

To Norges Bank

7 November 2019

UNOFFICIAL ENGLISH TRANSLATION

**Recommendation to exclude Canadian Natural Resources Ltd from investment
by the Government Pension Fund Global (GPF)**

Summary

The Council on Ethics recommends that Canadian Natural Resources Ltd (Canadian Natural) be excluded from investment by the Government Pension Fund Global (GPF) due to the greenhouse gas emissions from its extraction of oil from oil sand. According to the GPF's ethical guidelines, companies may be excluded if there is an unacceptable risk that they contribute to or are responsible for unacceptable greenhouse gas emissions at an aggregate company level.

The Council on Ethics issued a similar recommendation to exclude the company on 30 May 2017. At that time, however, the criterion was open to different interpretations. This caused Norges Bank to refrain from making a decision on this case until further clarification had been obtained. The Norwegian Ministry of Finance subsequently clarified certain areas of the criterion's interpretation in Report No. 20 (2018–2019) to the Norwegian Storting.

The report states that companies' absolute emission levels, emission intensity and emission reduction policy and targets may constitute the primary grounds for assessment under the climate criterion. At the same time, the report makes it clear that recommendations must contain a description of any climate frameworks to which the company is subject. According to the report, where a company complies with laws and regulations and is covered by strict climate regulations, such as the EU's Emissions Trading Scheme (EU-ETS), its emissions cannot in themselves be said to constitute an unacceptable behaviour. The report further states that the EU's climate regulations must be considered stringent on the basis of its rules, compliance mechanisms, scale-down factor and emissions allowance pricing.

This recommendation has therefore been updated with respect to those issues affected by the Ministry's clarification.

Oil production in general produces high levels of greenhouse gas emissions, and the production of oil from oil sand generates in most cases materially higher greenhouse gas emissions than conventional oil production. The Council on Ethics finds that companies which base their operations on oil sand may therefore be said to have unacceptable greenhouse gas emissions.

Canadian Natural is a Canadian oil producer, with extensive production of oil from oil sand in Alberta, Canada. More than 90 per cent of the company's oil reserves are in oil sand, and over half of its oil production derives from oil sand. The extent of this production is rising sharply, and has more than trebled in three years. The company has reduced its emissions in recent years, but from a high level. Nevertheless, the company's greenhouse gas emissions per unit produced in 2018 were more than twice the global average and more than three times as high as from oil production in Europe.

Canadian Natural is subject to a climate framework that does not incorporate a cap-and-trade based emission trading mechanism, that has no scale-down factor and that has a carbon price that is very much lower than for oil production under the EU-ETS arrangement. The Council therefore takes the view that the company is not regulated by what Report No. 20 (2018–2019) describes as a stringent climate framework.

In its assessment of future risk, the Council on Ethics notes that Canadian Natural has set no quantified targets for reducing its greenhouse gas emissions, although it has a policy regarding lasting emission cuts. However, the Council does not consider that the measures are sufficiently concrete or the emission targets sufficiently ambitious. The Council therefore finds it highly unlikely that the company's emissions will fall to the level of the average for conventional oil. The Council also notes the company's publicly announced plans for a rapid, major expansion in

its production of oil from oil sand, and its substantial oil sand reserves show that the company has a relatively long-term objective of basing much of its oil production on this resource.

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1 Introduction

The Council on Ethics for the Government Pension Fund Global (GPFG) has assessed the fund's investments in Canadian Natural Resources Ltd (Canadian Natural)¹ against the guidelines for observation and exclusion from the GPFG (ethical guidelines).² This was prompted by the inclusion of a new climate criterion in the guidelines with effect from 1 February 2016. Canadian Natural is a substantial producer of oil from the oil sand reserves in Alberta, Canada, an operation that produces considerable greenhouse gas emissions.

At the close of 2018, the GPFG owned 0.96 per cent of the shares in Canadian Natural, with a market value of NOK 2.4 billion, as well as fixed-income securities in the company worth NOK 502 million.

1.1 Matters considered by the Council

The GPFG's ethical guidelines state that companies "*may be put under observation or be excluded if there is an unacceptable risk that the company contributes to or is responsible for... acts or omissions that on an aggregate company level lead to unacceptable greenhouse gas emissions*".

