A Short Guide to Climate Change Risk

Nigel Arnell

GOWER

*

Contents

Lis	st of Figures	ix
Lis	st of Tables	xiii
	st of Acronyms	xv
Acknowledgements		xvii
1	Climate Change as a Business Risk	1
	Introduction: What is Climate Change?	1
	Climate Change and Business Risk	3
	Adapt to Impacts and Opportunities, or Reduce Emissions?	5
		-
	Climate Change and Sustainability	7
	About this Book	8
	Conclusion: Sources of Information	9
2	The Science of Climate Change	13
	Introduction	13
	Is Climate Changing, and Why?	16
	The Physics of Climate Change	19
	The Effects of Changes in the Atmosphere on	
	Weather and Climate	23
	Other Effects of Increasing Greenhouse Gases	24
	Has Climate Change Altered Recent Weather?	25

	How Might Climate Change in the Future?	28
	Forecasts, Predictions and Projections	36
	Conclusion	38
3	The Consequences of Climate Change	41
	Introduction	41
	The Impacts of Climate Change	42
	Changes in climate at a place	45
	Potential impacts by sector	52
	National and international assessments of the impacts of climate change	60
	The Potential Impacts of Climate Change on an Organisation	66
	Reducing Impacts Through Adaptation	69
	Conclusion	75
4	The Politics of Climate Change:	77
	The Regulatory Context	77
	Introduction	77
	International Climate Policy: The Kyoto Protocol	-
	and Beyond	78
	The UNFCCC process	79
	The Kyoto Protocol and beyond	83
	Challenges to the UNFCCC process: where are the problems?	93
	What effect would reducing emissions have on climate change?	94
	Other components of the UNFCCC process	98

	National and Regional Legislation and Frameworks	100
	European Union	102
	UK	104
	USA	113
	South Africa	115
	Overview	116
	Reporting on Climate Risks: Regulation and Voluntary Reporting	117
	Regulatory requirements for reporting	117
	Voluntary reporting of climate change risks	119
	Conclusion	120
5	Assessing Climate Change Risks and Opportunities	123
	Introduction: Addressing Risks and Opportunities through Risk Management Processes	123
	Risk Assessment	129
	Scoping: establishing the context	131
	Risk identification	132
	Risk analysis	139
	Risk evaluation	146
	Information for Risk Assessment	151
	Climate scenarios	151
	Climate scenario sources	159
	Translating climate change into impacts	163
	Conclusion	164

6	Coping with the Risks of Climate Change	167
	Introduction	167
	Approaches to Adaptation	169
	Adapt to current vulnerabilities	170
	Predict and plan	171
	Precautionary approach	172
	Adaptive management	173
	Win-wins	173
	Identifying Adaptation Options	174
	Enhancing adaptive capacity	174
	Adaptation actions Designing and Appraising Adaptation Options	176 179
	Appraisal tools	185
	Monitoring and Evaluation	195
		Conclusion
7	An Overview	199
Inc	Index	