment of oil sale statistics from the oil companies, aggregated by vessel information

Establishment of a detailed statistical record of vehicles

Establishment of destination statistics concerning sea and air traffic to be used in connection with emission inventories

Clarification of the responsibility for statistics concerning air pollution

Establishment of a common sample and reporting system for the municipalities concerning waste and drinking water

Detailed information on exports and imports of products

Evaluation of GDP and GVA in fixed prices

Improvement of the Faroe Islands health statistics

Improvement of waste statistics from the incineration plants

Although the data included in the reporting responsibilities to conventions covers a broad spectrum describing the environmental state, some areas which are of special interest to the Faroe Islands, are lacking (i.e. aquaculture and additional indicators concerning fishery). It is suggested that the relevant areas are complemented as a future step in the evaluation of environmental statistics. It is recommended to appoint a committee to ensure, that the appropriate statistical information is included at any time, working parallel with initiatives and commitments by the Parliament concerning environmental and sustainable issues. It is suggested that the committee consists of members from the Environmental Authorities, Statistics Faroe Islands, The Ministry of Family and Health Affairs, The Ministry of Law and The Ministry of Fisheries and Maritime Affairs (the Faroese Fisheries Laboratory).

1. Population

Changes in the population size can locally affect the environment. Contrary environmental circumstances can affect the health of people and thereby affect the frequency of sudden diseases and the age of death. It is therefore important to monitor changes in the population size and other population statistics together with relevant environmental indicators that can affect health.

1.1. Age Distribution

Purpose: The purpose of the indicator is to monitor changes in the age distribution of the population. Changes in the age distribution of a population can affect economic, social and thereby environmental circumstances and it is therefore important to monitor changes in the population distribution.

Data collection: Information on age distribution according to sex is published by the Statistics Faroe Islands in the annual statistical yearbook and on the home page: http://www.hagstova.fo.

Trends: Since 1970, the population in the Faroe Islands has risen by 24% (from 38,612 in 1970 to 47,704 in 2002). From 1990-1998, there was a huge emigration of younger people, owing to the economic crisis in the Faroe Islands. The emigration changed the age distribution dramatically as shown in 1.1.a and 1.1.b. The proportion of males below age 50 decreased from 77.0 % in 1987 to 73.3 % in 1995 and has further decreased to 71.5 % in 2002. Similarly, the proportion of females below age 50 has decreased from 74.1 % in 1987 to 71.1% in 1994 and further decreased to 68.9% in 2002. The largest fluctuations are observed in the age group 20-29 (Figure 1.1: Age Distribution 1987, 1994 and 2002, Male and Figure 1.2: Age Distribution 1987, 1994 and 2002, Female).

Despite these fluctuations, children below 14 years constitute approximately 24% of the total population, which is higher than other Nordic countries (18%) (*Source: Statistics Faroe Islands*). This is explained by a high fertility rate and although the 5 years mean fertility rate has decreased since 1970 (from 3.0 in 1970-1979 to 2.5 in 1990-1999) the Faroe Islands still have a higher rate than the other Nordic countries (which varies between 1.5 and 1.9 per 1000 women) (Source: Statistic Faroe Islands, http://www.hagstova.fo).

If the working age is set to 25-64, the burden of providing can be calculated by number of workers relative to the number of non-working people. In the Faroe Islands the number is 105; that is, 100 workers are to provide for 105 non-working people (mean value 1990-2002). The number is high compared to Greenland and Denmark (82 and 84 respectively), but at the same level as in Iceland (110) (Figure 1.3: Providing Burden).

Reporting responsibilities: Information on age distribution according to sex is part of the Nordic Indicator Set (NSI; 2002 and 2003).

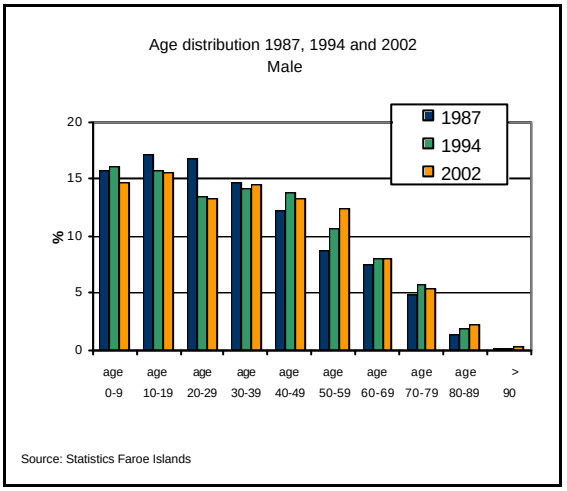

Figure 1.1: Age Distribution 1987, 1994 and 2002, Male

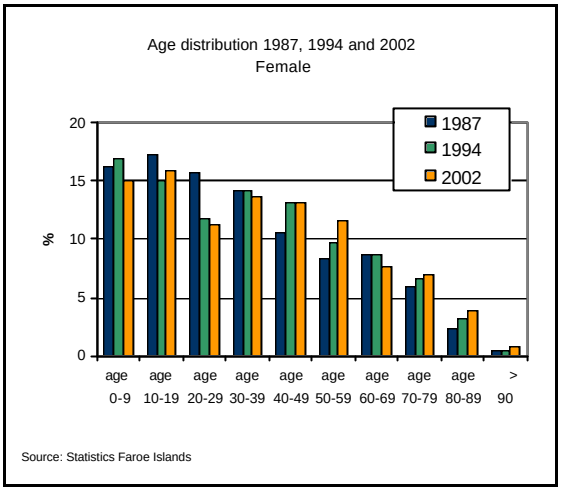

Figure 1.2: Age Distribution 1987, 1994 and 2002, Female

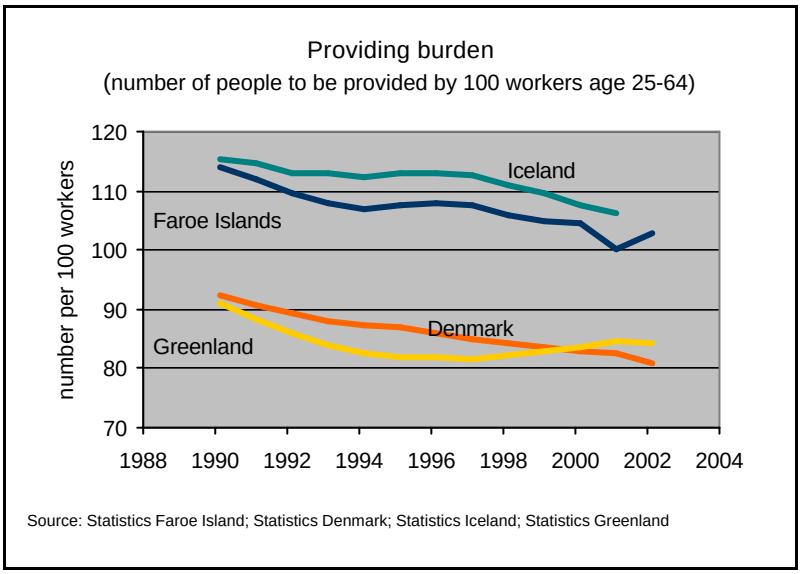

Figure 1.3: Providing Burden

1.2. Mean Age and Life Expectancy

Purpose: The purpose of the indicator is to monitor changes in the health of the population by monitoring the fluctuations in the mean age of the population and the estimated life expectancy as new born.

Data collection: Information on mean age expectancy according to sex is published by the Statistics Faroe Islands in the annual statistical yearbook and on the home page: http://www.hagstova.fo.

Trends: The mean age of the population has increased from 32 years in 1982 to 36 years in 2002. The increase can be explained as a greater proportion of people older than 80 year (2.0% in 1982 and 3.6% in 2002).
Life expectancy is one of the most commonly used indicators for assessing the health of a population. Life expectancy is the average number of years that a person can expect to live, based on the latest figures for mortality (Statistical Yearbook 2003).

From 1990-1995 to 1996-2000, the life expectancy for men has risen from 73.3 to 75.2 years. Similarly, the life expectancy for women has risen from 80.3 to 81.4 years (Statistics Faroe Islands, 2003).

Reporting responsibilities: Information on life expectancy is a part the Nordic Indicator Set (NSI; 2002 and 2003).

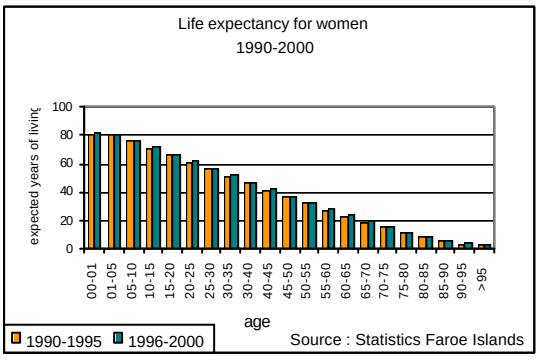

Figure 1.4: Life Expectancy for Women 1990-2000

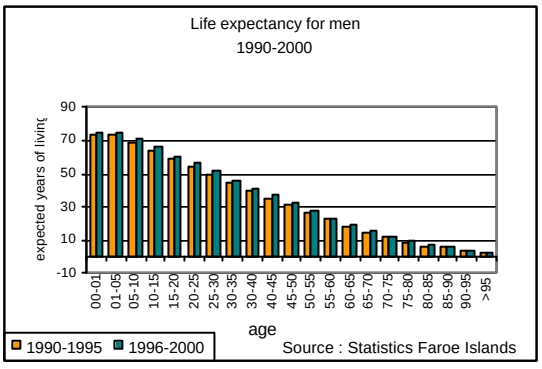

Figure 1.5: Life Expectancy for Men 1990-2000

1.3. Deaths according to Age and Sex

Purpose: The purpose of the indicator is to monitor changes in the death distribution according to age and sex.

Data collection: Information on deaths according to sex and age are collected at p/f Elektron and the information published by the Statistics Faroe Islands in the annual statistical yearbook and on the homepage: http://www.hagstova.fo.

Trends: The mean age of the females who died in the time period 1995-1999 was 77.7 years and for males 71.4 years, which has risen by 4.4 years and 4.2 years respectively over a 10-year period. Mean values for the time period 2000-2003 indicate a further rise of 0.6 years for males and no changes for females.

The mean death frequency in the time period 1995-1999 was 9.72 for males (number of deaths per 1000 males), which has increased by 0.6 over a 10-year period. The mean value for 2000-2003 shows a decrease of 1.8 per 1000 males, compared with the mean value in 1995-1999. The mean death frequency of females was 7.7 per 1000 females in 1995-1999, which has increased by 1.6 per 1000 females over a 10-year period. The mean value for 2000-2003 shows a further increase of 0.2 per 1000 women (Figure 1.6: Deaths per 1000. Males/Females).

Increases in the death frequency per 1000 males are observed in the 50-59 age group and for females in the 60-69 age group (Figure 1.7 and 1.8).

Reporting responsibilities: Information on deaths according to age and sex are part of the Nordic Indicator Set (2002; 2003).

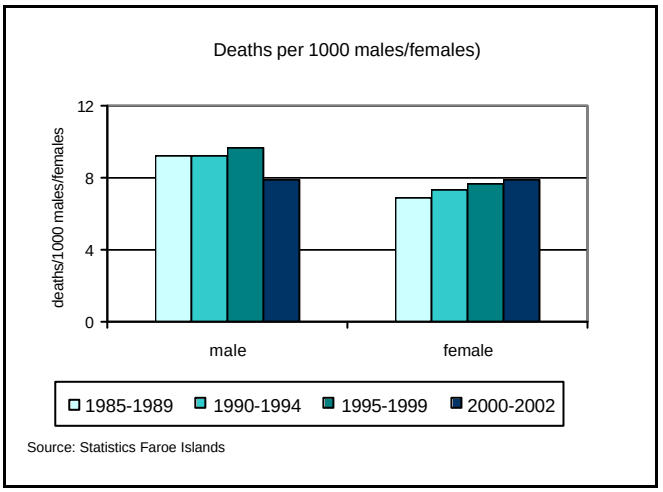

Figure 1.6: Deaths per 1000. Males/Females

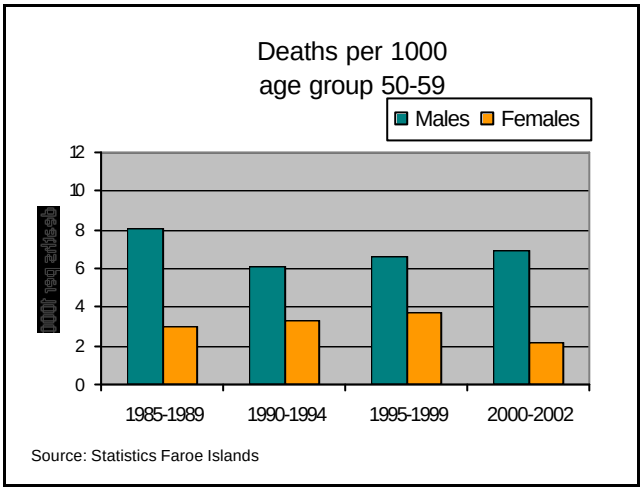

Figure 1.7: Deaths per 1000. Age Group 50-59

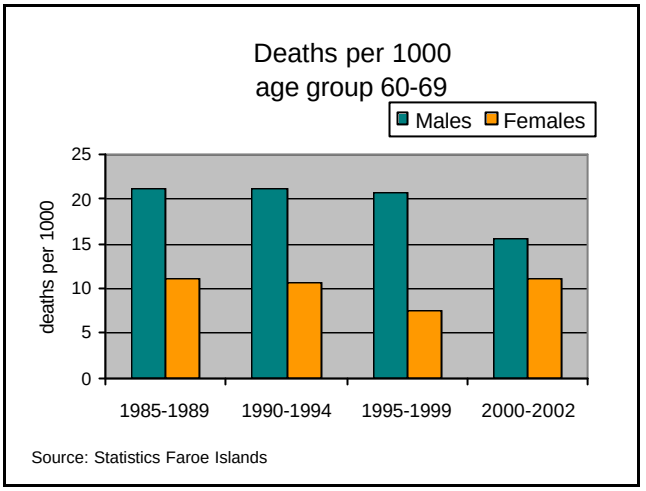

Figure 1.8: Deaths per 1000. Age Group 60-69

1.4. Diseases and Deaths according to Cause

Purpose: The purpose of the indicator is to monitor changes in selected diseases and causes of death. A further aim is to analyse the impact of environmental circumstances on the health (e.g. lung and heart diseases, cancer). This can be used in connection with analysing negative impacts from e.g. traffic, products, food, drinking water and air pollution.

Data collection: The National Board of Health in Denmark registers information on deaths and diseases according to cause. The medical officer on the Faroe Islands publishes the data on health in the annual report from the medical officer (foe@foe.eli.dk). The report contains no statistical evaluation of the data on deaths and diseases (relative to population, age and time), but only observed cases per year. Information on death causes and diseases in the report are delayed 3 years, and if the statistics are going to be used in connection with future reporting, efforts must be made to bring the data up to date.

The Statistics Faroe Islands also publish the frequency of selected causes of death in the annual statistical yearbook and on the homepage: http://www.hagstova.fo.

Trends: In 1999 39% of the male deaths were caused by heart and coronary diseases, 30% by cancer, 5% by lung diseases and 3% by diabetes. 43% of the female deaths were caused by heart and coronary diseases, 30% by cancer, 8% by lung diseases and 2% by diabetes.

Male deaths caused by heart and coronary diseases have decreased from 1985 to 1999 (Figure 1.9: Deaths according to selected causes, Male (5 years mean values)) and have been unchanged for females in the same time period.

Male deaths caused by cancer have increased by 27% from 1985-1999, while female deaths by cancer have increased by 33% in the same time period.

Male deaths caused by lung diseases have increased by 9% from 1985-1999 and by 41% for females (death frequency low; Figure 1.9) In the same time period, male deaths by diabetes have increased by 158% and by 51% for females (death frequency low; Figure 1.10).

Reporting responsibilities: Information on causes of death and selected diseases are part of the Nordic Indicator Set (NSI; 2002 and 2003).

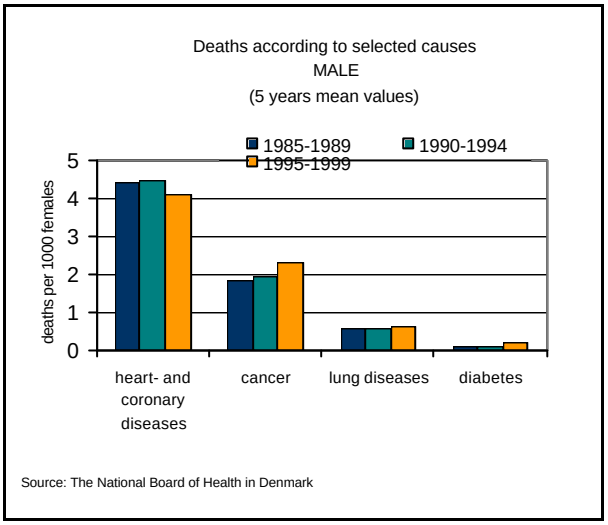

Figure 1.9: Deaths according to selected causes, Male (5 years mean values)

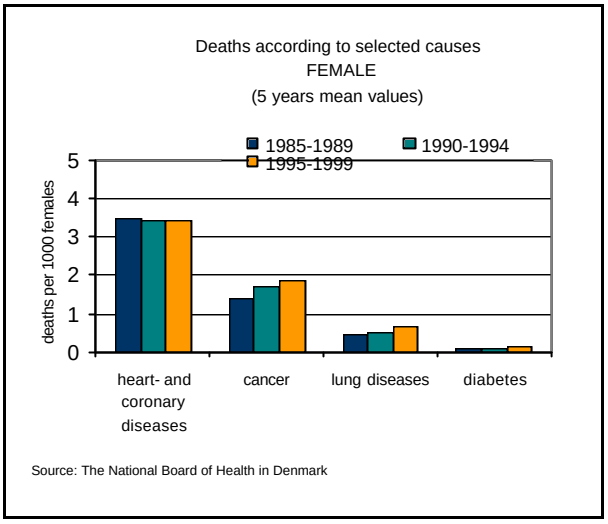

Figure 1.10: Deaths according to selected causes, Female (5 years mean values)

2. Fishery

The main concern in fishery administration today is to ensure sustainable development. Since 1996 the fishery in the Faroe Islands has been managed by a system assigning number of fishing days to the fishing vessels. It is therefore necessary to monitor the fishery and to adjust the assigned day quote consciously according to changes in the fishing effort. Each year the Fishery Laboratory is submitting an advise on the fishery management to the Minister of Fisheries and Maritime Affairs. The advice is based on landing numbers, estimated biomasses and fish mortalities of the three main fish stocks in Faroese waters (cod, haddock and saithe). To monitor the development in the fishery and the influence on the environment, it is necessary to monitor different aspect in the fishery according to time (changes in the fishing time, catch per unit time (gear), changes in the fishery according to gear, fish mortality according to gear type, information about plankton production, emissions of air pollutants from fishing, i.e.).

The Nordic countries have agreed to protect and maintain fish stocks and marine mammals, and to ensure that fishing and hunting take place on a sustainable basis taking account of the ability of stocks to carry out their functions in the ecological systems.

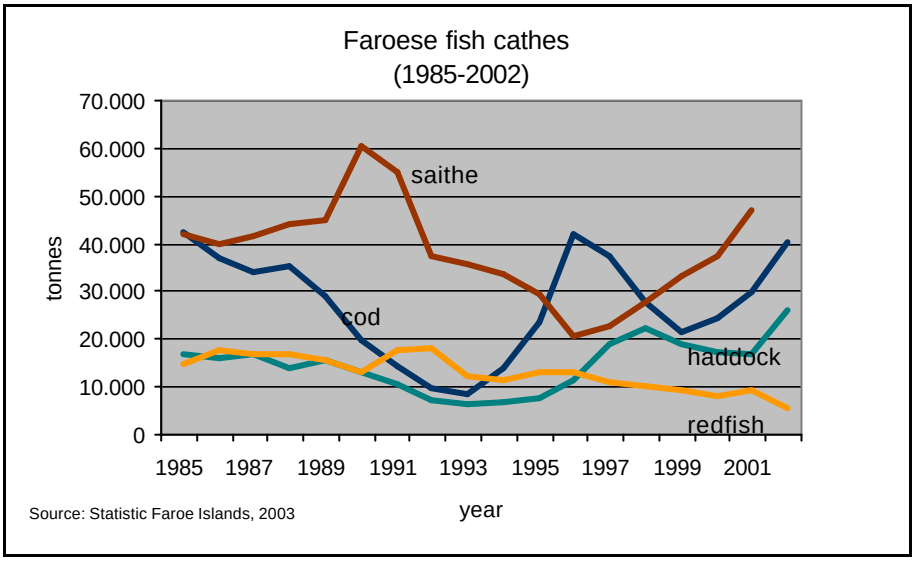

Figure 2.1: Faroese Fish Catches (1985-2002)

2.1. Fish Catches related to Stock Size

Purpose: The purpose of the indicator is to monitor changes in the stock size and catches of the three main demersal species in Faroese waters. The information is used in the fishing days management in deciding the day numbers to be assigned to the fishing fleet each year. The fishing regulations aim to reduce the catches of the three main species to a certain proportion of the stock size, and it is therefore important to monitor different aspects of the fishery, i.e. catch numbers and stock size estimations, which affect the effort. Each year, the day numbers are assigned by the Parliament according to the Commercial Fishery Act, 1994, based on advice from the Committee on Fishing Days and the Fishery Laboratory in the Faroe Islands.

