Norsk institutt for luftforskning
Norwegian Institute for Air Research

NILU's Environmental Management Report

2016

Ole-Anders Braathen, Leif Marsteen, Trine Langholen, Eva Beate Andresen and Heidi Fjeldstad

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ABSTRACT

One of NILU's main goals is to study the impact of pollution and supply decision-makers with a sound scientific platform for choosing measures to reduce the negative impacts. Furthermore, it is very important for the institute to have control of the impact the institute's own activities may have on the environment and to reduce negative impacts as far as possible.

NILU has for many years been working to improve the status of the environment and to reduce negative impacts. In order to take this one step further, it was decided that the institute should restructure the work according to a relevant environmental standard and to seek certification according to the same standard.

The chosen standard is ISO 14001:2004 (Environmental management systems—Requirements with guidance for use) and NILU achieved certification according to this standard in October 2010. This report summarizes the results of the system in 2016.

NORWEGIAN TITLE
NILU's Environmental Management Report – 2016

KEYWORDS ISO 14001:2004	Environment	NILU

ABSTRACT IN NORWEGIAN

Et av NILUs hovedmål er å studere forurensning og konsekvenser av forurensning og gi beslutningstakere en solid plattform for valg av tiltak for å redusere negative effekter. Det er også viktig for instituttet å ha kontroll på miljøkonsekvenser av instituttets aktiviteter og redusere negative effekter så langt som mulig.

NILU har i mange år arbeidet for å forbedre miljøtilstanden og redusere negative miljøeffekter. Det ble derfor bestemt å sertifisere dette arbeidet i henhold til standarden ISO 14001:2004 – Sertifisering av miljøstyringssystem.

NILU ble sertifisert i henhold til ISO 14001:2004 i oktober 2010. Denne rapporten oppsummerer resultatene av miljøstyringssystemet i 2016.

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Innhold

NILU's Environmental Management Report 2016

1 NILU's Environmental Policy

NILU's Articles of Association states that part of the object of the foundation is: "*NILU shall through research enhance the understanding of processes and effects relating to the composition of the atmosphere, climatic changes, air quality, and environmental toxicants*" and "*NILU shall work to spread national and international research-based knowledge about the institute's core areas so that it becomes useful to society*".

The environmental policy of NILU is thus both to reduce, as far as possible, the negative environmental impact of the institute's activities and to contribute to better management of the environment by providing fundamental knowledge for authorities and other decision-makers.

Integral parts of NILU's environmental management system are an assessment of the environmental impacts and an implementation plan with actions to reduce the prioritized impacts as best as possible.

It is NILU's clear intention to always comply with relevant laws and regulations.

NILU will continuously work to prevent pollution and to improve the institute's environmental impact.

2 Background

One of NILU's main goals is to study environmental consequences of emissions of pollutants and to create a knowledge base for decision makers. The impacts of this can thus be both positive and negative.

It is very important for the institute to have control of the impact the institute's activities may have on the environment and to reduce the negative impacts as far as possible.

In order to take this one step further, it was decided that the institute should restructure the work according to a relevant environmental standard and to seek certification according to the same standard.

The chosen standard is ISO 14001:2004 (Environmental management systems-Requirements with guidance for use). NILU achieved certification according to this standard in October 2010 and has been certified since.

3 Good Examples of NILU's contribution to improve the environment

Long-range transport of air pollution

The European Monitoring and Evaluation Programme (EMEP) is a scientifically based and policy driven programme under the Convention on Long-range Transboundary Air Pollution (CLRTAP) for international co-operation to solve transboundary air pollution problems. In the EMEP programme NILU acts as the Chemical Coordinating Centre (EMEP-CCC). In this capacity, NILU has the tasks of developing monitoring strategies, recommending methodologies, offering training and audits and compiling and providing quality assurance for observation data received from the Parties to the EMEP protocol.

Air pollution in the Arctic and Antarctica

NILU is carrying out extensive measurement programs at the Zeppelin Observatory in the Arctic and the Troll Observatory in Antarctica. These two observatories give a very good overview of the state of the globe when it comes to levels of air pollution in pristine areas.

New Environmental Contaminants

NILU undertakes research and screening studies within the field of environmental chemistry. This includes conventional monitoring activities, but special focus is put on new environmental contaminants and how they spread in and affect the environment. Of special interests are the recent discoveries of high values of bisphenols (e.g. BPA) in the Oslo Fjord and high values of perfluorated compounds (especially PFOS) in "Golden Eagle".

Microplastics

Plastic is the most prevalent type of marine debris found in the oceans. Plastic particles that are less than five millimetres in length, are called "microplastics." NILU has and will continue to carry out research projects in order to improve the understanding of the extent of this problem.

Air quality assessment and control strategies

NILU carries out air quality assessments for cities in Norway and contributes to the development of abatement strategies for individual cities such as Bergen, Drammen, Oslo and Stavanger. The work includes identifying and quantifying main sources of urban air pollution, as well as advanced air quality calculations to study the effect of control measures to reduce air pollution in urban areas. In this way, NILU helps assessing the effectiveness of measures such as low emission zones and diesel-traffic bans. NILU has recently developed a national planning tool for urban areas that allows identifying air pollution levels as well as the relative contribution of different sources in pollution in urban areas (www.luftkvalitet-nbv.no).

