Health Impact Assessment

Principles and Practice

Martin Birley



publishing for a sustainable future London • New York

Contents

List of	f figures, tables and boxes	xυ	
Forew	xxi		
Forew	ord by Robert Goodland	xxiii	
Prefac	ie	xxv	
About	t the author	xxvii	
Ackno	nwledgements	xxix	
Chap	ter 1 Introduction	1	
1.1	What is health impact assessment?	1	
	1.1.1 Policies, plans, programmes and projects	3	
	1.1.2 Timing of impact assessment	3	
1.2	Who is this book for?	4	
1.3	Why is HIA needed?	5	
	1.3.1 Healthy public policy	7	
1.4	The wider literature		
1.5	1.5 Drivers: internal and external		
	1.5.1 Internal drivers	9	
	1.5.2 External drivers	10	
1.6	Contexts for HIA	15	
	1.6.1 Public versus private	15	
	1.6.2 Project and policy	16	
	1.6.3 Sectors and sub-sectors	16	
1.7	Impact assessment and social investment	17	
	1.7.1 Strategic health management	18	
1.8	Three kinds of health assessment	18	
	1.8.1 Health risk assessment	19	
	1.8.2 Health needs assessment	20	
1.9	Quantification	21	
1.10	Ethics	23	
1.11	Integration and fragmentation		
1.12	When things go wrong: Bhopal	25	
1.13	Exercises	26	
1.14	References		

Chap	ter 2 H	ealth and its determinants	33
2.1	What is	s health?	33
	2.1.1	Biomedical model of health	34
	2.1.2	Socio-environmental model of health	34
2.2	Health	determinants and outcomes	34
2.3	Health	outcomes	36
	2.3.1	Communicable diseases	37
	2.3.2	Non-communicable diseases	40
	2.3.3	Nutritional disorders	41
	2.3.4	Injuries	43
	2.3.5	Mental illness and psychosocial disorders	44
	2.3.6	Well-being	44
2.4	Detern	ninants of health	45
	2.4.1	Individual/family determinants	47
	2.4.2	Physical and social environment determinants	47
	2.4.3	Institutional determinants	48
2.5	Other	categories	48
	2.5.1	Hazards and risks	49
2.6	Health	inequality	49
2.7	Direct	and cumulative impacts	54
2.8	Examp	les of health impacts	54
	2.8.1	Transport	54
	2.8.2	Water	56
	2.8.3	Resettlement	57
	2.8.4	Agriculture	58
	2.8.5	Air pollution	59
	2.8.6	Construction and tourism	61
2.9	Disabil	ity adjusted life years (DALYs)	62
2.10	Epider	niological transition	64
2.11	Health	care	67
	2.11.1	Low-income economies	68
	2.11.2	Developed economies	68
2.12	Health	indicators	69
2.13	Vulner	ability and resilience	69
2.14	An exe	ercise	72
	2.14.1	Mind-mapping	72
	2.14.2	Organizing the health concerns	74
2.15	Refere	nces	74
Chap	ter 3 Hi	istory of HIA	79
3.1	Introd	uction	79
3.2	Interna	ational development	80
3.3	Some of	other national trends	86
3.4	HIA in	WHO	87
3.5	Enviro	nmental health impact assessment	88
	3.5.1	Environmental health areas	88
3.6	Refere	nces	90

Chap	hapter 4 HIA management		
4.1	Procedure	95	
4.2	Screening	95	
4.3	An iterative process	100	
	4.3.1 Screening criteria	101	
4.4	Resources	101	
4.5	Bias	101	
	4.5.1 Form a steering group	101	
4.6	Scoping	103	
	4.6.1 Stakeholders	104	
	4.6.2 Geographical boundaries	104	
	4.6.3 Time boundaries	105	
	4.6.4 Data mapping	106	
	4.6.5 Scoping pitfalls	106	
4.7	Commissioning an HIA	107	
	4.7.1 Example of a poor procurement process	108	
	4.7.2 Figureheads	108	
	4.7.3 Procurement and competence	108	
	4.7.4 Content of a knowledge-level course	110	
	4.7.5 Necessary and desirable skills	112	
	4.7.6 Specialist or generic skills?	112	
	4.7.7 Terms of reference	113	
4.8	During the assessment	114	
	4.8.1 No surprises	114	
4.9	Integration	115	
4.10	Appraisal, review or evaluation	117	
	4.10.1 Method quality	119	
	4.10.2 Process quality	119	
4.11	Budget	120	
	4.11.1 Budgeting for integrated assessment	121	
4.12	Timing	122	
	4.12.1 Examples of timing	123	
4.13	Management plan	124	
4.14	Evaluation and monitoring	124	
4.15	Case study of HIA project management	125	
4.16	Accessibility of HIA Reports	126	
4.17	Exercises	127	
4.18	References	127	
4.19	Notes	128	
Chap	ter 5 Methods and tools	129	
5.1	Introduction	129	
5.2	What HIA is not	130	
	5.2.1 It's not meant to be perfect	130	
	5.2.2 Not a search for truth	130	
	5.2.3 Not a thesis	130	
	5.2.4 Not a prediction	130	