Data collection: The Ministry of Fisheries and Maritime Affairs http://www.fisk.fo collects information on landings from Faroese vessels. The Fishery Inspection collects information on fish catches from foreign vessels operating in Faroese waters. The data includes information on vessels, gear, fishing position and catches. Landing information is weekly submitted from the landing places to the Ministry of Fisheries and Maritime Affairs. The ships themselves report Faroese landings in foreign countries. It is not a legal requirement to submit information on landing numbers from the Faroese landing places therefore the data cannot be considered to be complete. However, it must be assumed that the main proportion of the landing data in the Faroe Islands is included in the Ministry statistics. The Ministry intends to make fishery statistics available on the home page within the next 2 years.

The Fishery Laboratory is collecting information on age distribution of cod, haddock and saithe during fishing surveys in Faroese waters. Other relevant information on the fish stocks is sampled and analysed in connection with the stock size estimation evaluated each year. The information on stock size is published annually by ICES: http://www.ices.dk and by the Fishery Laboratory: http://www.frs.fo.

Trends:

Cod

From 1985 – 2002, the mean catches of cod were 23,233 tonnes per year (Figure 2.2) Minimum catches were observed in 1993 (6107 tonnes) and maximum catches in 1996 (40,422). In 2002, the total number of cod catches was 40,159 tonnes. The catches of cod relative to estimated stock size have varied from 18% (1993) to 59% (2002).

Haddock

From 1985 – 2002, the mean catches of haddock were 13,104 tonnes per year (Figure 2.3). Minimum catches were observed in 1993 (4026 tonnes) and maximum catches in 2002 (25,584). The haddock catches relative to estimated stock size have varied from 17% (1993) to 35% (2002).

Saithe

From 1985 – 2002, the mean catches of saithe were 39,587 tonnes per year (Figure 2.5). Minimum catches were observed in 1996 (20,029 tonnes) and maximum catches in 1990 (61,628). In 2002, the total number of saithe catches was 56,759 tonnes. The saithe catches relative to estimated stock size have varied from 29% (1995) to 77% (1991).

Reporting responsibilities: Information on spawning stock biomass, fish mortality in relation to volumes of fish caught and the biological safe limits for selected stocks of fish are part of the Nordic Indicator Set (NSI; 2002 and 2003).

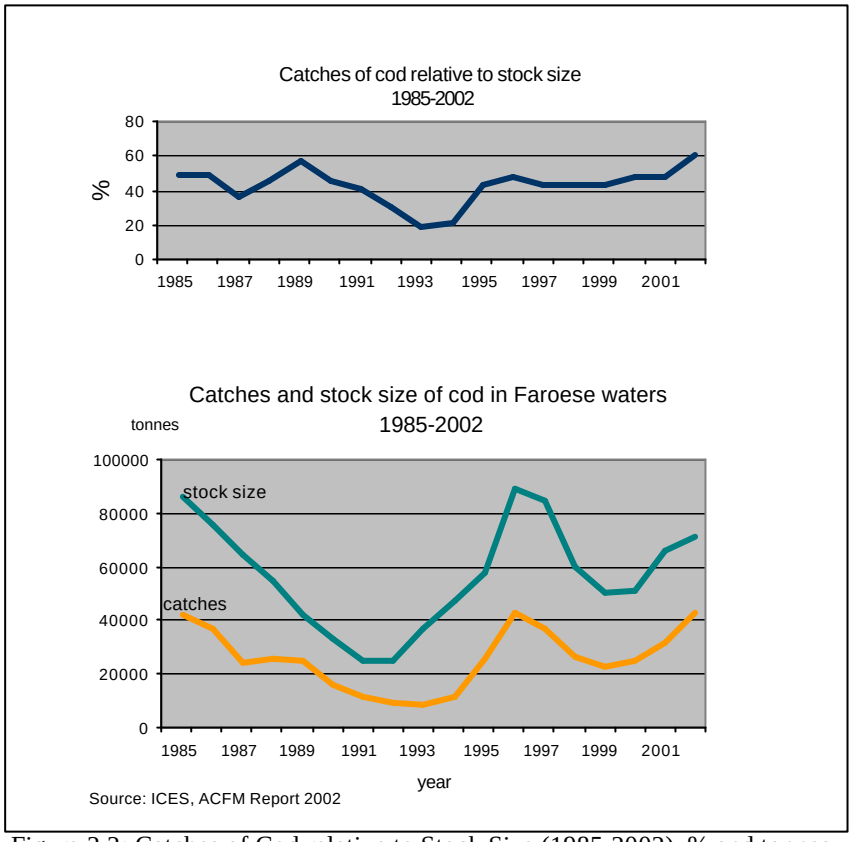

Figure 2.2: Catches of Cod relative to Stock Size (1985-2002), % and tonnes

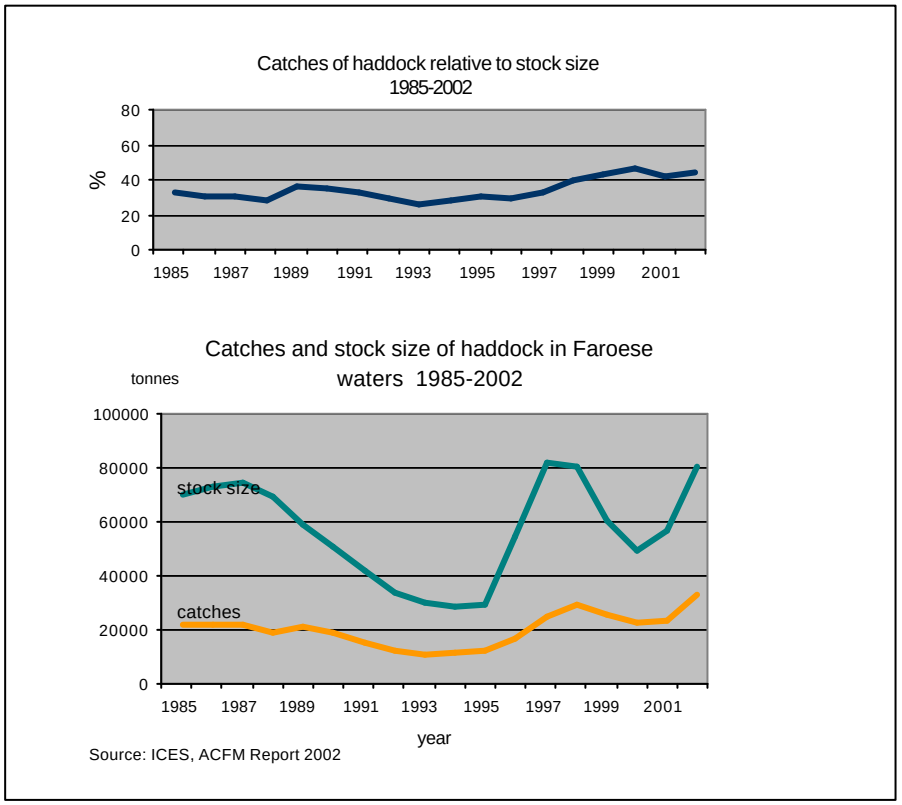

Figure 2.3: Catches of Haddock relative to Stock Size, 1985-2002, % and tonnes

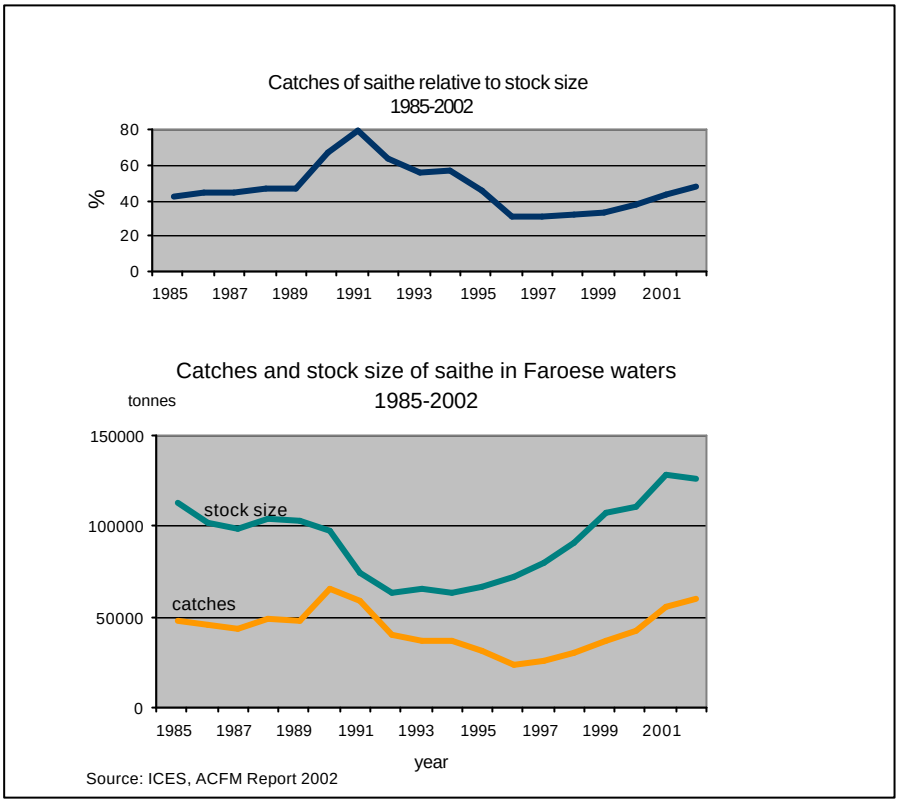

Figure 2.4: Cactches of Saithe to Stock Size 1985-2002, % and tonnes

2.2. Catches of Pilot Whales and White-sided Dolphin in Relation to Stock Size

Purpose: The purpose of the indicator is to monitor changes in the stock size and catches of pilot whales and white-sided dolphin.

Data collection: The Zoological Department of the Faroese Museum of Natural History registers information on catches of pilot whales and white-sided dolphin in the Faroe Islands. The record includes information on sex, skin and body length values of the whales at the whaling bays. Statistics on pilot whale catches are available from 1709. The local authorities, responsible for the pilot whale killings, report the total number of whales caught along with other information on the whales. The Statistics Faroe Islands publish the total number of whales and skin values each year in the Statistical Yearbook (http://www.hagstova.fo). Information on pilot whale killings in the Faroe Islands can also be found on http://www.whaling.fo/.

Trends : Pilot whales

The mean catches of pilot whales have decreased from 1892 whales per year in the fifties to 954 per year in the nineties (Figure 2.5). The maximum number of whales caught was in 1981 (2973 whales) and minimum number was in 1995 (228 whales).

White sided dolphins

Figure 2.6 shows the catches of white-sided dolphin in the time period 1994-2002. The catches have increased from 118 dolphins in 1994 to 774 dolphins in 2002.

Reporting responsibilities: Catches of marine mammals related to stock size are part of the Nordic Indicator Set (NSI; 2002 and 2003).

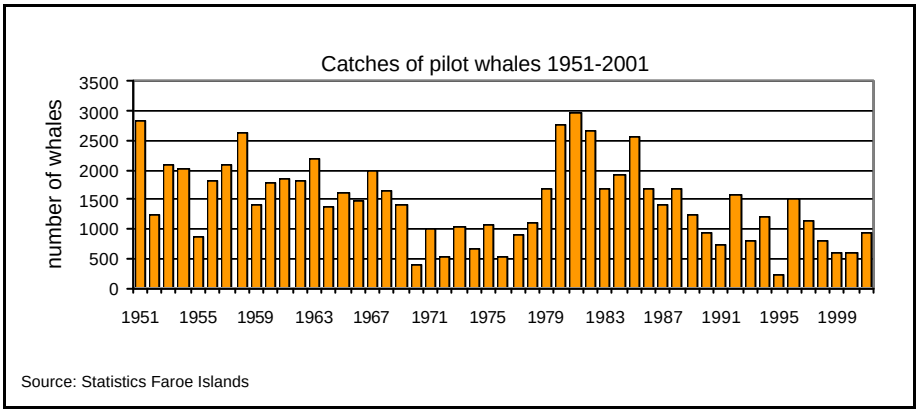

Figure 2.5: Catches of Pilot Whales 1951-2001

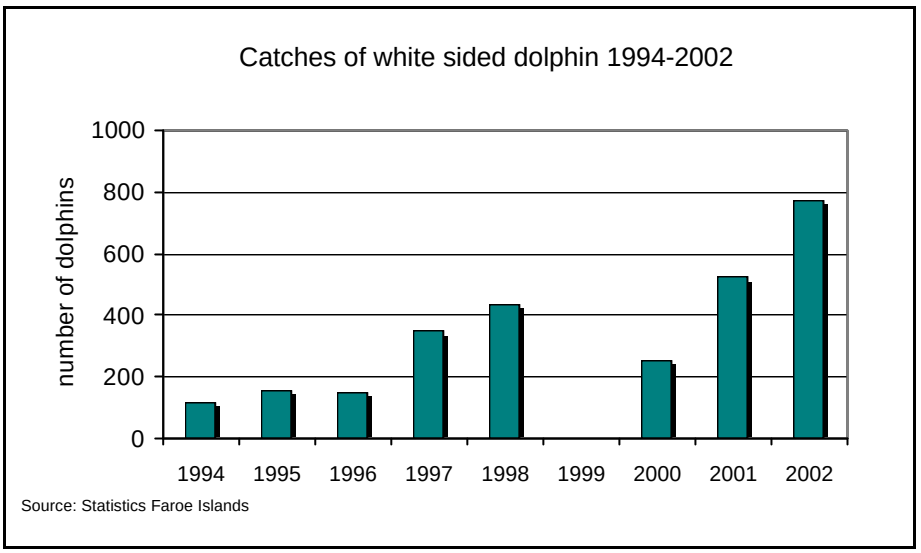

Figure 2.6:Catches of White Sided Dolphin 1994-2002

2.3. Air Pollution from Fishery

Purpose: The purpose of the indicator is to monitor changes in the level of air pollution from fishing vessels. As the Faroe Islands have signed the Climate and Geneva Convention and are thereby committed to reduce the emissions of greenhouse gases and long-range air pollutants it is important to monitor the emissions to check that the obligations are fulfilled.

Data collection: The Statistics Faroe Islands collects information regarding fuel consumption from the oil companies on the Faroe Islands, which includes the total amounts of fuel used for fishing ships (http://www.hagstova.fo). Today it is not legally permitted to obtain detailed information on fuel use for fishing ships (grouped by gear and motor type). The information is necessary if a reliable estimate of the emissions from fishing ships is going to be available in the future (Lastein, 2003). The calculation methods also have to be renewed according to more detailed information about the vessels. Responsibility for estimation of emissions of greenhouse gases needs to be clarified to ensure future statistical records.

Trends: The emissions of greenhouse gases from fishing ships have increased by 4% from 1990-2001. A minimum in the emissions was observed in 1993 (159 GT) due to small fish catches. Since then, the emissions of CO_2 have increased by 44% due to favourable fishing conditions (Figure 2.6). Figure 2.6 shows that the emissions of greenhouse gases from fishing ships are closely related to amounts of fish caught. The relationship is not straightforward, however, as the emissions per tonnes fish are higher in years when the stock size is at a lower level (Figure 2.2, Figure 2.3 and Figure 2.4). This is probably explained by increased sailing time used in looking for the fish.

Reporting responsibilities: Information on emissions on greenhouse gases and long-range transboundary pollutants are to be reported annually in accordance with the Climate Convention. Emissions of long-range transboundary pollutants are to be reported annually, in accordance with the Geneva Convention. The data is also part of the Nordic Indicator Set (NSI; 2002 and 2003).

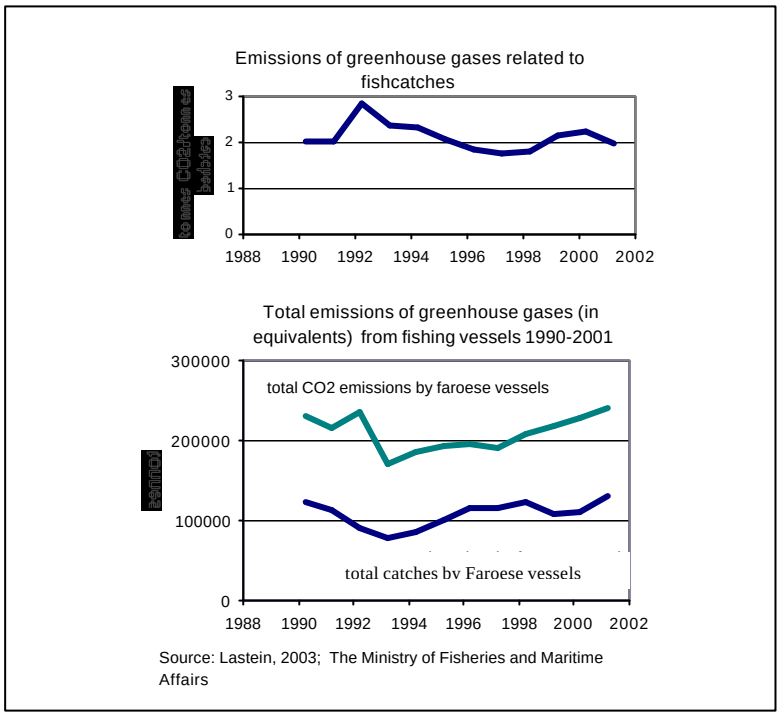

Figure 2.6: Emissions of Greenhouse Gases related to Fishcatches

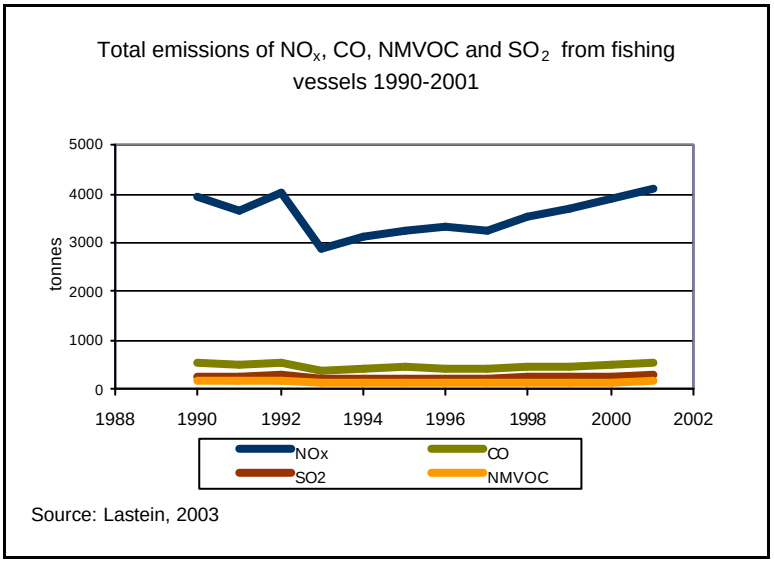

Figure 2.7: Total Emissions of No_x, CO, NMVOC and SO_2

3. The Sea

The sea around the Faroe Islands contains many important resources and is important in connection with fisheries, aquaculture, oil drillings and shipping. In the North Atlantic, radioactive pollution, heavy metals, and persistent organic pollutants (POP's) threaten the marine environment. The pollution can pose a risk for human health through pollution of fish and marine mammals caught in the areas. Information on pollution from ships and oil drillings must be available to estimate the effects on the life in the sea.

The Nordic Countries have agreed (NSSD, 1998) to stop all discharges of hazardous substances (heavy metals and substances which are slowly degradable) before 2020. The countries have also decided that concentrations of naturally occurring hazardous substances in the marine environment should approach their "original" background concentrations. Attention must be given to particular fallout of hazardous particles from the atmosphere, which is still at a high level, and must be reduced. The aim is to integrate environmental, social and economic considerations into protection and exploitation of the sea and its resources to prevent pollution of the Nordic marine areas (NSSD, 1998; http://www.norden.org/baeredygtig_udvikling/sk/engholdbarstrat.pdf).

Discharges of hazardous substances from countries outside the Nordic Region have an impact on Nordic Waters and it is therefore important to join the international co-operative effort to reduce sea pollution and actively fulfil the commitments. The OSPAR convention instructs the parties to reduce discharges, air emissions and diffuse losses of hazardous substances to the sea. The aim of the convention is to attain concentrations close to the "original" concentration in the marine environment for naturally occurring substances, and to attain concentrations close to zero for synthetic substances.

The North Atlantic is particularly sensitive to possible climate changes as a result of the special role played by the area in the global climatic system. Another objective, concerning the sea environment, consists of classifying maritime zones with a view to protecting and preserving ecosystems and bio-diversity in marine areas. The classification methods for these zones are described in detail in 'The Nordic Strategy on Sustainable Development, 1998'; http://www.norden.org/baeredygtig_udvikling/sk/engholdbarstrat.pdf).

3.1. Heavy Metals

Purpose: The purpose of the indicator is to monitor the concentrations of heavy metals in the sea. Natural concentrations must be clarified to estimate the amounts of heavy metals originating from pollution. The emissions of heavy metals from land exploiting drillings and vessels operating in or passing Faroese waters must also be determined to estimate their impact on the environment.

Data collection: Today there is no monitoring of concentrations and emissions of heavy metals into the sea around the Faroe Islands. The Food, Veterinary and Environmental Agency analyses samples of sediments in connection with inspection of the pollution from the aquaculture. The responsibility for determining the concentrations of heavy metals in the sediments should therefore be given to the Food, Veterinary and Environmental Agency in future. Emissions of hazardous substances from exploiting drillings are to be reported to the institute annually.

The municipalities have the responsibility of analysing waste water, but the data are not available for the public and a total estimate of land-based emissions of heavy metals is therefore not available.

Emissions of heavy metals from vessels (except vessels used in connection with exploration drillings) in Faroese water are not recorded today.

Reporting responsibilities: The concentrations of Hg, Cd, Cu, Zn and Pb in sediment and bio data are to be reported annually, in accordance with the commitments in the OSPAR convention. Emissions of heavy metals to the sea are part of the Nordic Indicator Set (NSI; 2002 and 2003).

