CONTENTS

List of figures and tables	xi
Preface	xiii
Part I Framework and theory	
THE CHALLENGE OF DISASTERS AND OUR	
APPROACH	3
In at the deep end	3
Audiences	6
What is vulnerability?	9
Orientation, scope, and plan of the book	11
Limits and assumptions	14
Limitation of scale	14
Technology and human hazards	15
Notes	17
DISASTER PRESSURE AND RELEASE MODEL	21
The nature of vulnerability	21
Two models	21
Cause and effect in the disaster pressure model	22
The chain of explanation	22
Time and the chain of explanation	26
Box 2.1 Landless squatters in Dhaka	27
Box 2.2 Karakoram hazards	28
Limits to our knowledge	2)
Global dynamic factors	30
Population growth	32
Box 2.3 Population growth, age structure, and	
vulnerabilities	36
Rapid urbanization	37
Global economic pressures	39

	Land degradation and environmental losses	41
	Global environmental change	42
	War as a global pressure	43
	Notes	44
3	ACCESS TO RESOURCES AND COPING IN ADVERSITY	46
	Access to resources	46
	The formal framework: the 'household' submodel	49
	The formal framework: households in society	53
	Incorporating change over time	55
	Box 3.1 Using access models in the real world	56
	The access model and vulnerability	57
	The access model as a research framework	59
	Vulnerability and poverty	60
	Coping in adversity	61
	Coping defined	62
	Types of coping strategies	64
	Preventive strategies	65
	Impact-minimizing strategies	65
	Creation and maintenance of labour power	65
	Building up stores of food and saleable assets	66
	Diversification of the production strategy	66
	Diversification of income sources	66
	Development of social support networks	67
	Post-event coping strategies	68
	Coping and vulnerability analysis	69
	Notes	70
	Part II Vulnerability and hazard types	
4	FAMINE AND NATURAL HAZARDS	75
	Introduction	75
	Famines and conflicting ideas about their causes	76
	Review of explanations of famine	80
	Indian Famine Codes	80
	Influence of disaster vulnerability analysis	81
	Natural hazards and link with food availability decline	82
	Markets and market-failure explanations	84
	Failures of entitlements	85
	Criticisms of the entitlements approach	87
	Access and famine	88
	Policy	94
	Early warning systems	96
	Strengthening livelihood systems	97

	Response to famine from the grass roots	97
	Conclusion	99
	Notes	99
5	BIOLOGICAL HAZARDS	101
	Introduction	101
	Limits to vulnerability analysis?	102
	The perspective of population biology	103
	Livelihoods, resources, and disease	104
	The role of access	105
a,	Vulnerability-creating processes	106
	The micro-environment	106
	Regional social environment	107
	Regional physical environment	107
	Pressures affecting defences against biological hazards	108
	Genetic defences	108
	Box 5.1 The Irish Potato Famine (1845-8)	110
	Environmental defences	112
	Cultural defences	113
	Root causes and pressures: biological hazards and	
	vulnerability in Africa	113
	Steps towards risk reduction	114
	Earlier successes	114
	Policy directions	115
	Box 5.2 AIDS in Africa	116
	Precautionary science	119
	Notes	122
6	FLOODS	124
O	Introduction	124
	Floods and known risks	125
	Disastrous outcomes for vulnerable people	126
	Mortality, morbidity, and injury	126
	Livelihood disruption	128
	Floods and vulnerability	132
	Flooding and deforestation: the causation controversy	135
	Flood prevention and mitigation	136
	Local-level mitigation	136
	Flood prevention	136
	7 / 20 / Andrew Color Technical Medical Color Co	130
	Box 6.1 Bangladesh – A 'tech-fix' or people's needs-based approach to flooding?	138
	Flood avoidance measures	145
		145
	Flood mitigation and preparedness Notes	145
	INOLES	143

7	SEVERE COASTAL STORMS	147
'	Introduction	147
	The physical hazard	149
	Patterns of vulnerability	150
	Contemporary coastal settlement	151
	Coastal livelihoods	152
	Country case-studies	157
	Remote coasts	157
	Densely populated rural coasts	161
	The small island	163
	Rapidly-industrializing coasts	165
	Policy response	166
	Notes	167
8	EARTHQUAKES, VOLCANOES, AND LANDSLIDES	168
Q.	Introduction	168
	Vulnerability to earthquakes	168
	Box 8.1 The Guatemala earthquake, 4 February 1976	170
	Vulnerability to hazard warnings	172
	Box 8.2 The Mexico City earthquake, 19 September 1985	174
	Landslides	182
	Volcanoes and related hazards	184
	Policy response and mitigation	185
	Box 8.3 Case-study: pre-disaster planning,	
	Taal volcano, the Philippines	186
	Box 8.4 Case-study: post-disaster response following	
	the Nevado del Ruiz volcanic eruption,	
	13 November 1985, Colombia	190
	Notes	192
	Part III Action for disaster reduction	
		40.
9	VULNERABILITY, RELIEF, AND RECONSTRUCTION	195
	Introduction	195
	The Peruvian earthquake of 1970	196
	Sudan 1983–92	200
	Principles for managing disaster recovery	204
	Principle 1: Recognize and integrate the coping mechanisms of disaster survivors and local	
	agencies	204
	Principle 2: Avoid arbitrary relief assistance	206
	Principle 3: Beware commercial exploitation	207
	Principle 4: Avoid relief dependency	207
	Principle 5: Decentralize decision-making when possible	208

	Principle 6: Recognize disasters as political events	209
	Principle 7: Recognize pre-disaster constraints	209
	Principle 8: Balance reform and conservation	210
	Principle 9: Avoid rebuilding injustice	210
	Principle 10: Accountability – the key issue	211
	Principle 11: Relocation is the worst option	211
	Principle 12: Maximize the transition from relief to	
	development	212
	Putting it all together: discussion of principles	213
	Educating about the global-local connection	213
	Learning from local people	214
	Conclusion	215
	Notes	216
10	TOWARDS A SAFER ENVIRONMENT	218
10	Introduction	218
	A decade for disaster reduction	218
		219
	'Release' from the pressure	222
	'Living with' hazards	
	Managing a reduction of vulnerability	222
	Principle 1: Vigorously manage mitigation	222
	Principle 2: Integrate the elements of mitigation	224
	Principle 3: Capitalize on a disaster to initiate or to	224
	develop mitigation	224
	Principle 4: Monitor and modify to suit new conditions	225
	Principle 5: Focus attention on protection of the most	220
	vulnerable	228
	Principle 6: Focus on the protection of lives and	220
	livelihoods of the vulnerable	229
	Principle 7: Focus on active rather than passive approaches	229
	Principle 8: Focus on protecting priority sectors	230
	Principle 9: Measures must be sustainable over time	230
	Principle 10: Assimilate mitigation into normal practices	231
	Principle 11: Incorporate mitigation into specific	100
	development projects	232
	Principle 12: Maintain political commitment	232
	Disaster prevention and mitigation	233
	Conclusion: towards sustainable reduction of disasters	233
	Action in the fields and on the streets: tapping the energy	
	of citizen-activists for disaster mitigation	236
	Notes	239
Bil	pliography	240
Inc	dex	277