

Contents

1	Integrating Social-Scientific Literacy in Nuclear Engineering Education	1
	Kohta Juraku, Cathryn Carson, Shinya Nagasaki, Mikael Jensen, Joonhong Ahn and Satoru Tanaka	
 Part I Understanding the Fukushima Daiichi Accident and Its Consequences		
2	Event Sequence of the Fukushima Daiichi Accident	21
	Shinya Mizokami and Yuji Kumagai	
3	Analysis of Radioactive Release from the Fukushima Daiichi Nuclear Power Station	51
	Satoru Tanaka and Shinichiro Kado	
4	Environmental Contamination and Decontamination After Fukushima Daiichi Accident	85
	Joonhong Ahn	
5	Long-Term Energy and Environmental Strategies	105
	Yasumasa Fujii and Ryōichi Komiyama	
6	Impact of Fukushima Daiichi Accident on Japan’s Nuclear Fuel Cycle and Spent Fuel Management.	117
	Joonhong Ahn	
7	Political Impact of the Fukushima Daiichi Accident in Europe	123
	Mikael Jensen	

Part II Etiology	
8 Where Was the Weakness in Application of Defense-in-Depth Concept and Why?	131
Akira Omoto	
9 Ethics, Risk and Safety Culture	165
William E. Kastenberg	
10 The “Structural Disaster” of the Science-Technology-Society Interface	189
Miwao Matsumoto	
11 Three Mile Island and Fukushima	215
J. Samuel Walker	

Part III Basis for Moving Forward

12 Implications and Lessons for Advanced Reactor Design and Operation	223
Yoshiaki Oka and Dietmar Bittermann	
13 Understanding the Health Impacts and Risks of Exposure to Radiation	259
Taylor A. Choi, Sylvain V. Costes and Rebecca J. Abergel	
14 Nuclear Safety Regulation in Japan and Impacts of the Fukushima Daiichi Accident	283
Hideaki Shiroyama	
15 Radioactive Waste Management After Fukushima Daiichi Accident	297
Shinya Nagasaki	
16 From Fukushima to the World	309
Tatsujiro Suzuki	

Part IV Reflections by Students and Mentors

17 Students’ Reflections	317
Beth Cary	

18 Educating the Post-Fukushima Nuclear Engineer	341
Mary E. Sunderland	
19 Reflections on Developing an Identity for the Third Generation Nuclear Engineer in the Post-Fukushima Society	353
Robert Angelo Borrelli	
20 Nuclear Engineers for Society: What Education can do	367
Takuji Oda	

Part V Education in Future

21 Engineers, Social Scientists, and Nuclear Power	387
Cathryn Carson	
22 Towards More Open-Minded Nuclear Engineering	403
Kohta Juraku	
23 Lunchbox-Toolbox: GKS1350021 and Nuclear Engineers	413
Gayle K. Sato	
24 Resilience Engineering	435
Kazuo Furuta	

Erratum to: Integrating Social-Scientific Literacy in Nuclear Engineering Education	E1
Kohta Juraku, Cathryn Carson, Shinya Nagasaki, Mikael Jensen, Joonhong Ahn and Satoru Tanaka	