## **Index**

Aboriginal, See Indigenous and Traditional Knowledge	Biological Diversity Advisory Committee, 101, 301
Accidents, See Risk	collaboration-related IA requirements, 300-302
Accountability, 241	democratic-related IA requirements, 245-246
Accreditation, 315-317, 319, 327-330, See also Ethics	Environment Australia, 215
and IA, 327–330	Environmental Protection and Biodiversity Conservation Act
codes of conduct, 327–328	(EPBC), 76, 101, 131–132, 170–171, 214–215, 245–246,
standards, 327–330	300–301, 331–332, 384–385
Adaptation and adaptability, 351, 392	Environmental Institute of Australia and New Zealand, 331
capacity, 384, 392	environmental substance-related IA requirements, 170-171
concepts, 362–364	ethics-related IA requirements, 331-332
consilience, 362–364	Hawke Report, 215, 385
creativity, 363	Indigenous Advisory Committee, 301
definition, 362	influence-related IA requirements, 76
design, 362–363	National Centre for Cooperation on Environment and
flexibility, 357	Development, 101
holistic science, 362, 364	practicality-related IA requirements, 214-215
IA process, 387–388	rigor-related IA requirements, 100-102
IA requirements, 383–387	rationality-related IA requirements, 131-132
ingenuity, 362–363	Threatened Species Scientific Committee, 101, 301
iterative, 357	Western Australia, 262–263
management, 40, 364	Autonomy, See also Democracy
resilience thinking, 362, 364	local, 239–240, 254
strategic choice, 363	
sustainability science, 362, 364	Benefits
Adaptive Environmental Assessment and Management	environmental, 98–99
(AEAM), 350–351, 364–366, 396	to democracy, 99
Adjudication, See Negotiations	Benign, 96
Advice, 287	Biodiversity Assessment, 7, 40
advisory groups, 243	characteristics, 156–157
Advocacy, 241	definition, 157
Africa, 55–56, 92–94, 401–402	good practices, 157
Agreements, See also Negotiations	objectives, 157
benefits, 243	Bioregionalism, 239
environmental, 294	Brazil, 347–348
impact management, 243	
Alternative Dispute Resolution (ADR), 290–295,	Canada
See also Negotiations	Alberta, 52–53, 346–347
Alternatives	and Aboriginal people, 117, 246, 300-301, 331
alternatives to, 133–134	and sustainability, 151–152
alternative means, 135	and Traditional Knowledge, 170, 300
comparative analysis, 27	adaptation-related IA requirements, 384–385
good practices, 26–27	British Columbia, 91-92, 117, 346-347
screening analysis, 27	Canadian Environmental Assessment Agency (CEA Agency),
Arbitration, 294, See also Negotiations	101, 131, 170–171, 214–215, 245–246, 300–301, 384
Argumentation, 287	Canadian Environmental Assessment Act (CEAA), 76,
Auditing, See Follow-up	101–102, 131, 170–171, 214–215, 245–246, 300–301,
Australia	318, 331–332, 384–385
adaptation-related IA requirements, 384-385	Canadian International Development Agency (CIDA), 401–403
and indigenous people, 245, 300	Canadian Nuclear Safety Commission, 171
Australian Heritage Committee, 101	collaboration-related IA requirements, 300-301