	5.2.5	Not a before-and-after tool	131
	5.2.6	Not a positivist approach	132
	5.2.7	Not for stopping proposals	132
5.3	The na	ature of evidence	132
5.4	Availat	ole evidence	134
5.5	Health	concerns	135
5.6	Exami	ning the health concerns	138
5.7	Engage	ement with informants	138
5.8	Key inf	formants	140
5.9	Comm	unity workshops	141
	5.9.1	How to do a workshop in a low-income country	141
5.10	More o	on 'mind-mapping'	143
5.11	Teleph	none interviews – a case study	145
5.12	Analys	is	148
5.13	Gap ar	nalysis	149
5.14	Policy	analysis	150
5.15	Causal	models	150
	5.15.1	DPSEEA model	151
	5.15.2	Equity models	151
	5.15.3	Quantification	152
	5.15.4	Economic models	155
	5.15.5	Causal trees, networks and flow diagrams	156
	5.15.6	Epidemiology	157
	5.15.7	Designs for before-and-after comparisons	159
	5.15.8	Incorrect analysis	161
5.16	Chang	es associated with the proposal	162
5.17	San Se	erriffe exercise continued	164
5.18	Notes		165
5.19	Refere	ences	165
Chapt	ter 6 Bas	eline report	169
6.1	Introd	uction	169
6.2	Compo	onents of baseline analysis	170
	6.2.1	Baseline data in the UK	171
	6.2.2	Baseline data in low-income countries	171
	6.2.3	Literature reviews and gap analysis	173
	6.2.4	Example gap analysis	173
	6.2.5	International information	174
	6.2.6	Inherent inaccuracies	175
	6.2.7	International inaccuracies	176
	6.2.8	Human rights	176
	6.2.9	Corruption index	177
	6.2.10	Inequality	178
	6.2.11	Trends	179
	6.2.12	Reporting adverse data	179
	6.2.13	Standard components of a health baseline	179

6.3	National information			
	6.3.1	Example of health profiles in the UK	181	
	6.3.2	Examples of national data	182	
	6.3.3	Malaria example	182	
	6.3.4	Sexually transmitted infections example	182	
	6.3.5	Existing health services	183	
6.4	Prima	ary data collection	184	
6.5	Exam	ples of good and bad surveys in developing countries	186	
	6.5.1	Bad example	186	
	6.5.2	Good example	187	
6.6	Plann	ing a field survey of medical conditions	187	
6.7	Ethica	al issues	188	
6.8	Exam	ple of baseline field data for a desert project in a developing		
	count	ry	189	
6.9	Scopi	ng the baseline: A case study in an Industrialized Economy	190	
6.10	Exerc	ise	191	
6.11	Refer	ences	192	
Chap	ter 7 F	rioritization	195	
7.1	Intro	duction	195	
7.2	Risk a	ssessment matrix	196	
7.3	Perce	ption of risk	201	
	7.3.1	An example of risk perception issues	201	
	7.3.2	Classifying risk perceptions	202	
	7.3.3	Voluntary risk takers versus involuntary risk receivers	204	
7.4	The N	VIMBY syndrome	206	
7.5	Econ	omic analysis	209	
7.6	Win-w	vin	210	
7.7	Value	s, standards and thresholds	210	
	7.7.1	Case study: Motorway in Europe	211	
7.8	Resid	ual impacts	212	
	7.8.1	Example of residual impact analysis	212	
7.9	Exerc	ise	212	
7.10	Refer	ences	214	
Chap	ter 8 H	Recommendations and management plan	217	
8.1	Intro	duction	217	
8.2	Mitig	ation hierarchy	219	
	8.2.1	Mitigation examples	220	
8.3	Some criteria for appraising recommendations			
	8.3.1	SMART	222	
	8.3.2	Other tips	223	
. .	8.3.3	Create multiple barriers	224	
8.4	Inappropriate recommendations			
8.5	Timir		225	
8.6	Case study: Resettlement of a fishing village			
	8.6.1	Sophisticated mitigation option	226	
	8.6.2	Simple mitigation option	226	

