

# Notes

## 2 Ecology, Economics and Industry

1. 'Normative' in this book will be used to refer to the development of goals and objectives, particularly in relation to the overall survival and health of corporations and to the demands and expectations of society as a whole.
2. Usufruct derives from Roman and Scots law, and means 'the right to enjoy the use and advantages of another's property short of the destruction or waste of its substance' (from *The Concise Oxford Dictionary*, 9th edn).
3. We must keep in mind here, of course, that we are not saying that the complete internalization of external effects reduces environmental pollution to an imaginary zero. The result of internalization is merely that it permits determination of the optimum level to which the environmental pollution emitted in the production of a particular good can be reduced. Reduction of the environmental pollution beyond this point can only be achieved by putting a halt to the production of the good – leaving aside here the possibility of using a different technology.
4. A part of the savings in defence budgets which have become possible as a result of the rewriting of political maps in recent years, as well as of arms control agreements, could be used towards adaptation programmes.
5. Seeing government's role as strictly that of a rule-maker who does not actively intervene in economic decisions or transactions derives from Milton Friedman's monetarist ideology.
6. An example here is the 'South African Dilemma', as it is known in the literature.
7. In contrast to technological decisions, which are based on making a selection through a given number of incremental steps, and also instead of entrepreneurial decision-making, which is based on imaginative solutions found by heuristic methods.

## 4 Environmental Management: The Shape of the Future?

1. Definitions cannot be true or false, but only appropriate or inappropriate. For this reason, I do not wish to argue about terms, but only to clarify the terminology that I have used up to the present: I will speak of environmental management when environmental protection as a part of the corporation's task has been integrated as an autonomous objective into the system of objectives of the corporation. Consequently, environmental management should be understood as being concerned with the corporate environment (that is environment in the widest sense of the term) and involving all those planning and implementation measures that are designed to achieve this new objective. I will speak of ecological corporate management only when the environmental protection objective dominates.

**10 Generic Environmental Management Strategies**

1. The use of the term as it has been adopted in business economics is not correct in scientific terms, but is retained here to reduce misunderstanding. Within economics, risk must be defined as the exact variance of possible occurrences from what a mean or expected value (and it may not be possible to calculate this). This leaves no room for an additional subjective term like opportunity.
2. Kirchgeorg's usage of the term introduces confusion; what is decisive here are the ratings 'active', 'selective', and so on, which are related to the ecological-orientation, which can itself be negative.

# Bibliography

## SELECTED GERMAN LITERATURE

- ANGERER, G. and HIESSL, H. (1991) *Umweltschutz durch Mikroelektronik* (Berlin and Offenbach).
- ANTES, R., STEGER, U. and TIEBLER, P. (1992) 'Umweltorientiertes Unternehmensverhalten', in U. Steger (ed.), *Handbuch des Umweltmanagements* (Munich).
- BAUMOL, W. J. and OATES, W. E. (1979) *Economies, Environmental Policy and the Quality of Life* (Englewood Cliffs).
- CLUB OF ROME (ed.) (1991) *Die Globale Revolution* (Hamburg).
- COENENBERG, A. G. and BAUM, H-G. (1987) *Strategisches Controlling* (Stuttgart).
- ENDRES, A. (1985) *Umwelt- und Ressourcenökonomie* (Darmstadt).
- FEES, E., PRÄTORIUS, G. and STEGER, U. (1992) *Umwelthaftungsrecht*, 2. Auflage (Wiesbaden).
- FLEISCHMANN, G. and PAUL, J. (1987) *Technikfolgenabschätzung in der Industrie der Bundesrepublik* (Frankfurt a. Main).
- GERYBADZE, A. (1992) 'Umweltorientiertes Management von Forschung und Entwicklung', in U. Steger (ed.), *Handbuch des Umweltmanagements* (Munich).
- HALLAY, H. and PFRIEM, R. (1992) *Öko-Controlling* (Frankfurt and New York).
- HARTJE, V. J. and KURIE, R. L. (1984) *Adopting Rules for Pollution Control Innovations* (Berlin).
- HUBER, J. (1991) *Unternehmen Umwelt* (Frankfurt a. Main).
- HULLER, M. (1986) 'Risikomanagement', in H. Jacob (ed.), *Schriften zur Unternehmensführung*, Bd. 33 (Wiesbaden).
- KIRCHGEORG, M. (1990) *Ökologieorientiertes Unternehmensverhalten* (Wiesbaden).
- MEFFERT, H. and KIRCHGEORG, M. (1992) *Marktorientiertes Umweltmanagement* (Stuttgart).
- PFEIFFER, W. et al. (1982) *Technologie-Portfolio zum Management strategischer Zukunftsgeschäftsfelder* (Göttingen).
- PORTER, M. (1986) *Wettbewerbsvorteile* (Frankfurt a. Main).
- RAFFÉÉ, H., FÖRSTER, F. and KRUPP, W. (1988) *Marketing und Ökologieorientierung* (Mannheim).
- RAFFÉÉ, H. and WIEDMANN, K. P. (1986) *Strategisches Marketing* (Stuttgart).
- SEIFERT, W. G. (1986) 'Effizienzsprung durch systematische Risikopolitik', in H. Jacob (ed.), *Schriften zur Unternehmensführung*, Bd. 33 (Wiesbaden).
- STEGER, U. (1988) 'Ökologie und Betriebswirtschaft', *Arbeitsberichte des Instituts für Ökologie und Unternehmensführung*, 1.
- STEGER, U. (1992) *Future Management-Europäische Unternehmen im globalen Wettbewerb* (Frankfurt a. Main).
- STEGER, U., TIEBLER, P. and HEEREN, R. (1992) *Erdgas ante portas?* (Wiesbaden).

