

**Paper Reference 1GB0/03**  
**Pearson Edexcel**  
**Level 1/Level 2 GCSE (9–1)**

# **Geography B**

**Paper 3: People and Environment  
Issues – Making Geographical  
Decisions**

**Thursday 13 June 2019 – Morning**

## **Resource Book**

**Do not return this Resource Book with  
the Question Paper.**

**V56339A**

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**For some Figures there is a modified colour and modified black and white diagram. You may use whichever version is easier for you to view. Some diagrams are only in modified colour but you are then provided with a description of the diagram.**

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## SECTION A

### People and the Biosphere

**The issue: Conflicts over oil and the environment for Norway and its people.**

- **Norway meets much of its own energy needs with hydro–electric power (HEP), a renewable source.**
- **Since the 1970s, vast amounts of oil and gas have been discovered offshore and exploited, most of which Norway exports.**

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**The issue continued.**

- **Existing oil fields may soon run dry, forcing Norway to either look for new oil sources or find other ways of maintaining economic growth.**
- **Oil production in deep offshore waters is challenging and expensive, while production in coastal waters threatens the land environmentally.**
- **Many Norwegians think it may be time for the country to turn its back on fossil fuel production.**

# **Introduction**

- **Norway is a developed country in northern Europe which is home to only 5 million people. Much of its wealth comes from oil fields, most of which are owned and managed by the government.**
- **The country is extremely vulnerable to climate change. Much of the taiga (boreal) forest, which covers large areas of Norway, is threatened by rising temperatures.**

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## **Introduction continued.**

- **Norway is a signatory to the Kyoto Protocol and has agreed to significantly reduce carbon emissions from the oil and gas it still uses to power cars and heat homes.**
- **The government of Norway has proposed that the country should reduce its carbon footprint to zero by 2050. Greenpeace has called on Norway to also take responsibility for the 500 million tonnes of overseas carbon emissions caused by its exports of oil and gas.**

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## **Introduction continued.**

- **Norway is an important global player in trying to tackle climate change using technology.**

## Figure 1

# Taiga forest in northern Norway



Key:

 River  Rock  Trees  Clouds  
 Mountains

Figure 2 – Colour

# Predicted changes in the distribution of biomes in northern Europe, 2019 – 2100

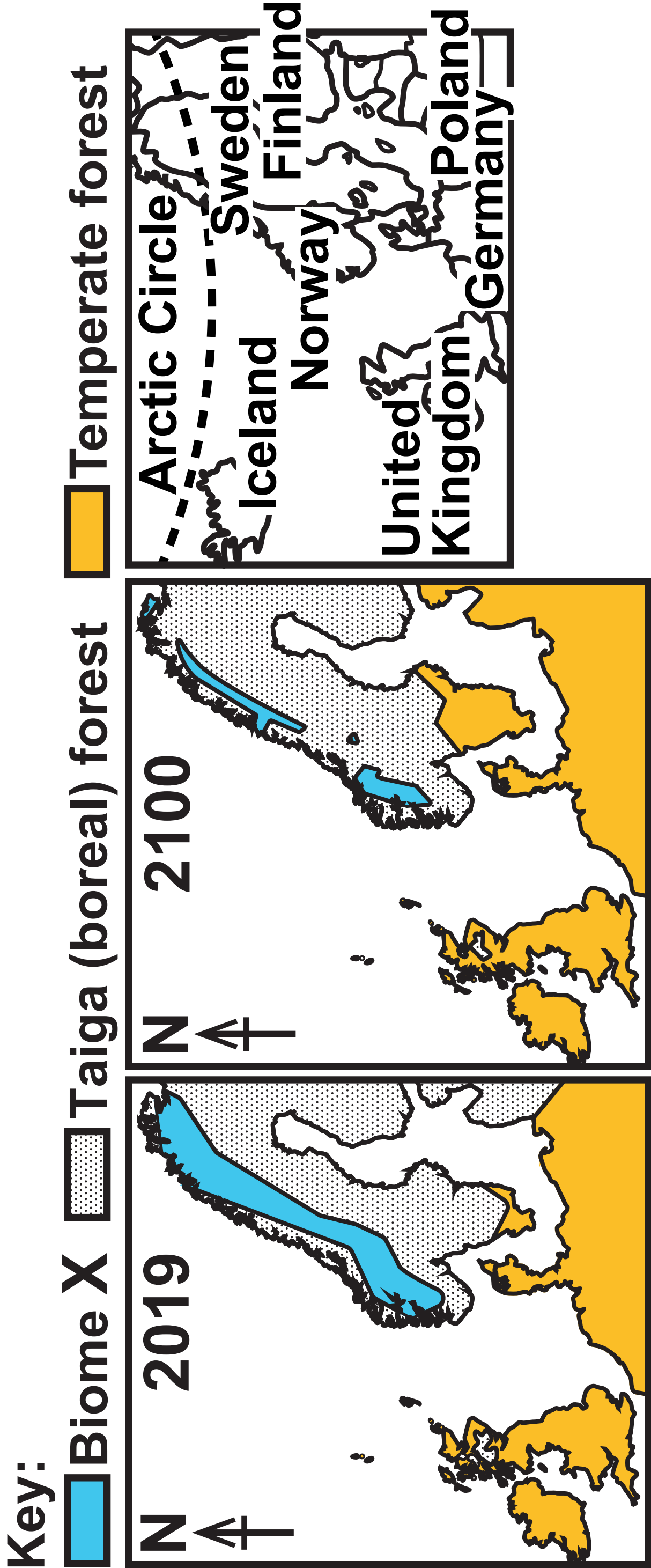
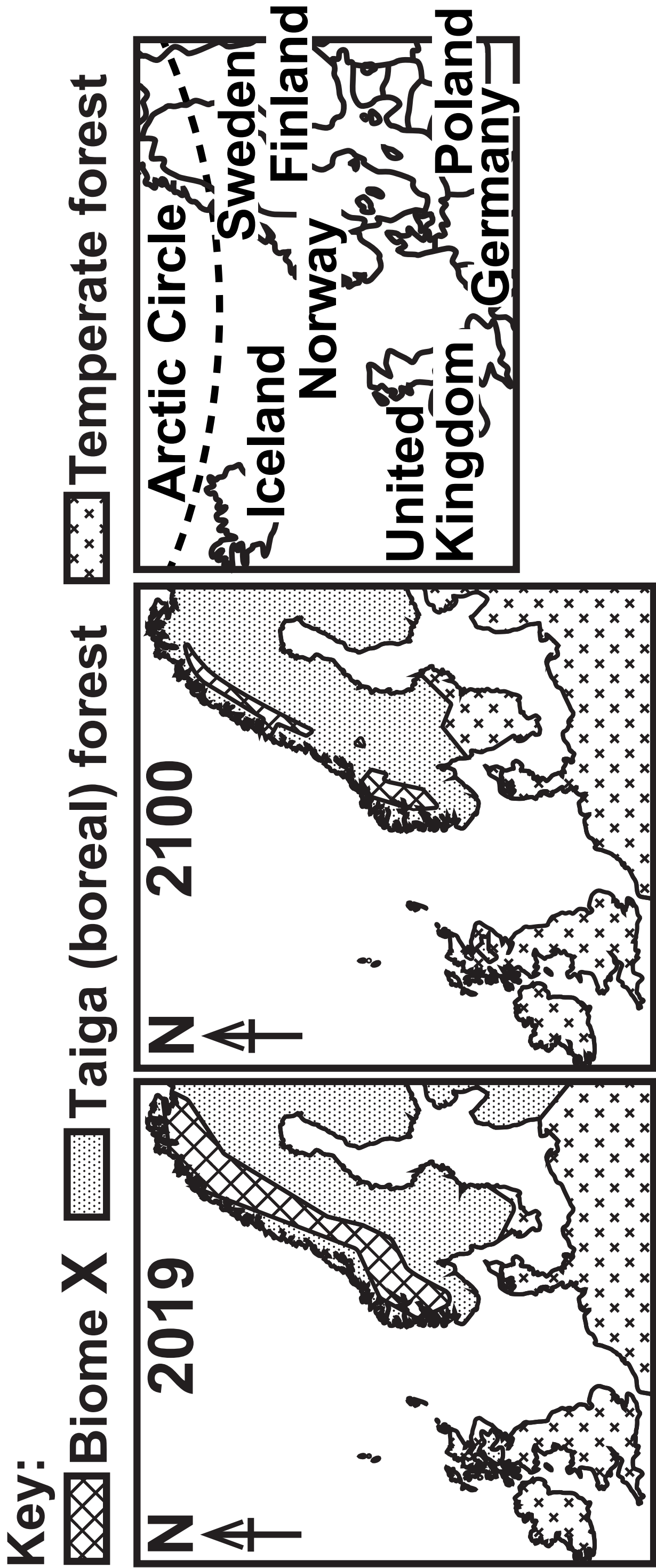