3.2. Ocean Physics and Chemistry

Purpose: Physical and chemical parameters affect the climate and living conditions for all sea species. It is therefore important to monitor changes in the parameters to estimate potential effects.

Data collection: The Faroese Fisheries Laboratory measures ocean currents, temperature, salinity and other physical and chemical parameters several times during the year at selected positions in the waters around the Faroe Islands. The data are stored in databases at the Laboratory and selected results are available on the home page: (http://www.frs.fo).

Reporting responsibilities: Information on temperature and salinity are to be reported annually to the OSPAR convention.

3.3. Plankton

Purpose: The amount of plankton in the waters around the Faroe Islands gives information on the living circumstances of the fish stocks and other species in the Sea (Gaard et al., 2002; Steingrund and Gaard, 2003). Statistics on changes in phytoplankton concentrations and species composition can therefore be used to analyse the state of the living species in the sea.

Data collection: Each year, the Faroese Fisheries Laboratory analyses water samples for concentrations and species composition of phytoplankton and zooplankton at selected positions in Faroese waters. The investigations are to be reported annually to the International Council of Sea Exploration (ICES). The results of the investigations (1989-1997) are published in 'The zooplankton community structure in relation to its biological and physical environment on the Faroe shelf', 1989-1997, E. Gaard, 1999).

Reporting responsibilities: Concentrations of phytoplankton and species composition are to be reported annually in accordance with the commitments in the OSPAR Convention.

4. Waste

Economic development leads to growing pressure on natural resources as the consumption pattern changes. As a consequence, amounts of waste are increasing, which impacts on the environment. Waste amounts should therefore be reduced concurrently with economic growth.

Global projections of the state of the environment indicate that, in particular, renewable resources and natural ecosystems will be exposed to increasing pressure in future. Environmental burdens must therefore be reduced in the chain of production and consumption, and at the same time it will contribute towards reducing pressure on natural resources upstream (NSSD, 1998).

The Nordic countries have agreed to improve the resource efficiency by (NSSD, 1998):

- Substitution of renewable resources for non-renewable resources
- Replacement of environmentally burdensome material flows and products with less environmentally burdensome material flows and products
- A better utilization of resources, for example, through increased recycling and recovery
- Substitution of services for products
- Promotion of technological innovation and "eco-design"
- Removing barriers to the application of resource efficient solutions
- New marketing possibilities through information technology

4.1. DMC and DMI

Purpose: The Direct Material Consumption (DMC) accounts for all material used by a country and is defined as all materials used by a country. This is estimated as all materials directly entering the national economy minus the materials that are exported. The Direct Material Input (DMI) measures the input of materials that are directly used in the economy, that is, used domestic extraction and physical imports. Both the DMC and the DMI are used as indicators in connection with reductions in resource consumption.

Data collection: Statistics Faroe Islands collects and publish data concerning information on import and export to/from the Faroe Islands (http://www.hagstova.fo). Information on used domestic extractions affecting the national economy is not available.

Trends: The **amount** of material imported to the Faroe Islands increased by 81 % from 7.8 tonnes/capita in 1990 to 14.1 tonnes per capita in 2001 (Figure 4.1)). In the same period, the amount of material exported increased by 102%.

The **value** of material imported (thousand dkr/capita) increased by 104% from 1990 to 2001,and the value connected to material exported (thousand dkr/capita) increased by 67% in the same interval (Figure 4.2). The figure shows that the difference in the value of material imported and exported has decreased (from 11 thousand dkr per capita in 1990 to 1 thousand dkr/per capita in 2001). The figure also shows that the import values exceeded the export values in 2000.

Reporting responsibilities: Information on DMC and DMI are part of the Nordic Indicator Set (NSI; 2002 and 2003).

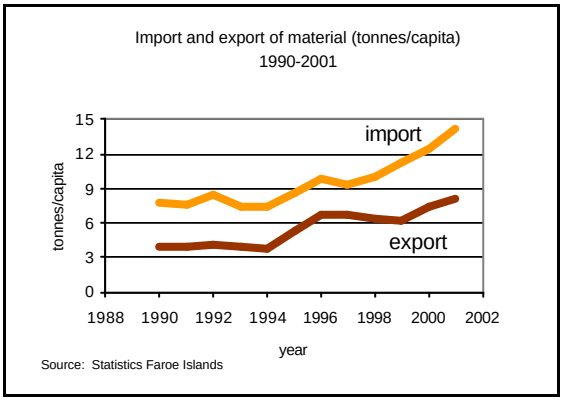

Figure 4.1: Import and Export of Material (tonnes/capita) 1990-2001

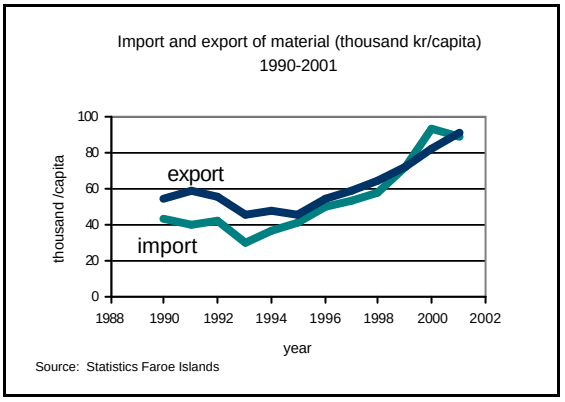

Figure 4.2: Import and export of Material (thousand dkr/capital) 1990-2001

4.2. Volumes of Waste and Reuse in Absolute Figures and in Relation to Total Waste Volumes

Purpose: The purpose of the indicator is to analyse the composition and amounts of waste delivered to the waste companies. The aim is also to monitor the degree of reuse in relation to total waste amounts.

Data collection: The waste companies are, by the law of environmental protection, obliged to register information about water disposal.

The waste is grouped into four main categories:

1) Waste to be reused
2) Waste to be incinerated
3) Hazardous waste
4) Waste for depositing

Waste amounts transferred to other countries are grouped by:

1) Hazardous waste
2) Refrigerating plants
3) Truck tyres
4) Storage batteries
5) Steel and metal

Information on amounts of waste is currently submitted to the Food, Veterinary and Environmental Agency each year. A common system of reporting the information should be established in future to secure consistency from the waste companies.

Trends: The total amounts of waste delivered to the waste companies have increased from 22,369 tonnes in 1990 to 34,178 tonnes in 2001 (an increase of 53%; Figure 4.3). Waste amounts per capita in the same time period have increased by 55% (from 0.47 tonnes/capita in 1990 to 0.73 tonnes/capita in 2001; Figure 4.4). The part of the increase representing household and industry cannot currently be determined, as waste data grouped by sector are not available.

Reporting responsibilities: Information concerning disposal and transport of hazardous waste are to be reported annually in accordance with the OSPAR convention.

Information on waste amounts and degree of reuse is part of the Nordic Indicator Set (NSI; 2002 and 2003).

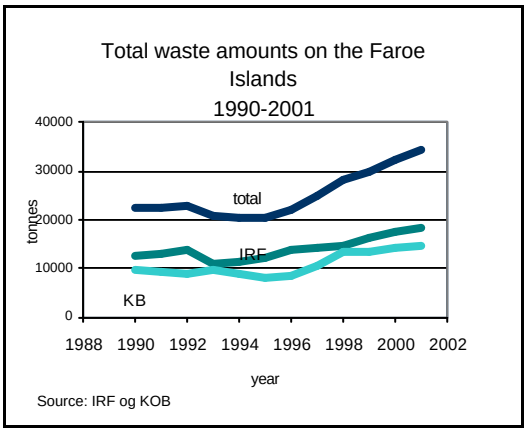

Figure 4.3: Total waste amounts on the Faroe Islands 1990-2001

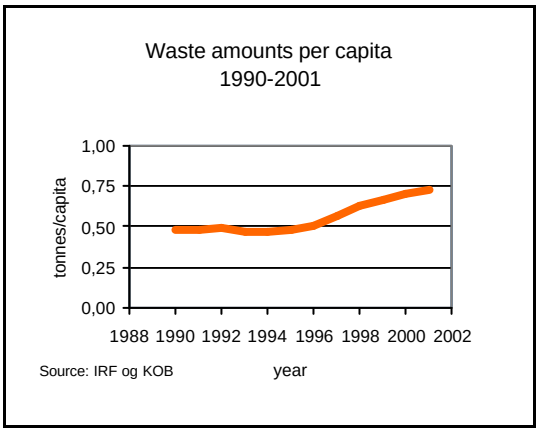

Figure 4.4: Waste amounts per capita 1990-2001

4.3. Volumes of Waste Grouped by Sector

Purpose: The purpose of the indicator is to monitor waste amounts according to sector. Waste amounts are not to rise alongside economic activities, and the aim is to decouple the development. It is therefore necessary to monitor the amounts of waste together with information on the economic development in different sectors.

Data collection: The incineration plants record information on waste. This information is annually reported to the Food, Veterinary and Environmental Agency on the Faroe Islands. The data are not currently grouped by sector, so a common format for waste sampling and registration must be established to make the statistics available.

Information on economic activity by sector in fixed prices is not currently available, and must be made available at the Statistics Faroe Islands if volumes of waste in relation to economic activity are to be a part of the statistical record.

Reporting responsibilities: Information on waste amounts relative to economic activity is part of the Nordic Indicator Set (NSI; 2002 and 2003).

5. Energy

The energy use per capita in the Nordic Region is 20% higher than the mean value for all OECD countries (NSSD, 1998). The high level can be explained by the geographical location, the low population density and, to a high degree, an energy intensive manufacturing industry. Although the use of renewable energy compared to total energy consumption in the Northern Region (Figure 5.1) has increased by approx. 30 % over the 1990s.

The Nordic Countries have prioritised reduction of emissions of CO_2, NO_x and SO_2. All of the countries have signed the Kyoto protocol concerning reduction in emissions of greenhouse gases and long-range transboundary air pollutants (excepting the Faroe Islands). The countries have also ratified the protocols concerning reductions of SO_2 and NO_x emissions. The protocols assign reductions in emissions before 2010: 65% concerning SO_2 and 43% concerning NO_x compared with the emission levels in 1990. In addition to the committed reductions, the Nordic countries have agreed further reductions in the emissions amounts.

The conditions for use of renewable energy are favourable in the Nordic Countries. Iceland uses water and thermic energy, and a greater part of the energy consumption in Sweden is now based on water, wind or bio energy.

Denmark has decided that 35% of the total energy consumption will be based on renewable energy before 2030. In Norway, 99% of the power consumption is based on waterpower and Norway has also decided to increase the use of wind and bio energy before 2010.

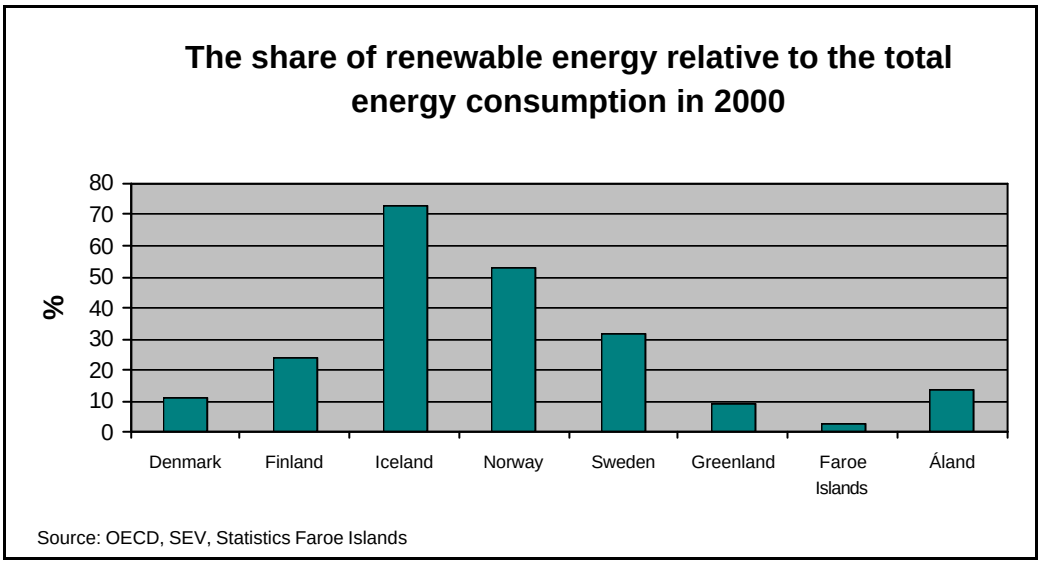

Figure 5.1: The Share of Renewable Energy relative to the Total Energy Consumpiton in 2000

5.1. Emissions in Absolute Figures and Relative to Total Energy Consumption

Purpose: The increase in use of fuel has been proven to affect climate conditions on earth and it is therefore necessary to reduce the emissions from fuel combustion. The emission gases CO_2, SO_2 and NO_x are commonly used to monitor the effect of fuel combustion on the atmosphere.

The purpose of the indicator is to monitor changes in the emissions of CO_2, SO_2 and NO_x compared with the total energy consumption.

Data collection: The Environmental Authorities (The Ministry of Oil) are responsible for evaluation of emissions inventories, but air pollution is not an assigned working area. Emissions estimates for the period 1990-2001 were evaluated in 2002 in a project carried out at the Food, Veterinary and Environmental Agency, but initiatives to secure future estimations have not been initiated. The emission numbers for 1990-2001 are published in Lastein, 2003.

Trends: The total emissions of greenhouse gases increased from 685 ktonnes in 1990 to 779 ktonnes in 2001 (14%; Figure 5.2). The emissions of CO_2 in relation to the total energy use have remained almost constant since 1990 (Figure 5.3).

Reporting responsibilities: Emissions in absolute figures and relative to total energy consumption are part of the Nordic Indicator Set (NSI; 2002 and 2003).

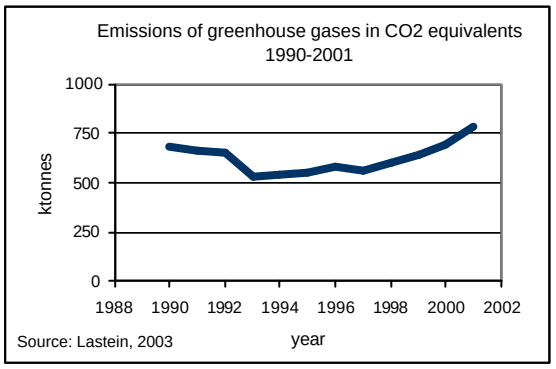

Figure 5.2: Emissions of Greenhouse Gases in CO_2 Equivalents 1990-2001

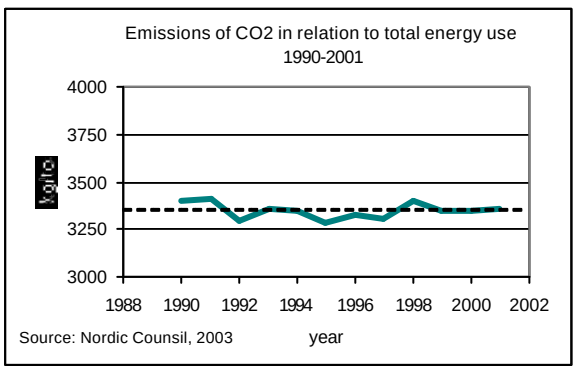

Figure 5.3: Emissions CO_2 in relation to Total Energy Use 1990-2001

5.2. The Share of Renewable Energy Sources of Total Energy Consumption

Purpose: It is necessary to replace fuel combustions with renewable energy sources in order to decrease the emissions of greenhouse gases and long-range transboundary air pollutants. It is therefore important to monitor the proportion of renewable energy in relation to the total energy consumption over time to see if initiatives promoting use of renewable energy are fulfilled.

Data collection: The electricity company SEV annually publishes the amount of renewable energy (water and wind) used in the electricity production. The numbers are listed in the 'Annual report and Financial Statement' (http://www.sev.fo).

The Ministry of Oil is responsible for energy issues (http://www.oms.fo), but the area is not an assigned working area in the Ministry. Data necessary to calculate the total energy consumption are available at Statistics Faroe Islands (total fuel and power consumption) and the total energy consumption covering the period 1990-2001 has been calculated in a project carried out at the Food, Veterinary and Environmental Agency (Lastein, 2003). Initiatives to secure future estimations have not yet taken place.

Trends: The share of renewal energy compared to the total energy consumption has decreased from 3.1% in 1990 to 2.8% in 2001 (Figure 5.4).

Reporting responsibilities: Data on the proportion of renewable energy sources of gross energy consumption are part of the Nordic Indicator Set (NSI; 2002 and 2003).

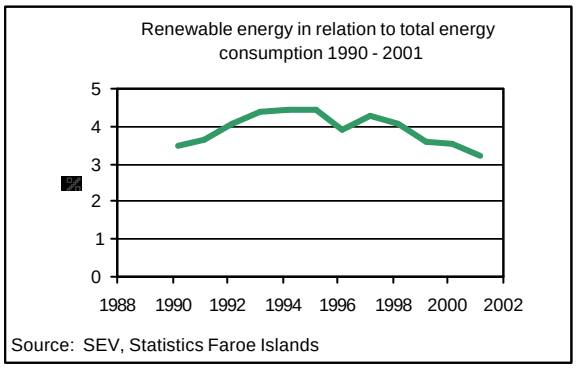

Figure 5.4: Renewable Energy in relation to Total Energy Consumption 1990-2001

5.3. Total Energy Consumption in Relation to GVA (Gross Value Added)

Purpose: Progress in improving energy efficiency and energy saving in all sectors are to be made without causing negative effects on competitiveness (NSSD, 1998). It is therefore necessary to monitor the energy consumption in relation to economic activity in the production sectors.

Data collection: The total energy consumption can be calculated from oil and power use. Oil and power use is published annually by the Statistics Faroe Islands (http://www.hagstova.fo). The total energy consumption is used to evaluate emission inventories. The Environmental Authorities (The Ministry of Oil) are responsible for evaluation of emissions inventories, but energy issues and air pollution are not assigned working areas. Total energy consumption and emissions estimates for the period 1990-2001 has been estimated in 2002 in a project carried out at the Food, Veterinary and Environmental Agency (Lastein, 2003). Initiatives to secure the estimations in the future have not yet been carried out.

The Statistics Faroe Islands annually calculates the National Budget for the Faroe Islands (Statistical Yearbook for the Faroe Islands, http://www.hagstova.fo). GVA is a part of the calculation (grouped by sector), but is not calculated in fixed prices, which is required by the present statistical record. The value (together with GDP in fixed prices) must be calculated in the future if the indicator is going to be available.

Reporting responsibilities: Data on total energy consumption in relation to GVA are part of the Nordic Indicator Set (NSI; 2002 and 2003).

5.4. Energy Consumption per Capita

Purpose: The purpose of the indicator is to monitor the energy consumption in different sectors in society. The Nordic Strategy on Sustainable Energy has selected 3 different sectors to monitor (industry, traffic and household) but since fishery is the most important income sector in the Faroe Islands, it is additionally included in the present statistics.

Data collection: Statistics concerning total energy consumption and consumption grouped by sector can be obtained from the Statistics Faroe Islands which annually publish the amounts of oil sold from the oil companies and the power use on the Faroe Islands (http://www.hagstova.fo). Energy consumption grouped by sector is also used in the air emissions inventories (Chapter 6).

Statistics concerning sectional activity are not currently available, and must be assigned as a working area at the Statistics Faroe Islands in future if the indicator is going to be available. Information on population number is published by the Statistics Faroe Islands in the annual statistical yearbook and on the home page: http://www.hagstova.fo.

Trends: Energy use in the household sector has decreased from 47.7 GJ/capita in 1990 to 41.9 GJ/capita in 2001. The proportion of power consumption relative to the total energy consumption in the household sector varied from 14% to 16% in the time period 1990-2001 (Figure 5.5).

Reporting responsibilities: Energy consumption per capita (in relation to sectored activity) is part of the Nordic Indicator Set (NSI; 2002 and 2003).

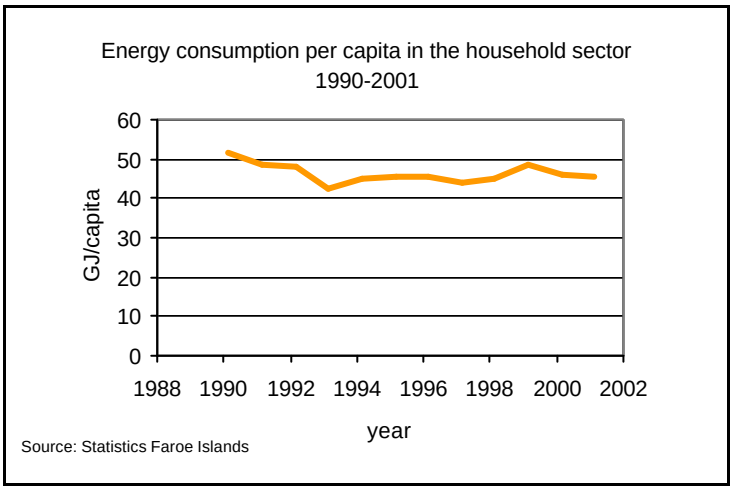

Figure 5.5: Energy Consumption per Capita in the Household Sector 1990-2001

6. Air Pollution and Climate Changes

Climate changes are one of the most serious threats to sustainable development today. The content of CO_2 in the atmosphere has risen approximately 30% in the last decade (J. Fenger, 2000) and has increased by 0.4 % each year since 1960 (mean value 1960-2002; Figure 6.1). The increase is mainly owing to the increasing use of fuel and the destruction of forest areas. It is therefore necessary to decrease the emissions of greenhouse gases from fuel combustion and develop more friendly types of energy. It will also be necessary to exploit renewable types of energy in the future. The aim of the Climate Convention (UNFCCC) is to ensure that the concentration of greenhouse gases in the atmosphere is stabilized at a level capable of preventing human impacts on the climate system. The Kyoto protocol is an attempt to reduce the emissions of greenhouse gases. The Nordic countries (excepting the Faroe Islands) have ratified the Kyoto protocol and have submitted their initial assessments concerning fulfilment of the commitments under the Kyoto protocol (reductions in 2008-2012). A global reduction in the emission levels by about 50-70% (IPCC) is required to avoid serious man-made climate changes.