- STEGER, U., WEIHRAUCH, P. and LAUTENBACH, S. (1992) *Evaluierung freiwilliger Branchenvereinbarungen im Umweltschutz* (Cologne).
- VON ROSENSTIEL, L. et al. (1989) *Führungsnachwuchs im Unternehmen* (Munich).
- WIDE, L. (1991) *Umweltökonomie*, 3. Auflage (Munich).
- WIMMER, F. (1988) 'Umweltbewußtsein und Komsumrelevante Einstellungen und Verhaltensweisen', in A. Brandt (ed.), *Ökologisches Marketing* (Frankfurt and New York).

#### ENGLISH AND US BOOKS FOR FURTHER READING

- BLÜHDORN, I., KRAUSE, F. and SCHARF, T. (1995) *The Green Agenda – Environmental Politics and Policy in Germany* (Keele).
- BRADY, N. (1990) *Ethical Management – Rules and Results* (New York).
- FUSSLER, C. (with P. James) (1996) *Driving Eco-Innovation* (London).
- GROENEWEGEN, P., FISCHER, K., JENKINS, E. and SCHOT, J. (eds), *The Greening of Industry Resource Guide and Bibliography* (Washington, DC, and Corelo, CA).
- REINHARDT, F. and VICTOR, R. (1996) *Business Management and the Natural Environment* (Cincinnati, OH).
- SHIRIVASTAVA, P. (1996) *Greening Business* (Cincinnati, OH).
- WILFORD, R. and STARKEY, R. (eds) (1996) *Business and the Environment* (London).

# Index of Names

- Ansoff, H. 32, 152
- Drucker, H. 208
- Fleischmann, G. 184
- Förster, F. 114
- Fritz *see* Raffée
- Hallay, H. 166
- Hartje, V.J. 216
- Huller, M. 168
- Keynes, J.M. 10
- Kirchgeorg, M. 114, 115, 116, 117,  
145, 146, 147, 149
- Krupp *see* Raffée
- Meffert, H. 114, 115, 116
- Naisbit, J. 100
- Packard, V. 41
- Pfriem, R. 166
- Porter, M. 73, 121, 126, 190, 208
- Raffée, H. 114, 115, 116, 117
- Schumpeter, J. 27, 88, 136, 149
- Taylor, J.F. 32
- Weber, M. 19
- Wimmer, F. 43