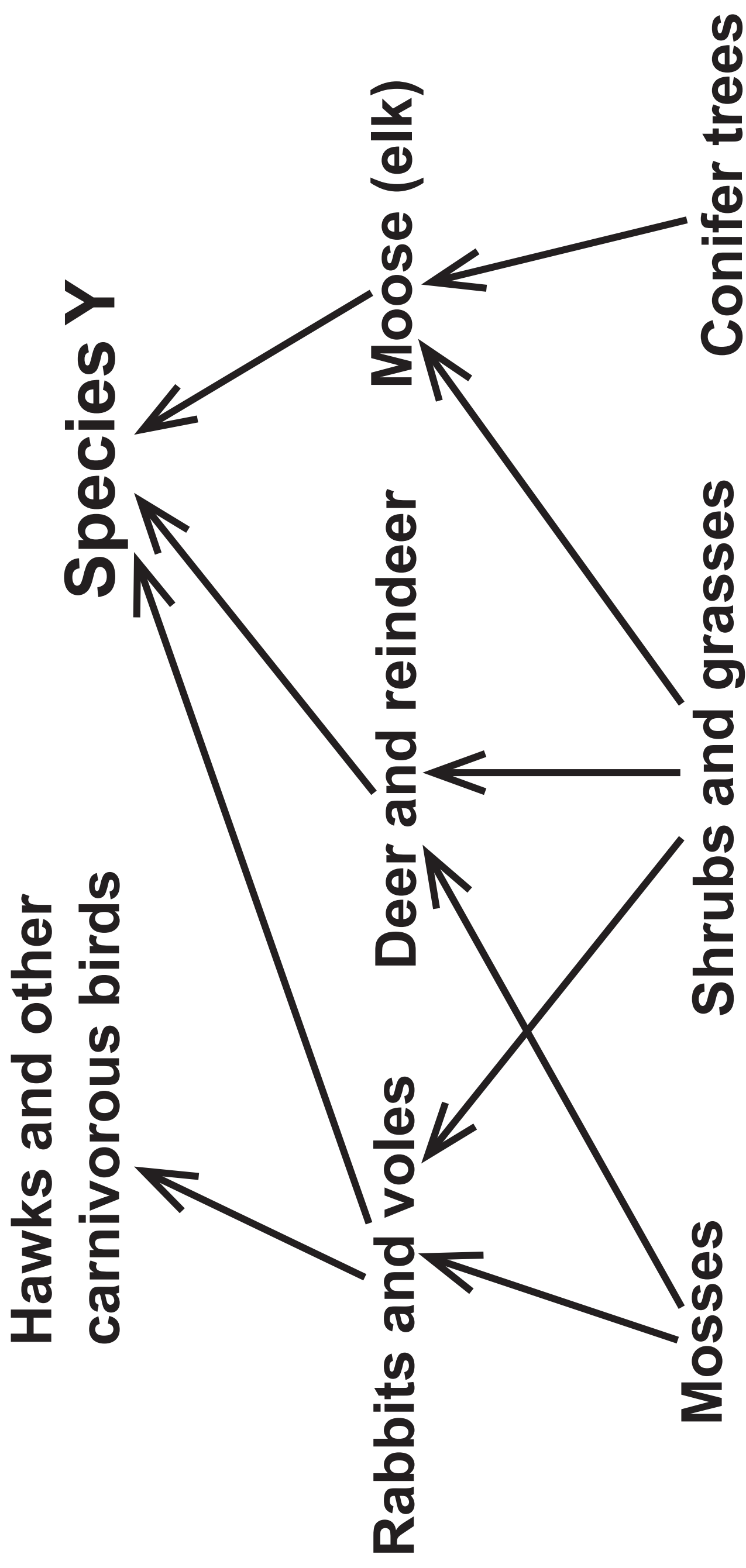
Figure 2 – Black and White  
Predicted changes in the distribution of biomes  
in northern Europe, 2019 – 2100



## SECTION B

### Forests Under Threat

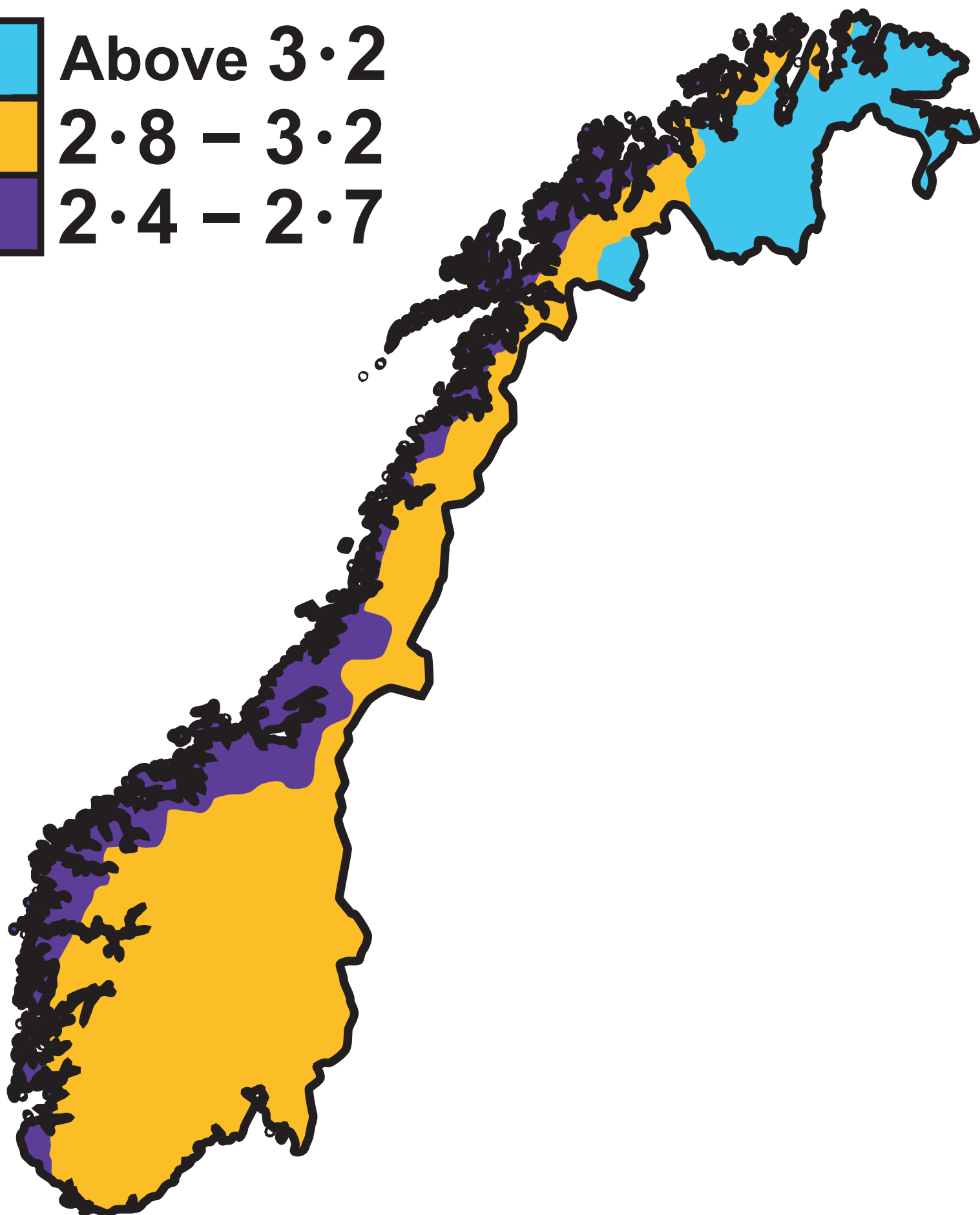
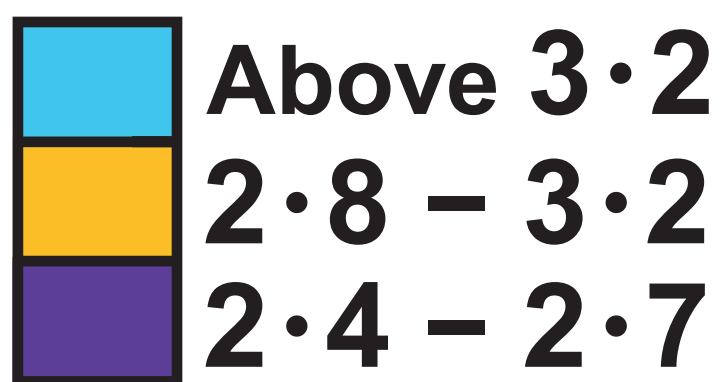
**Figure 3 – A simplified taiga (boreal) forest food web for northwest Europe**