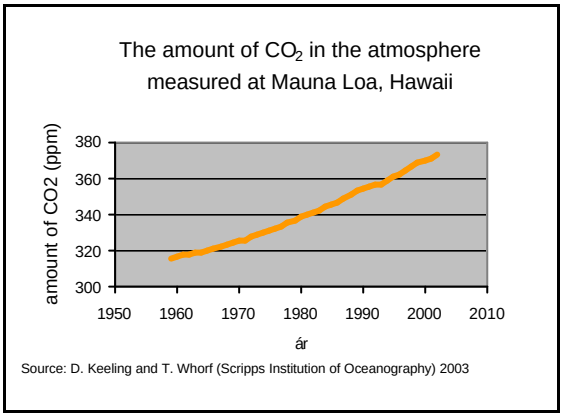

Figure 6.1: The Amount of CO_2 in the Atmosphere measured at Mauna Loa, Hawaii

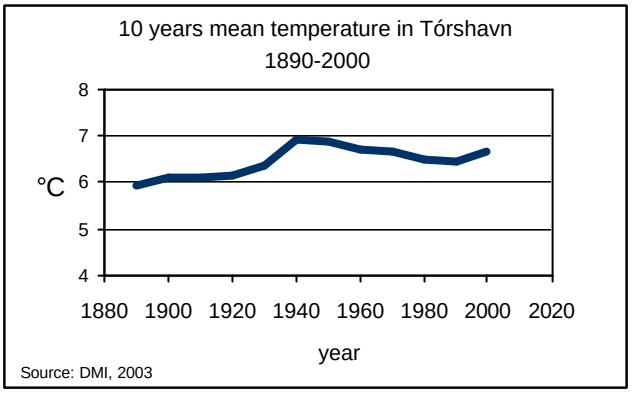

Figure 6.2: 10 Years Mean Temperatures in Tórshavn 1880-1999

6.1. CO_2 Emissions per Capita

Purpose: The CO_2 emissions from the population in the Nordic countries are high in comparison with other countries (NSSD, 1998). The problem must therefore be given high priority. It is necessary to monitor the emission levels in future, to fulfil the obligations to international conventions agreed by the Faroese Parliament (the Climate Convention and the Geneva Convention) on reduction of emissions of greenhouse gases.

Data collection: The Environmental Authorities (The Ministry of Oil) are responsible for evaluation of emissions inventories, but air pollution is not an assigned working area. Total energy consumption and emissions estimates for the period 1990-2001 was calculated in 2002 in a project carried out at the Food, Veterinary and Environmental Agency (Lastein, 2003).

Initiatives to continue future estimations have not yet been carried out and the responsibility of collecting data must therefore be assigned if the data are to be available for the statistical record.

Trends: The Faroe Islands have the highest emissions of greenhouse gases per capita in the Nordic countries (NSI; 2003). The emission values in the other Nordic countries vary from 6 tonnes per capita to 12 tonnes per capita (2000). In the same year the emission value for the Faroe Islands was 15 tonnes per capita. The emissions of greenhouse gases in the Faroe Islands have increased from 14.5 tonnes per capita in 1990 to 16.6 tonnes in 2001 (Figure 6.3).

Reporting responsibilities: The Faroe Islands made a commitment to report emission data to the UNFCCC each year. CO_2 emissions per capita are part of the Nordic Indicator Set (NSI; 2002 and 2003).

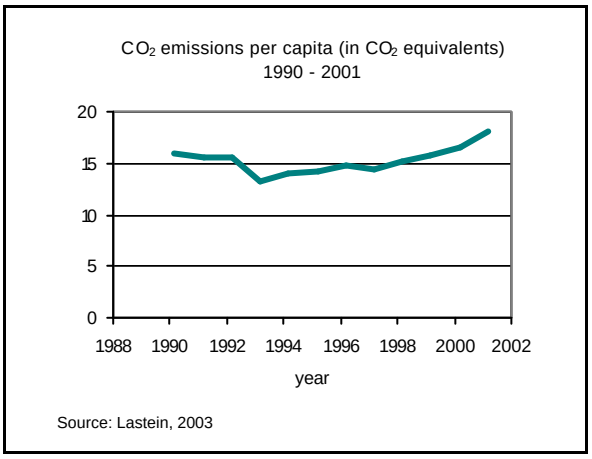

Figure 6.3: CO_2 Emissions per Capita (in CO_2 Equivalents) 1990-2001

6.2. Emissions of CO_2, N_2O and CH_4 in CO_2 Equivalents and in Relation to Activity Level (GDP)

Purpose: The goal in reducing emissions of greenhouse gases is to decouple the connection between economic development and emissions amounts. It is therefore necessary to monitor changes in the emission levels over time. It is also necessary to analyse the emission levels grouped by sector (fishery, industry, household, traffic, i.e.) to decide whether initiatives to reduce the emissions are to be applied. The Faroe Islands have committed to reduce the emission levels by signing the Climate Convention, the Geneva Convention and the Nordic Strategy on Sustainable Development and it is therefore necessary to monitor the emission levels over time to analyse whether the commitments are fulfilled.

Data collection: The Environmental Authorities are responsible for evaluation of emission inventories, but air pollution is not an assigned working area in the Ministry. Total energy consumption and emission estimates for the period 1990-2001 have been evaluated in 2002 in a project carried out at the Food, Veterinary and Environmental Agency (Lastein, 2003, http://www.hfs.fo). Initiatives to secure evaluation of future estimations have not yet been carried out.

Calculation of the activity level (GDP) in fixed prices is not carried out today and has to be assigned as a working area at the Statistics Faroe Islands in future to make the indicator available.

Trends: **Total emissions**

CO_2: Total emissions of CO_2 in the time period 1990-2001 are shown in Figure 6.4. The emissions have increased from 654074 tonnes in 1990 to 742539 tonnes in 2001 (14%).

N_2O: Total emissions of N_2O (in CO_2 equivalents) in the time period 1990-2001 are shown in Figure 6.5. The emissions have increased from 13620 tonnes in 1990 to 16217 tonnes in 2001 (19%).

CH_4: Total emissions of CH_4 (in CO_2 equivalents) in the time period 1990-2001 are shown in Figure 6.6. The emissions have increased from 17795 tonnes in 1990 to 20299 tonnes in 2001 (14%).

Reporting responsibilities: Emission data calculated in CO_2 equivalents/GVA are part of the Nordic Indicator Set (NSI; 2002 and 2003).

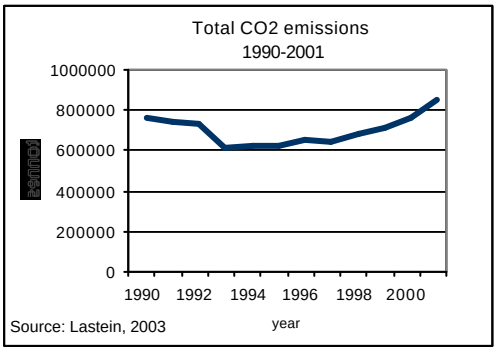

Figure 6.4: Total CO_2 Emissions 1990-2001

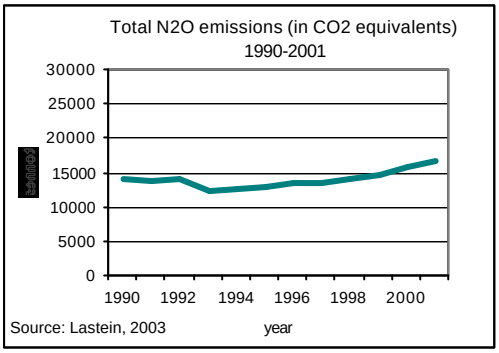

Figure 6.5: Total N_2O Emissions (in CO_2 Equivalents 1990-2001

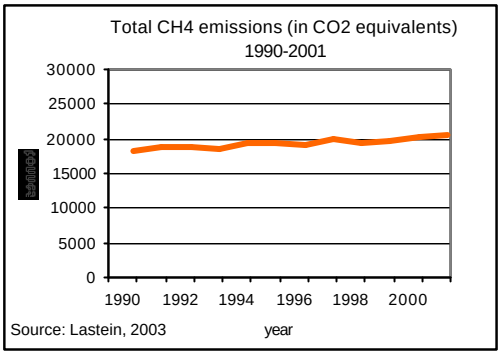

Figure 6.6: Total CH_4 Emissions (in CO2 Equivalents) 1990-2001

6.3. Emissions of Greenhouse Gases according to Sector

Purpose: In order to monitor the developments in the emission amounts according to different sectors of society, the emissions are grouped according to the international grouping system (IPCC). The system is used in the reporting format in the Climate Convention and used in the co-operation on evaluating indicators in Nordic Strategy on Sustainable Development:

1)	Power production	2)	Industry
3)	Transport	4)	Fishing vessels
5)	Navigation	6)	Commercial/Institutional
7)	Residential	8)	Agriculture
9)	Waste		

It is important to monitor the fulfilment of reduction of emissions in a specific sector.

Data collection: The Ministry of Oil (http://www.oms.fo) is responsible for evaluation of emissions inventories grouped by IPCC sectors, but air pollution is not an assigned working area in the Ministry. Total energy consumption and emission estimates for the period 1990-2001 has been evaluated in 2002 in a project carried out at the Food, Veterinary and Environmental Agency (Lastein, 2003, http://www.hfs.fo). Initiatives to make continuous assessments have not yet been carried out, but have to be set in place to ensure the statistical record in future.

Trends: Emissions from fishing ships have increased from 224 ktonnes in 1990 to 233 ktonnes in 2001 (4%; Figure 6.7). Household emissions decreased from 147 ktonnes in 1990 to 128 ktonnes in 2001 (13%). Power production emissions increased from 91 ktonnes in 1990 to 133 ktonnes in 2001 (46%). Road traffic emissions increased from 92 ktonnes in 1990 to 107 in ktonnes 2001 (16%). (See chapter 7). Industrial emissions increased from 63 ktonnes to 98 ktonnes in 2001 (56%). In 2001, oil drillings constituted approximately 30% of the total emissions from industry. Emissions from commercial/institutional and other ships have been almost constant in the same time period Figure 6.7.

Reporting responsibilities: The Faroe Islands have agreed to submit data on emissions of greenhouse gases and long-range transboundary air pollutants in accordance with the Climate Convention (UNFCCC). The same data are part of the Nordic Indicator Set (NSI; 2002 and 2003).

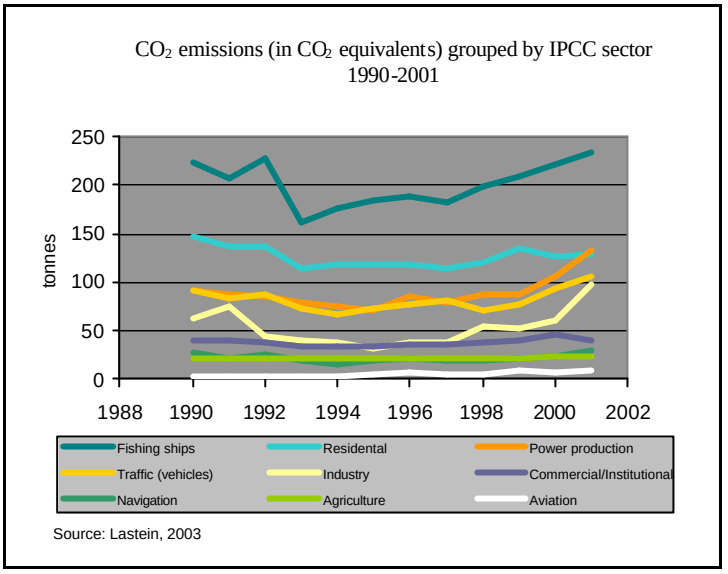

Figure 6.7: CO_2 Emissions (in CO_2 Equivalents) grouped by IPCC Sector 1990-2001

7. Traffic

The nature of transportation leads to negative impacts on the environment and human health. The major local air pollution concerns are carbon monoxide (CO) emissions, photochemical smog, toxic emissions and particulate emissions. Vehicles are the dominant source of CO emissions at street level, which at high concentrations significantly reduces the bloodstream's oxygen-carrying capacity. Particulate pollution, which has been linked to pulmonary diseases and lung cancer, has become the leading public health concern relating to urban air pollution. Particular pollution from diesel engines will be of one of the main concerns regarding future air pollution, as diesel vehicles become a greater part of the world vehicle fleet.

Traffic emissions of CO_2, N_2O and CH_4 contribute to the growing content of greenhouse gases in the atmosphere, which is likely to disturb the heat balance on earth. It is necessary to reduce the emissions of greenhouse gases from traffic in future because of the global impacts on the climate.

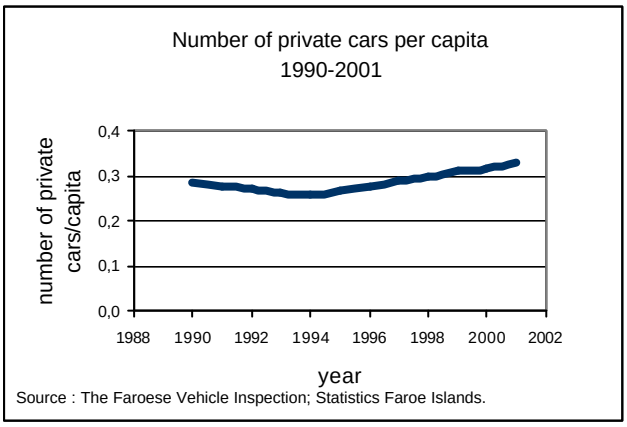

Figure 7.1: Number of Private Cars per Capita in the Faroe Islands 1990-2001

7.1. Energy Use in the Traffic Sector

Purpose: Statistics on energy use in the traffic sector give information on the energy sources responsible for local and global air pollution. It is necessary to collect information on fuel use by different vehicle types and fuel type, to monitor development. The statistics should also include information on number of vehicles and driving distances to determine how the traffic can be reduced.

Data collection: The Vehicle Inspection in the Faroe Islands administers information on vehicles. Detailed statistical information on vehicles is not currently available, but the institute is preparing a database of vehicle statistics, which will make the information available in future.

Statistics Faroe Islands registers information on fuel use in the traffic sector. If statistics on energy use in the traffic sector are going to be available in future, fuel use must be registered together with vehicle information.

Trends: The use of diesel oil in the traffic sector has increased from 6,6 tonnes in 1990 to 13,2 tonnes in 2001 (an increase of 100%). In the same period, the use of gasoline has decreased by 24%, from 13,2 tonnes in 1990 to 10,0 tonnes 2001 (Figure 7.2).

The increase in oil use in the traffic sector can mainly be explained by the growing number of vehicles in the Faroe Islands, which has increased from 17,2 in 1990 to 19,6 in 2001 (an increase of 2,4 vehicles). The total distance driven by Faroese vehicles has increased from 138 mill. km in 1992 to 175 mill. km in 2001 (Statistics Faroe Islands).

Reporting responsibilities: The indicator is used to calculate emissions of greenhouse gases and long-range transboundary air pollutants, which are to be submitted annually in accordance with the Climate Convention and the Geneva Convention.

The indicator on energy use from the traffic sector is part of the Nordic Indicator Set (NSI; 2002 and 2003).

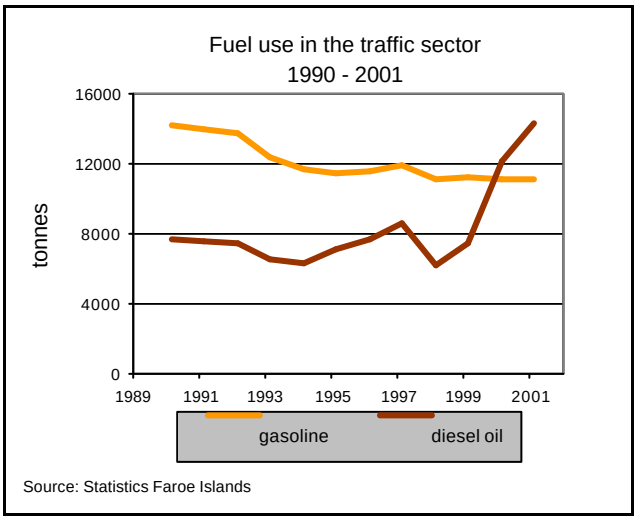

Figure 7.2: Fuel Use in the Traffic Sector 1990-2001

7.2. Air Pollution from Traffic

Purpose: Traffic air pollution mainly consists of CO_2 (carbon dioxide), CH_4 (methane), N_2O (nitrous oxide), SO2 (sulphur dioxide), NO_x (nitrogen oxides), NMVOC (non methane volatile organic compounds), CO (carbon monoxide), heavy metals and particulate matter. It is important to monitor the air emissions continuously to reduce the effects of air pollution from road traffic on human health and the environment.

Data collection: The Environmental Authorities (The Ministry of Oil) are responsible for evaluation of emissions inventories, but air pollution is not an assigned working area in the Ministry. Total energy consumption and emission estimates for the period 1990-2001 were evaluated in 2002 in a project carried out at the Food, Veterinary and Environmental Agency (Lastein, 2003, http://www.hfs.fo). Initiatives to secure future evaluation of emissions have not yet been carried out.

Trends: The total emissions of greenhouse gases from the traffic have increased by 21% from 1990-2001 (Figure 7.3). The emissions of the long-range transboundary air pollutants NMVOC, CO, SO_2 and NO_x decreased in the same time period by 60%, 56%, 91% and 31% respectively (Figure 7.4). Emissions of NO_x from traffic have increased by 5% from 2000 to 2001. It is important to monitor the development of future emissions to fulfil the agreed commitments to the international conventions (the Climate Convention, the Geneva Convention and the Nordic Strategy on Sustainable Development).

Reporting responsibilities: Data on air pollution from the traffic sector are to be reported annually in accordance with the Climate Convention and the Geneva Convention. The indicator is also part of the Nordic Indicator Set (NSI; 2002 and 2003).

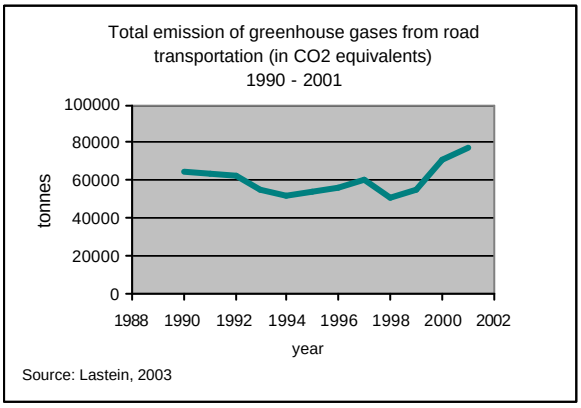

Figure 7.3: Total Emissions of Greenhouse Gases from Road Transportation (in CO_2 Equivalents) 1990-2001

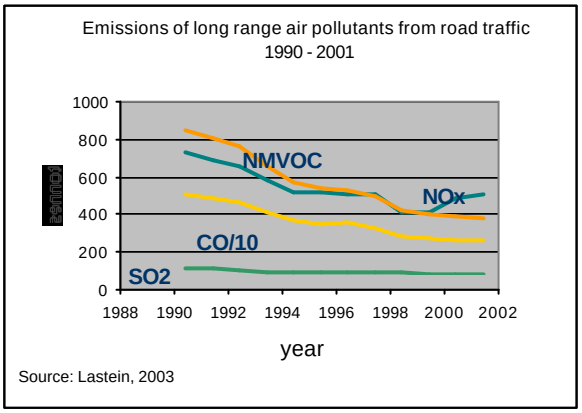

Figure 7.4: Emissions of Long Range Air Pollutants from Road Traffic 1990-2001

7.3. Traffic Accidents and Fatalities

Purpose: The Traffic Law aims to minimize the number of accidents and fatalities caused by traffic. Indicators describing number of accidents and fatalities give an indication of the efficiency of the law and show whether initiatives and adjustments in the law should be made.

Data collection: Information on causes of death (and thereby traffic fatalities) can be obtained from the Medical Officer on the Faroe Islands. The data on causes of death are registered at The National Board of Health in Denmark and are delayed by 3 years. If the data are to be used in the present statistics, the registration procedure has to be changed. The Medical Officer on the Faroe Islands publishes information on causes of death in a yearly report.

The Faroese Police registers the number of traffic accidents each year. The statistics are published on the home page: http://www.politi.fo/foeroysk/hagtoel2002.htm.

Trends: The number of traffic accidents decreased from 1,694 in 1990 to 1,344 in 2001 (Figure 7.5). 5 years mean values of the number of fatalities relative to the total number of traffic accidents have remained almost constant in the time periods 1990-1994 and 1995-1999 (0.34% and 0.35% respectively; Figure 7.6). Number of fatalities relative to the total number of accidents has increased from 4.43% in 1990-1994 to 5.22% in 1995-1999.

Reporting responsibilities: Statistics on traffic accidents and fatalities are part of the Nordic Indicator Set (NSI; 2002 and 2003).