Dissemination of air quality information – measurements and forecasts

NILU has a key role in the dissemination of air quality information to the public. Forecasts for the largest cities in Norway and on-line data from all the monitoring stations in Norway are shown on the web-portal (www.luftkvalitet.info). The web-portal is hosted and maintained by NILU on behalf of the Norwegian Public Roads Administration and the Norwegian Environment Agency. NILU is together with the Norwegian Meteorological Institute, responsible for the development and operation of a modelling system for air quality

forecasts to inform the public and support local authorities concerning the need for implementing short-term actions in alert situations.

Complementing environmental observing systems

Recognizing the role of citizens and civil society in environmental management, NILU is building environmental monitoring infrastructure that allows the public to take active part in collecting relevant environmental data, through the deployment and testing of novel micro-sensor networks . These data are used to improve the current environmental management tools, including air quality maps. Awareness raising in the society and direct contribution to environmental management systems are some of the aspects of such activities.

Reduction of climate gas emissions

NILU is involved in projects aiming at the development and implementation of technologies leading to reduction of greenhouse gases, particularly Carbon Capture and Storage (CCS) installations. Technological, environmental, economic and social challenges is assessed and measures to overcome various technological and non-technological barriers proposed. The results will result in lowering the CO2 emissions and thus reduction of climate change impacts on the environment and human health.

Quality Control and Traceability

NILU is working to ensure the quality of the measuring data from various measuring networks by using a comprehensive quality control system. The system states procedures for the operators of the instruments in their daily work. The system ensures the comparability of the collected data by using measuring instruments calibrated with reference standards that are traceable to common national reference standards. Based on such measurements with traceability and adequate quality, the decision makers can implement measures that will reduce emission of pollutants.

4 Overview of the status NILU's environmental indicators

Indicator	Parameter	2014	2015	2016	Evaluation
NILU's research	Good examples	Yes	Yes	Yes	
NILU's research based services and products	Good examples	Yes	Yes	Yes	
Assessment of environmental impacts	Action plan	Yes	Yes	Yes	
Heating and cooling systems	District heating and cooling	Yes	Yes	Yes	
Travels and meetings	CO_2-emissions due to air travel (kg)	164 583	130 248	157 715	
	Distance travelled by car (km)	106 434	136 202	104 900	
Chemical waste	Chemical waste handled by certified receiver	Yes	Yes	Yes	
Water consumption	Consumption of water (m^3)	5153	5076	5076	
Consumption of paper and other cellulose based products	Printers with registration of users	Yes	Yes	Yes	
	Pages of colour print-outs pr. employee	1323	1247	830	
	Pages of black- and white print-outs pr. employee	2153	2084	1602	
Energy classification of the building at Kjeller	Energy Certificate	Yes	Yes	Yes	
Handling of dangerous materials	Compliance	Yes	Yes	Yes	

(Each indicator is described in detail in chapter 5).

5 NILU's Environmental Indicators

5.1 Assessment of NILU's environmental impacts

5.1.1 Assessment of environmental impacts

Target location: Kjeller and Tromsø
Every three years, starting in 2010, NILU carries out an assessment of the main environmental impacts of the institute's activities. An action plan for NILU's environmental work in coming years ("Miljøprogram") is established based on the current assessment. The action plan is revised every year.

5.2 Energy consumption

5.2.1 Heating and cooling systems

Target location: Kjeller
NILU's main building is located at Kjeller and was, since it was built in 1993/1994, heated and cooled by electric power. In 2010, it was decided to substitute electric power with a centralized heating and cooling operation for the local district. This required major changes in the technical installations serving the building.

Both district heating and cooling has been in use in NILU's building at Kjeller since October 2011.

5.2.2 Energy efficiency

Target location: Kjeller
After NILU's building at Kjeller fully switched to district heating and cooling, use of electric power was substantially reduced. We planned to go through the remaining use of electric power in order to evaluate the potential for reduction in the energy consumption. However, the costs involved for such an evaluation are prohibitively high, and it was decided to not go through with this activity.

5.2.3 Travels and meetings

Target location: Kjeller and Tromsø
NILU has installed equipment for video conferences both at Kjeller and Tromsø. The equipment for video conferences has significantly reduced the need for travel and has improved communication.

When ordering a travel, the employee must describe why it was not possible to use the video conference equipment.

In order to monitor the environmental impact, NILU has established two parameters:

- CO_2-emissions due to air travel (kg)
- Distance travelled by car (km)

The emissions of CO_2 due to air travel in 2016 was 21 % higher than in 2015.

In 2016, the registered distance travelled by car was 23 % lower than in 2015.

5.2.4 Travels to and from the place of work

This was not addressed in 2016.