## Figure 4 (Part 1) – Colour

# Projected temperature change (2100) and its possible impacts on Norway's environment

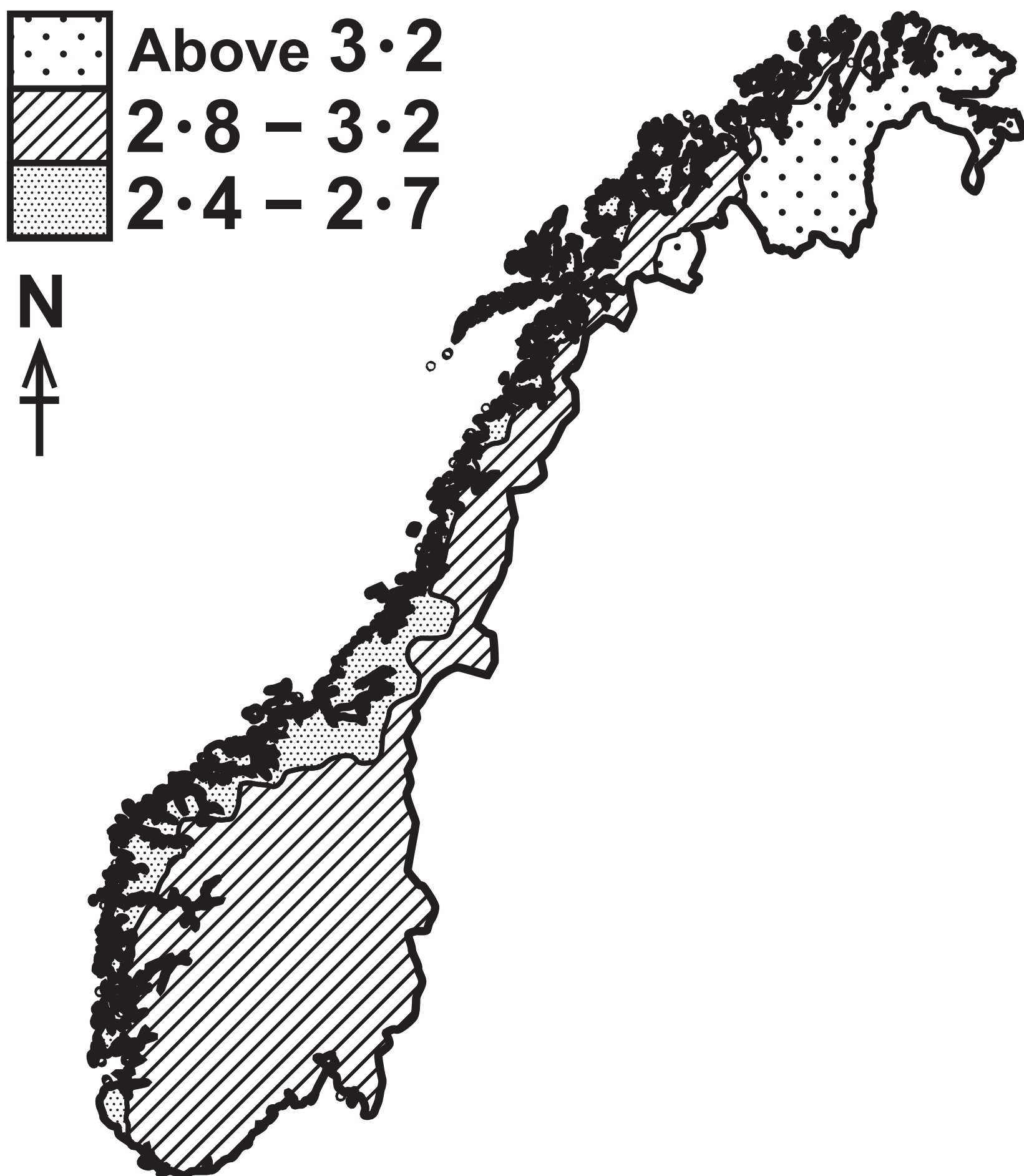
Projected temperature increase (°C)