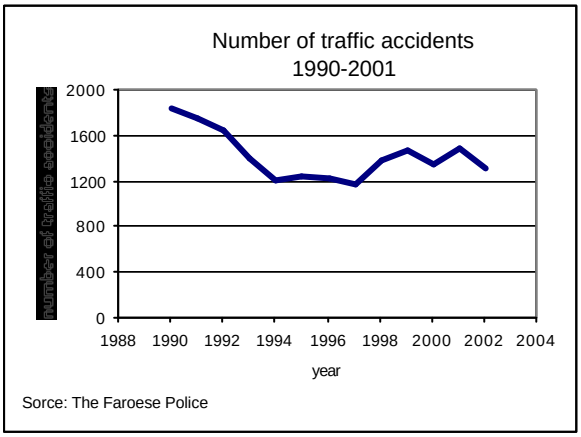

Figure 7.5: Number of Traffic Accidents 1990-2001

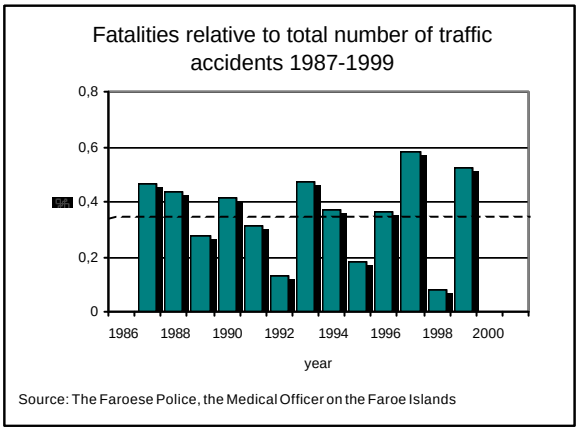

Figure 7.6: Fatalities relativ to Total Number of Traffic Accidents 1987-1999

8. Industry

Business and industry cover a wide range of different trades and businesses in manufacturing, commerce, service, IT, and telecommunications. Production and use of products should be planned so as to minimize the impact on the environment and people. The impact of business and industry on the environment constitutes interactions between:

- The resource consumption and efficiency of enterprises
- The production and production methods of enterprises including derived emissions
- The environmental impact of products throughout their life cycle from production to consumption.

One of the aims of the Nordic Strategy on Sustainable Development is to promote favourable conditions for companies to develop, produce and sell cleaner products by stimulating the demand for cleaner products and by removing barriers to market access for environmental friendly and resource efficient technologies. The user must also have the opportunity to choose between products with environmental labels (NDDS, 1998).

8.1. Enterprises with Environmental Certification (EMAS and ISO) and Number of Products with Eco-label

Purpose: The purpose of the indicator is to monitor the development of the number of enterprises with environmental management. The quality of the management is measured either by the European Eco-Management and Audit Scheme (EMAS; http://europa.eu.int/comm/environment/emas/) or the global standard ISO 14001 (http://www.cionline.net/afe.html). Both schemes are tools for companies and other organisations to evaluate reports and improve their environmental performance and are open to all economic sectors including public and private services.

Data collection: Neither the EMAS or the ISO 14001 certificates are used in the Faroe Islands.

Reporting responsibilities: Statistics on environmental management (EMAS and ISO 14001 certificates) are part of the Nordic Indicator Set (NSI; 2002 and 2003).

8.2. Energy use in industry (total numbers and in relation to GVA)

Purpose: The use of energy (fuel and power consumption) in industry has an impact on the environment. The use of fossil fuels leads to air pollution, both locally and globally. Heavy fuel use in the power production processes in the Faroe Islands affects the use of power in the production.

The purpose of the indicator is therefore to analyse changes in the energy use in the industry in relation to production (GVA) to estimate the impact on the environment.

Data collection: Statistics Faroe Islands collects information on fuel use in the industry. The statistics are not grouped by production type. The Environmental Authorities must be given access to detailed information on fuel sales from the oil companies in order to make the statistics on energy use available. The electricity company SEV publish statistics on power use grouped by production type in the annual report and financial statement (http://www.SEV.fo). The same data are available in the Statistical Yearbook published by Statistics Faroe Islands, and on the home page http://hagstova.fo.

The Environmental Authorities is responsible for the energy calculation in connection with estimations of air emissions. Energy consumption and air emissions are not currently assigned working areas in the Ministry.

The Gross Value Added (GVA) is computed as the difference between production and consumption in the production of fixed prices. GVA is calculated at the Statistics Faroe Islands (grouped by sector), but the calculations are not evaluated in fixed prices, which are required by the present statistical record. GVA in fixed prices must form part of the statistical record developed at Statistics Faroe Islands in future if energy use in relation to GVA is to be available for the present statistical record.

Trends: The energy use in the fishery industry has increased from 435 TJ in 1990 to 683 TJ in 2001(57%; Figure 8.1). A minimum is observed in 1995 (332 TJ), which can be explained by the economic crisis in the Faroe Islands. In the same time period, energy use in the food production industry increased by 106%, and energy use by the construction industry decreased by 35 % (Figure 8.2).

Reporting responsibilities: The indicator is used to estimate air emissions, which are to be reported annually in accordance with the Climate Convention and the Geneva Convention. Energy use grouped by sector is part of the Nordic Indicator Set (NSI; 2002 and 2003).

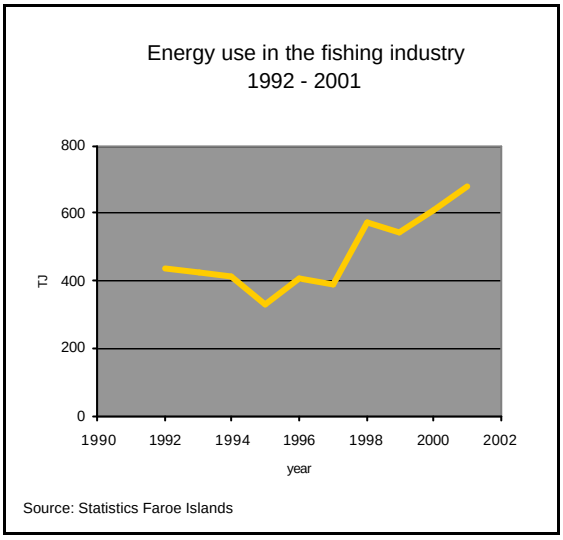

Figure 8.1: Energy Use in the Fishing Industry 1992-2001

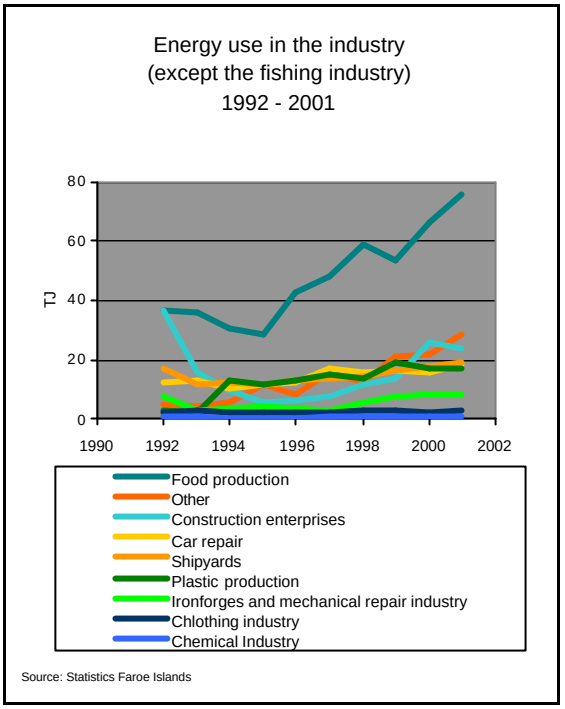

Figure 8.2: Energy Use in the Industry (Except the Fishing Industry) 1992-2001

8.3. Industrial Air Pollution

Purpose:

Economic development and environmental impact must be considered in parallel. Usage of diesel and heavy oil are industrial sources of the emissions of CO_2, NO_x and SO_2. Use of heavy oil must be decreased, as the emissions of NO_x are twice as high as those from use of diesel oil. The emissions of SO_2 are four times as high through using heavy fuel oil rather than diesel oil. The consumption of heavy oil by the industry is almost 50% of the total fuel use in the industry.

The Faroe Islands have committed to reduce the emissions of greenhouse gases and long-range transboundary pollutants and it is therefore important to monitor development.

Data collection:

Statistics Faroe Islands collects information on fuel use in the industry. The statistics are not grouped by production type. The oil companies must allow access to detailed information on fuel sales in order to make statistics on energy use available.

The Environmental Authorities hold responsibility for statistics on air pollution, and it is necessary to assign this as a working area, if the statistics are to be available in future. Emissions of greenhouse gases and long-range transboundary air pollutants for the time period 1990-2001 were estimated in a project carried out at the Food, Veterinary and Environmental Agency in 2002. The results are published in 'Útleiðing av veðurlagsgassi í Føroyum 1990-2001'(Lastein, 2002) and 'Emissions of greenhouse gases and long-range transboundary air pollutants' Lastein, 2003). (http://www.oms.fo; http://www.hfs.fo).

Trends:

Emissions of CO_2 from the industry sector have increased from 117 ktonnes in 1990 to 145 ktonnes in 2001 (24%; Figure 8.3). Emissions of NO_x have increased from 87 tonnes to 578 tonnes in the same time period (564%; Figure 8.4). The enormous increase is explained by diesel oil use in the exploration drilling industry, which accounted for 85% of the total emissions of NO_x from industry in 2001. Emissions of SO_2 decreased from 179 tonnes in 1990 to 165 tonnes in 2001 (8%; Figure 8.5).

Reporting responsibilities:

Emissions of greenhouse gases and long-range transboundary air pollutants grouped by sector are to be reported annually in accordance with the Climate Convention, the Geneva Convention and are included in the Nordic Indicator Set (NSI; 2002 and 2003).

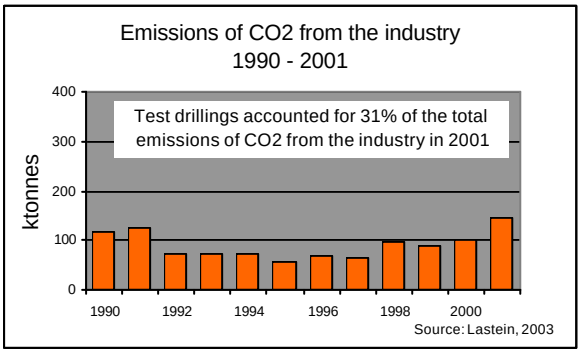

Figure 8.3: Emissions of CO_2 from the Industry 1990-2001

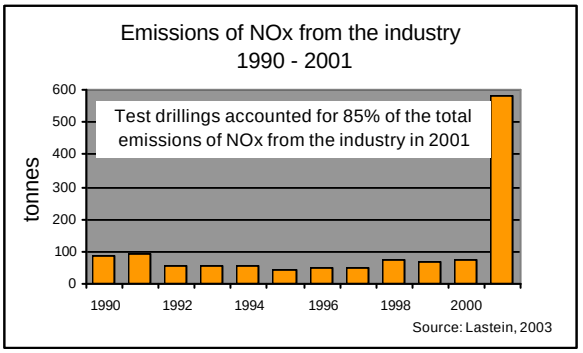

Figure 8.4: Emissions of NO_x from the Industry 1990-2001

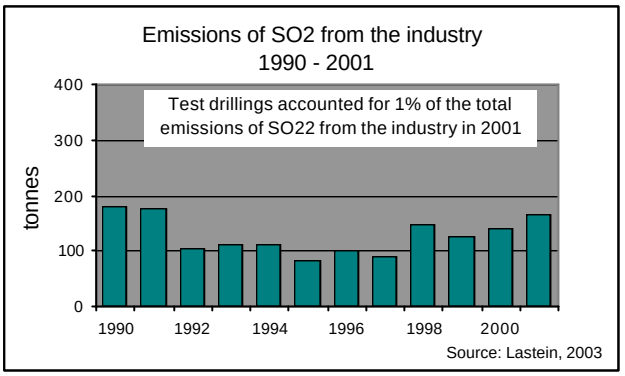

Figure 8.5: Emissions of SO_2 from the Industry 1990-2001

9. Chemical Substances and Products

In the last few years, the use of synthetic chemical substances has increased. The production requires large amounts of energy and gives rise to by-products in the form of hazardous waste, which has an impact on the environment and human health. Working environments are especially affected by high chemical consumption and contribute to many seriously harmful effects, acute as well as chronic (e.g. cancer, reduced fertility and congenital malformation.). The most common products causing poisoning and corrosion accidents are household chemicals, tobacco and herbicides (The Pollution Control Authority, Norway: http://miljostatus.no).

Chemicals can lead to an increase in the death rate, inhibited growth or a fall in reproduction in animals, plants and micro organisms (The Pollution Control Authority, Norway: http://miljostatus.no). Environmental poison can be accumulated and is slowly degradable. Through accumulation in animals, the poisons can be spread from species to species and generation to generation. For example, mammals transfer environmental poison to the embryo via the placenta or through suckling their young. Future generations will be thereby affected by the pollution.

Substances containing heavy metals and 'persistent organic pollutants (POP's) have been known to have negative impact on human health for many years, but fears have been raised about many others recently (EEA, 2003; http://eea.eu.int). There is a lack of information on many of the new substances produced in recent years: how they pass through the environment, whether they are accumulated, dispersed or transformed, and how they affect living organisms at different concentrations. The chemical industry is currently growing faster than the economy, and it is important to have initiatives aimed at reducing their flow. This includes information on the whole span of the chemistry chain: the primary producers in the chemical industry, all sectors of industry, individual consumers, the waste disposal sector, and more.

Many chemicals are transported across national frontiers by means of long-distance air and sea transport. For example, it is known that the increased concentrations of PCB, DDT, mercury and cadmium in Norway are mainly caused by emission sources elsewhere in Europe (The Pollution Control Authority, Norway: http://miljostatus.no). The growth in global trade over recent decades has also increased the dispersion of chemical substances throughout the globe. The OSPAR Convention defines strategies and objectives concerning discharges and transportation of hazardous substances into the marine environment and has been assigned by all the Nordic Countries.

The Nordic Strategy on Sustainable Development defines the following goals concerning chemical use:

- Chemical use must not entail any risk of negative effects on health and the environment
- Chemical discharges constituting a risk to health and the environment must be terminated within one generation
- Increased producer liability and the use of the substitution principle and the precautionary principle should be reinforced in chemical products

9.1. Chemical Residues in selected Products

Purpose: The purpose of the indicator is to monitor the content of chemical residues in selected food products and describe the risk to human health. Statistics on Faroese food should be available for the public and consumption risks defined by food analyses.

Data collection: The law concerning food (Løgtingslóg nr. 46 frá 21. juni 1985 um matvørur v.m; http://www.logir.fo/foldb/llofo/1985/0000046.htm) forbids the sale of products which can cause sickness, poisoning or for other reasons are not considered to be of food quality. The law gives permission to investigate food and drinking products for sale, but samples for inspection of the quality of the imported food are not currently taken.

Although humans and selected species in the marine environment have been analysed for the presence of heavy metals and POP's ('AMAP Greenland and the Faroe Islands 1997-2001'; http://www.amap.no), regular monitoring of the food products fails to reveal the source of the pollution. If statistics are to be available, regular sampling of selected food products (e.g. fish, whale meat and blubber, sheep, fruit and vegetables, imported meat etc.) has to be carried out to secure the quality of the food products on the market. The Food, Veterinary and Environmental Agency should take responsibility for sampling, and the content of pollutants published and described so the public can be aware of the risks in connection with consumption of the products at any time.

Trends: Sheep (metal):

The Food, Veterinary and Environmental Agency in the Faroe Islands has investigated the heavy metal content in sheep in 1995/1996, 1997 and 1999/2000. The results of the investigations are published in "Føroya Umhvørvi í tølum, 2001" (http://www.hfs.fo/utgavur.htm). The results showed that the content of lead, cadmium, copper and mercury in liver and meat was much lower than the maximum values defined by the Ministry of Food, Agriculture and Fisheries in Denmark (http://www.fvm.dk/high_final_formandskab.asp?page_id=377).

Pilot whales (meat and blubber):

The Food, Veterinary and Environmental Agency in the Faroe Islands has investigated the heavy metal content in pilot whales in 2000/2001. The results of the investigations are published in "Føroya Umhvørvi í tølum, 2001" (http://www.hfs.fo/utgavur.htm). The results showed that the mercury content in the liver of pilot whales was much higher than the maximum values defined by the Ministry of Food, Agriculture and Fisheries in Denmark (http://www.fvm.dk/high_final_formandskab.asp?page_id=377. The mercury content in pilot whale meat varied between 0.5 mg/kg to 3.5 mg/kg, which is also higher than the recommended values defined by the Ministry of Food, Agriculture and Fisheries in Denmark. The content of DDT and PCB in blubber from pilot whales was investigated in 1987 and 1997. The investigations showed a reduction in the content of both DDT and PBC from 1987 to 1997.

Reporting responsibilities: Level of incidences of chemical residues in food is part of the Nordic Indicator Set (NSI; 2002 and 2003).

10. Environment and Health

Today it is known that polluted drinking water affects human health (http://cfe.cornell.edu/bcerf; http://envirocancer.edu;http://epa.gov). Chlorine used to kill harmful bacteria in drinking water (Shigella, Salmonella and Vibro Cholera) can lead to formation of various cancer-causing compounds (http://vediccancer.com). It reacts with organic matter in the water and certain toxic and carcinogenic compounds (trihalomethanes) are produced, which causes cancer in the rectum and bladder. When chlorine reacts with decaying plants (humus) in the water, it produces chlorinated acids (MX and DCA), which promote the growth of cancer and are known to cause cancer in the liver. It has also been observed that about 70% of the toxins found in water enter the body through the skin during baths and showers (International Health News, 2003). Heavy metals may enter the water as it passes through contaminated rock or soil or directly as a result of human activities (i.e. corrosion of water distribution systems). Long-term consumption of water containing high levels of certain heavy metals is known to cause chronic health effects, including some forms of cancer.

Air pollution is the source of many materials that may enter the human bloodstream through the nose, mouth, skin, and digestive tract. Chemicals known to be harmful include benzene (from petroleum refining, gasoline, cigarette smoke, chemicals used as solvents and as materials in the production of various industrial products), lead and other heavy metals, carbon monoxide (from incomplete combustion of fuel oil), volatile nitrites, particulate matter, (from diesel exhaust), pesticides and herbicides. These substances have been shown to produce harmful effects on the blood, bone marrow, spleen, and lymph nodes (http://www.nutramed.com).

Food allergy can cause both immediate and delayed patterns of asthma and lung diseases (http://www.nutramed.com/asthma/foodallergy.htm). It is therefore necessary to have strict rules regarding food safety and quality, and to ensure that information on the food quality is available on the product. Efficient inspection is important to assure the consumer of the safety on buying food products. This includes systematic documentation of safety of products in the industry (NSSD, 1998).

Investigations carried out in Denmark have shown that from 1987 to 2000, the number of adult asthma and allergy cases has doubled (the Danish Ministry of Environment, 2002). In the same time interval, cases of adult allergic rashes have increased, and in 2000, 8.2% of the adults in Denmark suffered from the disease. In the same year, investigations showed that 8.2% of children suffered from asthma and asthmatic bronchitis. The causes of the diseases are assumed to be of environmental, living modes and genetic origin.

10.1. Level of Incidences of Chemical Residues in Food

Purpose:

The Nordic countries have agreed to secure the quality of Nordic food products. This includes labelling, ethos of food production, animal welfare, ecology and protection of the external and internal environment. It has been agreed to define rules for food safety and quality and to establish efficient and close inspection to ensure compliance with the rules. This includes unconditional openness concerning the rules as well as inspection.

The purpose of the indicator is therefore to monitor the quality of the food on the Faroese market, through inspection of chemical residues in food products.

Data collection:

The law concerning food (set in force February 24th, 1989) instructs the Faroese health boards to inspect food products, drinks (drinking water and soft drinks) and other products used for food. The health boards no longer exist and the Food, Veterinary and Environmental Agency holds responsibility for the inspection. Selected products are presently investigated, but the inspection fails to cover many groups of products imported and produced in the Faroe Islands.

No public information concerning food quality is presently available (excepting fish that is exported to the EU market) and must be established together with initiation of regular inspections of the food products available on the Faroese market. Information from self-supervision in the industry must also be available to the consumer. It is suggested that the Food, Veterinary and Environmental Agency be given the responsibility of the inspection and publishing of information on food safety. The inspection should include analyses of chemical residues in food, the food content of substances causing allergy and asthma, DNA and albumens.

Reporting responsibilities:

The levels of incidences of chemical residues in food are part of the Nordic Indicator Set (NSI; 2002 and 2003).

10.2. Air Pollution in Urban Areas

Purpose:

Gasoline and diesel fuel used in vehicles emit several types of pollutants and it is therefore important to monitor the content of air pollutants in urban areas to estimate the impact on the health of the people.

The air pollutants, which have an impact on human health, are:

Nitrogen oxides (NO_2)

Vehicles and combustion plants emit nitrogen dioxide. The gas can cause reversible effects on lung function and airways responsiveness for people with pre-existing respiratory illness (http://www.defra.gov.uk/environment/airquality/aqs/).

Carbon monoxide (CO)

Carbon monoxide arises from incomplete combustion of fuel and tobacco smoke. It binds to haemoglobin over two hundred times more avidly than oxygen and distorts the release of any remaining oxygen to the tissues. Thus, CO poisoning is akin to suffocation (http:// www.nutramed.com/environment/pollutionblood.htm).

Particulates

Particulate matter air pollution consists of mixtures of particles suspended in the air we breathe. The particles of greatest concern are those small enough to be breathed into the deepest part of the lung, and are known as PM_{10}. These particulates are among the most harmful of air pollutants to human health. This is particularly the case for vulnerable persons with pre-existing lung disease and heart disease for whom exposure may trigger asthma attacks or cause hospitalisation (http://www.defra.gov.uk/environment/airquality/aqs/).

