

Contents

1	Risks	1
1	Why Are We Writing About This Topic?	1
2	Risk as a Science Topic and Expected Impact on the Society	2
2.1	What Is Risk?.....	2
2.2	Varying Concepts of Risk	4
2.3	Basic Components of Risk.....	5
2.4	Characteristics of Risks in the Modern World: New Challenges to Risk Governance.....	7
2.5	The Integration of Perceptions and Social Concerns	10
3	Analysis of the Risk Issues Involved	12
3.1	How to Deal with Systemic Risks?.....	12
3.2	The “Traditional” Understanding of Risk Governance.....	13
3.3	The Need for an Integrated Framework of Risk Governance	18
3.4	Risk Management Styles According to Different Regulatory Styles of Risk Governance	23
4	Stakeholder and Public Involvement.....	23
4.1	Stakeholder Involvement and the Synthesis of Conflicting Perspectives	23
4.2	Coping with the Plurality of Knowledge and Values.....	26
4.3	International Challenges When Dealing with Transboundary Risks.....	29
5	Premises for Successful Risk Governance.....	31
5.1	Organizational Capacity to Deal with Risks	31
5.2	Prerequisites of Good Governance	32
5.3	Principles of the Governance of Systemic Risks	33
6	Chapter Summary	35
	Glossary	36
	References.....	37

2 Biodiversity at Risk	41
1 Why Are We Writing About This Topic?	41
2 Why Is Biodiversity Important for the World and for Everyday Life?	44
3 Science and Background	46
3.1 Simple Risks to Biodiversity	47
3.2 Complex Risks to Biodiversity	49
3.3 Uncertain Risks to Biodiversity	51
3.4 Ambiguous Risks to Biodiversity	53
4 What Do We Do with What We Know?	54
4.1 Risk Assessment	54
4.2 Risk Management	59
4.3 Risk Communication	66
5 Future Perspectives	68
6 Chapter Summary	70
Glossary	71
References	73
3 Chemical Contaminants in Food	79
1 Why Are We Writing About This Book	79
2 Chemical Contaminants and Expected Impact	80
3 Why Is the Study of Health Effects Caused by Contaminants Important?	80
4 Dioxin: Description and Origin	81
4.1 Detecting and Assessing the Effects of Dioxins	82
4.2 Dioxin: Impact on Humans/Animals	84
4.3 Dioxin Effects in Humans	85
4.4 Sources of Dioxin Exposure	87
4.5 Pollution/Accidents	88
4.6 General Pollution	88
4.7 Food-Related Accidents	89
4.8 The Baltic Sea	90
4.9 Routes of Dioxin Exposure	90
4.10 Food: Baby/Adult	91
4.11 Mechanisms of Action of Dioxin and Dioxin-Like Chemicals	92
4.12 Mechanism of Action of AhR	93
5 Managing Risk	94
5.1 The Toxic Equivalent Factors	94
6 Future Perspectives	96
7 Chapter Summary	97
Glossary	97
References	97

4	The Food Choices We Make.....	101
1	Why Am I Writing About This Topic?.....	101
2	Why Have Genetically Modified Food? Why Is It Important for the World?	102
2.1	History: The Big Picture	102
3	GM Crops and Food.....	103
3.1	When First Grown?.....	103
3.2	How Much Is Being Grown and Where?.....	104
3.3	Why Grow Them?.....	104
3.4	What Is Different About Creating GM Crops from New Conventional Crops?.....	105
3.5	How Safe?	106
4	How Genetic Engineering Works.....	107
4.1	Understanding the Principles of Genetics.....	107
4.2	The Role of DNA, RNA, and Proteins.....	107
4.3	Enzymes and DNA Manipulation.....	107
4.4	Living Cells: Plant Regeneration from Single Cells.....	108
4.5	DNA Delivery into Plant Cells	108
4.6	Development of Verification Methodologies	109
4.7	Detection and Identification of GMO	109
5	Risk Governance: What Do We Do to Make Sure GM Crops Are Safe?.....	110
5.1	Risk Assessment	111
5.2	What Happens If Risk Assessment Does Not Lead to Clear Answers?.....	113
6	Risk Management	113
6.1	Risk Management in the Face of Uncertainty: The Use of the Precautionary Principle	114
6.2	Political Dimension of the Precautionary Principle.....	115
6.3	Why Should Precautionary Principle Be Applied to GM Crops and Their Products?	115
6.4	When Should the Precautionary Principle Be Triggered?	115
6.5	What Happens When Precautionary Principle Is Invoked?	116
6.6	Application of the Precautionary Principle to GM Crops in Europe.....	118
6.7	Precautionary Principle Impact on Innovation and as a Tool for Reaching International Trade Agreements.....	119
6.8	Concluding Comments	122
7	Communicating GMO Issues.....	123
7.1	The Challenge of Communicating Risk Issues.....	123
7.2	Attitudes to Risks Concerning GM Crops and Products	124
7.3	Why Communicate GMO Issues	126
7.4	Who Should Do the Communicating and Where Should It Take Place?.....	127
7.5	What Should Be Communicated.....	127

8	Addressing Potential Risks of GM Crops:	
	Case Study of Germany	128
8.1	Public Opinion and Media	129
8.2	Politics.....	130
8.3	Regulations.....	132
8.4	Risk Assessment, Politics, and Decision Making	134
9	Future Prospects.....	135
10	Chapter Summary	136
	Glossary	137
	References – Key Resources	141
	Internet-Based References	142
	Index	143

<http://www.springer.com/978-1-4419-7867-7>

Safe or Not Safe

Deciding What Risks to Accept in Our Environment and Food

Pechan, P.; Renn, O.; Watt, A.; Pongratz, I.

2011, XII, 145 p., Hardcover

ISBN: 978-1-4419-7867-7