

**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.**

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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.
- 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.

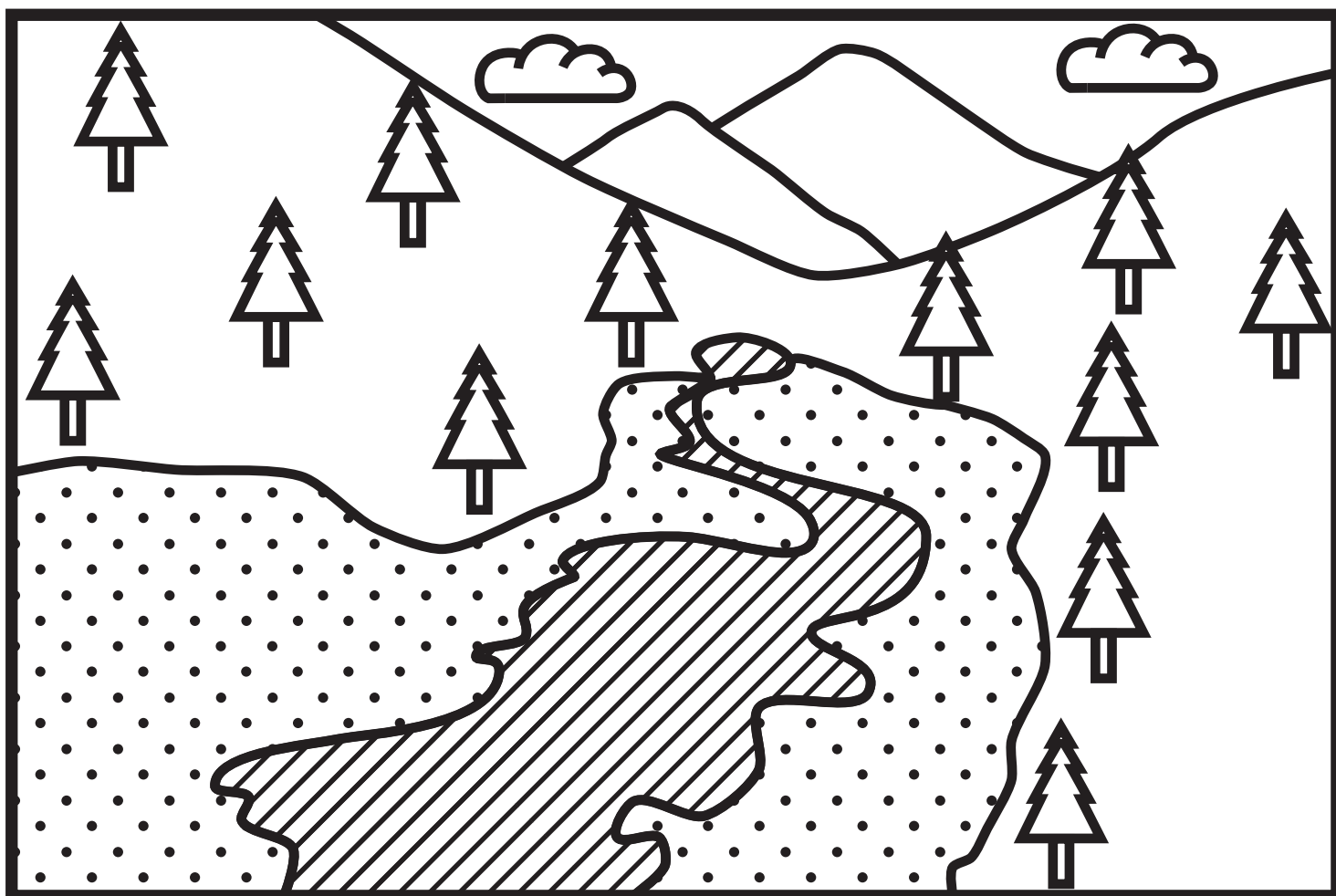
## Introduction

- **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.**
- **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.**
- **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