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Benzene

The primary route of entry for benzene into the body is through the lungs. Once in the body, the chemical rests in fatty tissue and may exert a damaging affect on cells. Benzene originates from evaporative emissions during distribution and storage of petrol and the subsequent combustion products from motor vehicles. Benzene is also present in tobacco smoke, which exposes smokers and those around them to higher concentrations of benzene (Expert Panel on Air Quality Standards Benzene, Department of the Environment 1994; http://www.defra.gov.uk/environment/airquality/aqs/).

Data collection:

Measurements of the content of air pollutants in urban areas are not currently carried out. It is therefore necessary to initiate a work clarifying where exposure of air pollutants is greatest. The responsibility for carrying out the measurements and analyses of the data must be clarified. Statistics on diseases, which can be caused by air pollution, must also be recorded and made available in order to analyse the effects of air pollution on human health.

Reporting responsibilities:

The content of selected air pollutants is part of the Nordic Indicator Set (NSI; 2002 and 2003).

10.3. Drinking Water

Purpose: The purpose of the indicator is to monitor the quality of drinking water and to make the information publicly available, together with recommendations on drinking water quality. The statistical record is to be used in the efforts minimizing the risks to health from drinking water. Therefore the content of substances assumed to cause asthmatic, cancer and stomach diseases should be included in the statistical record.

Data collection: The municipalities are responsible for drinking water quality. Not all of them are analysing the drinking water properties and it is estimated that 30 out of 48 municipalities lack information on drinking water quality (20% of the population). The standard parameters analysed to determine the quality of drinking water today are the same as used to analyse the water quality in the fishing industry:

Chemical analyses:	colour, turbidity, pH and temperature.
Microbiological analyses:	seed number, Coliform bacteria (E.coli), Thermo tolerant coliform bacteria.

The legislation concerning drinking water does not specify the frequency of analysis concerning the quality of the drinking water. Today it is known that the content of heavy metals in drinking water are responsible for certain cancers and allergic diseases. It is therefore clear that in analysing drinking water, selected heavy metal content should be included. Data on drinking water quality are not currently made public, but are kept by the municipalities. A survey concerning the state of the drinking water quality is therefore not available.

Investigations of the water quality based on samples from 6 municipalities known to have good quality drinking water were carried out in 1998/1999. The investigations are published by the Food. Veterinary and Environmental Agency in the report: 'Vandkvaliteten i den Færøske Fiskeindustri, 2000' (http://hfs.fo).

Regular sampling and analyses of the drinking water should be carried out at all municipalities in future. It is recommended that an institute be given the responsibility for the sampling and analyses of the drinking water. This will ensure that the frequency and parameters to be analysed in the samples are common for all the municipalities. This could also solve the economic aspect, as small municipalities lack the economic resources to carry out the investigations.

It is suggested that the following 4 heavy metals are analysed in addition to the bacterial analyses of drinking water in the future:

Cadmium: Contamination of cadmium in drinking water may be caused by impurities in the zinc of galvanized pipes and solders and some metal fittings. It is also released to the environment through waste water, and diffuse pollution is caused by contamination from fertilizers and local air pollution (WHO; http://www.who.int). Cadmium accumulates primarily in the kidneys and has a long biological half-life in humans of 10-35 years. Cadmium is known to cause cancer.

Chromium: Chromium is widely distributed in the earth's crust and is usually present in drinking water in concentrations less than 2 g/litre (WHO; http://www.who.int. Chromium is known to cause cancer and is gentoxic.

Lead: Lead is present in tap water to some extent as a result of its dissolution from natural sources, but primarily from household plumbing systems containing lead in pipes, solders, fittings, or the service connections to households. Lead is a general toxicant that accumulates in the skeleton. Infants, children up to six years of age, and pregnant women are most susceptible to its adverse health effects (WHO; http://www.who.int).

Nickel: Use of certain types of kettles, of non-resistant materials in wells, or of water that has stood for an extended time in water pipes, can contribute to significant concentrations of nickel in drinking water. Nickel has been shown to cause cancer (WHO; http://www.who.int).

Trends: Investigations of the water quality based on samples from 6 municipalities, (known to have good quality drinking water), were carried out in 1998/1999. The investigations are published by the Food, Veterinary and Environmental Agency in the report: 'Vandkvaliteten i den Færøske Fiskeindustri, 2000' (http://hfs.fo).

The report concluded that the water used for drinking water could cause problems with bacteria. The analysed water also contained products from corrosions (heavy metals). Since the investigations in 1998/1999, no systematic investigations have been carried out.

Reporting responsibilities: The number of times chemical residues in drinking water exceed the safety limits is part of the Nordic Indicator Set (NSI; 2002 and 2003).

10.4. Frequency of Diseases caused by Salmonella and Campolybacter

Purpose: The purpose of the indicator is to monitor changes in the frequency of diseases caused by Salmonella and Campolybacter.

Data collection: Each month The Food, Veterinary and Environmental Agency in the Faroe Islands receive information on cases of diseases causes by Salmonella and Campolybacter from the Serum Institute in Denmark.

Trends: The mean value of cases of diseases caused by Salmonella in the time period 1994 to 2002 were 11 cases/year. In the same way the frequency of diseases caused by Campolybacter were in mean 7 cases/year in the time period 1994-2002 (Figure 10.1).

Reporting responsibilities: The frequency of diseases caused by Salmonella and Campolybacter is part of the Nordic Indicator Set (NSI; 2002 and 2003).

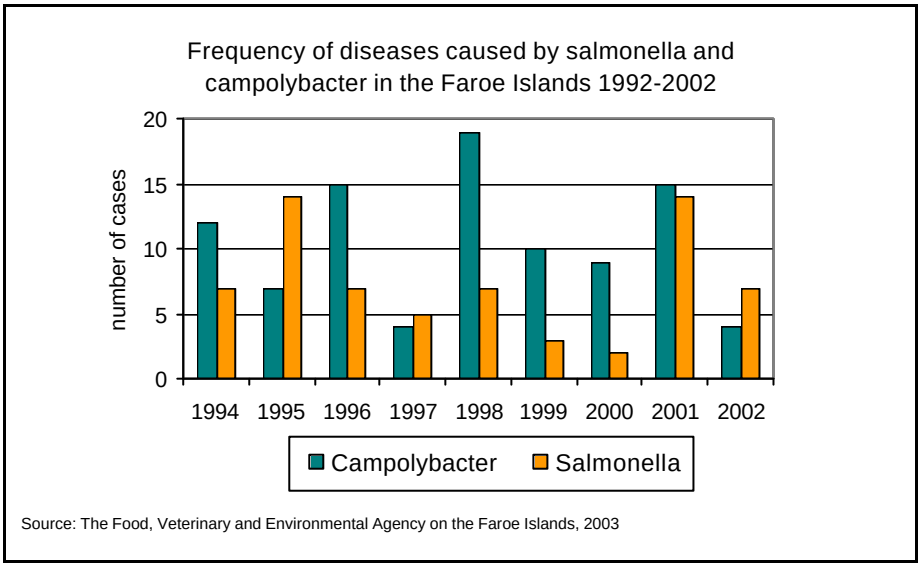

Figure 10.1: Frequency of Diseases caused by Salmonella and Campylobacter in the Faroe Islands 1992-2002

11. Public Participation

Public participation in the decision making process is a precondition for sustainable development and will require access to information on environment and development. The Nordic Prime Ministers have stated that a sustainable society has to be based on democracy, openness, and participation locally, regionally and internationally. Experience shows that securing the right to information on environmental issues, early involvement in the preparation of decisions affecting the environment, and the right to complain about decisions taken by authorities are central to the establishment of environmentally aware public opinion. This in turn maintains confidence in the political and administrative system. The public should be given access to documents and files in the environmental field and the authorities must ensure that citizens are provided with the necessary environmental information. They must also encourage private enterprises to disclose the impact of their activities on the environment.

11.1. Percentage of People voting at National and Local Elections

Purpose: The purpose of the indicator is to monitor public involvement in national and local elections.

Data collection: Statistics Faroe Islands publishes information on the number of people voting at national elections, i.e. The Danish Parliament (Folketinget) and the Faroese Parliament (Løgtingið) in the Statistical Yearbook (http://hagstova.fo).

Statistics on people voting at local elections are not currently available, and it is recommended to record the numbers at the Statistics Faroe Islands in future. Information concerning the local election in 2000 can be sourced at Radio Faroe Islands (http://www.uf.fo/kommunuval2000/index.asp).

Trends: Since 1980, the poll for the Faroese parliamentary election has risen from 86% to 92% in 2002 (Figure 11.1). A decrease was observed in the poll for the Danish Parliament from 1988 to 1994 (from 70% in 1988 to 54% in 1990), but has since increased to 80% in 2001 (Figure 11.2).

From 1992 to 2000, the election poll for the municipalities has increased from 72% to 80% (Figure 11.3).

The statistics on elections show that the highest polls are observed at elections for the Faroese Parliament (mean value 1980-2002: 87%) and the lowest polls at elections for the Danish Parliament (mean value 1981-2001: 65%). The mean poll for municipal elections was 75% in 1992-2000 (only data from 3 elections are available).

Reporting responsibilities: Information on people voting at national and local elections is part of the Nordic Indicator Set (NSI; 2002 and 2003).

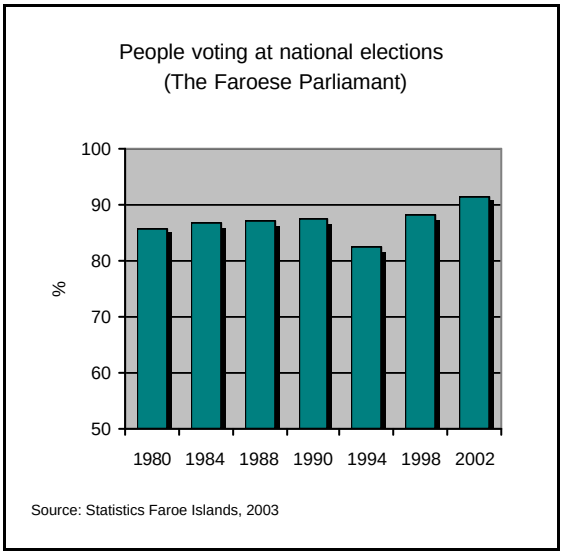

Figure 11.1: People voting at National Elections (The Faroese Parliament)

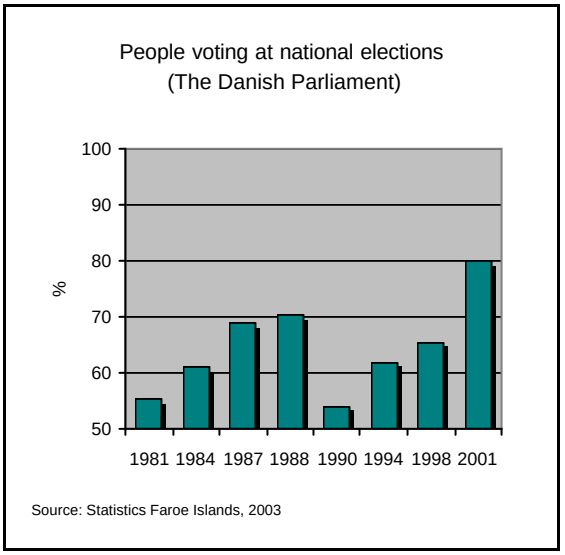

Figure 11.2: People voting at National Elections (The Danish Parliament)

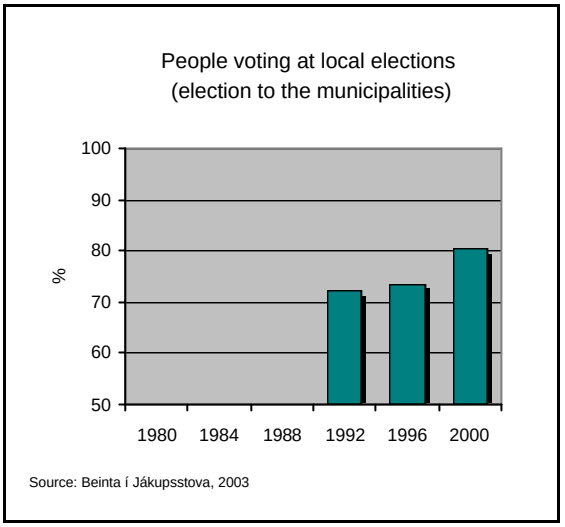

Figure 11.3: People voting at Local Elections (Election to the Munipalities)

11.2. Percentage of People who are Members of a Political Party

Purpose: The purpose of the indicator is to monitor changes in the membership of political parties.

Data collection: Statistics on the number of people who are members of a political party are not currently registered. The information can be sourced from the political parties, who are willing to deliver the numbers in confidentiality. As the indicator is the total membership number of political parties, numbers from the political parties can be used in the statistical record.

Trends: The percentage of people over the age of 15 who are members of a political party was 14% in 2003 according to personal communication with the different parties.

Reporting responsibilities: Information on people who are members of a political party is part of the Nordic Indicator Set (NSI; 2002 and 2003).

12. Knowledge Base and Instruments

Insight into interactions in nature and knowledge on nature's tolerance potential are necessary to create sustainable development. This will require an integration of environmental knowledge and knowledge on sustainable development in education and training. In the same way, competence and knowledge on environment and sustainable development in the labour market is required, both at executive and staff level (http://www.norden.org/baeredygtig_udvikling/sk/engholdbarstrat.pdf).

Environmental problems can be characterized as global, cross-border, complex, and persistent as a result of diffuse emission sources and embedding in production and consumption patterns, etc. This means that it will not be possible to achieve sufficient improvement in the state of the environment without substantially intensified efforts to integrate environmental considerations into sectoral policies and other policies. In the integration of environmental considerations, economic instruments can frequently constitute a cost-efficient alternative to administrative regulation. By ensuring that prices reflect environmental costs, the market actors will be provided with an incentive to act in an environmentally appropriate way. Applying taxes, duties, subsidies, fees and tradeable pollutions permits or resource quotas can do this. Integration of environmental and economic considerations in the decision-making process can also be promoted by the use of cost-benefit analyses, and by developing green national accounts. Integration of environmental and economic considerations also requires that complementary competences be built up among decision makers and authorities in the economic and environmental fields, respectively.

12.1. Environmental Impact Assessment of Parliamentary Bills

Purpose: The purpose of the indicator is to monitor how environmental considerations are integrated in decisions at all levels.

Data collection: The Faroese Parliament publishes the parliamentary bills on the home page: http://www.logting.fo.

Statistics concerning environmental impact are not available today, but parliamentary bills can be analysed according to content concerning environmental impact. In analysing the information it was concluded that the information is not up to date, which much be reasured if the data are to be used in the present statistics.

Trends: Parliamentary bills passed from 1.8.2003 to 03.12.2003 are available on the homepage belonging to the Faroese Parliament (http://www.logting.fo). In total, 31 bills were passed during that time period. In 6% of the bills, the impact on the environment was described, 61% of the bills were described as having "no environmental impact", and 32% of the bills failed to comment on environmental impact (Figure 12.1).

Reporting responsibilities: Information on environmental impact assessment of parliamentary bills is part of the Nordic Indicator Set (NSI; 2002 and 2003).

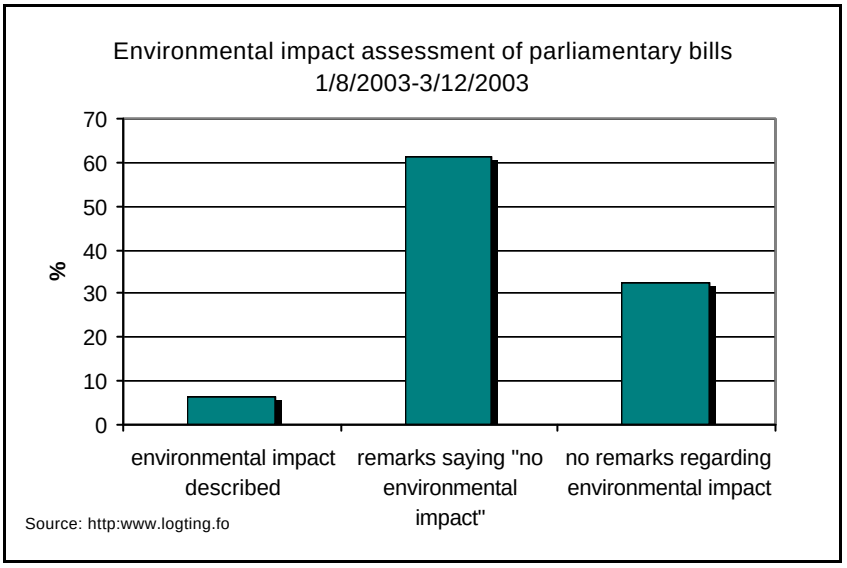

Figure 12.1: Environmental Impact Assessment of Parliamentary Bills 01/08/2003-03/12/2003

12.2. Proportion of Environmental Taxes and Fees from Total Tax Revenues

Purpose: The purpose of the indicator is to monitor the scope of taxes and excise duty, ensuring the polluter-pays-principle.

Data collection: The Faroese Budget includes total and environmental taxes and fees. The information can be retrieved at the homepage: http://www.fms-fl.fo/.

Trends: The proportion of environmental taxes and fees from total tax revenues is listed in Table 12.1. From 1997 to 2002, the proportion of environmental taxes was around 0.10%.

Table 12.1: Faroese taxes and fees in 1.000 dkr

	1997	**1998**	**1999**	**2000**	**2001**	**2002**
Environmental taxes and fees (dkr.)	2,034	1,984	2,012	2,588	2,474	2,175
Total taxes and fees (mil. dkr.)	1948,887	2155,400	2411,078	2590,508	2822,149	3035,610
Environmental taxes and fees /total taxes and fees (%)	0.10	0.09	0.08	0.10	0.09	0.07

Source: The Faroese Budget, 2003; Statistics Faroe Islands, 2003.

Reporting responsibilities: Information on the proportion of environmental taxes and fees from total tax revenues is part of the Nordic Indicator Set (NSI; 2002 and 2003).

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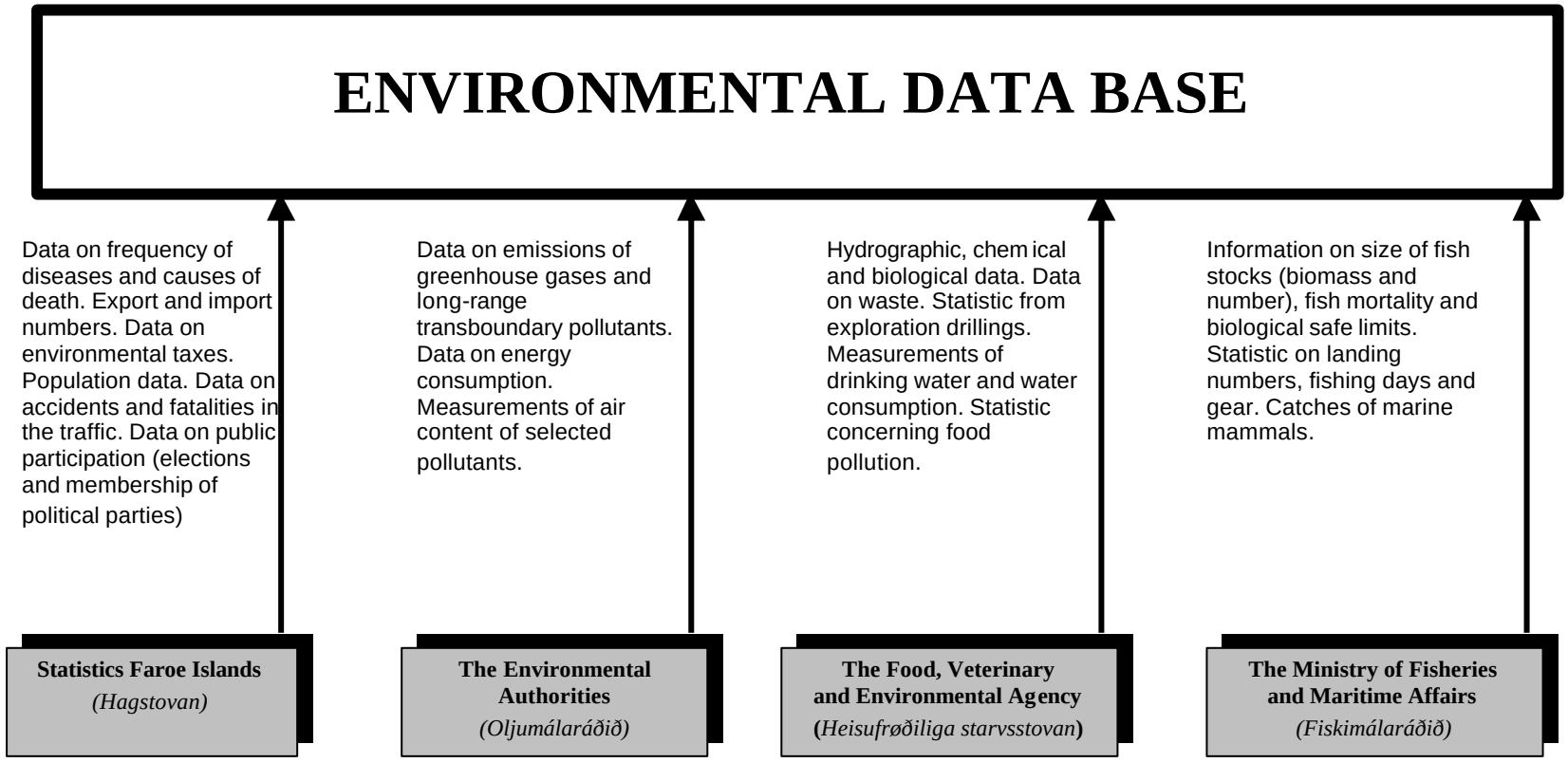
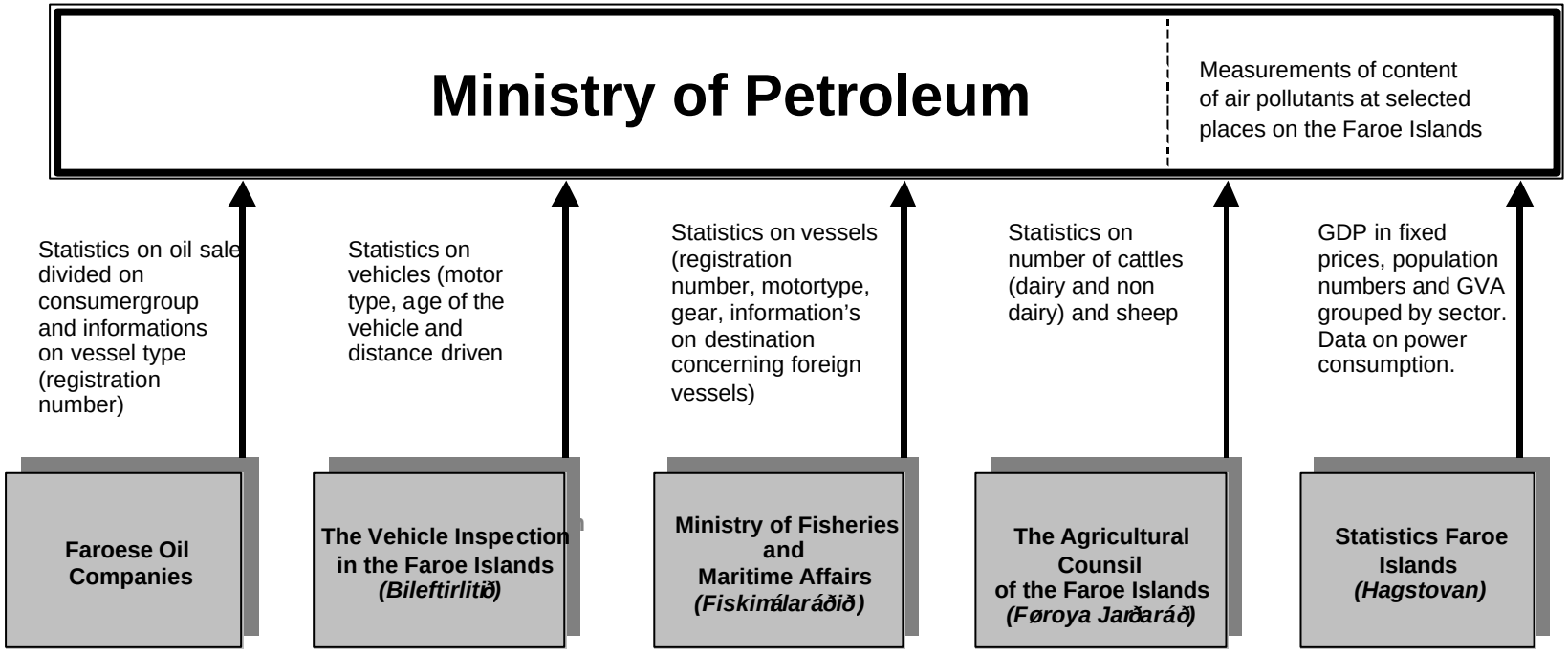
Appendix A

