This overview of the role played by the precautionary principle in international trade law, European law and national law compares how precautionary considerations have been applied in the fields of pesticide regulation and the regulation of base stations for mobile telephones in Sweden, the UK and the USA. A number of problems in the current application of the precautionary principle are identified and discussed. For example, it is shown that a firm reliance on a wide and open-ended precautionary principle may lead to problems with the consistency, foreseeability, effectiveness and efficiency of measures intended to reduce environmental or health risks. It is suggested that the precautionary principle indeed may be an important tool but in order to be acceptable it must be coupled with strong requirements on the performance of risk assessments, cost–benefit analyses and risk trade-off analyses.

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THE APPLICATION OF THE PRECAUTIONARY PRINCIPLE IN PRACTICE

Comparative Dimensions

JOAKIM ZANDER
For Liisa and Milla
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On the very eve of the completion of this book, the Treaty on the Functioning of the European Union finally entered into force on 1
December 2009. Although it did not bring about any substantive changes with regard to the subject matter of this book, it did introduce that greatest of joys for any European lawyer: a change in the numbering of the treaty articles. Throughout this book I have thus sought to refer to the current numbering of the articles as they appear in the Treaty on the Functioning of the European Union. Where I have considered it relevant for the understanding of the text, I have kept the old numbering in brackets following the current reference.

Finally, and above and beyond everything else, I would like to thank my wife, Liisa, for putting up with me during the years I have been working on this book. I think that we can both agree that it is not at a moment too soon that this particular train has reached its final destination.
ABBREVIATIONS

AB  Appellate Body
ACP  Advisory Committee on Pesticides
AGNIR  Advisory Group on Non-Ionising Radiation
AIDS  Acquired Immune Deficiency Syndrome
ALARA  as low as reasonably possible
ANSI  American National Standards Institute
AOEL  acceptable operator exposure level
APA  Administrative Procedure Act in the USA
BSE  Bovine spongiform encephalopathy
BST  Bovine Somatotrophin
CAP  Common Agricultural Policy
CBA  cost–benefit analysis
CEA  cost-effectiveness analysis
CFC  chlorofluorocarbons
CFI  Court of First Instance
CITES  Convention on International Trade in Endangered Species
COM  Committee on Mutagenicity of Chemicals in Food, Consumer Products and the Environment (UK)
COPR  Control of Pesticides Regulations
CRA  comparative risk analysis
CVMP  Committee for Veterinary Medicinal Products
DDT  dichloro-diphenyl-trichloroethane
DecaBDE  decabromodiphenyl ether
DEFRA  Department of Environment, Food and Rural Affairs in the UK
DNA  deoxyribonucleic acid
DSB  Dispute Settlement Body of the WTO
DSU  Dispute Settlement Understanding (WTO)
EAP  Environmental Action Programme
EBCD  ethylenebisdithiocarbamate
EC  European Community
ECJ  European Court of Justice
EEC  European Economic Community
EFTA  European Free Trade Association
ABBREVIATIONS