The Council on Ethics has assessed the extent to which Canadian Natural's extraction of oil from oil sand is such that the company should be excluded. Greenhouse gas emissions occur in connection with both the production of oil and its combustion. The Council has assessed only those emissions relating to production. The combustion or use of the oil is largely not undertaken by the company that produces it, and is therefore not included in this assessment.

The report entitled *Fossil-Fuel Investments in the Norwegian Government Pension Fund Global* (the Skancke Report)³ and Report No. 21 (2014-2015) to the Storting [the Norwegian parliament] emphasise the need for the climate criterion to be applicable to different sectors. The assessment is designed to be forward-looking, in that specific and reliable goals for emission reductions, and the company's degree of success in achieving them, will form part of the assessment. The threshold for exclusion is high also with respect to this criterion.

The report to the Storting presumes that the Council on Ethics will, initially, concentrate on sectors with substantial emissions in absolute terms and on companies with high levels of emission intensity. The intention is for greenhouse gas *emissions* to form the grounds for exclusion, and that any decision must rest on a holistic evaluation of each company. The report to the Storting also points out that "... although it is difficult to define absolute targets for emission intensity, it may still be possible to assess comparable companies against each other".

Canadian Natural was one of the first companies that the Council on Ethics assessed in light of the ethical guidelines' climate criterion, and on 30 May 2017, the Council issued a recommendation to exclude the company on this basis. However, the wording of the climate criterion was considered open to a variety of interpretations, and after an exchange of views in 2018 between Norges Bank and the Council on how the criterion should be understood, it became clear that further clarification was required. The Norwegian Ministry of Finance

¹ Issuer ID: 108652

² English language version: <https://www.regjeringen.no/globalassets/upload/fin/statens-pensjonsfond/formelt-grunnlag/guidelines-for-observation-and-exclusion-from-the-gpfg---17.2.2017.pdf>

³ https://www.regjeringen.no/contentassets/d1d5b995b88e4b3281b4cc027b80f64b/expertgroup_report.pdf

published its clarification in Report No. 20 (2018–2019) to the Storting, which the Storting endorsed, see Recommendation 344S (2018–2019).

The Report to the Storting states that companies' absolute emission levels, emission intensity and emission reduction policy and targets may constitute the primary grounds for assessment under the climate criterion. At the same time, the report makes it clear that recommendations must contain a description of any climate frameworks to which the company is subject. According to the report, where a company complies with laws and regulations and is covered by strict climate regulations, such as the EU's Emissions Trading Scheme (EU-ETS), its emissions cannot in themselves be said to constitute an unacceptable behaviour. The report further states that the EU's climate regulations must be considered stringent on the basis of its rules, compliance mechanisms, scale-down factor and emissions cap-and-trade based allowance pricing.

This recommendation is an update of the recommendation issued in 2017. The update relates first and foremost to the description of the climate framework to which the company is subject. The description of the company's activities since 2016 has also been updated on the basis of publicly available reports published by Canadian Natural. However, the company has not been presented with a new draft text of the recommendation to exclude it from the GPFG.

The Council takes the view that the criterion's use of the term "unacceptable" means that companies may be excluded if their greenhouse gas emissions are materially higher than those generated by competing enterprises producing similar goods. In other words, the Council does not work on the basis that the company's operations must be assessed together as a whole for it to be deemed unacceptable at the "aggregate company level". For companies which, for example, produce oil as well as other things, the Council will assess emission intensity for each one's entire oil production segment, but will exclude other parts of the business from its assessment. This is in line with the Report No. 21 (2014–2015) to the Storting, which points out that "... as one of several factors, it seems reasonable to focus on emission intensity and not necessarily on absolute emission levels. Here, emission intensity means the ratio of emissions to, for example, output volume or sales revenues." The exclusion of companies that produce some oil from fields with a high emission intensity, but also derive a substantial proportion of their oil output from conventional fields with a low emission intensity, will not normally be recommended.

Nevertheless, for a company to be assessed, the overall emission level must also be high. The exclusion of companies with an insignificant business which, seen in isolation, may have high specific emission levels compared with similar operations will therefore not be recommended.