Dataflow to the database storing environmental statistic based on data reporting commitments in international conventions and agreements



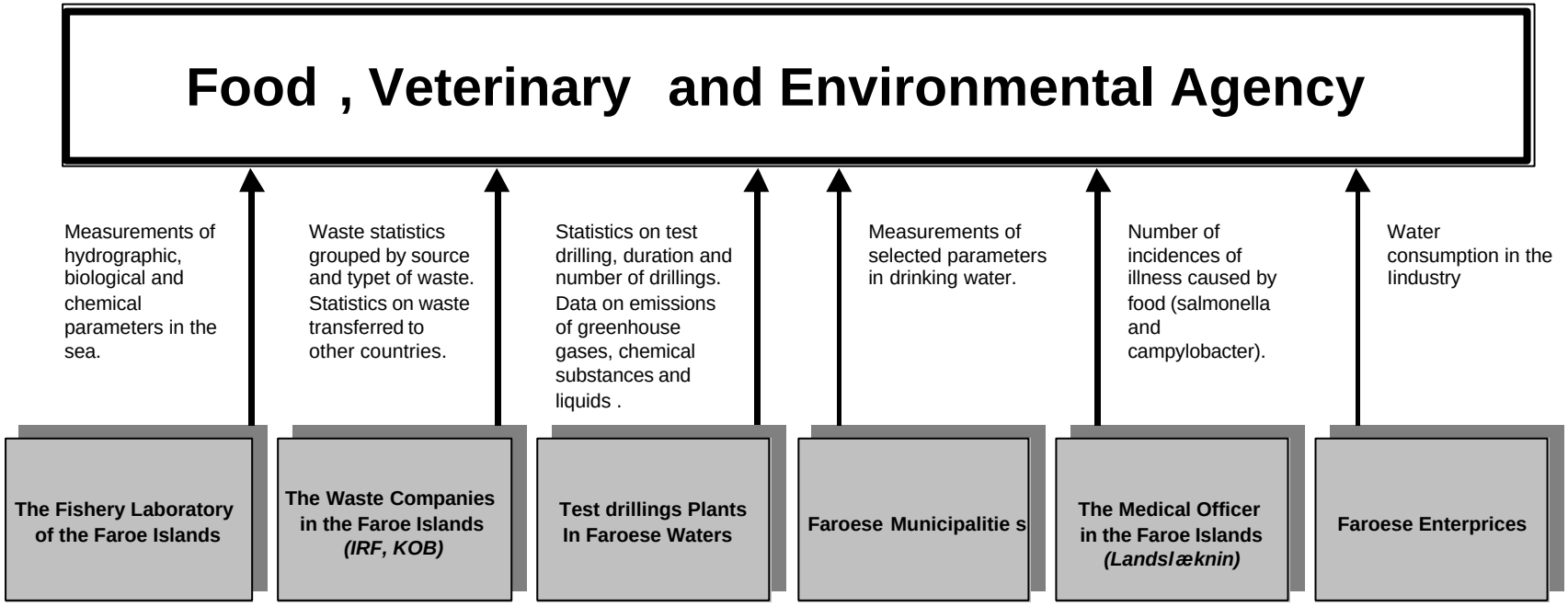
Appendix B.1
Dataflow to the Environmental Authorities
to fulfil the responsibilities in connection with submission of data to *the Geneva Convention, the Climate Convention and the Nordic Strategy on Sustainable Development*



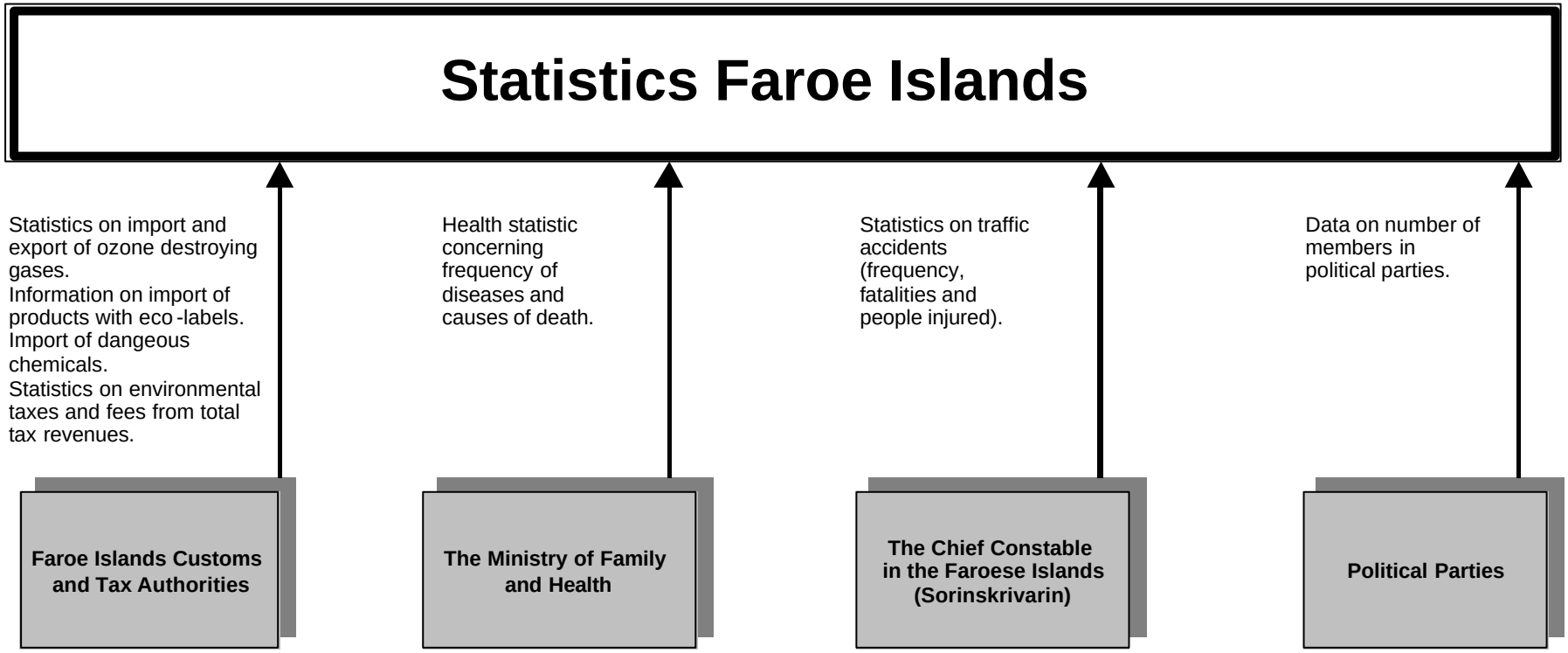
Appendix B.2

Dataflow to the Food, Veterinary and Environmental Agency

to fulfil the responsibilities in connection with submission of data to *the OSPAR Convention and the Nordic Strategy on Sustainable Development*



Appendix B.3
Dataflow to the Statistics Faroe Islands
to fulfil the responsibilities in connection with submission of data to *Sustainable Development*

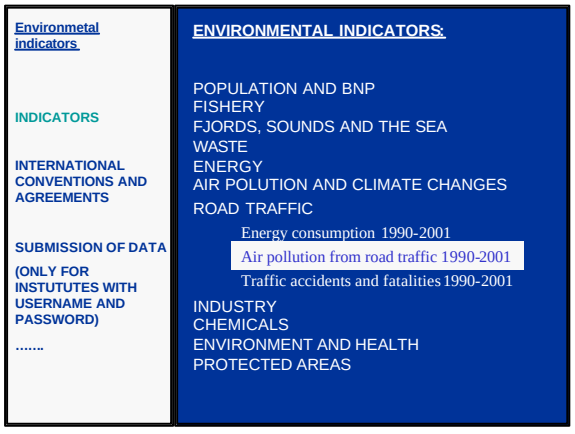


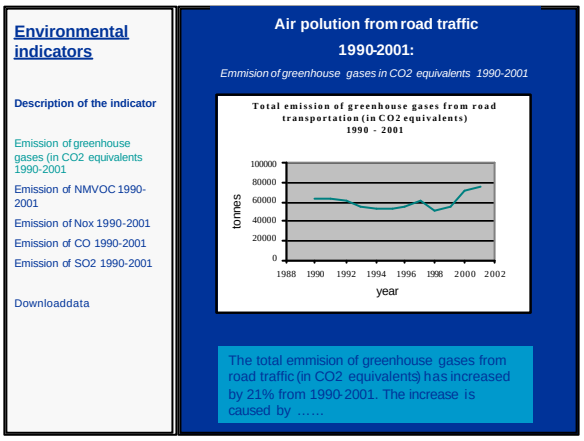
Appendix C
System to store and publish environmental statistics

A system to store and publish environmental statistics should be developed. The evaluation of the system requires changes in the legislation concerning collection and publication of statistics in the Faroe Islands. Today, Statistic Faroe Islands has sole permission to collect statistical information from enterprises and organisations ('Løgtingslóg Nr. 33 frá 7. Mai 1991 um Hagstova Føroya" http://www.logir.fo/system/foframe.htm).

The system should be organized such that it is partly available to the public and partly to be used by the institutions responsible for submission of data to the database (Appendix A). The system should also include reporting formats to be used in connection with responsibilities in the committed international convention and strategies (Appendix E). This will ensure the submission of data to a common system and will ensure the overview concerning submission of data to the four international conventions and one strategy (the Vienna Convention, the Climate Convention, the Geneva Convention, the OSPAR Convention and the Nordic Strategy on Sustainable Development). Further, the submission part of the system will serve as documentation of the data included in the environmental statistics. Each institute should be given a user word and password to access the part of the system concerned with submission of data (responsibilities must be assigned to institutes before the initiation of the system, Appendix F).

The home page presenting the environmental statistics should also include links to relevant conventions agreements and links to relevant databases concerning environmental and sustainable issues. An overview of present relevant links is included in Appendix H.





The contents of the statistics (the choice of indicators) must be under continuous review, and the system accordingly flexible for changes. A committee must be appointed to ensure that the appropriate statistical information is included at any time, working parallel with initiatives and commitments by the Parliament concerning environmental and sustainable issues. It is suggested that the committee consists of members from the Environmental Authorities, Statistics Faroe Islands, The Ministry of Family and Health Affairs, The Ministry of Law, The Ministry of Fisheries and Maritime Affairs.

Appendix D
International conventions and agreements on environmental issues
committed to by the Faroese Parliament

Nature

International Convention on Whaling, Washington 1946 http://sedac.ciesin.org/pidb/texts/intl.regulation.of.whaling.1946.html

The purpose of the convention is to establish a system of international regulation for the whale fisheries to ensure proper and effective conservation and development of whale stocks on the basis of the principles embodied in the provisions of the International Agreement for the Regulation of Whaling signed in London on 8 June 1937, and the protocols to that Agreement signed in London on 24 June 1938, and 26 November 1945.
The Contracting Parliaments agree to establish an International Whaling Commission to be composed of one member from each Contracting Parliament.

The World heritage Convention on protection of cultural and natural heritage, 1972
http://whc.unesco.org/nwhc/pages/doc/main.htm

The purpose of the Convention is to support conservation and preservation of cultural- and nature heritage for future generations. Each contracting Parliament is obliged by law to register and assign procedures to preserve heritage in the country.

The Bonn Convention concerning protection of migration species, 1979 http://www.wcmc.org.uk/cms/

The Convention is grounded on the fact that conservation and effective management of migratory species of wild animals requires the concerted action of all States within the national jurisdictional boundaries of which such species spend any part of their life cycle. The contracting parties have agreed to co-operate in preservation and regulation of the migrating species specified in the Convention.

The Faroe Islands have not assigned the protocols connected to the Convention.

Air pollution

Convention on Long-range Transboundary Air Pollution, Geneva 1979 http://www.unece.org/env/lrtap/

The purpose of the Convention is to protect the health of people and the environment against air pollution. The Convention includes 8 protocols, which impose restrictions of long-range transboundary air pollutants (NO_x, NH_3, NMVOC, CO, CH_4, CO_2, POP's and heavy metals). The Faroe Islands have assigned 3 of the 8 protocols:

- The protocol concerning co-operation in financing collection and distribution of statistics concerning air pollution (EMEP).
- The protocol concerning reduction of emissions of heavy metals (cadmium, mercury and lead), which assign reduction of emission concentrations in 1990. The protocol also imposes cessation of the use of gasoline containing lead within a fixed time interval
- The protocol concerning emissions of POP's imposes reductions of 16 hazardous substances. The protocol also bans production of selected hazardous substances and the use of DDT, HCH and PCB's. The emissions of dioxin, (furanum), PAH's and HCB are to be reduced to 1990 levels.

The Vienna Convention on protection of the ozone layer, Vienna 1985 http://www.unep.org/ozone/vienna.shtml

The Convention shall protect the health of people and the environment from the reduction of the ozone layer caused by human activities. The Convention intends to ban all substances, which cause a reduction of the ozone layer. The Convention includes the Montreal protocol:

The Montreal protocol (1987) bans the production and use of CFCs, halons, carbon tetrachloride, methyl chloroform, hydrchlorofluorocarbons, hydrobromofluorocabons, methyl bromide and bromochloromethane. http://www.unep.org/ozone/montreal.shtml

The Climate Convention, Rio de Janeiro 1992 http://unfccc.int/resource/convkp.html

The aim of the Convention is to reduce the amounts of greenhouse gases to values not affecting the climate. The Contracting Parties are obliged to develop, publish and report yearly emissions of greenhouse gases according to the UNFCCC guidance. The contracting parties have also committed to publish actions to reduce the emissions of greenhouse gases.

The Sea

The London Convention concerning prevention of pollution of the sea by waste dumping and dumping of other substances, London 1972 (1996) http://www.londonconvention.org/ , http://www.imo.org/home.asp

The Contracting Parties shall individually and collectively promote the effective control of all sources of pollution of the marine environment, and pledge themselves especially to take all practicable steps to prevent the pollution of the sea by the dumping of waste and other matter that is liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea. In accordance with the principles of international law regarding State responsibility for damage to the environment of other States or to any other area of the environment, caused by dumping of wastes and other matter of all kinds, the Contracting Parties undertake to develop procedures for the assessment of liability and the settlement of disputes regarding dumping.

MARPOL Convention concerning prevention of pollution from vessels, 1973 (1978) http://www.imo.org/home.asp

The Convention includes regulations aimed at preventing and minimizing pollution from ships - both accidental pollution and that from routine operations - and currently includes six technical Annexes:

Annexe I	Regulations for the Prevention of Pollution by Oil
Annexe II	Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk
Annexe III	Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form
Annexe IV	Prevention of Pollution by Sewage from Ships (entry enforced from 26 September 2003)
Annexe V	Prevention of Pollution by Garbage from Ships
Annexe VI	Prevention of Air Pollution from Ships (adopted September 1997- not yet in force

The Nordic Environmental Convention, Stockholm 1974 http://sedac.ciesin.org/pidb/texts//acrc/Nordic.txt.html

The Contracting States shall require officials of the supervisory authority to observe professional secrecy as regards trade secrets, operational devices or business conditions of which they have become cognizant in dealing with cases concerning environmentally harmful activities in another State.

The Basel Convention on controlling transboundary transport and destruction of dangerous waste, Basel 1989
http://www.basel.int/pub/basics.html

A central goal of the Basel Convention is 'environmentally sound management' (ESM), the aim of which is to protect human health and the environment by minimizing hazardous waste production whenever possible. ESM means addressing the issue through an 'integrated life-cycle approach', which involves strong controls from the generation of a hazardous waste to its storage, transport, treatment, reuse, recycling, recovery and final disposal. The Basel Convention contains specific provisions for the monitoring of implementation and compliance. A number of articles in the Convention oblige Parties (national Parliaments which have acceded to the Convention) to take appropriate measures to implement and enforce its provisions, including measures to prevent and punish conduct in contravention of the Convention

The London Convention (OPRC) concerning preparedness, prevention and co-operation in the case of oil pollution, London 1990 http://www.imo.org/home.asp

The aim of the Convention is to prevent accidents that cause oil pollution to the sea. Parties to the OPRC convention are required to establish measures for dealing with pollution incidents, either nationally or in co-operation with other countries.

The OSPAR Convention concerning protection of the marine environment in the Northeast Atlantic, Paris 1992
http://www.ospar.org/eng/html/welcome.html

The Contracting Parties shall, in accordance with the provisions of the Convention, take all possible steps to prevent and eliminate pollution and shall take the necessary measures to protect the maritime area from the adverse effects of human activities so as to safeguard human health and to conserve marine ecosystems and, when practicable, restore marine areas which have been adversely affected. The areas included in the convention are:

- Prevention and elimination of pollution by dumping or incineration
- Prevention and elimination of pollution from offshore sources
- Assessment of the quality of the marine environment
- Protection and conservation of the ecosystems and biological diversity of the maritime area

To this the Contracting Parties shall, individually and jointly, adopt programmes and measures and shall harmonise their policies and strategies. The parties are to submit data annually concerning biodiversity, emissions of hazardous substances, euthrofication, and pollution from oil drillings and waste handling. Initiatives and actions are to be set in force to ratify the Convention.

Environment

The European agreement concerning restrictions of detergents, Strasburg 1968
http://sedac.ciesin.org/pidb/texts/detergents.cleaning.products.1968.html

The Convention Parties have agreed to reduce the general household and industrial use of certain types of detergent as they might cause considerable prejudice to environmental and human health.
Appropriate measures are essential not only from the standpoint of human needs but also to ensure the protection of nature in general, the paramount objectives being to protect effectively. The areas concerned are:

a) The supply of water for the population, for industry, for agriculture and for other business occupations;

b) The natural aquatic fauna and flora, and in particular so far as they contribute to human well-being;

c) The unhindered enjoyment of places devoted to leisure and sport;

The Espoo Convention on estimations on impact on the environment across state boundaries, Espoo 1991
http://www.unece.org/env/eia/eia.htm

The Parties shall, either individually or jointly, take all appropriate and effective measures to prevent, reduce and control significant adverse transboundary environmental impact from proposed activities. Each Party shall take the necessary legal, administrative or other measures to implement the provisions of this Convention, including, with respect to proposed activities that are likely to cause significant adverse transboundary impact, the establishment of an environmental impact assessment procedure that permits public participation and preparation of the environmental impact assessment documentation.