# Figure 4 (Part 1) – Black and White

## Projected temperature change (2100) and its possible impacts on Norway's environment

Projected temperature increase (°C)



# **Figure 4 (Part 2) – Information Projected temperature change (2100) and its possible impacts on Norway's environment**

- **Higher temperatures could increase the chance of fires from lightning strikes.**
- **A warmer summer will help parasites and pests to spread.**
- **Low temperatures currently make it difficult for some invading species to become established.**

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## **Figure 4 (Part 2) Information continued.**

- **Species in high latitudes are most at threat because they have nowhere else to go.**

## SECTION C – Consuming Energy Resources

### Figure 5 (Part 1) – Colour Key – Energy use fact file for Norway

#### Fossil fuels

 Oil

 Coal

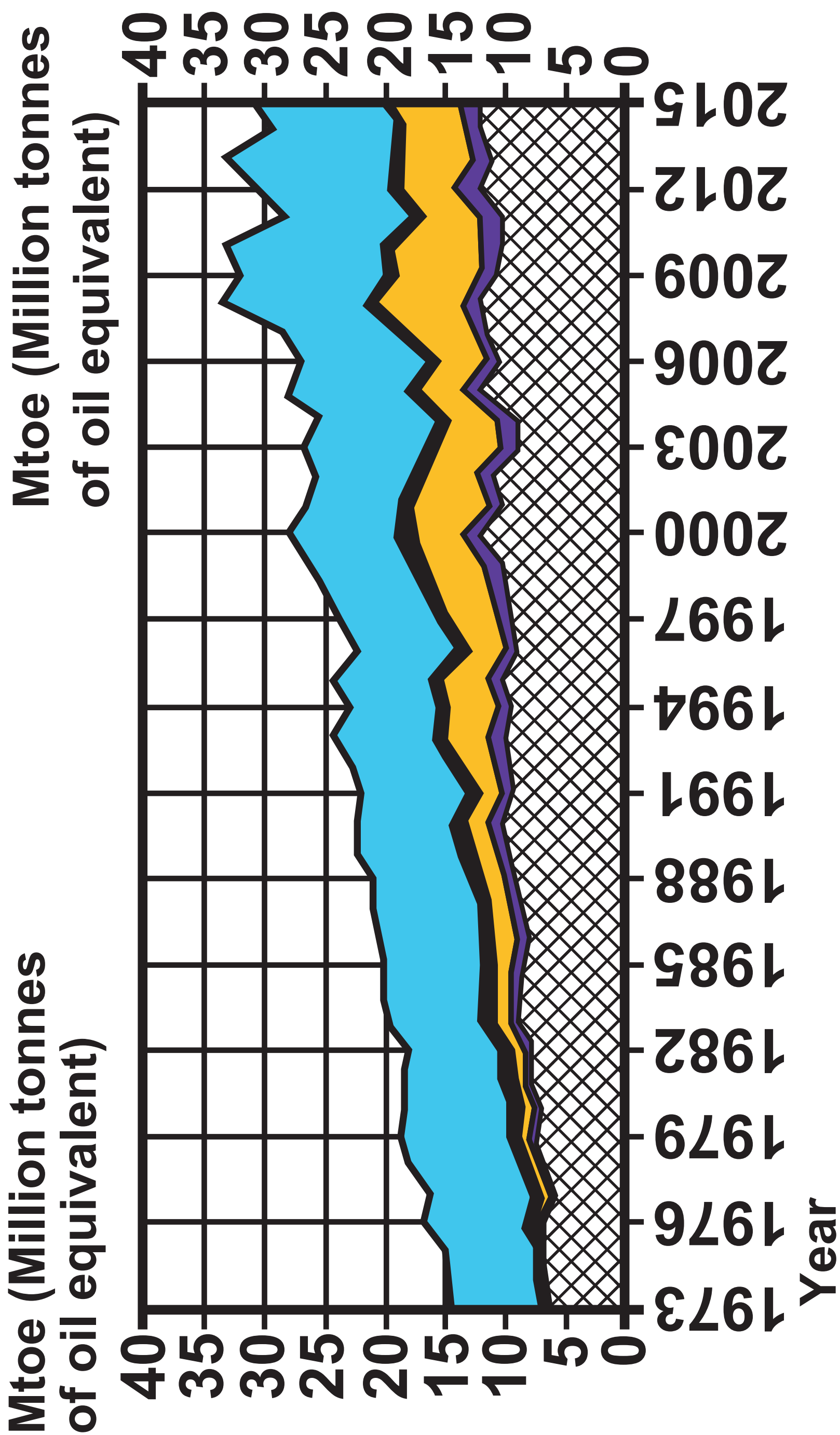