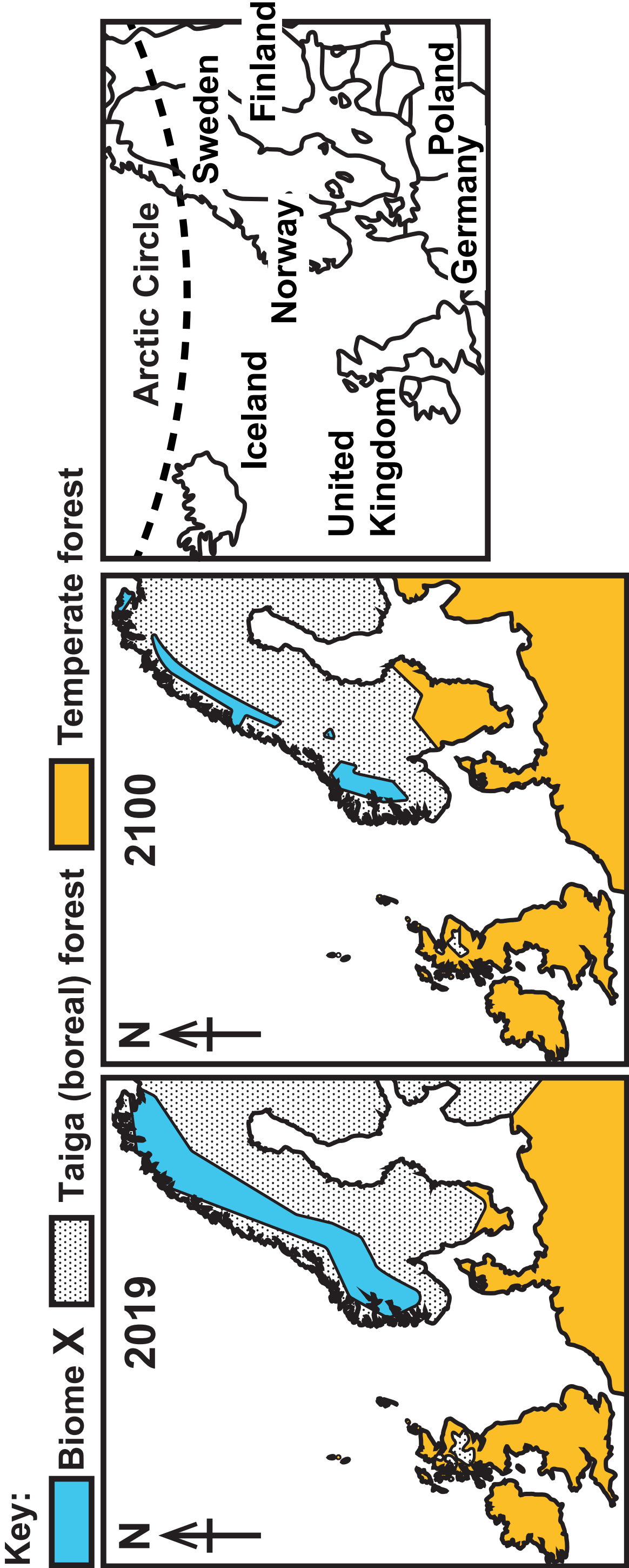
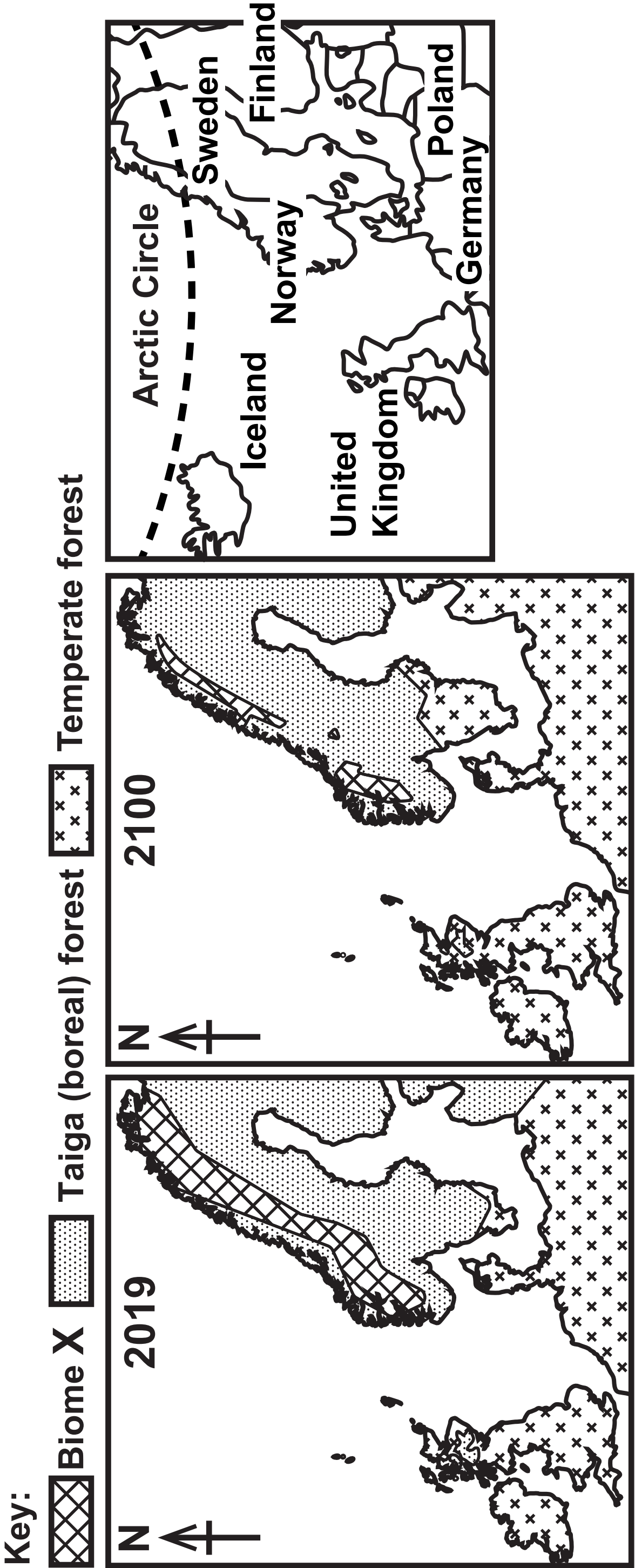