The term "unacceptable risk" encompasses both an assessment of the probable emissions produced in connection with today's output and technology, and an assessment of future prospects. The Council is of the opinion that it must be probable that the company currently has operations which reach the threshold for exclusion. In addition, it must be probable that the situation will persist for a reasonable period of time to come. In its assessment of future risk, the Council on Ethics takes the view that weight must be given to specific plans for emission reductions, substantiated by documented investment proposals. Overarching, non-binding goals are of less importance. It is quite common for oil producers to list a reduction in greenhouse gas emissions among their goals. Companies with high emission levels that wish to approach the industry average must, therefore, adopt targets which take into account that this average will change over time. Aiming for a moderate reduction by 2030, for example, could therefore result in the distance to the average being even bigger by the time 2030 comes around.

Based on this, the Council deduces the following factors, to which importance will be attached in its assessment of companies under the climate criterion:

- The company's greenhouse gas emissions on an aggregate level for the relevant production processes.
- The company's greenhouse gas emissions per produced unit, compared with those of other companies producing similar goods.
- The company's plans to reduce emissions to a level that is not materially different from similar industrial activities, and which – at the same time – takes account of the need to reduce emissions as stated in the assessments of the United Nations Framework Convention on Climate Change.
- The regulatory regime to which the company's greenhouse gas emissions are subject.

1.2 Sources

Extensive information exists on the issues linked to greenhouse gas emissions deriving from oil production. When assessing this information, however, a major challenge is the almost complete absence of real or metered emission data; only modelled or estimated emission figures are available. In this case, therefore, the Council on Ethics has, as far as possible, based its assessment on numerical data from recognised, independent institutions. See section 3.2 for further details. Information has also been obtained directly from the company and from its website, in addition to general, open sources.

2 Background

The basis for the climate criterion in the GFPG's ethical guidelines is the scientific consensus that human activity can influence the climate. The international effort to counteract global warming springs out of the United Nations Framework Convention on Climate Change.⁴ Its goal is for the concentration of greenhouse gases to be stabilised at a level that prevents dangerous, human-induced alterations to the planet's climate system.

The Paris Agreement was signed in December 2015. The agreement's objective is for the rise in global temperature to be kept well below 2°C. According to the IPCC's fifth assessment report,⁵ global greenhouse gas emissions in 2050 must be 40–70 per cent lower than in 2010 if this objective is to be achieved. According to the IPCC, oil production is part of the sector that generates the highest greenhouse gas emissions.

The IPCC's assessments and the Paris Agreement's goals are global in scope, and are aimed in principle at governments, not individual companies. Nevertheless, the Council considers that companies with high absolute emissions and a high emission intensity have a particular responsibility to help society to reach these objectives.

⁴ United National Framework Convention on Climate Change:
http://unfccc.int/files/essential_background/convention/background/application/pdf/convention_text_with_annexes_english_for_posting.pdf

⁵ The 5th assessment report of the Intergovernmental Panel on Climate Change (IPCC):
<https://www.ipcc.ch/report/ar5/wg3/>

2.1 Different types of oil

Mineral oil and gas may be found in varying quantities and qualities over large parts of the world. Until recently, “conventional” oil accounted for the lion’s share of global output. However, new technologies and high prices have significantly boosted the production of “unconventional” oil and gas. There are several different definitions for and ways of distinguishing between conventional and unconventional oil. For practical purposes, it is relevant to draw the dividing line according to the hydrocarbon resources’ mobility, i.e. their ability to flow more or less freely in the substrate. The terms are often used as follows:

- *Conventional* oil and gas are hydrocarbons that are mobile and have been trapped in reservoir rock formations because there is a layer of denser rock above that the oil cannot penetrate.
- *Unconventional* oil and gas are either hydrocarbons bound within a type of rock in which they cannot flow freely (eg shale oil and shale gas), or hydrocarbons which have come so close to the surface that the lighter components have broken down or evaporated, leaving an extremely heavy, often almost solid substance, which is therefore not mobile. Oil sand is an example of this latter type of unconventional oil.

A great deal of energy is normally required to produce unconventional oil and gas. For example, oil sand must be heated to a high temperature to make it pumpable and enable the oil to be separated from the ground in which it is absorbed.

The world’s largest known reserves of oil sand are in the Province of Alberta, Canada, and this is where most of the production takes place. Canada’s oil deposits are enormous, exceeded only by Venezuela and Saudi Arabia.

The oil in the oil sand is a viscous, practically solid substance that it is impossible to pump. It must be treated in a plant where it is upgraded and made pumpable by dissolving it in light oils or condensates (DILBIT) or by chemically altering its structure (SCO).