 Natural Gas

#### Renewable energy sources

 Biofuels

 HEP

Figure 5 (Part 1) – Colour – Energy use fact file for Norway



# Figure 5 (Part 1) – Black and White Key Energy use fact file for Norway

## Fossil fuels

 Oil

 Coal

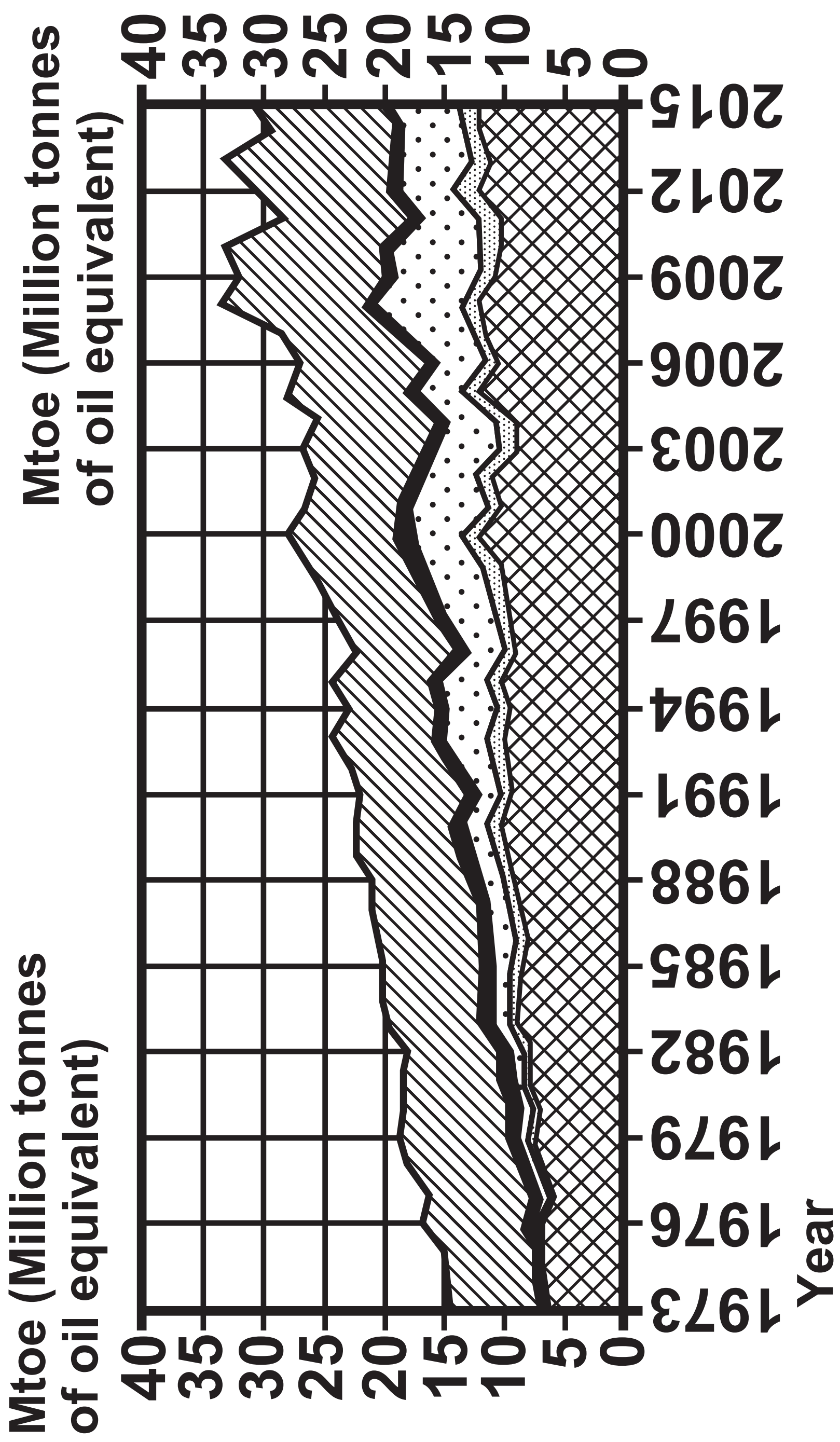
 Natural Gas

## Renewable energy sources

 Biofuels

 HEP

Figure 5 (Part 1) – Black and White  
Energy use fact file for Norway



## **Figure 5 (Part 2) – Information Energy use fact file for Norway**

- **Norway uses about 10 million tonnes of oil annually, most of it for transport.**
- **A significant proportion of the energy Norway uses comes from HEP, including 95% of all electricity production.**
- **Norway was the first country to use a carbon capture and storage (CCS) project. This works by trapping carbon dioxide from burning gas and storing it underground. Although a small-scale pilot project, it offers hope for the future.**