Figure 2 – Black and White  
Predicted changes in the distribution of biomes in northern Europe,  
2019 – 2100





SECTION B

Forests Under Threat

Figure 3

A simplified taiga (boreal) forest food web for northwest Europe

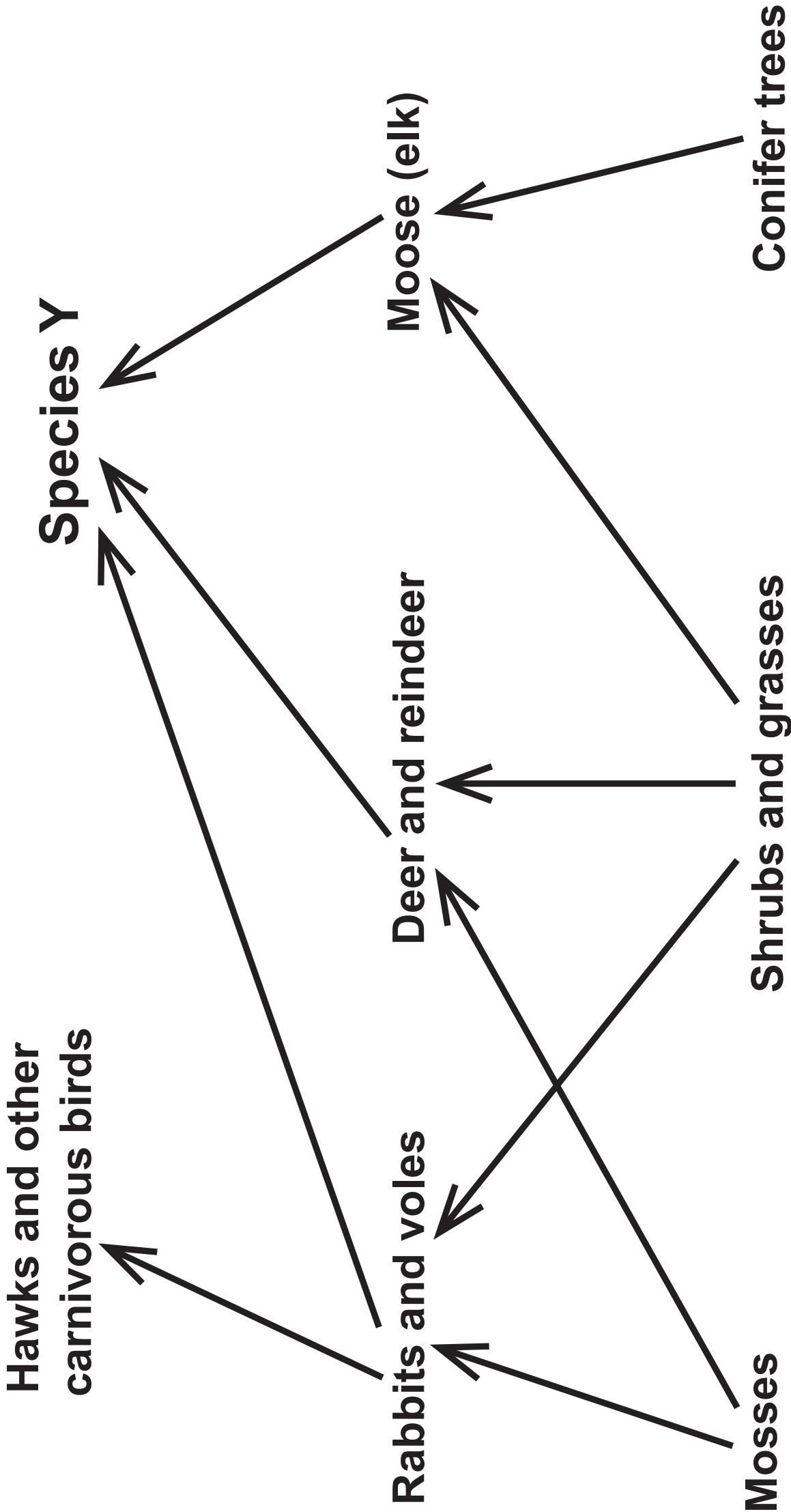
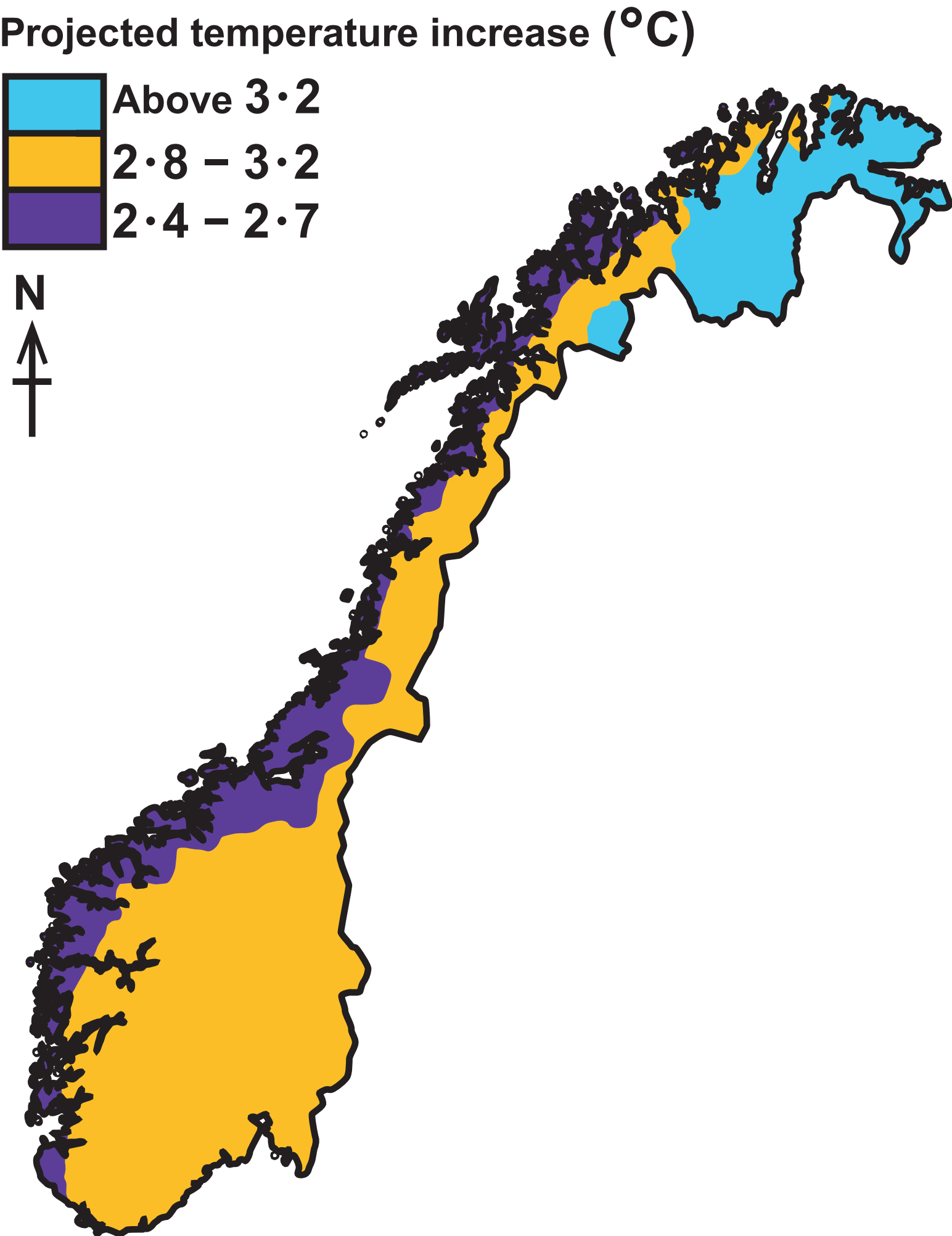