8.7	Case st	udy: HIA of Commonwealth Games in Glasgow	227
8.8	More examples of mitigation in large-scale overseas proposals		
8.9	Mitigating perception of risk		
8.10	Enhancing positive impacts		
8.11	Off-the	-shelf recommendations	229
8.12	Effectiv	veness of recommendations	230
8.13	Monito	oring	230
	8.13.1	Examples of indicators	231
8.14	Integra	ation	231
8.15	Decisio	on-making	231
	8.15.1	Example	232
8.16	Manag	ement plan	233
8.17	Exercis	ses	234
	8.17.1	San Serriffe exercise continued	234
	8.17.2	An appraisal exercise	234
8.18	Refere	nces	235
Chan	ter 9 W	ater resource development	937
91	Introd	uction	987
9.9	Comm	unicable diseases associated with water	239
0.4	9.2.1	Vector-borne diseases	239
	9.2.2	Malaria and mosquitoes	240
	993	Schistosomiasis and snails	941
	994	Summary of the PEEM method for assessing the vector-horne	<u>4</u> 11
	0.2.	disease impacts of water resource development	944
	925	Diarrhoea and malnutrition	211 948
93	Drinki	ng water	210 948
5.0	931	Case study of Sakhalin integrated impact assessment	240
	939	Case study of arsenic poisoning in Bangladesh	251 951
94	Dams	Case study of arsonic poisoning in Dangradesh	251
95	Resettl	ement	251
3.0	951	Phases of resettlement	255
	959	Risk and resettlement	400 956
	953	Resettler participation	250
	9.5.5	Resettlement funding	207
	955	Managing resettlement	200
96	Migrar	ntanaging resetuement	200
9.0	Waster	vater	209
5.1	071	Case study: Health impacts of a wastewater treatment plant	209
98	Wetlan	de	202
<u>a</u> a	Everci		203
9.9 0 10	Refere		204
5.10	NULLIC	iices	405
Chap	ter 10 I	Extractive industries	269
10.1	Introd	uction	269
10.2	2 Oil and gas		

	10.2.1	Social investment	271
	10.2.2	Joint ventures	271
10.3	Buildin	g understanding and capacity	272
10.4	Screeni	ng	273
10.5	Potenti	al health impacts of oil and gas sector proposals	273
	10.5.1	Exploration	274
	10.5.2	Construction	275
	10.5.3	Operation	276
	10.5.4	Decommissioning	278
10.6	Inform	al settlements	278
10.7	Case stu	udy from the United Arab Emirates	279
10.8	Mining		283
	10.8.1	Case study from Wales, UK	284
	10.8.2	Case study of a mining HIA from the Democratic Republic	
		of the Congo	285
10.9	Some c	haracteristics of mining proposals	286
10.10	Referen	nces	288
Chap	ter 11 H	lousing and spatial planning	291
11.1	Introdu	action	291
	11.1.1	WHO Healthy Cities	291
	11.1.2	Healthy development measurement tool	292
	11.1.3	England	293
11.2	Spatial	planning in England	293
	11.2.1	Local development frameworks and HIA	295
11.3	Case st	udy: Mixed residential development	296
	11.3.1	Active travel example	300
11.4	Case st	udy: Social housing refurbishment	301
	11.4.1	Summary of the proposal	302
	11.4.2	The association between housing regeneration and health	303
	11.4.3	Profile of the community	304
	11.4.4	Analysis of refurbishment	304
	11.4.5	Recommendations	305
11.5	Note		306
11.6	Refere	nces	306
Chap	ter 12 C	Current and future challenges	311
12.1	Introd	uction	311
12.2	Ethics		311
	12.2.1	Involuntary resettlement	313
	12.2.2	Land clearance	313
	12.2.3	Community engagement	313
12.3	Spiritu	al well-being	314
12.4	Effecti	veness of HIA	316
	12.4.1	EC effectiveness study	317
	12.4.2	Chad–Cameroon pipeline case study	319

12.5	Analysis	320	
12.6	Cumulative impacts		320
	12.6.1	Local cumulative impacts	320
	12.6.2	National cumulative impacts	321
	12.6.3	Global cumulative impacts	322
12.7	Climate	e change	322
	12.7.1	Co-benefits	325
12.8	Energy scarcity		326
	12.8.1	Energy return on energy invested	327
	12.8.2	Hubbert's Peak	327
	12.8.3	The vicious spiral	329
	12.8.4	Alternative sources of energy	329
	12.8.5	The energy gap and its implications	329
	12.8.6	Models of change	330
	12.8.7	Associated issues	332
12.9	Conclu	sions	332
12.10	Referer	nces	334
Source	s of furth	per information	339
Glossary and acronyms			343
Index			355