Sustainable development

The Biodiversity Convention concerning protection of the biological diversity and sustainable development, Rio de Janeiro 1992 http://www.biodiv.org/convention/articles.asp

The objectives of the Convention are the conservation of biological diversity, the sustainable use of its components and the fair equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies and by appropriate funding.
Each Contracting Party shall, in accordance with its particular conditions and capabilities develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes with shall reflect the measures set out in this Convention relevant to the contracting party concerned. The party shall integrate the conservation and sustainable use of biological diversity into relevant sectored or cross-sectored plans, programmes and polices.

The Faroe Islands have not assigned the Cartegena protocol connected to the Convention concerning gene modification of biological resources.

The Nordic Strategy on Sustainable Development, 1998 http://www.norden.org/pub/miljo/miljo/sk/2001-505.pdf

The Nordic Strategy on Sustainable Development includes initiatives and actions for the intervals 2001-2004 and 2004-2020. The agreement includes changes in production systems and material use and is to be applied in all aspects of the society concerning environmental and sustainable development aspects. Strategies are to be revised in 2004.

The areas included in the agreement are:

Energy, climate changes, traffic, agriculture, industry, fishery, biodiversity, the sea, chemical substances, food quality and forestry.

Appendix E
Data to be reported to International Conventions and strategies
committed to by the Faroese Parliament

Classifications of data available in the adminis tration today are preliminary and subject for discussion.

Air pollution

The Geneva Convention on long-range transboundary air pollution:

Data to be reported	Frequency of reporting	Is the data used in the administration today?	Is data available in reporting format	Responsible Ministry or institution
Emissions of: SO_2, NO_x, NMVOC, NH_3, CH_4, CO, CO_2, cadmium, lead, mercury and Pop's	Yearly: 31. December	No	No	The Environmental Authorities
The air content of: SO_2, NO_2, O_3, VOC, HNO_3, NO_3^-, NH_3 and NH_4^+		No	No	The Environmental Authorities

The Vienna Convention on protection of the ozone layer:

Data to be reported	Frequency of reporting:	Is the data used in the administration today?	Is data available in reporting format	Responsible Ministry or institution
Production, use and export of ozone destroying gases: (HBFC's, CFC's, HCFC'S, halones, tetrachlormethane, 1,1,1-trichloretane and methyl bromide)	Yearly: 31. Sebtember	No	No	Statistics Faroe Islands

The Climate Convention (UNFCCC):

Data to be reported	Frequency of reporting:	Is the data used in the administration today?	Is data available in reporting format	Responsible Ministry or institution
Emissions of: CO_2, CH_4, N_2O, NO_x, CO, NMVOC, SO_2, HFC, PFC and SF_6	Yearly: 15. April	No	No	The Environmental Authorities

The Sea

The OSPAR Convention concerning protection of the marine environment in the North-East Atlantic:

Data to be reported	Frequency of reporting:	Is the data used in the administration today?	Is data available in reporting format?	Responsible Ministry or institution
Amounts of the substance in the sea: Hg, Cd, Cu and Zn	Every 5 year	Yes	Yes	The Faroese Fisheries Laboratory
Amounts in sediment of the substances: Hg, Cd, Cu, Zn and Pb	Yearly	Yes	Yes	The Faroese Fisheries Laboratory
Amounts in biota of the substances: Hg, Cd, Cu, Zn, Pb and PCB	Yearly	Yes	Yes	The Faroese Fisheries Laboratory
Information concerning water chemistry and hydrography: NH_4-N, NO_2-N, NO_3-N, PO_4-P, SiO_4-Si, salinity and temperature	Yearly	Yes	Yes	The Faroese Fisheries Laboratory
Information concerning effects of: Phytoplanctonchlorophyl, phytoplankton biomass and- species composition, TOC and POC, macrophytobiomass, - species composition and –depth distribution, content of oxygen and- saturation, macrofaunabiomass and species composition	Yearly	Yes	Yes	The Faroese Fisheries Laboratory
Emission of greenhouse gases from exploration drillings: CO_2, NO_x, SO_2, CH_4 and NMVOC	Yearly	Yes	No	The Environmenta Authorities
Number of test drillings and duration. Emissions of oil, chemical substances and liquids in connection with the drillings.	Yearly	Yes	Yes	The Environmenta Authorities
Information on waste deposits, transfer and dumping (including dredged material, inert material, fish waste and vessels or aircraft)	Yearly: 1. October	No	No	The Environmenta Authorities

Sustainable development

The Nordic Strategy on sustainable development:

Data to be reported	Frequency of reporting:	Is the data used in the administration today?	Is data available in reporting format?	Responsible Ministry or institution
Age distribution	Yearly	Yes	Yes	Statistics Faroe Islands
Average life and mean life expectancy		Yes	Yes	Statistics Faroe Islands
Cases of diseases		Yes	No	The Ministry of Health
Particles and ozone content in urban areas	Yearly	No	No	The Environmental Authorities
Emission amounts of: CO_2, CH_4, N_2O, NO_x, CO, NMVOC, SO_2, HFC, PFC and SF_6	Yearly	No	No	The Environmental Authorities
Emissions of N and P to the sea	Yearly	No	No	The Faroese Municipalities
Emissions of acidifying substances and heavy metals		No	No	The Faroese Municipalities
Concentrations of naturally occurring substances with a harmful impact on the marine environment (mercury, cadmium, PAH and dioxin)		Yes	No	The Environmental Authorities
Catches of selected fish species related to estimated stock size	Yearly	Yes	Yes	The Ministry of Fisheries and Maritime Affairs
Catches of marine mammals in relation to stock size		Yes	No	The Ministry of Fisheries and Maritime Affairs
Air pollution from the fishery		No	No	The Environmental Authorities
Total material consumption and material input	Yearly	No	No	Statistics Faroe Islands
Consumption of hazardous chemicals and the number of chemicals surveyed and examined (chemical registry)		No	No	The Ministry of Industry

Sustainable development (continued)

The Nordic Strategy on sustainable development:

Data to be reported	Frequency of reporting:	Is the data used in the administration today?	Is data available in reporting format?	Responsible Ministry or institution
Percentage of people voting at national elections	Yearly	No	No	Statistics Faroe Islands
Percentage of people voting at local elections		No	No	The Ministry of Law
Use of renewable energy in relation to electricity consumption		Yes	Yes	The Environmental Authorities
Emissions in relative figures and relative to gross energy consumption		No	No	The Environmental Authorities
Energy production capacity (electricity) in relation to gross energy consumption (electricity)		No	No	The Environmental Authorities
Gross energy consumption in relation to GVA (gross value added) in real terms		No	No	The Environmental Authorities, Statistics Faroe Islands
Energy consumption per capita (industry, transport, households and fishery)		No	No	The Environmental Authorities
Co_2 emissions per capita	Yearly	No	No	The Environmental Authorities
Emissions of greenhouse gases in CO_2 equivalents and in relation to GNP (sectored and total)		No	No	The Environmental Authorities, Statistics Faroe Islands
Emissions of CO_2				
Chemical residues in drinking water	Yearly	No	No	The Faroese Municipalities, The Food, Veterinary and Environment Agency
Emissions of CO_2, SO_2 and NO_x in absolute figures and in relation to gross energy consumption	Yearly	No	No	The Environmental Authorities, Statistics Faroe Islands
Gross energy consumption in relation to GVA in real terms	Yearly	No	No	The Environmental Authorities, Statistics Faroe Islands
Energy consumption per capita for industry, transport, households and fishery	Yearly	No	No	The Environmental Authorities

Sustainable development (continued)

The Nordic Strategy on sustainable development:

Data to be reported	Frequency of reporting:	Is the data used in the administration today?	Is data available in reporting format?	Responsible Ministry or institution
Traffic accidences and fatalities	Yearly	Yes	No (number of fatalities 3 years delayed)	The Ministry of Health, the Faroese Police
Transport activity/GDP	Yearly	No	No	The Ministry of Industry Statistics Faroe Islands
Passenger transport activity and freight transport activity broken down on transport modes	Yearly	No	No	The Ministry of Industry
The share of renewable resources of the transport sector in relation to restoration, and use of non-renewable resources	Yearly	No	No	The Ministry of Industry
Energy efficiency of new passenger cars	Yearly	No	No	The Ministry of Industry
Number of enterprises with environmental certification (EMAS and ISO) and number of eco labelled products	Yearly	No	No	The Ministry of Industry
Energy use in the industry (total number and in relation to GVA)	Yearly	Yes	No	The Environmental Authorities, Statistics Faroe Islands
Air pollution in the industry	Yearly	No	No	The Environmental Authorities
Environmental impact assessment of parliamentary bills	Yearly	No	No	The Ministry of Law
Proportion of environmental taxes and fees from total tax revenues	Yearly	No	No	The Ministry of Finance
Volumes of waste and reuse grouped by sector (household, industry) in absolute numbers and in relation to economic activity	Yearly	No	No	The Environmental Authorities, Statistics Faroe Islands
Aggregated waste tonnages in relation to GDP		No	No	The Food-, Veterinary- and Environmental Agency, Statistics Faroe Islands
Volume of waste and reuse in absolute figures and in relation to total waste volumes		Yes	No	
Chemicals, organic solvents and heavy metals in waste		No	No	The Food, Veterinary and Environmental Agency, The Environmental Authorities
Volumes of waste grouped by sector (households, m industry) in absolute figures and in relation to GDP		No	No	The Food, Veterinary and Environmental Agency, Statistics Faroe Islands

Appendix F
Suggestion for placement of data submission responsibilities to International Conventions and Strategies

Suggestions for future responsibilities concerning submissions of data to international conventions and strategies:

Convention or agreement	**Institution responsible for data submission**
The Geneva Convention *(Emissions of long-range transboundary air pollutants and measurements of air content of selected pollutants)*	The Environmental Authorities*
The Vienna Convention *(Production, use and export of ozone destroying gases*)	The Environmental Authorities*
The Climate Convention *(Emissions of greenhouse gases and long-range transboundary destroying gases)*	The Environmental Authorities*
The OSPAR Convention *(Sea pollution from land, ships and exploration drillings. Environmental statistic concerning hydrographical- and biological conditions. Transfer of waste)*	The Food, Veterinary and Environmental Agency
The Nordic Strategy on Sustainable Development *(Indicators concerning sustainable development)*	Statistics Faroe Islands

* Measurements and estimations of air pollution are not assigned working areas under a ministry.

Appendix G
Implementation

The implementation of a system containing environmental indicators can be divided into steps depending on the international conventions to which data are to be reported. The implementation should also include resources to be kept aside to develop databases, and a home page to contain and publish the statistics. The implementation of the individual steps thereby simultaneously fulfils the data responsibilities committed in the conventions and offers a foundation complementing the work in Nordic Council concerning the evaluation of a Nordic Indicator Set defined in the Nordic Strategy on Sustainable Development.
The implementation requires actions to be taken (see recommendation) to access relevant data and to calculate the necessary statistics.

Evaluation of data systems and home page containing information on environmental statistics (Appendix C):

Creation of databases to store environmental data and evaluation of a home page for registration and publishing the information requires resources to be set apart and the work to be assigned. The evaluation of the system should also include registration formats to be used by institutes to deliver data to the system.

Creation of databases and development of programs (home page) can be carried out at the Environmental Authorities or at Statistics Faroe Islands. Both institutions own database software and tools to develop the programmes needed. The work is estimated to take 6 months and the financial requirements are estimated at 350,000 dkr.

The Climate Convention (UNFCCC):

The data reporting responsibilities defined in the Climate Convention (Appendix E) require the air emissions of greenhouse gases (CO_2, CH_4, N_2O, HFC, PFC and SF_6) and long-range transboundary pollutants (NO_x, CO, NMVOC and SO_2) to be estimated by sub-groups according to the IPCC definition. Necessary improvements to fulfil the reporting responsibilities in the convention are to be carried in the following areas:

Fishery: Evaluation of emissions from the fishery requires detailed information on the vessels. Different motor and gear types have different emissions. In the emission inventories carried out in 2002 (Lastein, 2002; 2003), the emissions from the fishery fleet are calculated on the basis of standard emission factors (factors calculating emissions of a certain gas per tonnes fuel oil used), as detailed information on the vessels were not available for the inventory. In future inventories, permission must be given to access detailed information on fuel sale per vessel and on information on motor type and gear used in the fishery. According to this information, new emission coefficients must be evaluated in co-operation with an institute abroad, which is experienced in evaluating emission coefficients for fishing vessels.

Traffic: Emission coefficients concerning *road traffic* are evaluated by use of detailed information on the vehicle fleet. The vehicle inspection collects information on distance driven, the age of the vehicle, motor type, etc. This information has to be available in the calculation of emissions from road traffic in future.

Emissions connected to *sea traffic* are grouped into domestic and international emissions. Destination information on the sea traffic is not currently available, and must be changed if the emission amounts from sea traffic are contributing to the Faroese total emission amounts (domestic) or not. Similarly with *air traffic* emissions.

Industry: The information on fuel use in the industry must be grouped by IPCC sector in the data format from the oil companies.

In the emission inventories covering the time period 1990-2001 (Lastein 2002; 2003), emissions of the greenhouse gases HFC, PFC and SF_6 were omitted. These gases must be included in future to complete the inventories (thereby also fulfilling the data reporting responsibilities in the convention).

The data reporting responsibilities to the Climate Convention require submission of data once a year, and it is therefore necessary to assign the emissions inventories as a working area under the Environmental Authorities. Co-operation with an institute in connection with evaluations of emissions coefficients must also be initiated, as emission coefficients are to be defined and recalculated each year.

The Geneva Convention:

The data reporting responsibilities defined in the Geneva Convention (Appendix E) require emissions to be estimated and require measurements of the content of certain air pollutants. Necessary improvements to fulfil the reporting responsibilities in the convention are:

Emissions: Emissions of the gases SO_2, NO_x, NMVOC, NH_3, CH_4, CO, CO_2, cadmium, lead, mercury and POP's are each year to be reported. Emissions of SO_2, NO_x, NMVOC, CH_4, CO, CO_2 are calculated as described under the Climate Convention, while emissions of NH_3, cadmium, lead, mercury and POP's are missing. The emissions of these gases are calculated in the same way as described for the former gases (see the Climate Convention) and must be added to the emission inventories in future.

Content of air pollutants: The air content of SO_2, NO_2, O_3, VOC, HNO_3, NO_3^-, NH_3 and NH_4^+ at selected positions in urban areas are to be reported annually. No measurements of the content of air pollutants are currently carried out, so the measurements must therefore be initiated. This includes analyses of relevant positions and equipment needed to measure the amounts of pollutants.

The data reporting responsibilities to the Geneva Convention require submission of data once a year and it is therefore necessary to assign the emissions inventories as a working area under the authorities on environmental issues. Responsibility concerning measurements of the content of air pollutants in urban areas must be similarly clarified.

The Vienna Convention:

The data reporting responsibilities defined in the Vienna Convention (Appendix E) requires yearly data submission on production, use and export of the ozone destroying gases HBFC's (chemicals used as refrigerants), CFC's (chemicals used as refrigerants and aerosol propellants), HCFC's (chemicals used as refrigerants), tricloretanes (used as raw materials in the industry), methyl bromide (used as pesticide in agriculture) and halons (chemicals used for suppression). Improvements necessary to fulfil the reporting responsibilities in the convention are:

Import of gases: Information on import and export of goods is collected at the Faroe Islands Customs and Tax Authorities. The data are published by the Statistics Faroe Islands in yearbooks. If information on import of ozone destroying gases is going to be available in connection with the reporting responsibilities, the authorities must register the content of goods in more detail. This will allow the Statistics Faroe Islands to calculate the amount of the ozone destroying gases imported each year.

The data reporting responsibilities to the Vienna Convention require submission of data once a year and it is therefore necessary to assign the calculation of the amounts of gases imported to the Statistics Faroe Islands and change the registration of imported goods at the Faroe Islands Customs and Tax Authorities.

The OSPAR Convention:

The data reporting responsibilities defined in the OSPAR Convention (Appendix E) require information on the marine environment to be reported. Improvements necessary to fulfil the responsibilities in the convention are:

Heavy metals: The sea content of heavy metals (HG, CD, CU and Zn) is to be reported every five years in accordance with the submission responsibilities in the convention. No systematic investigations of the content of heavy metals are currently carried out. One possible way of obtaining the information is to add resources to complement the analyses in connection with the oceanographic and chemical surveys carried out at the Fisheries Laboratory each year.

Sediment and Biota: The content of heavy metals (Hg, Cd, Cu, Zn and Pb) in sediment and biota is to be reported annually in accordance with the submission responsibilities in the convention. No analyses of heavy metals in the sediments are currently carried out regularly, but the Food, Veterinary and Environmental Agency analyses samples from sediments in connection with inspection of the aquaculture. These are from reference stations inside the fjords. Samples of sediment outside the fjords could be obtained in the regularly fjords surveys carried out each year by the Fisheries Laboratory and analysed for heavy metals at the Food, Veterinary and Environmental Agency.

Ocean physics, chemistry and plankton: Data on temperature, salinity, nutrients and plankton at selected positions are to be reported annually in accordance with the convention. The Faroese Fisheries Laboratory measures physical, chemical and biological parameters in the waters around the Faroe Islands, as well as the above parameters. The data are therefore available for reporting to the convention, but reporting responsibility must be assigned.

Emissions from exploration drillings: Emissions connected to oil drillings taking place in Faroese waters are to be reported annually in accordance with the convention. The Food, Veterinary and Environmental Agency receive information on oil use and motor equipment connected to exploration drillings each year. It is necessary to assign the responsibility of calculating emission inventories in the future (see the Climate and Geneva Conventions). The inventories will include emissions from exploration drillings and the reporting responsibility on emissions to the OSPAR convention will be thereby fulfilled through these inventories.

The responsibility of reporting data to the OSPAR convention must be assigned.

The Nordic Strategy on Sustainable Development:

The co-operation between the Nordic Countries and self-ruling areas consist of evaluation indicators to follow up the strategy. Two reports have been published presenting indicators from the individual countries/self-ruling areas, which give the opportunity to compare the Nordic countries according to strategy. If the Faroe Islands are to join the work actively, data should be collected and calculated according to the evaluation of the indicators. Additional improvements should be carried out in the following areas:

Health statistics: Health statistics (alongside other elements) are used to monitor development in sicknesses and causes of death. Environmental impact on health can be analysed by these parameters. Statistics Faroe Islands publish the number of deaths by selected causes according to year. The Medical Officer also publishes data concerning frequency of selected sicknesses and causes of death in his yearly report. Neither of the sets of statistics is related to population numbers and other relevant parameters. The data used are also too old to be used in the present statistics (3 years delayed). If the information is to be used in the evaluation of health statistics, improvements must be made to update information, and to include relevant information necessary for further use (age of death, place of living, deaths related to population size in the age group, etc.).

Drinking and waste water: The municipalities are responsible for the quality of drinking water and waste water. Not all of the municipalities analyse the water, and differences exist in the parameters analysed. If information on drinking and waste water is to be used in the present statistics, regular analyses in all municipalities must be carried out. This includes analyses of relevant parameters, which can have a negative impact on health and environment.

Gross Domestic Product (GDP): The Gross Domestic Product must be calculated in fixed prices to estimate changes in the production pattern. The parameter is used to compare different information on the environment to monitor resource efficiency. GDP in fixed prices is used elsewhere in connection with economic development and the number should also be available in the Faroe Islands in order to make comparisons with other countries.

The responsibility for evaluating the indicators used in the co-operation under the Nordic Strategy on Sustainable Development must be assigned.

Appendix H
Links to databases concerning environmental and sustainable issues

OECD, Environmental Indicators:

http://www.oecd.org/department/0,2688,en_2649_34441_1_1_1_1_1,00.html

Danmarks Statistik, Statistikbanken:

http://www.statistikbanken.dk/statbank5a/default.asp?w=1024

NOMESCO, Social and Health Indicators:

http://www.nom-nos.dk/Database/Indicators.htm

International Energy Agency (IEA), Graphic and Statistics:

http://www.iea.org/envissu/johannesburg/graphics.htm

World Resources Institute (WRI), Earth Trends Portal:

http://earthtrends.wri.org/datatables/index.cfm?theme=2&CFID=357593&CFTOKEN=73742493

European Environment Agency, Data Service:

http://dataservice.eea.eu.int/dataservice/

InterParliamental Panel on Climate Change (IPCC), the IPCC Data Distribution Centre:

http://ddcweb1.cru.uea.ac.uk/asres/scenario_home.html

The World Bank Group, Data and Statistics:

http://www.worldbank.org/data/

Finland's indicators for sustainable development:

http://www.vyh.fi/eng/environ/sustdev/indicat/inditaul.htm

The environmental database at the Danish Ministry of Environment:

http://www.mst.dk

Appendix I
Abbreviations and synonyms

GDP — **Gross Domestic Product:**

Measures the value of a nation's output of goods and services for some period of time (usually a year). As GDP measures the value of output, it can increase for two distinct reasons. It can increase because more goods and services are being produced, or it can increase because prices of goods and services have risen. To eliminate the effects of changing prices, one must compute real GDP, which values the output of various time periods with a set of fixed prices (http://ingrimayne.saintjoe.edu/econ/Measuring/).

GVA — **Gross Value Added:**

The Gross Value Added is computed as the difference between the production and the consumption in the production in fixed prices. GVA is used to calculate the Gross Domestic Product (http://www.dst.dk/dst/dstframeset_1024.asp**).**

OECD — The OECD groups **30 member countries** sharing a commitment to democratic Parliament and the market economy. It has a global reach, with active relationships with some **70 other countries**, NGOs and civil society. Best known for its publications and its **statistics**, its work covers economic and social issues from **macroeconomics**, to **trade**, **education**, **development** and **science and innovation** (http://www.oecd.org/home/).

IPCC — The InterParliamental Panel on Climate Change. The Panel was jointly established by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) to assess the scientific, technical and socio-economic information relevant for the understanding of the risk of human-induced climate change (http://www.ipcc.ch/).

UNFCCC — United Nations Framework Convention on Climate Change (http://unfccc.int/).