Figure 4 (Part 1) – Colour

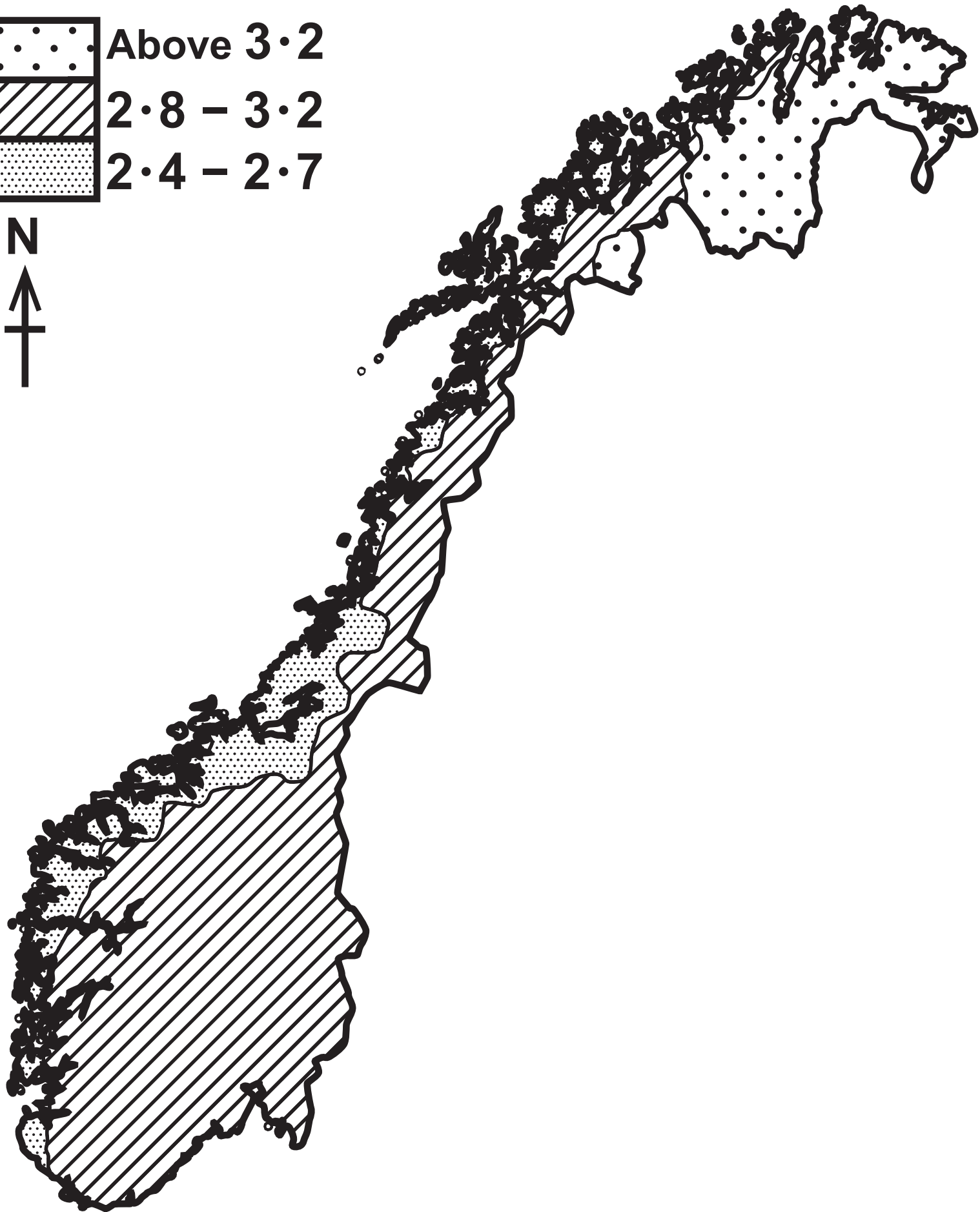
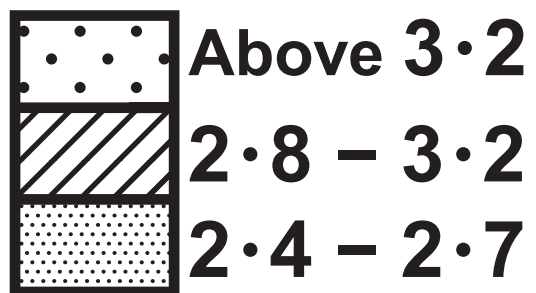
Projected temperature change (2100) and its possible impacts on Norway’s environment