EOP Executive Office of the President of the USA
EPA United States Environmental Protection Agency
EU European Union
FACA Federal Advisory Committee Act in the USA
FAQ frequently asked questions
FCC Federal Communications Commission
FDA Food and Drug Administration in the USA
FDCA Food, Drug, and Cosmetic Act in the USA
FEPA Food and Environment Protection Act
FIFRA Federal Insecticide, Fungicide and Rodenticide Act in the USA
FQPA Food Quality Protection Act in the USA
GAO United States Government Accountability Office
GATT General Agreement on Tariffs and Trade
GM genetically modified
GMO genetically modified organisms
HCFCs hydrochlorofluorocarbons
HEW United States Department of Health, Education, and Welfare
HPA Health Protection Agency
HSE Health and Safety Executive in the UK
ICJ International Court of Justice
ICNIRP International Commission for Non-Ionising Radiation Protection
IEEE Institute of Electrical and Electronics Engineers in the USA
IEGMP Independent Expert Group on Mobile Phones in the UK
ILGRA Interdepartmental Liaison Group on Risk Assessment
ITLOS International Tribunal for the Law of the Sea
KemI Kemikalieinspektionen (Swedish Chemicals Agency)
LPAs Local Planning Authorities in the UK
Miljöbalken The Swedish Environmental Code
MOX metal oxide
MRL maximum residue level
NCRP National Council on Radiation Protection and Measurement
NEPA National Environmental Policy Act in the USA
NIOSH National Institute for Occupational Safety and Health in the USA
nimby not in my back yard
NJA Nytt Juridiskt Arkiv (Publication containing judgments from the Swedish Supreme Court)
NRPB National Radiation Protection Board in the UK
OET Office of Engineering and Technology in the USA
OIRA Office of Information and Regulatory Affairs in the USA
OMB Office of Management and Budget in the USA
OSHA Occupational Safety and Health Administration in the USA
PAN Pesticide Action Network
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>PBDE</td>
<td>polybrominated diphenyl ethers</td>
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<tr>
<td>PBL</td>
<td>Plan- och bygglagen (Swedish Planning and Building Act)</td>
</tr>
<tr>
<td>PIC</td>
<td>Rotterdam Convention for Prior Informed Consent</td>
</tr>
<tr>
<td>PPPR</td>
<td>Plant Protection Products Regulation</td>
</tr>
<tr>
<td>PSD</td>
<td>United States Pesticide Safety Directorate</td>
</tr>
<tr>
<td>PVC</td>
<td>polyvinyl chloride</td>
</tr>
<tr>
<td>QUALYs</td>
<td>Quality Adjusted Life Years</td>
</tr>
<tr>
<td>RCHSA</td>
<td>Radiation Control for Health and Safety Act in the USA</td>
</tr>
<tr>
<td>REACH</td>
<td>Registration, Evaluation, Authorisation and Restriction of Chemicals</td>
</tr>
<tr>
<td>Regeringsformen</td>
<td>The Swedish Constitution</td>
</tr>
<tr>
<td>Regeringsrätten</td>
<td>Swedish Supreme Administrative Court</td>
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<tr>
<td>RIA</td>
<td>Regulatory Impact Assessments</td>
</tr>
<tr>
<td>RoHS</td>
<td>Restriction of Hazardous Substances Directive</td>
</tr>
<tr>
<td>SAP</td>
<td>Scientific Advisory Panel in the USA</td>
</tr>
<tr>
<td>SAR</td>
<td>specific absorption rate</td>
</tr>
<tr>
<td>SCAN</td>
<td>Scientific Committee on Animal Nutrition</td>
</tr>
<tr>
<td>SEA</td>
<td>The Single European Act</td>
</tr>
<tr>
<td>SPS</td>
<td>WTO Agreement on the Application of Sanitary and Phytosanitary Measures</td>
</tr>
<tr>
<td>SSI</td>
<td>Statens Strålskyddsinstitut (formerly named Swedish National Radiation Protection Authority)</td>
</tr>
<tr>
<td>SSL</td>
<td>Strålskyddslagen (Swedish Radiation Protection Act)</td>
</tr>
<tr>
<td>SSM</td>
<td>Statens Strålsäkerhetsmyndighet (Swedish Radiation Safety Authority)</td>
</tr>
<tr>
<td>statliga myndigheter</td>
<td>Swedish system of independent governmental authorities</td>
</tr>
<tr>
<td>TBT</td>
<td>Agreement on Technical Barriers to Trade</td>
</tr>
<tr>
<td>TETRA</td>
<td>terrestrial trunked radio</td>
</tr>
<tr>
<td>TFEU</td>
<td>Treaty on the Functioning of the European Union</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>US</td>
<td>United States (of America)</td>
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<tr>
<td>USA</td>
<td>United States of America</td>
</tr>
<tr>
<td>WTA</td>
<td>willingness to accept</td>
</tr>
<tr>
<td>WTO</td>
<td>World Trade Organisation</td>
</tr>
<tr>
<td>WTP</td>
<td>willingness to pay</td>
</tr>
</tbody>
</table>
TABLE OF CASES