Canada (Cantinuad)	abarrataristias 201 202
Canada (Continued)	characteristics, 391–392
Commissioner for Environment and Sustainability, 170, 215	definition, 392
democratic-related IA requirements, 246–247	distinctions, 391–392
environmental substance-related IA requirements, 151–152,	good practices, 393–395
170	guidelines, 395
ethics-related IA requirements, 331–332	institutional arrangements, 395
Fisheries Act, 170	process design, 392–394
Health Canada, 385	process management, 395
influence-related IA requirements, 76	requirements, 395
Mackenzie Gas Project, 151–153	types, 392, 393–394
National Energy Board (NEB), 171, 246, 301, 331	vulnerability, 392
National Round Table on Economy and Environment, 76, 101 New Brunswick, 228–229	Collaboration, 295–299, 312–314 active mediation, 296
North American Agreement on Environmental	and sustainability, 261–262
Cooperation, 246	coalition building, 296
Northwest Territories (NWT), 170	collaborative governance, 297
Nova Scotia, 228–229	collaborative modeling, 297
Nuclear Waste Management Organization (NWMO), 116–117	collaborative planning, 297
practicality-related IA requirements, 214–215	collaborative public participation, 297
Ontario, 117	co-management, 297, 298
Quality Assurance Program, 318	community-based IA, 118, 298
Quebec, 186–187	community engagement, 298
rigor-related IA requirements, 100–102	concepts, 296–298
rationality-related IA requirements, 131–132	consensus building, 297–298
SEA Cabinet Directive, 215, 384–385	constructive engagement, 298
Species at Risk Act, 170	creative collaboration, 282
Yukon Territory, 170	definition, 261, 295
Capacity building	democratic deliberation, 298
adaptive, 364	environmental justice, 296
and Climate Change Impact Assessment, 395	goals, 277
and democratic IA, 258	good practices, 276
and IA, 240, 258, 284, 301–302, 308–312, 383, 401–403	group opportunity-seeking, 296
applied to what, when and when, 308-309	group problem-solving, 296
by and whom, 308–309	joint fact-finding, 296
definition, 308–309	joint management, 282
distinctions, 308–309	joint planning, 282, 296
for and by whom, 309–310	joint problem-solving, 298
good practices, 310	methods, 282
means, 309–312	networking, 296
purposes, 309–310	partnering, 296
Catastrophe, See also Disasters and Problems, 353	principles, 277
Causation, 96	procedural justice, 296–297
Certainty See Uncertainty	shared vision planning, 298
Challenges	working groups, 296
contemporary, 4,10, 18, 46–49, 84, 111–112, 139–148,	Co-management, 236, 297, <i>See also</i> Collaboration and
179–183, 222–225, 254–258, 308–312, 337–334, 391–395,	Management
418–429	Competence, 204–211
Chaos	good practice examples, 207–208
characteristics, 354 policy, 348–349	related problems and solutions, 209–211 roles and responsibilities, 205–206
Choice	Communications, 313
strategic, 127, 202, 363	advice, 287
Climate change	argumentation, 287
and IA, 391–394, 398	communicative
definition, 391	action, 286
impact from, 393–394	ethics, 286
impact on, 393–394	planning, 286
Climate Change Impact Assessment (CCIA), 351, 369,	concepts, 285–287
392–395, 398	definition, 285
adaptive measures, 372	dialogue, 281, 286
capacity building, 395	discourse, 286

analysis, 286	and rationality, 122
ethics, 286	and SEA, 8
enhanced dialogue, 281	applied level, 420–421
goals, 275–276	definitions, 419
good practices, 275–276	institutional 6
methods, 281, 285	international, 28–30
misinformation, 286–287	legal, 6
networks, 287	regulatory level, 420–421
persuasion, 287	types, 31, 354, 413
principles, 275–276, 285	uncertainty, 357
process, 285	Contradiction, See Problem
publicity, 281	Costa Rica, 118
story-telling, 287	Creativity, See Adaptability
Community development, 239	Crises, See Emergencies, Problems and Risks
Communitarian, 239	Cumulative Impact Assessment (CEA), See Cumulative Effects
Competence, 191–193	Assessment
Complexity, 354–354	Cumulative Effects Assessment (CIA), 222-226
and analytic science, 96	and decision making, 225
antagonistic, 356	and future actions, 225
dynamic, 355	aspirations, 223
emergent, 355	definitions, 222–223
feedback, 355–356	distinctions, 222–223
heterogeneous, 356	good practices, 188–190
incoherent, 356	implementation of, 225
incomplete control, 356	levels, 224–225
interdependent, 356	management of, 225
irreducible, 356	methods, 224
irreversible, 356	process, 223–224
nonlinear, 355–356	state of practice, 91–92, 223
random, 356	strategic, 346–347
resilient, 356	types, 223
self-organizing, 355	types, 223
surprise, 356	Deduction, 95
synergistic, 356	Delegation, 256
turbulent, 355	Deliberation  Deliberation
uncomputable, 356	democratic, 298
•	
unpredictable, 356	Dialogue, 286 Dispeters, 260, 270, 271, See also Emergencies and Bigle
unstable, 355	Disasters, 369, 370–371, <i>See also</i> Emergencies and Risk
variable, 356	and IA, 370–371
Consensus building, 297–298, See also Collaboration	Discourse analysis, 243, 286, <i>See also</i> Communications
Conciliation, 293, See also Negotiations	Dispute Review Board, See Negotiations
Conflict, 293, See also Negotiations	Democracy
anticipation, 293	affected people and communities decide, 237–238,
assessment, 293	241
management, 293	and IA practice, 235–236
theory of, 293	benefits, 99
Consilience, 96, 363–364, See also Adaptation	concepts of, 239–243
Consistency, 187–188	definition, 233
Consultation, 278, 313	democratic deliberation, 298
continuous involvement, 281	detrimental effects on, 99, 227–228
formal involvement, 281	direct, 233
goals, 274–275	IA process, 244, 247–249
good practices, 274–275	IA requirements, 244–246
information exchange, 281	ladder of
methods, 281, 284–285	democratic control, 237
principles, 274–275	regulatory control, 238
process, 283–285	people decide, 235–237
Context	power imbalance corrections, 241-244
and EIA, 28	theory, 233
and IA, 6, 199-201, 203, 354, 360, 389-390, 406-407,	Disasters, See Emergencies, Problems and Risk
418–423	Dilemma, See Problem