Shallow deposits of oil sand are excavated in open-pit mines, while deeper deposits must be made temporarily pumpable where they lie through the addition of vast quantities of heat in the form of steam, and often also chemicals and other substances that make the oil easier to handle. Several different technologies are used, with *Steam Assisted Gravity Drainage (SAGD)* gradually having emerged as the most common process. Production of oil from these deeper deposits is called *in-situ* production. Before it can be refined, the oil from *in-situ* production must undergo a similar energy-intensive upgrading process as that obtained from open-pit mines.

SAGD technology is under development, with the focus on reducing costs and greenhouse gas emissions. The majority of companies that use SAGD technology have therefore reduced their greenhouse gas emissions, but from an extremely high level.

Independent research⁶ consistently shows that it is considerably more energy-intensive to produce a crude oil that is ready for refining from an average oil sand field than from an average conventional field, and *in-situ* production is, on average, slightly more energy intensive than open-pit operations.

⁶ See footnote 13 for further details.

3 Nature and scope of the Council on Ethics' investigations

3.1 About the company

Canadian Natural is a Canadian company whose most important business activity is the production of oil and gas. In 2018, the company produced around 420,000 barrels of oil per day from oil sand. According to the company's annual report, this accounts for more than half of its oil output. From 2016 to 2018, production of oil from oil sand has more than trebled.⁷ The company is also involved in conventional oil production in Canada, the USA, several locations off the coast of Africa and the British sector of the North Sea. Its oil sand resources are extracted both through open-pit mining and *in-situ* processing using SCO technology.

More than 90 per cent of the company's reserves ("*proven plus probable*") are made up of oil sand. Its reserves of oil sand are increasing, while reserves of conventional oil are decreasing.⁸

According to the company's *Stewardship report to stakeholders 2018*,⁹ the emissions generated by all of its oil production taken together averaged 0.052 tonnes of carbon dioxide per barrel of oil produced. This corresponds to approx. 0.38 tonnes of carbon dioxide per tonne of oil, given a specific gravity of 0.87.¹⁰ This is more than three times higher than for oil production in Europe, and more than twice the global average. See section 3.2 below for further details.

In December 2016, CDP¹¹ published the report entitled *In the pipeline*,¹² in which it assessed 11 major oil producers on the basis of a number of emission-related parameters. The oil sand company Suncor came out worst overall. Canadian Natural was not assessed. CDP has analysed a number of factors, the most relevant for our assessment being that the one company in the survey whose oil production is based on oil sand had the highest emission intensity and the most unfavourable portfolio of production and reserves from a climate point of view.

Canadian Natural does implement measures to reduce greenhouse gas emissions, and has an internal incentive scheme which rewards activities that do so. The company is also participating in research projects to bind carbon dioxide in algae. This project has not come very far and is now being restructured.

The company also participates in COSIA, a network of oil sand producers whose member companies support the development of new environmental protection measures and have pledged to share technology with each other.

⁷ Taken from the 2018 annual report: https://www.cnrl.com/upload/report/113/02/cnq-2018-annual-report_t_w.pdf

⁸ The company's annual report 2018. Footnote 7.

⁹ https://www.cnrl.com/upload/media_element/1250/03/2018-stewardship-report-to-stakeholders_small.pdf

¹⁰ Calculated by the Council on Ethics on the basis of 159 litres per barrel and a specific gravity of 0.87 for the oil. Some uncertainty attaches to the calculation.

¹¹ CDP, formerly the Carbon Disclosure Project, is a well-reputed not-for-profit organisation that collects information on climate-related issues from companies and government authorities in large parts of the world. They provide data to the Intergovernmental Panel on Climate Change (IPCC), among others.

¹² CDP: "In the pipeline. Which oil and gas companies are preparing for the future?"

<https://b8f65cb373b1b7b15feb-c70d8ead6ced550b4d987d7c03fcdd1d.ssl.cf3.rackcdn.com/cms/reports/documents/000/001/327/original/oil-gas-report-exec-summary-2016.pdf?1479834286>

3.2 Energy consumption for different production methods

There is little comparable data available for emissions from different companies engaged in oil production. However, data on the distribution between conventional and unconventional oil, with respect to both current output and companies' reserves, is more readily available. Based on a large number of published scientific studies,¹³ the Council concludes that the production of unconventional oil from oil sand generally leads to substantially higher greenhouse gas emissions than the production of conventional oil. Thus, companies producing a large proportion of their oil from oil sand will also have a high emission intensity in their oil production activities. If, at the same time, a company produces a large overall volume of oil from oil sand, there may be grounds for saying that there is an unacceptable risk of it generating unacceptable greenhouse gas emissions.