**International Court of Justice and other International Tribunals**

*Gabcikovo-Nagymaros Project (Hungary/Slovakia), Judgment, ICJ Reports 1997.*

*Request for an Examination of the Situation in Accordance with Paragraph 63 of the Court’s Judgement of 20 December 1974 in the Nuclear Tests (New Zealand v. France), ICJ Reports 1995 (French Nuclear Tests II).*

*The MOX Plant Case (Ireland v. UK), (Provisional measures), (ITLOS), Order of 3 December 2001.*

*Southern Bluefin Tuna Cases (New Zealand v. Japan; Australia v. Japan (Joined Cases)), ITLOS, Order of August 27 1999.*

**World Trade Organisation (WTO) Appellate Body Reports**


*Report of the Appellate Body, Japan – Measures Affecting Agricultural Products. WT/DS76/AB/R (Japan Agricultural Products II).*

*Report of the Appellate Body, Japan – Measures Affecting the Importation of Apples. WT/DS245/AB/R (Japan-Apples).*


*Report of the Appellate Body, Australia – Measures Affecting the Importation of Salmon WT/DS18/AB/R (Australia-Salmon).*

*Report of the Appellate Body, European Communities – Measures Affecting Asbestos and Asbestos-Containing Products. WT/DS135/AB/R (EC-Asbestos).*

*Report of the Appellate Body, United States – Measure Affecting Imports of Woven Wool Shirts and Blouses From India. WT/DS33/AB/R (US-Wool Shirts and Blouses)*

TABLE OF CASES

WTO Panel Reports


Panel Report, EC Measures Concerning Meat and Meat Products (Hormones) (Canada), WT/DS48/R (EC-Hormones I (Canada)).


Panel Report, US-Continued Suspension of Obligations in the EC Hormones Dispute, WT/DS320/R (Continued Suspension of Obligations-EC Hormones (EC-Hormones II)).

European Union

European Court of Justice (ECJ)


Case 97/83 Melkunie [1984] ECR 2367.


Case 178/84 Commission v. Germany (Reinhheitsgebot) [1987] ECR 1227.


Case C-236/01 *Monsanto Agricoltura Italia and Others* [2003] ECR I-8105.
C-210/03 *Swedish Match AB and Swedish Match AB UK Ltd v. Secretary of State for Health* [2004] ECR I-11893.
Case 132/03 *Codacons and Federconsumatori* [2005] ECR I-4167.
Joined Cases C-15/06 and C-295/06 *European Parliament v. Commission*, judgment of 1 April 2008 (not yet reported).
Case C-110/05 *Commission v. Italy*, judgment of 10 February 2009 (not yet reported).
Case 142/05 *Mickelsson and Roos*, judgment of 4 June 2009 (not yet reported).
Case C-42/07, *Liga Portuguesa de Futebol Profissional Bwin*, judgment of 8 October 2009 (not yet reported).

**Court of the First Instance (CFI)**

Case T-74/00 *Artegodan* [2000] II-04945.

**European Free Trade Association (EFTA) Court**


**United Kingdom**

*Alfred McAlpine Homes (North) Ltd v. Secretary of State for the Environment and Another*, Queen's Bench Division (Crown Office List), 5 April 1993.
Table of Cases

Alfred McAlpine Homes (North) Ltd. v. Secretary of State for the Environment and Another, Court of Appeal (Civil Division), 3 November 1994.
Phillips v. First Secretary of State and others, Queen's Bench Division (Administrative Court) [2003] EWHC 2415.
The Queen on the Application of Amvac Chemical UK Limited v. Secretary of State for Environment, Food and Rural Affairs, Secretary of State for Transport, Local Government and Regions, Food Standards Agency, High Court of Justice, Queen's Bench Division (Administrative Court) 3 December 2001, 2001 WL 1479891.
Re Cullen, Queen's Bench Division, NIQB 9, 14 February 2005.
R. v. Derbyshire Country Council, ex parte Murray, Queen's Bench Division (Administrative Court), 6 October 2000.
R. v. Secretary of State for Defence, ex parte Smith (Queen's Bench Division) (1996) 2 WLR 305 B 517.
R. v. Secretary of State for Trade and Industry ex parte Duddridge and Others, Queen's Bench Division (Crown Office List), The Independent, 4 October 1994.
T-Mobile (UK) Ltd v. First Secretary of State, Court of Appeal (Civil Division), [2005] Env. L.R. 18, C2 and C3.