Discourse, See Communications	Environmental substance
Duties, 320-321, See also Ethics and Rights	substantive IA process, 172, 174-176
about, 326	substantive IA requirements, 169-173
of, 326	Environmental Impact Assessment (EIA)
to, 326	adaptation practice, 389, 391
	and context, 28–30
Ecology, 156	and decision-making, 7, 14
applied, 157	and other IA types, 7, 9-10, 74, 107, 173, 399, 415-417
deep, 243	and related actions, 28
politics, 243	and science, 107–110
sciences, 157	and sustainability, 165-168
Ecological Impact Assessment (EcIA)	choices –applied level, 27–34
adaptation practice, 390–391	choices - regulatory level, 23–27
and other IA types, 7, 9–10, 40, 43, 45, 157, 415–417	collaboration practice, 305–306
characteristics, 156–157	definition, 5
collaborative practice, 305–308	democratic practice, 250, 252
conceptual framing of, 40, 43	ethical practice, 335–336
definition, 7, 156–157	good practices, 25–34
democratic practice, 250–252	influential practice, 55–56, 80–82
ethical practice, 335–336	integrated, 158
influential practice, 82–84	practical practice, 220, 222
institutional framing of, 40	process 7, 26–27, 31–37
procedural elements of, 7, 40–41, 43	rational practice, 136–137, 139
practical practice, 221–222	rigorous practice, 107–108, 110
purposes and objectives, 7, 43, 157	substantive practice, 177, 179
rational practice, 137–139	types, 74
rigorous practice, 108–109	Episodes
substantive elements, 40–41, 43	professional, 198
substantive practice, 177–178	Equity, 319–321, See also Ethics and Fairness
types, 40–41	distributional, 323
Ecosystem	intergenerational, 263
approach, 158	outcome, 323
management, 158	procedural, 323
Education, 313, See also Learning and Traditional Knowledge	Errors, 102, 358, See also Uncertainty
critical, 288–289	Ethics, See also Duties and Rights
expert elicitation, 289	and IA, 319,327–328
knowledge brokerage, 289	applied, 320
mutual, 276, 281–282, 288, 313	communicative, 286, 323
Effectiveness and ineffectiveness, 191, 193,	communitarian, 323
206, 226	consequentialist, 322
methods, 187–188	critical, 323
of EIA practice, 262–263	definition, 315, 319–320
of IA practice, 31, 54–55, 187–188, 212–213	deontological, 322
of institutional arrangements, 206	dilemmas, 316, 327–329
procedural, 54–55	discourse, 286, 323
targeting sources of, 203	distinctions, 315, 320–321
substantive, 54–55	duties, 320–321, 324
Efficiency and inefficiency	egalitarian, 323
targeting sources of, 203	environmental, 323
Engagement, See also Collaboration	equity, 320–321
community, 298	fairness, 320–321
constructive, 298	feminist, 323
Emergence, See Complexity	justice, 320–322
Emergencies, See also Disasters, Problem and Risk	natural, 322
And IA, 370–371	libertarianism, 322
Empiricism, 95, 197	normative, 320
Empowerment, 239	pluralistic, 324
Environment (s)	practical, 320, 322
chaotic, 351, 354-357	principles, 320
complex, 351, 354–357	professional, 316, 323–324, 327–330
definition, 5–6, 8–9	Rawlsian, 322