5.3 Waste

5.3.1 General waste

Target location: Kjeller
NILU has for several years separated the waste into the following categories:

- Paper and other cellulose-based products
- Glass
- Plastics
- Food waste
- Chemical waste
- Electronic equipment
- Batteries
- General waste

NILU has carried out a process for finding one company that is able to receive all our waste, in order to establish an overview of the total amount of each category. However, we have not been able to find an acceptable solution and has decided to continue the current routines for handling of our waste.

In 2016, it became clear that the types of plastic waste that NILU produces, is not recirculated by the receiver, and our plastic waste will therefore be part of the general waste from now on.

5.3.2 Chemical waste

Target location: Kjeller and Tromsø
NILU has, for many years, delivered chemical waste to a certified receiver and will continue to do so.

5.4 Raw materials and resources

5.4.1 Water consumption

Target location: Kjeller
In order to monitor the environmental impact, NILU has established the following parameter:

- Consumption of water (m^3)

NILU's consumption of water is only available as the total consumption in 2015 and 2016. The consumption was divided equally between the two years and the resulting yearly consumption in 2015 and 2016 was 5 076 m^3.

5.4.2 Consumption of paper and other cellulose-based products

Target location: Kjeller and Tromsø

NILU has combined printers/scanners/copy machines. The user must log in, using his/her ID-card, before printing or scanning starts. The system allows monitoring of the number of print-outs, both aggregated to a specified group or on an individual basis.

In order to monitor the environmental impact, NILU has established the following parameters:

- Number (pages) of black-and white print-outs per full time equivalent (FTE)
- Number (pages) of colour print-outs per full time equivalent (FTE)

In 2016, the printing pr. FTE at Kjeller and Tromsø was 1602 pages in black-and-white and 830 pages in colour. The total printing per FTE in 2016 was thus 27 % lower than in 2015.

5.5 Emissions

5.5.1 Emissions to air

This was not addressed in 2016.

5.5.2 Emissions to water

This was not addressed in 2016.

5.6 Procurements

5.6.1 Requirements for suppliers

This was not addressed in 2016.

5.7 Products

5.7.1 Environmentally friendly products

This was not addressed in 2016.

5.8 Environmental impacts of NILU's activities

5.8.1 NILU's research

Target location: Kjeller and Tromsø
The positive environmental impacts of NILU's research are illustrated by describing good examples (Chapter 3).

5.8.2 NILU's research-based services and products

Target location: Kjeller and Tromsø
The positive environmental impacts of NILU's research-based services and products are illustrated by describing good examples (Chapter 3).

5.9 Energy classification

5.9.1 Energy classification of the building at Kjeller

Target location: Kjeller

It is a requirement that all corporate buildings in Norway, with an area of more than 1000 m^2, shall be classified according to the energy consumption. The classification of NILU's building at Kjeller was carried out in 2013.

5.10 Dangerous materials

5.10.1 Handling of dangerous materials

Target location: Kjeller and Tromsø
In 2016, NILU went carefully through the regulation on handling of dangerous materials (FOR-2009-06-08-602) and concluded that we are in compliance (see Chapter 6).

6 Laws and regulations

NILU's clear policy is to be in compliance with all relevant laws and regulations. Every third year we carry out a thorough evaluation of the laws and regulations relevant for NILU and our activities. The conclusion of the evaluation carried out in 2016 is that we are in compliance with all laws and regulations.

A new thorough evaluation of all laws and regulations relevant for NILU and our activities will be repeated in 2019.

7 Results of NILU's actions in 2016

- Maintaining and improving the Environmental Management System (EMS)
  This is a continuous effort. In 2016, NILU in Tromsø was focussed especially.

- Further development of indicators and parameters
  The worked continued without any major revisions in 2016.

- Ensure that relevant parts of the system is functioning in Tromsø
  An internal revision of the system in Tromsø was carried out in 2016.

- Carry out new evaluation of the laws and regulations relevant for NILU
  The evaluation was carried out and the conclusion was that NILU is in compliance with all relevant laws and regulations.

8 NILU's planned actions in 2017

- Maintaining and improving the Environmental Management System (EMS)
- Further development of indicators and parametersGet information from our main suppliers about their environmental management systems and certifications

NILU – Norsk institutt for luftforskning

NILU – Norsk institutt for luftforskning er en uavhengig stiftelse etablert i 1969. NILUs forskning har som formål å øke forståelsen for prosesser og effekter knyttet til klimaendringer, atmosfærens sammensetning, luftkvalitet og miljøgifter. På bakgrunn av forskningen leverer NILU integrerte tjenester og produkter innenfor analyse, overvåkning og rådgivning. NILU er opptatt av å opplyse og gi råd til samfunnet om klimaendringer og forurensning og konsekvensene av dette.

NILUs verdier: *Integritet – Kompetanse – Samfunnsnytte*
NILUs visjon: *Forskning for en ren atmosfære*

NILU – Norsk institutt for luftforskning
Postboks 100, 2027 KJELLER

E-post: nilu@nilu.no
http://www.nilu.no

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