Figure 6 – Oil production and domestic consumption in Norway, 1992 – 2018

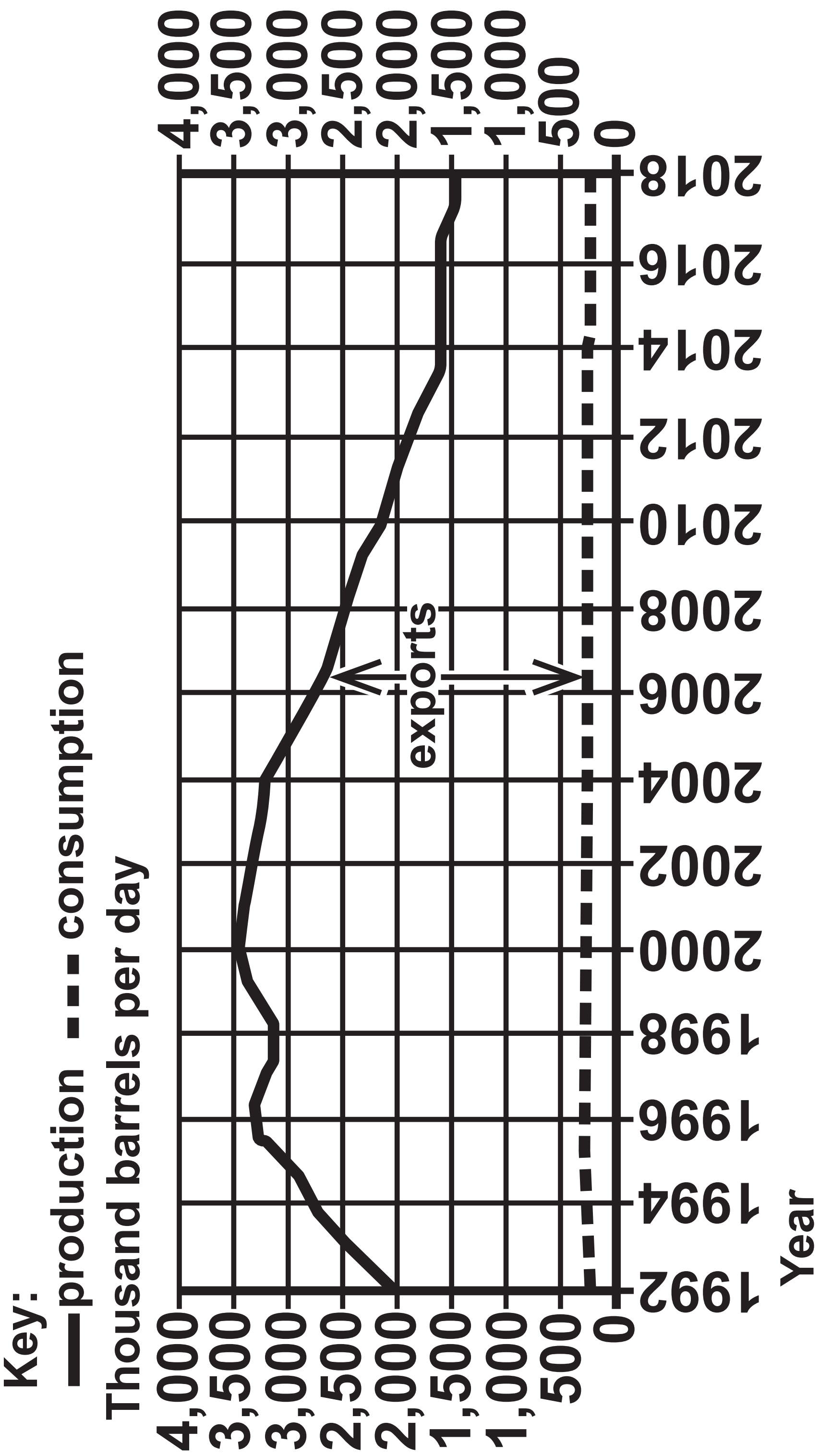


Figure 7 – A comparison of three major oil-exporting countries, 2016

Country	Oil exports as a percentage (%) of total oil production	Population (millions)	Land area (thousand km <sup>2</sup> )	Gross domestic product (GDP) per capita (US \$)	World ranking as an oil exporter
Norway	85	5	323	71,000	12
Russia	77	144	17,125	28,000	2
Saudi Arabia	88	32	2,150	55,000	1



## **Figure 8**

### **Information about Norway's Sovereign Wealth Fund (SWF)**

**Norway's Sovereign Wealth Fund (SWF) is a government-owned bank which uses money from oil sales to make investments globally. The profits from these investments are used to pay for vital services for Norway's people.**