research, 323	Feasibility
rights, 320–321	concepts, 202–203
standards, 320	in the IA process, 191-193, 200-204, 226
sustainability, 324	strategies, 202
teleological, 322	tactics, 203
Europe	Feminism, 243
Aarhus Convention, 300–301	ecofeminism, 243
adaptation-related IA requirements, 384–385	First Nations, 117, See also Indigenous and Traditional
Austria, 399–400	Knowledge
collaboration-related IA requirements, 263–264, 300–301	Focus, 190–192, 194–195, 225, See also Scoping
democratic-related IA requirements, 245–246	Follow-up, 105, 107
EIA Convention, 215	good practices, 111–113
EIA Directive,	Frames and framing
existing, 150–151, 300–301	and the IA process, 12–13, 78
proposed, 76, 101, 131, 170, 214, 245, 300–301, 331,	conceptual, 39–42
384–385	institutional, 39–42
England, 262–263, 385	of IA knowledge, 67, 69
environmental substance-related IA requirements, 170	reflection, 203,
ethics-related IA requirements, 331–332	Frameworks
European Commission (EC), 263–264, 332, 385	composite regulatory, 405–406
European Court of Auditors, 215	composite IA processes, 411–414
European Court of Justice, 332, 385	for contemporary challenges, 423–428
European Observation Network (ESPON), 264	for IA types, 415–417
European Public Health Strategy, 385	for recurrent problems, 406–415
Group of EIA/SEA National Experts, 215	Funding
Habitats Directive, 215, 385	intervener, 243
Impact Assessment, 263–264	participant, 243, 257, 300
Impact Assessment Board, 215	participant, 243, 237, 300
	Government
influence-related IA requirements, 76	
Ireland, 385	indigenous, 256–257 local, 256
Italy, 118–119, 187–188  Magatricht Tracty, 285	,
Maastricht Treaty, 385	Governance, 242, 262
Netherlands, 54–55, 227–228, 263–264, 385, 403 practicality-related IA requirements, 214–215	collaborative, 297
	Home Coo Diele
Public Health Strategy, 385	Harm, See Risk Harmonization, 238, 254–255
rationality-related IA requirements, 131–132	
rigor-related IA requirements, 100–102	Hazards, See Problem and Risk
Scotland, 53–54 Sweden, 385	Health, 44, 378
·	Health Impact Assessment (HIA), 350–351, 397
SEA Directive, 76, 101, 131, 170–171, 214–215, 245, 300–301,	adaptation practice, 390–391
332, 384, 399 sustainability assessments, 171	and decision-making, 8 and other IA types, 8–10, 40, 44–45, 382–383, 415–417
United Kingdom (UK), 150–151, 261–262, 385	
	approaches, 379
United Nations Economic Commission for Europe	at regulatory level, 350
(UNECE), 246	capacity building, 383
World Health Organization Regional Office for Europe	challenges, 383
(WHOROE), 385	characteristics, 379
Existentialism, 197	collaborative practice, 306–308
Experience	conceptual framing, 41
testing and building from, 203	definition, 8, 378–379
Expert Elicitation Process, See Education and Learning	democratic practice, 250–252
Explanation and Explanatory, 96, 100	ethical practice, 335–337
E Train 202 G I N dia	IA contributions, 382–383
Facilitation, 293, See also Negotiations	influential practice, 82–84
Fact-finding, See also Collaboration	practical practice, 221–222
joint, 296	procedural elements, 41, 44
Fairness, 320–321, <i>See also</i> Equity, Ethics and Justice	process, 8, 379–382
distributional, 323, 325	purposes and objectives, 8, 44
outcome, 323	rational practice, 137–139
procedural, 321–324	rigorous practice, 108–111
substantive, 323, 325	risk assessment, 369