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

Consuming Energy Resources

Figure 5 (Part 1) – Colour

Energy use fact file for Norway

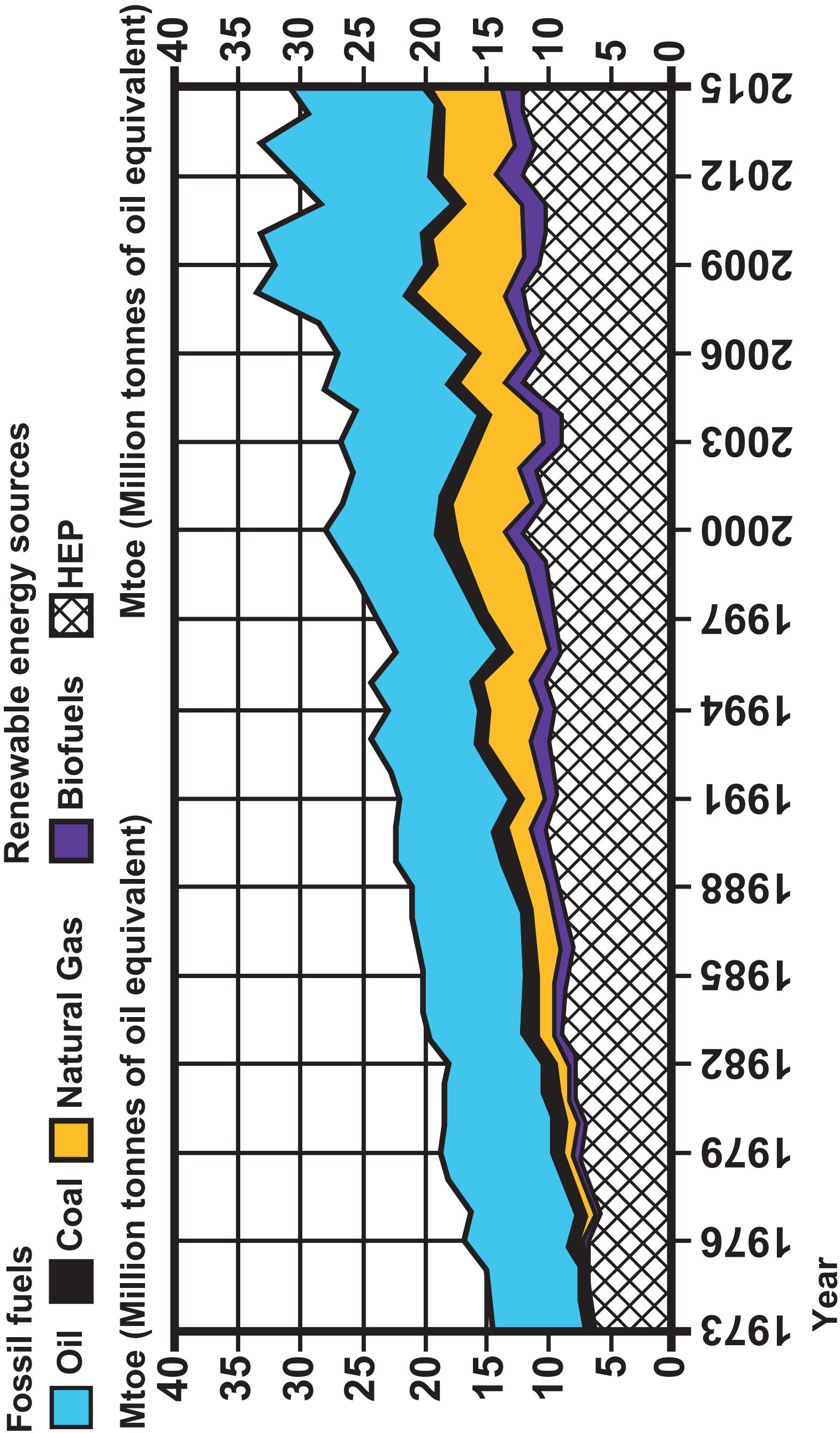
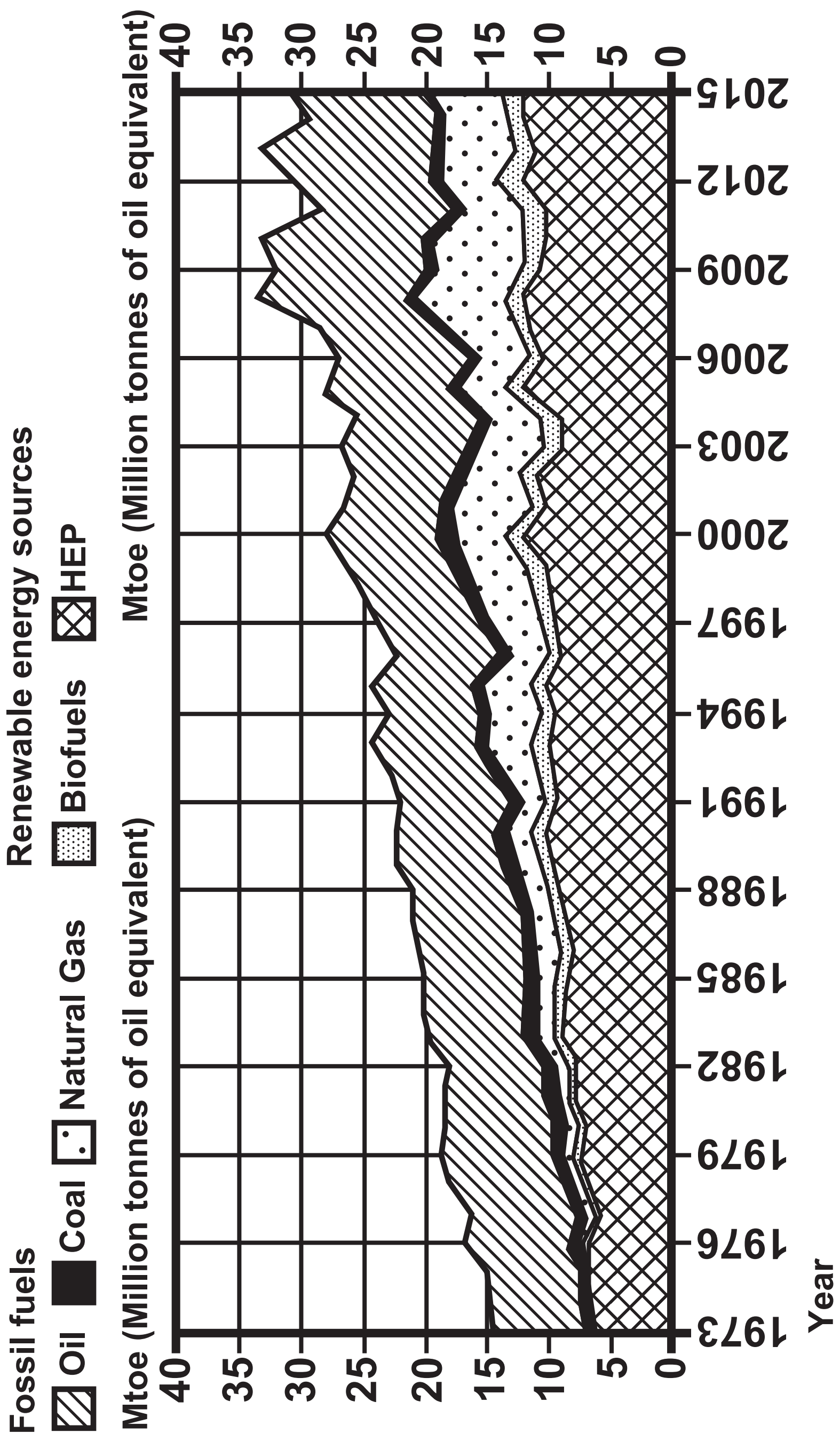