The bulk of the greenhouse gas emissions from oil production occur in that part of the process in which the oil, or minerals containing oil, are pumped up or extracted from the ground and upgraded. There are major differences in the greenhouse gas emissions deriving from extraction of different qualities of oil. The refining process produces fewer emissions and they do not vary as much from field to field.

The report entitled *GHG Emission Factors for High Carbon Intensity Crude Oils*¹⁴ looks at the background figures from many relevant studies and compares these with the US Environment Protection Agency's figures for the average of oils produced in or imported to the USA. The report shows that, based on a well-to-tank (WTT) analysis, in other words up until the product is ready for combustion, open-pit production generates on average 78 per cent more carbon dioxide emissions than conventional oil. It also finds that *in-situ* production generates, respectively, 139 per cent more emissions (SCO) and 100 per cent more (DILBIT). None of the models produced less than 56 per cent higher emissions (open-pit, two studies), while the worst performer generated 156 per cent higher emissions (*in-situ* SCO, two studies).

In the same way as for oil sand, additional energy is used to produce shale oil. Together, the production of oil from oil sand and shale oil helped make North America's average emission level for 2016 the world's highest, with 262 tonnes of carbon equivalents per 1,000 tonnes of oil produced. The corresponding figure for Europe was 98 tonnes, and for the Middle East it

¹³ Several models are used to calculate energy consumption in connection with the production of oil. The models include a great many factors, and the most commonly used ones all give slightly different figures. The various models have been compared in several reports. Adam Brandt from Stanford University has simulated the six most relevant models and has looked at the results they give when oil sand is compared with conventional oil delivered to European refineries. This work is described in the report *Upstream greenhouse gas (GHG) emissions from Canadian oil sands as a feedstock for European refineries*.

http://insideclimatenews.org/sites/default/files/assets/2012-05/Brandt_EU_oilsands_Final.pdf. Similarly, IHS-CERA, a firm of analysts based in Cambridge, UK, have examined lifecycle analyses for various types of oil delivered to the US market in its report *Oil sands, Greenhouse Gases, and US oil supply - 2012 update*.

http://www.api.org/~media/files/prosent20oil-and-natural-gas/oil_sands/cera_oil_sands_ghgs_us_oil_supply.pdf. In its 2014 report *Canadian Oil Sands: Life-Cycle Assessments of Greenhouse Gas Emissions*, Congressional Research Service assessed greenhouse gas emissions from oil sand and conventional oil on the basis of different calculation models,

<https://fas.org/sgp/crs/misc/R42537.pdf>. All these meta-analyses conclude that production of oil from oil sand generates materially higher greenhouse gas emissions than conventional oil production. However, there is an extremely moderate overlap, with a marginal number of individual conventional oil fields with higher emission levels than the best oil sand fields.

¹⁴ https://www.nrdc.org/sites/default/files/ene_10070101a.pdf

was 51 tonnes. The world average, including North America, stood at 151 tonnes, according to the International Association of Oil & Gas Producers.¹⁵

3.3 Climate framework

In Canada, greenhouse gas emissions are regulated at both the federal and provincial level. The Council on Ethics has asked Cicero, a Norwegian climate research institution, to analyse the climate framework to which Cenovus is subject, with the emphasis on the conditions that Report No. 20 (2018-2019) to the Storting describe as necessary elements in a stringent framework.

The key findings in Cicero's report are that neither Canada nor Alberta has a cap-and-trade based emission trading system that covers companies like Cenovus. There is therefore no down-scaling factor for access to emission allowances. At the same time, the real carbon price is estimated to be EUR 0.4–3.4, while the comparable carbon price for oil production under the EU-ETS arrangement ranges from EUR 15 (UK) to EUR 52 (Norway, including carbon tax). The main reason for the low carbon prices in Alberta is that although there is a carbon tax of CAD 30, the bulk of the emissions is exempt from it. In addition, Cicero reports that the new provincial government has announced its intention to push the real carbon price significantly lower.