Health Impact Assessment (HIA) (Continued)	Incrementalism, 197
substantive elements, 41–42, 44	prescriptive, 202
substantive practice, 177–178	Independence, 96
types, 41, 44	Indicators
Heuristic, 96	Environmental, 157
	Indigenous, See also Traditional Knowledge
Impact Assessment (IA)	access, 246
adaptive process of, 360–362, 387–388	co-management, 236, 301
adaptive regulations of, 383–387	government, 256–257, 301
and context, 6, 13, 418-423	IA regimes, 301
and decision-making, 70	people, 91–92, 187, 236, 245, 331
and environmental substance, 153-156, 172-173	rights, 187, 245, 324–325, 331, 327
and other fields, 16, 74	Induction, 95
and power, 67	Ineffectiveness, See Effectiveness
and science, 92–93, 107	Inefficiency, See Efficiency
at applied level, 23, 75–84, 87–88, 102–111, 133–136, 217–219,	Influence, 66
244, 247–249, 302–305, 387–388, 397–398	and IA, 52-90, 66-67, 84-88
at regulatory level, 22–23, 75–77, 85–86, 100–102,	and SEA, 53-54
129–133, 213–216, 244–245, 383–387, 397–398, 299–302,	public, 75, 254, 257–258
330–332	Information
characteristics, 10–12	access to, 257
collaborative process of, 302–305	exchange, 293
collaborative regulations of, 299–302	Ingenuity, See Adaptation
community-based, 237, 239, 298	Integrated environmental assessment, 158
composite processes, 423–424, 429–432	Integration
consultation process, 283	applied, 165
definition, 5–6	conceptual, 165, 411
democratic process of, 235-244, 247-249, 259-260	EIA and SEA, 165, 224-225, 416
democratic regulations of, 244–246	horizontal, 28-30, 179-183, 229-230, 382-383, 415-417
ethical process of, 332–335, 344	vertical, 28, 224-225, See also Tiering
ethical regulations of, 330–332	International Association for Impact Assessment (IAIA)
follow-up, 111–113	good practices, 316–317, 319, 327
good practices, 84–88, 401–403	principles, 317
history, 10–12	Inquiries, 294, See also Negotiations
influential process of, 75–86	Involvement, public, See Consultation
influential regulations of, 75–77	Irrational, 122
issues, 10–12	
knowledge, 67, 69	Joint Fact-finding, See Collaboration and Negotiations
limits, 431–433	Justice 320–321, See also Collaboration, Ethics, and Fairness
perspectives on, 57–66	access to, 257
practical process, 217–219	analysis of, 257
practical regulations, 213, 216–217	environmental, 242, 296–297, 323, 331
practice, 315–316	natural, 322
priorities, 431–433	procedural, 296–297
process, 5–6, 12–19, 38, 433–444	social, 242
profession, 315–316, 327–330	
purposes and objectives of, 5–6, 67–68	Knowledge, 95
rational process of, 119-121, 129-136	and IA, 67-68
rational regulations of, 129-133	brokerage, 289
relevance of, 56–57, 66	community, 161
research, 54-56, 66-67, 70-73, 74-85	incomplete, 358
rigorous process of, 102–111	indigenous, 161
rigorous regulations of, 100–102	in practice, 198
substantive process of, 172–176	Traditional, 29, 240, 289
substantive regulations of, 169–172	
technically-driven, 347–348	Learning 313, See also Education, Mutual Education and
themes, 10–12	Knowledge and Traditional Knowledge
theory, 91–92	collaborative, 288
types and variations, 38, 73–74, 105–107	communicative, 288
uncertainty in, 360–362	critical, 288–289
Impoverishment, 317	deliberative, 288

emancipatory, 288–289	harmonization, 255
organizational, 288	links to other requirements, 255
practical, 288	local autonomy in, 256–257
social, 127, 161, 288	proportionality, 245–246
sustainability, 289	power imbalances in, 254
transformative, 288–289	roles of power in, 252–254
Libertarianism, See Ethics	subsidiarity, 256
Logic	substitution, 256
deductive, 97	tiering, 255
inductive, 97	transboundary, 255, <i>See also</i> Transboundary IA
LULUs, (locally unwanted land uses) siting, 116–117, 235–237,	Mutual education, 285, 287, 288, 290, <i>See also</i> Education and
241. 323	Learning
challenge of, 139–140	collaborative learning, 288
conceptual model for, 146	communicative learning, 288
follow-up of, 147	community education, 281–282
framing of, 145	critical education, 288–289
generic approaches, 140, 144	emancipatory learning, 288–289
good practices, 141–143	expert elicitation process, 289
outcomes from, 146	critical learning, 288–289
premises for, 145	definition, 285
process, 145–148	deliberative learning, 288
support for, 147–148	goals, 276
willing host, 116–117	good practices, 276
	knowledge brokerage, 289
Malfunctions, See Risk	organizational learning, 288
Management	practical learning, 288
adaptive, 364	principles, 276
Adaptive Environmental Assessment and Management	proponent education, 281–282
(AEAM), 158, 364–366	regulatory education, 281–282
agreements, 243, 294	social learning, 288
by groping along, 202	specialist education, 281–282
co-management, 146–147, 236, 364	sustainability learning, 289
conflict, 293	traditional knowledge, 289
cumulative effects, 225	transformative learning, 288–289
emergency, 351, 369, 370–371	
environmental, 158	National Association of Environmental Professionals
resource, 158	(NAEP), 319, 327, 332
risk, 368–369	National Environmental Policy Act (NEPA), See US NEPA
Meaning	Negotiations, 290-295, 313, See also Alternative dispute
Symbolic, 161	resolution
Means	adjudication, 294
best practical, 203	alternative dispute resolution (ADR), 290-295
Mediation, 293-294, See also Negotiations and Collaboration	arbitration, 294
active, 296	community-based IA, 239
Mini-trial, 294, See also Negotiations	conciliation, 293
Mobilization, 239	conflict
political-economic, 242	anticipation, 293
Model and modelling	assessment, 293
collaborative, 297	management, 293
comparative diachronic, 203	theory, 293
Morals, See Ethics	definition, 290
Movements	dispute
ecological, 242	panel, 294
social, 242	review board, 294
Multijurisdictional IA, 252–258, 260	goals, 276–277
accreditation, 256	environmental agreements, 243, 294
centralization in, 254, 256	facilitation, 293
cooperation in, 255–256	good practices, 276–277
decentralization in, 254, 256	information exchange, 293
exemption in, 256	inquiries, 294
good practices, 254–258	joint fact-finding, 293
good practices, 234–230	Joint fact-infulig, 293