- Norway regularly tops the Human Development Index (HDI) rankings**

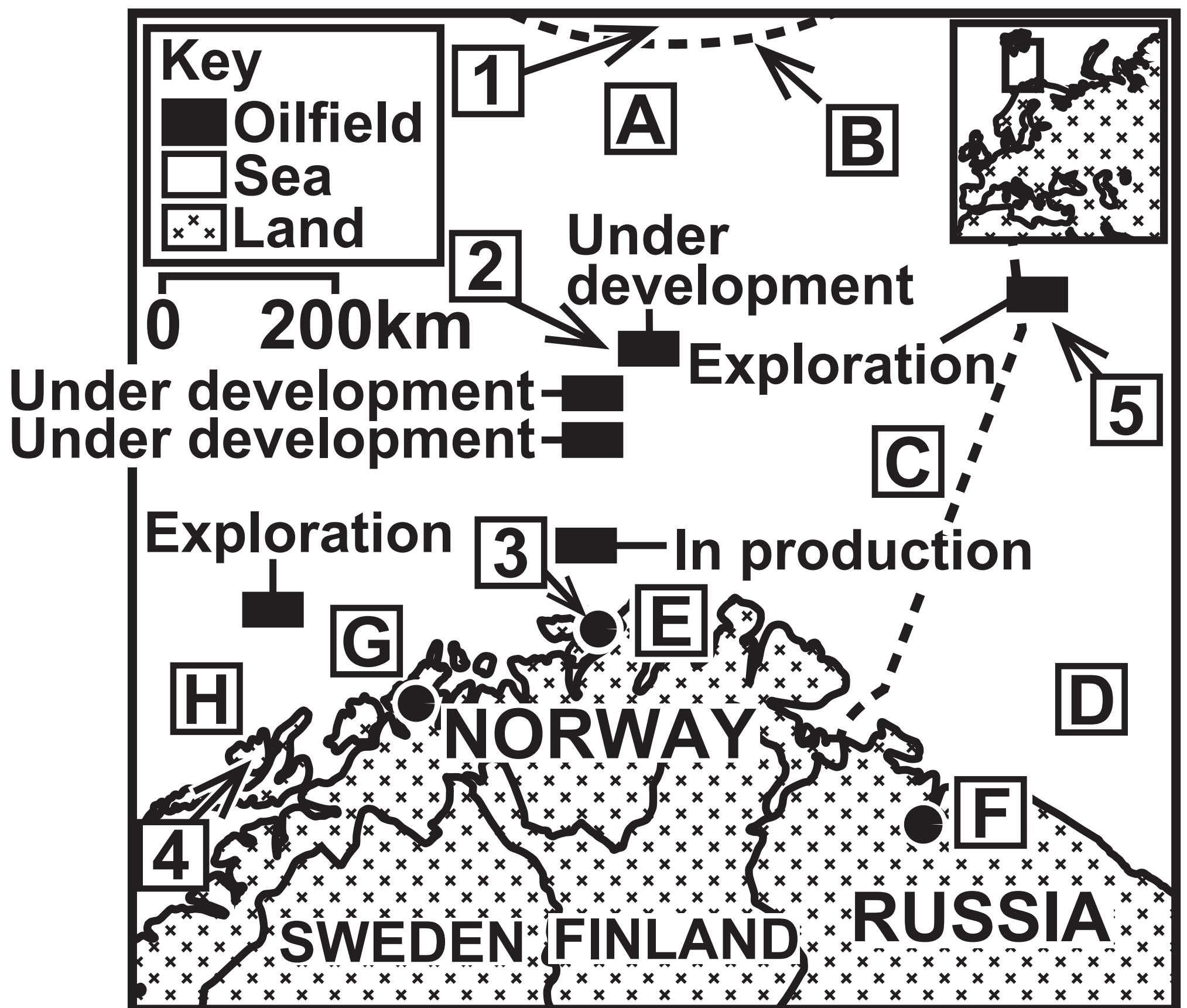
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**Figure 8 continued.**

- **Norway has a very generous welfare system including excellent maternity and childcare provision**
- **Supporters of the SWF say it supports Norway's ageing population**
- **Apple, Microsoft and Nestlé are amongst the 9,000 companies part-owned by Norway's SWF**

## Figure 9 – (Part 1)

# Factors that may affect Norway's future development of new offshore oil sources



## **Figure 9 – (Part 2)**

- 1. Uncertainty over how climate change will affect Arctic Ocean temperature**
  - 2. Technical difficulties to overcome in order to use deep water oil sources**
  - 3. Potential social and cultural costs and benefits for the local population**
  - 4. Enviromental concerns about oil exploration in shallow coastal water**
  - 5. Potential political disputes between neighbouring countries**
- 
- A. Barents Sea**
  - B. Edge of Arctic winter sea ice**
  - C. Norwegian territorial waters**
  - D. Russian territorial waters**
  - E. Hammerfest**
  - F. Murmansk**
  - G. Tromso**
  - H. Lofoten Islands**

## Figure 10

# **Conflicting views about developing the oil resources around Norway's Lofoten Islands**

## **Lofoten Islands fisherman**

**It is totally idiotic to start producing oil here in the Lofoten Islands. There will be oil spills and the fish will die. The government says oil production will bring 400 new jobs but that's a pathetic number.**

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**Figure 10 continued.**

**Conflicting views about  
developing the oil resources  
around Norway's Lofoten Islands**

**Lofoten Islands hotel owner**

**Lofoten is “the Amazon rainforest of Norway.” It is the most unique area, but exploiting oil resources here will ruin everything, and visitors will stop coming. That is why this battle is so important.**

**Figure 10 continued.**

**Conflicting views about  
developing the oil resources  
around Norway's Lofoten Islands**

**Norwegian pensioner**

**We need Norway to stay rich. There are fewer young people than there used to be to keep the economy running. The world is becoming a dangerous place and we need to look out for ourselves.**

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**Figure 10 continued.**

**Conflicting views about  
developing the oil resources  
around Norway's Lofoten Islands**

**Government minister**

**We have always survived as a nation  
by making the most of our energy  
resources. Our Sovereign Wealth  
Fund has long supported remote and  
challenging regions in our country,  
such as the Lofoten Islands. We still  
need as much oil as possible to  
maintain this fund.**

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**Figure 10 continued.**

**Conflicting views about  
developing the oil resources  
around Norway's Lofoten Islands**

**Norwegian university student**

**The Norwegian government is two-faced. On the one hand they say it is time to stop climate change, but they keep selling oil to countries where not enough is being done to reduce carbon footprints. Nowhere will prosper, including the Lofoten Islands, if the world keeps warming.**

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**Figure 10 continued.**

**Conflicting views about  
developing the oil resources  
around Norway's Lofoten Islands**

**Oil company representative**

**I can't see why the fishing and oil  
industries can't coexist responsibly.  
And we'll use the profits from the  
Lofoten Islands' oil to keep  
researching and developing new  
energy technology that could have  
global benefits.**