4 Information provided by the company

Canadian Natural states on its website that it employs three strategies in its efforts to reduce greenhouse gas emissions. The company is improving its energy consumption and efficiency, it is reducing its energy intensity, and it is investing in R&D and the development and application of innovative technologies.

The Council on Ethics contacted the company in September 2016. A conference call was also undertaken in April 2017. In its reply, the company stated that it produced approx. 300,000 barrels of oil per day from oil sand in 2015.

The company disclosed that “*Canadian Natural's overall target is to reduce the scope 1 intensity of our different product streams over time*”. It has also established carbon capture projects and has implemented other types of initiatives. All told, greenhouse gas emissions were cut by 5.6 per cent in 2015.

5 Assessment of the Council on Ethics

Based on the information available, the Council on Ethics has considered whether there exists an unacceptable risk that Canadian Natural contributes to or is itself responsible for actions or omissions which, on an aggregate company level, lead to unacceptable greenhouse gas emissions.

Oil production is a sector which, globally, generates high levels of greenhouse gas emissions. It is incontrovertible that, on the whole, production of oil from oil sand reserves in Canada generate materially higher greenhouse gas emissions than conventional oil produced in the

¹⁵ See the International Oil & Gas Producers' report: <https://www.iogp.org/bookstore/product/environmental-performance-indicators-2016-data/>

USA, the Middle East or Europe. Greenhouse gas emissions from *in-situ* production are also higher than those from open-pit extraction. Several independent assessments show that the emissions from various types of oil sand production, even on the basis of WTT analyses, can be more than twice from conventional fields. The Council on Ethics finds that the excess emissions from oil sand fields in general are unacceptably high, even though there are variations in emission levels both between different conventional oil fields and between different oil sand fields.

Canadian Natural is a major producer of oil from oil sand, which accounts for more than 90 per cent of its reserves. Even if the company were at the lower end of the scale for emissions from enterprises producing oil from oil sand, its emissions would still be extremely high. The Council on Ethics attaches considerable importance to the fact that the company's emissions are substantially higher than the industry average, more than twice the global average and several times higher than emissions from the production of oil in Europe. The Council therefore concludes that the company's greenhouse gas emissions are substantial in absolute terms and that its emission intensity is extremely high.

As a result, the Council finds that the company generates unacceptable greenhouse gas emissions at the aggregate company level.

The Council considers that the absence of a cap-and-trade based emissions trading system and corresponding down-scaling factor, as well as a carbon price that is significantly lower than the corresponding cost under the EU-ETS, means that the company is not regulated by what Report No. 20 (2018–2019) to the Storting describes as a stringent climate framework. At the same time, the Council finds that the existing climate framework is not stringent enough to be accorded particular weight in its assessment.

In its assessment of future risk, the Council on Ethics gives weight to the fact that Canadian Natural has no quantified goal for emission reductions. As a result, there is considerable uncertainty regarding the size of any reductions that will be implemented and what the company considers to be an adequate reduction. The Council finds that the target is not sufficiently specific, and therefore concludes that there is a significant risk that the company will generate unacceptable greenhouse gas emissions in the future as well.

The company has a general goal of reducing its emission intensity, which it has also succeeded in doing to some extent. Producers of conventional oil are also cutting their emissions, such that the gap is not necessarily becoming any smaller, particularly with the measures being implemented. With an emission level that is more than twice the global average, it seems unlikely that it will be possible to reduce the company's emissions to an acceptable level.

In its assessment of future risk, the Council on Ethics also emphasises the fact that Canadian Natural has more than 90 per cent of its reserves in oil sand and that this percentage is increasing. The Council therefore presumes that it is the company's relatively long-term objective to continue exploiting this type of resources.

6 Recommendation

On the basis of an overall assessment, the Council on Ethics recommends that Canadian Natural Resources Ltd be excluded from investment by the Government Pension Fund Global, due to an unacceptable risk that the company contributes to or is responsible for acts or omissions that on an aggregate company level lead to unacceptable greenhouse gas emissions.

Johan H. Andresen Chair	Hans Chr. Bugge	Cecilie Hellestveit	Trude Myklebust	Brit K. Rugland
(Sign.)	(Sign.)	(Sign.)	(Sign.)	(Sign.)