Negotiations (Continued)	critical, 127
mediation, 293–294	effective, 127, 202
methods, 282	emergency, 351
mini-trials, 294	environmental, 158
principles, 276–277	equity, 127, 242
public hearings, 294	joint, 296
rule-making, 294	progressive, 127, 242
third party	radical, 127
assistance, 282	resource, 158
decision making, 282	shared vision, 298
unaided or unassisted, 282, 293	strategic, 127
Nepal, 403–404	structural, 127
Networks, 287	substantive, 127
North American Agreement on Environmental Cooperation,	Pluralism, 96, 100
See Canada and United States	Politics
	ecological, 243
Objectivity, 96, 98	Power, 233, See also Influence
Offsets	and IA, 67
environmental, 332	imbalances, 241–244, 254
••••••••••••••••	structural analysis of, 240
Paradox, See Problem	Positivism, 95–96
Partnering, 296, See also Collaboration	Social science, 160
Participation	Practice Practice
Public	deliberative, 202
action, 286	mangle of, 198
approaches for addressing, 232–233	Pragmatism, 197
at policy level, 263–264	prescriptive, 203
benefits of, 230–231, 265–266	Precautionary Principle, 350–351, 374–378, 397
collaborative, 297	and IA, 99, 378–378
continua, 279–280	characteristics, 374–375
definition, 269	contributions of, 378
disadvantages, 269–271	definition, 374–375
effectiveness of, 232–233, 312–313 funding for, 243, 257, 300	drawbacks, 378
funding for, 243, 257, 300	interpretations, 375–376
goals of, 274–277	Prescription, 99
good practices, 274–278	Principles, 95
influence, 75	Problems, 352–354, 396
issues, 269, 273	catastrophe, 353
interactions, 234, 268	complex, 352–353, 396
meaningful, 257	contradictions, 353
methods, 281–282	crises, 352–354
perspectives on, 230–233	difficult, 351–355
principles, 272, 274–278	dilemma, 353
trends, 267, 269, 272	ill-structured, 352
types, 267	impossibilities, 353
Perspectives	ingenuity gaps, 353–354
ethical, 318–319	insoluble, 353
on IA, 57–66, 73–74	intractable, 353
on environmental substance in IA, 153–156	latent time bombs, 353
on public participation, 230–233	metaproblems, 352
on rationalism in IA, 129-130	messy, 353
on sustainability, 163–164, 261–262	paradox, 353
stakeholder, 78–79	post-normal science, 353
Persuasion, 287	real, 353
Phenomenology, 197	recurrent, 4, 9-10, 18, 47-48, 406-415
Planning	semi-structured, 352
advocacy, 127	simple, 352
and SEA, 229-230	tame, 352
collaborative, 297	trans-boundary, 353
communicative, 286	trans-scientific, 353
contingent, 127	wicked, 352-353