Figure 5 (Part 1) – Black and White  
Energy use fact file for Norway



## 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

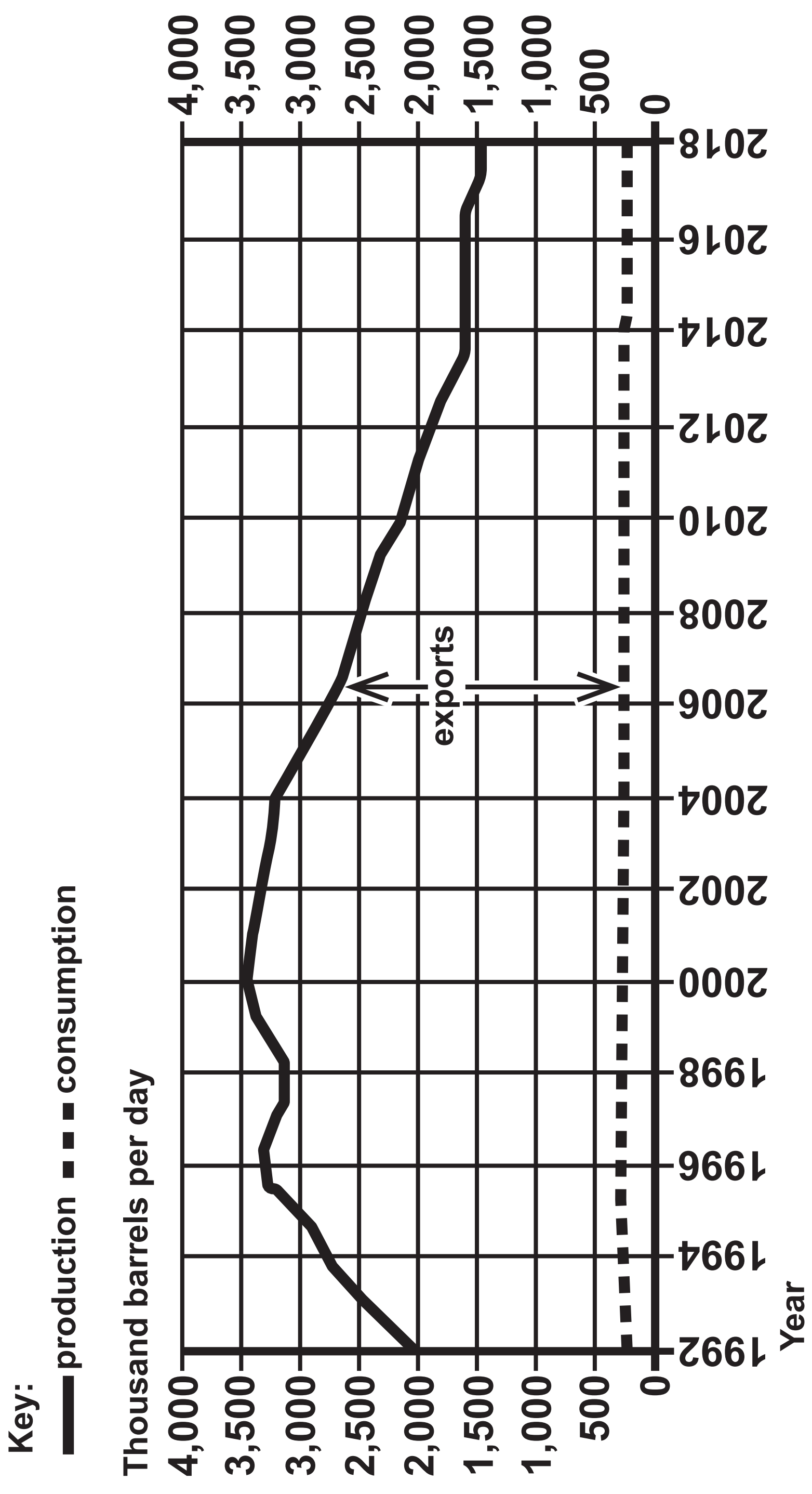


Figure 7

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**

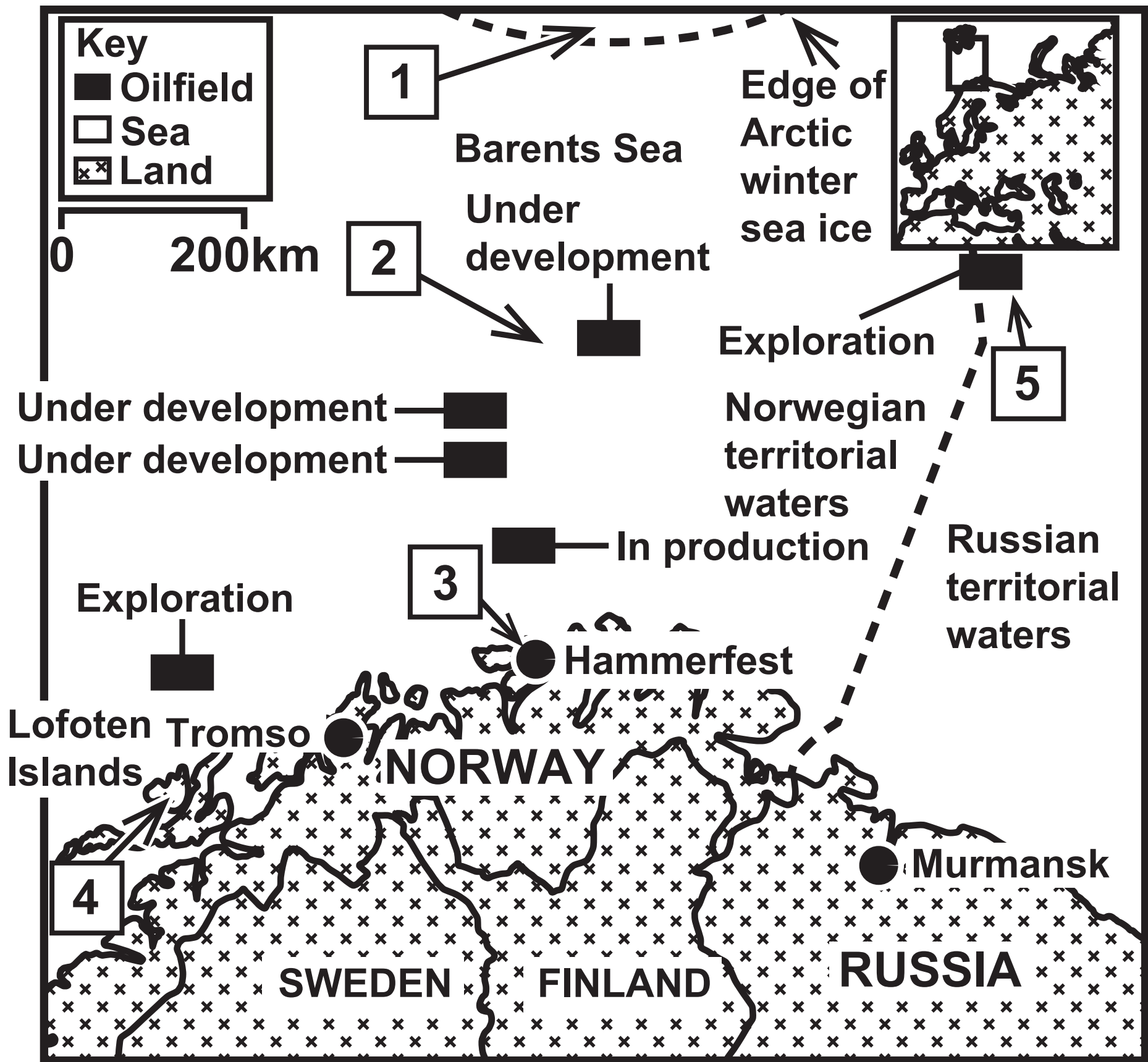
### **Information about Norway's Sovereign Wealth Fund (SWF)**

**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**
- 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**



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



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. Environmental concerns about oil exploration in shallow coastal water
5. Potential political disputes between neighbouring countries

## 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.

#### 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.

#### 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.

### **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.

### **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.