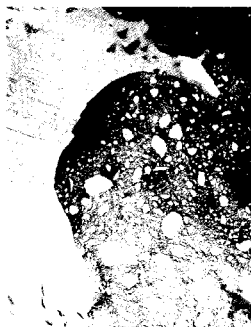


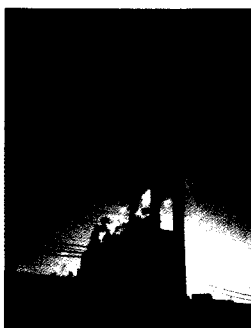
Foreword by Bo Kjellén	8
Authors	8
Introduction	9
Definition of Key Terms	14

PART 1: SIGNS OF CHANGE 19



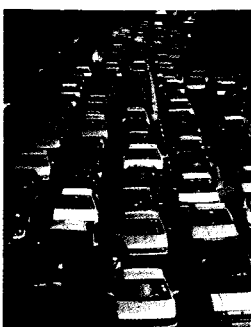
Warning Signs	
<i>New records and observations around the world are consistent with scientists' expectations of climate change.</i>	20
Polar Changes	
<i>Warming in the polar regions is driving large-scale melting of ice that will have both local and global consequences.</i>	22
Glacial Retreat	
<i>Most of the world's glaciers are retreating at unprecedented rates – a clear sign of warming.</i>	24
Everyday Extremes	
<i>Weather-related disasters are becoming increasingly common around the world.</i>	26

PART 2: FORCING CHANGE 29



The Greenhouse Effect	
<i>The increasing concentration of greenhouse gases is trapping more heat.</i>	30
The Climate System	
<i>The entire climate system is adjusting to an increase in the heat trapped in the Earth's atmosphere.</i>	32
Interpreting Past Climates	
<i>Concentrations of carbon dioxide and methane are higher than they have ever been in the last 650,000 years. The Earth is warmer than in the past 1,000 years.</i>	34
Forecasting Future Climates	
<i>Global temperatures are predicted to continue rising.</i>	36

PART 3: DRIVING CLIMATE CHANGE 39



Emissions Past and Present	
<i>Most greenhouse gases have been, and are, emitted to meet the needs of modern industrial societies.</i>	40
Fossil Fuels	
<i>The emission of greenhouse gases from the burning of fossil fuels is the major cause of climate change.</i>	42
Methane and Other Gases	
<i>A range of greenhouse gases contribute to climate change.</i>	44
Transportation	
<i>International trade, travel and a growing dependence on motor vehicles make transportation one of the main sources of greenhouse gas emissions.</i>	46

Disrupting the Carbon Balance

Carbon is essential in the natural environment, but changes in land use may release stored carbon and contribute to climate change.

48

Agriculture

Greenhouse gases are emitted in the production of food. While some agriculture meets basic needs, some simply provides wealthy consumers with the luxury of choice.

50

PART 4: EXPECTED CONSEQUENCES

53

Disrupted Ecosystems

Many species and ecosystems, already at risk from human development, may not be able to adapt to new climatic conditions and stresses.

54

Threatened Water Supplies

Water scarcity is already a growing concern. In some places climate change will make it even more critical.

56

Food Security

Climate change threatens food security, although crop yields in temperate regions may improve.

58

Threats to Health

Climate change threatens human health. The poorest regions are likely to be the hardest hit.

60

Rising Sea Levels

Thermal expansion of oceans and melting ice will lead to a substantial rise in sea level, threatening many coastal communities.

62

Cities at Risk

Coastal erosion, salt-water intrusion into freshwater supplies, and coastal storms all threaten coastal areas – often regions of high population growth and intensive economic development.

64

Cultural Losses

Damage to indigenous cultures, historical monuments and archaeological sites adds to the incalculable economic losses of climate change.

66

PART 5: RESPONDING TO CHANGE

69

International Action

Most countries have acknowledged the problem of climate change by signing the Convention on Climate Change.

70

Meeting Kyoto Targets

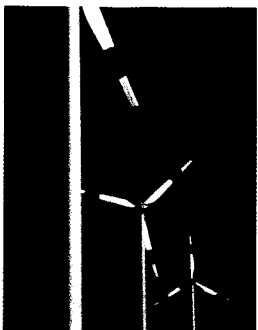
Many countries are making progress towards their Kyoto commitments, but even the agreed targets fall far short of stabilizing greenhouse gas emissions at levels considered to be safe.

72

Carbon Trading

Trading in carbon credits is one way to share the burden of reducing emissions globally.

74



Financing Responses

Current funding is inadequate to help countries respond to climate change.

76

Local Commitment

In many places, local and regional authorities are developing more aggressive emission reduction policies than federal governments.

78

Carbon Dioxide and Economic Growth

Economic growth can be achieved with lower greenhouse gas emissions.

80

Renewable Energy

Renewable energy sources could be the technological key to economically and socially sustainable societies.

82

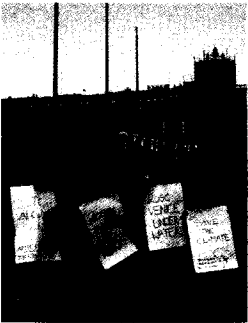
Adapting to Change

The capacity to adapt to climatic hazards and stresses depends on a country's wealth, resources and governance.

84

PART 6: COMMITTING TO SOLUTIONS

87



Personal Action

People all over the world are taking measures to reduce the greenhouse gases emitted as a result of the way they live.

88

Public Action

The policies, practices, and investments of governments, businesses, and civic organizations will have the greatest impact on our future.

90

PART 7: CLIMATE CHANGE DATA

93



Data table

94

Sources

102

Index

110