Public hearings, See Negotiations	Reason and reasoning
	collaborative, 117–118
Quality, See also Effectiveness	community-based, 117–118
Of EIA practice, 31	Reductionism, 95–96
of IA practice, 206, 212	Reflection
	frame, 203
Rationality, and rationalism	in-practice, 198
administrative, 123	Regulatory Impact Assessment, 173
analytic, 118–119, 123	Relativism, 95, 98
aesthetic, 123	Relevance, 66, 98
and IA, 127–136, 149	of IA, 56–57, 66
applications, 122	Resilience, 319, 335–336, 343, 356–357, 360–361, 370–371,
assumptions, 125	389–391, See also Complexity
attributes, 122	and climate change, 392
bounded, 123, 127, 197	thinking, 362, 364
characteristics, 122–127	Rights, 319–321, <i>See also</i> Duties and Ethics
communicative, 123	about, 325–326
contexts, 122	and indigenous people, 325, 327, 331
critique of, 125–127, 129–130	by, 325,
critical, 123	definition, 325
definition, 121–122	environmental, 326
debates, 130	future generational, 326
ecological, 123	of, 325–326
economic, 123	to, 325–326
ethical, 123	Rigor, 95, 98, 102
expressions, 122	and SIA, 316–317
expressive, 123	IA requirements, 100–102
extra-rational, 122	IA process, 102–106
forms, 122–123	Risk, See also Problems
functional, 123	acceptability, 368
grounds for, 122	analysis, 367
IA process, 133–136	and IA, 349–350, 396–397
IA requirements, 129,131–133	assessment, 350–351, 367, 373–374
instrumental, 123	assessment process, 371–373
irrational, 122	communications, 368
legal, 123	comparative, 368
limited, 123	concepts, 367–369
limitations of, 125–127	definition, 350, 366
market, 123	disasters, 369–371
moral, 123	ecological risk assessment, 369
normative, 123	emergencies, 369–371
political, 123	emergency planning and management, 351, 371
practical, 123	estimation, 367
pre-conditions for, 122	evaluation, 368
procedural, 123	harm, 350
process, 121–127	hazards, 369
purposive, 123	human health risk assessment, 351, 369
reform choices, 130	management, 351, 368-369, 373-374
responses to, 127	perceived, 367
scientific, 123	types, 366–369
social, 123	
strategic, 123	Safety, See Health
strengths, 125–127	Scanning
structural, 123	mixed, 127, 202
systems, 123	Science and scientific, 95
substantive, 123	analytic, 96, 99, 107
technical, 123	and IA, 102–107
value, 123	applied, 99
Reality and realism	civic, 99
concepts, 197–198	complexity, 96, 353
-	espoused, 99
in the IA process, 190–192, 194, 196–200, 226	espoused, 99

Science and scientific (Continued)	participative, 160
heuristic, 96	practical practice, 221–222
holistic, 362, 364	political, 160, 243
integrative, 99, 364	rational practice, 137-139
lay, 240	rigorous practice, 108–110
natural, 96	procedural elements, 7-8, 40, 43, 159, 162
plurality of, 100	purposes and objectives, 7–8, 43,44
post-normal, 108, 353	scientific, 160
scientism, 95–96	substantive elements, 40, 44
social, 161	substantive practice, 177–178
critical, 160, 242	technical, 160
interpretative, 160	types, 40, 44
positivistic, 160	Sociology
substantive, 107	phenomenological, 161
sustainability, 107, 362, 364	South Africa, 55–56
trans-scientific and synthesis, 99	Stability, See Resilience
types, 99 unified, 100	Stakeholder,
wars, 95, 98–100	support, 262–263 Strategic
Scoping, 190, 194–195, <i>See also</i> Focus	choice, 202
good practices, 26	Strategic Environmental Assessment (SEA),
process, 186–187	adaptation practice, 389, 391
Screening, 194	and context, 8, 46
And EIA, 23–25	and decision-making, 14, 38
good practices, 25–27	and other IA types, 8–10, 36, 39, 43, 74, 107, 173, 399–400
Significance determination, 24–25, 190	415–417
and the Precautionary Principle, 343	and planning, 229–230
and sustainability, 343	and sustainability, 165–168
applied level, 338	and values, 46
approaches, 338- 340	applied level choices, 38
definition, 337	collaborative practice, 117–118, 305–306
future directions, 344	conceptual framing of, 39
good practices, 341–344	definition, 8–9
lessons, 343	dimensions of, 49
objectives, 337–338	democratic practice, 250, 252
of cumulative effects, 343	ethical practice, 335–336
of positive effects, 343	influential practice, 46–47, 53–55, 80–82
of small projects, 317–318	institutional framing, 38–39
of social effects, 316–317	good practices, 46–50, 53–54
of socio-economic effects, 150-151, 343	procedural elements, 8–9, 38–39
performance standards, 337–338	practical practice, 220, 222
process, 338	purposes and objectives, 8-9, 36
properties, 337–338	rational practice, 118–119, 136–137, 139
rationale, 337	regulatory level choices, 38
regulatory level, 331–332, 338	rigorous practice, 106–109
roles, 340	substantive elements, 39, 43
Site selection, See LULUs,	substantive practice, 177–179
Social Impact Assessment (SIA)	types, 38, 39, 43, 74
adaptation practice, 390–391	Subjectivity, 98
and context, 44	Subsidiarity, See Multi-jurisdictional IA
and other IA types, 7–10, 40, 44, 45, 415–417	Substitution, See Multi-jurisdictional IA
and public participation, 8, 161	Surprise, See Uncertainty
collaborative practice, 306, 308	Sustainability and sustainable development
community-based, 160	and IA, 164–168
conceptual framing, 40, 43	and context, 163
definition, 7, 159	and ethics, 163
democratic practice, 250–252	and significance, 165–166 characteristics, 162, 164–166
ethical practice, 335–337 exclusion, 317	definition, 162–163
influential practice, 82–84	elements, 163
institutional framing of, 40	forms, 163–164
modulum muming on, To	1011110, 100 101