United States of America

Associated Fisheries of Maine, Inc. v. Daley, (1st Cir. 1997) 127 F.3d 104.
AT&T Wireless PCS, Inc. v. City Council of Virginia Beach, (4th Cir. 1998) 155 F.3d 423.
<table>
<thead>
<tr>
<th>TABLE OF CASES</th>
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</thead>
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<tr>
<td>Cellular Phone Task Force et al., v. FCC, (2d Cir. 2000) 205 F.3d 82.</td>
</tr>
<tr>
<td>Cellular Telephone Co. v. The Town Board of Oyster Bay, (2nd Cir 1999) 166 F.3d 490.</td>
</tr>
<tr>
<td>Ciba-Geigy Corp. v. EPA, (5th Cir. 1989) 874 F.2d 277.</td>
</tr>
<tr>
<td>Corrosion Proof Fittings v. EPA, (5th Cir. 1991) 247 F.2d 12–1.</td>
</tr>
<tr>
<td>Ethyl Corp. v. EPA, (D.C. Cir. 1979) 598 F.2d 91.</td>
</tr>
<tr>
<td>Lee v. Reilly (9th Cir. 1992) 968 F. 2d 985.</td>
</tr>
<tr>
<td>Love v. Thomas, (9th Cir. 1988) 858 F.2d 1347.</td>
</tr>
<tr>
<td>Midwater Trawlers Cooperative v. Department of Commerce, (9th Cir. 2002) 282 F.3d 710.</td>
</tr>
<tr>
<td>Omnipoint Communications Inc. v. The City of White Plains, (2nd Cir. 2005) 430 F.3d.</td>
</tr>
</tbody>
</table>
**XX  TABLE OF CASES**


*Reserve Mining Co. v. EPA*, (8th Cir. 1975) 514 F.2d 492.


*Sierra Club v. Marita*, (7th Cir. 1995) 46 F.3d 606.


*Southwestern Bell Mobile Sys. v. Todd*, (1st Cir. 2001) 244 F.3d 51.


*Texas Oil & Gas Ass’n v. EPA*, (5th Cir. 1998) 161 F.3d 923.


**Sweden**

Judgment of the Supreme Court in NJA 2004 s. 590.

Judgment of the Supreme Court in NJA 2006 s. 310.

Judgment of the Supreme Administrative Court in case RÅ 1996 Ref. 51.

Judgment of the Supreme Administrative Court in RÅ 1998 Ref. 56.

Judgment of the Supreme Administrative Court in RÅ 1999 Ref. 76.

Judgment of the Supreme Administrative Court in Case no. 3635–1999 delivered on 14 October 1999 (not reported in RA).


Judgment of the Supreme Administrative Court in RÅ 2001 note 6.

Judgment of the Supreme Administrative Court in Case no. 1163–2001 delivered on 12 July 2001 (not reported in RÅ).

Judgment of the Supreme Administrative Court in RÅ 2003 Ref. 43.


Judgment of the Supreme Administrative Court in RÅ 2005 Ref. 2, 6, 7.

Judgment of the Environmental Court of Appeal of 30 March 2005 in case no. M 9408–03 (not reported in MÖD).

Judgment of the Environmental Court of Appeal of 12 May 2005, case no. M 3225–04 (not reported in MÖD).