frameworks, 163	middle range, 97
instruments, 163	normative, 95
methods, 169	particular, 97
perspectives, 163-164, 261-262	positivistic, 95
principles, 163	prescriptive, 97, 100,
procedures, 163	pre-theory, 97
purposes, 162	systems, 160
science, 107, 362, 364	types, 97
strategies, 163	universal, 97
test, 151–152	Tiering, 107, 166
visions, 163	of IA levels, 228–229
Sustainability Assessment (SA)	good practices, 228–229
adaptation practice, 389, 391	Traditional Knowledge (TK), See also Indigenous, 30, 158, 240,
analysis, 175	300–301, 307–308, 331, 409–410, 431
and other IA types, 9, 36, 42, 45, 74, 173, 415-417	Training, see Education,
and decision-making, 9	Transboundary Impact Assessment, 246, 255, 346
characteristics, 167, 175–176	Truth,
collaborative practice, 305–306	absolute, 95, 98
conceptual framing, 42, 44–45	relative, 95, 98
definition, 9	
democratic practice, 250-252	Uncertainty, See also Risk, 349, 396
ethical practice, 335–336	ambiguity, 359
influential practice, 80–82	analysis, 359
institutional framing, 42, 45	and IA, 349–350, 357–358, 360–362, 396
integrated, 364	approximations, 359
procedural elements of, 42, 45	bias, 358
process, 9, 167–168	certainty, 96
practical practice, 219–222	concepts, 358–359
purposes and objectives, 9, 45	confusion, 359
rational practice, 136–137, 139	contextual, 357
rigorous practice, 108–110	deep, 359
substantive practice, 177–178	definition, 349, 357
substantive elements of, 42, 44, 45	dissonance, 359
types, 36, 42, 45	doubt, 359
Surprise, See Uncertainty and Complexity	errors, 358
Synergism, See Complexity	extreme, 359
Synthesis, 99–100	forms, 357
Sylidicals, 77 100	fuzziness, 358–359
Tanzania, 92–94	incomplete knowledge, 358
Technology Assessment, 96	inconclusiveness, 358
Territorial Impact Assessment (TIA), 263- 264	indeterminism, 358
Theory	ignorance, 358
applied, 95	linguistic imprecision, 359
building, 106, 113	mistakes, 358
conflict, 240, 293	non-specificity, 359
critical, 160, 198, 242	operational, 357
deductive, 95	principle, 358
democratic, 233	sources of, 357
ecological, 160	surprise, 359
empirical, 95	types, 358–359
environmental, 97	vagueness, 358–359
exchange, 161	value, 357
explanatory, 97, 100	United States
functional, 160	adaptation-related IA requirements, 384–385
grounded, 95	Bonneville Power Administration (BPA), 348–349
IA, 91–92, 97	California, 229–230
IA, 91–92, 97 In action, 127	Center for Sustainability, 171
inductive, 95	
levels, 97	Council on Environmental Quality (CEQ), 101, 131, 215, 246, 300, 384–385
macro, 97	Department of Energy (DOE), 101, 214, 300, 331, 348, 384
micro, 97	collaboration-related IA requirements, 300–302
miciu, 71	conaboration-related 1A requirements, 500–502

## **480** Index

United States (Continued)

384-385

democratic-related IA requirements, 245–246 environmental substance-related IA requirements, 170 Environmental Protection Agency (EPA), 76, 171, 331, 384 ethical-related IA requirements, 331–332 influence-related IA requirements, 76 Interagency Oceans Policy Task Force, 171 Montana, 346–347 National Environmental Policy Act (NEPA), 76, 101, 131, 170–171, 214–215, 245–246, 300–301, 331–332, 348–349,

National Research Council (NRC), 171 Nebraska, 52

North American Agreement on Environmental Cooperation, 246

Office of Management and Budget, 101 Ohio River, 188–190 practicality-related IA requirements, 214–215 rigor-related IA requirements, 100–102 rationality-related IA requirements, 131 Texas, 52

Values in IA, 319 Vulnerability, *See* Ethics

Whole Growing, 203 Willing Host, 116–117 World Bank, 92, 401