### TABLE OF LEGISLATION

#### Other Sources

**International Agreements**

- General Agreement on Tariffs and Trade, Geneva 1947.
- WTO Agreement on Technical Barriers to Trade (TBT Agreement), Marrakesh 1994.
- WTO Dispute Settlement Understanding, Marrakesh 1994.
TABLE OF LEGISLATION

International Resolutions, Declarations and Guidelines

Ministerial Declaration on Sustainable Development in the ECE Region, Bergen 1990.
EU LEGISLATION AND SOFT LAW

Treaties

Regulations

Directives
EU Legislation and Soft Law

The Classification, Packaging, and Labelling of Dangerous Substances, OJ 1967 L 196/1.


Decisions


Communication of the Commission on Consumer Health and Food Safety, COM/97/83/Final.
Communication from the Commission on the Precautionary Principle, COM 2000/1/Final.

Other

Bulletin EC 6–1990, Conclusions of the Presidency, Point 1.14 and Annex II.
EU Bulletin 12–2000, Chapter 10 Community institutions, point 1.4.75.


SWEDISH LEGISLATION, PREPARATORY WORK, AND SO ON

Legislative Acts
Arbetsmiljölag (SFS 1977:1160).
Förvaltningslag (SFS 1986:223).
Plan- och Bygglag (SFS 1987:10).
Lag (SFS 1988:205) om rättsprövning av vissa förvaltningsbeslut.
Lag (SFS 1991:639) om förhandsgranskning av biologiska bekämpningsmedel.
Lag (SFS 1998:808) om införande av miljöbalken.

Decrees
Förordning (SFS 1985:643) med instruktion för kemikalieinspektionen.
Förordning (SFS 1988:525) med instruktion för Kemikalieinspektionen
Förordning (SFS 2006:524) med instruktion för Statens strålskyddsinsititut.
Verksförordning (SFS 1995:1322) med instruktion för Statens strålskyddsinsititut.
Förordning (SFS 2006:1010) om växtskyddsmedel.

Preparatory Works
Proposition 1997/98:45.
Proposition 2000/01:130.
SWEDISH LEGISLATION, AND SO ON


Other

Interview with case handler at the Swedish Ministry of the Environment, 8 September 2004.
Interview with officials at KemI, 9 September 2004.
KemI Memo (P. Bergkvist), PM inför beslut om fortsatt godkännande för EBDC-medel. 9 November 1994 (not published, but available from the author).
KemI Memo (P. Bergkvist), Yttrande over kompletterand material från Rohm and Haas och Elf Atochem Agri angående överklagandena av Kemikalieinspektionens beslut den 9 november 1994 i fråga om bekämpningsmedel innehållande EBDC, 23 August 1995 (not published, but available from the author).
Kommentarer till Statens strålskyddsinstituts allmänna råd (SSI FS 2003:3) om begränsning av allmänhetens exponering för elektromagnetiska fält.
UNITED KINGDOM

Legislative Acts

Health and Safety at Work etc. Act 1974.

Regulations and Orders

Control of Pesticides Regulations, SI 1986/1510.
Plant Protection Products Regulations 2005, SI 1435, s. 4, 5.

Other

National Radiation Protection Board, Advice on the 1998 ICNIRP Guidelines for


UNITED STATES OF AMERICA

Legislative Acts

Data Quality Act, Amendment to the Paperwork Reduction Act, 4 U.S.C. 3501.
Federal Water Pollution Control Act (Clean Water Act), 33 U.S.C. 1251.
Food Quality Protection Act 1996 (FPQA), Pub L. 104.
National Environmental Protection Act, 42 U.S.C. 4321.

Executive Orders


Other

Office of Management and Budget, Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal
United States of America

Agencies; Notice; Republication, Federal Register / Vol. 67, No. 36 / 22 February 2002.


Reorganization Plan No. 3 of 1970, Special Message from the President to the Congress About Reorganization Plans to Establish the Environmental Protection Agency and the National Oceanic and Atmospheric Administration, 9 July 1970. Available at: www.epa.gov/history/org/origins/rorg.htm (accessed 1 March 2010).