# Index of Subjects

- Automobile 72, 75, 79, 80, 85, 87,  
88, 89, 90, 218, 219, 223
- BAT *see* Technology, best available  
BATNEEC 216
- Behavioural options 149
- Brundtland Report 11, 12, 13
- Business environment 31
- CFCs 4, 16, 62, 63, 64, 71, 127,  
162, 163
- Champion 227, 234
- Climate Convention 71
- Closed-loop economy 79
- CO<sub>2</sub> 4, 62, 71, 72, 73, 74
- Collective resource 9, 23, 42, 44
- Command and control approach 48,  
49, 62, 71
- Command and control policy 47,  
49, 53
- Command and control regulation 52,  
56, 60, 63
- Competition 8, 64, 74, 89, 90,  
111, 170
- Competitive advantage 17, 34, 36,  
86, 107, 121, 122, 140, 149,  
190, 210
- Complexity 32, 33, 35, 36, 38, 39,  
242
- Consumer behaviour 29, 41, 43, 44,  
45, 64, 112, 144, 146, 152, 161,  
170, 228, 244
- Corporate culture 17, 99, 100, 101,  
102, 103, 104, 112, 232
- Corporate ethic 13, 14, 16
- Corporate management 129
- Corporate risk 172, 175
- Cosmetics industry 44
- Coupled products 91, 93, 94, 95
- Cross-functional 106, 203, 204,  
232, 239
- Cross-impact analysis 153, 159, 160
- Diffusion curve 153, 156, 161,  
162, 163
- Distribution policy 210
- Drive belts 29
- Early warning systems 107, 157
- Earth Summit 71
- Eco-audits 178
- Eco-cycle 92, 211, 226
- Eco-efficiency 51, 249
- Eco-*kaizen* 186, 251
- Ecolabeling 29, 173
- Ecological compatibility certificate  
198
- Ecological framework 10, 27
- Ecological products 29
- Ecological value chains 177, 178,  
190, 191, 200
- Ecologically oriented innovatives  
146, 147
- Ecologically oriented passives  
145, 147
- Ecologically oriented selectives  
145, 147
- Economic theory 10, 19, 199
- Economic theory of politics 27
- Ecosystem 3, 35, 36, 180, 187
- EIA 182, 183
- EMAS 29, 48, 178, 186, 187,  
188, 189
- Entropy 88, 91, 92, 94, 96  
Law of 5, 6
- Environmental audit 166, 177, 178,  
185, 187, 188, 189, 198, 199,  
236, 238
- Environmental awareness 23, 24, 36,  
41, 42, 43, 44, 47, 65, 104, 197,  
207, 211, 242, 244, 248
- Environmental compatibility 36, 75,  
127, 207, 242
- Environmental consciousness 23
- Environmental cost 10, 196, 200

- Environmental impact assessment 177, 182, 187, 230, 238  
 Environmental liability 65, 66, 68, 69, 84  
 Environmental load profile 181  
 Environmental market sensitivity matrix 128  
 Environmental progress 14, 251  
 Environmental protection officer 235, 237, 238, 239, 242, 246, 247  
 Environmental protection rules 15  
 Environmental quality 9, 27, 29, 59, 60, 127, 218  
 Environmental regulatory policy 47  
 Environmental standards 9, 49, 51, 52, 59, 60, 61, 68, 74, 80, 82, 86, 157  
 External effects 13, 17, 87, 197  
 Externalities 9, 10, 14, 15, 16, 59, 124, 180, 199, 213  
  
 Fault-tolerant system 19  
 First mover 130, 131, 132, 133  
 Flat hierarchies 39  
 Follower 130, 131, 132, 133, 138, 157  
 Free ecological effects 13  
 Free riders 9, 44, 47, 72  
  
 Genetic engineering 14  
 Globalization 31, 32, 33, 34, 36, 39  
 Gossen Laws 24  
 Greenhouse Effect 3, 35, 71  
  
 House of Quality 205  
 Hybrid consumer 42  
  
 Information relevance matrix 154, 157  
 Innovation 20, 32, 34, 38, 45, 52, 53, 61, 68, 73, 102, 109, 119, 127, 128, 130, 132, 133, 135, 136, 138, 139, 143, 145, 165, 183, 210, 213, 215, 216, 220, 221, 224, 226, 227, 228, 229, 245, 252  
 Innovation trap 140, 142, 143, 223  
 ISO 14000 178, 182, 186, 203  
 Japanese corporation, 17  
 LCA 179, 180, 181, 182, 189, 192, 198, 230  
 Learning 28, 32, 35, 36, 37, 38, 39, 43, 80, 103, 109, 130, 138, 144, 166, 217, 232, 233, 252  
 Learning curve 132, 133, 141, 192  
 Life-cycle analysis 136, 177, 182, 192, 196  
 Long-term thinking 18, 227  
  
 Management  
     corporate 31, 32, 33, 36, 37, 39, 99, 119, 167, 242, 247  
     innovation 38, 123, 137  
     materials 195  
     normative 100, 117, 121, 172  
     personnel 241  
     quality 195, 203, 204  
     risk 123, 128, 129, 130, 131, 145, 165, 167, 168, 169, 170, 171, 172, 174, 175, 178, 185, 239  
     strategic 42, 99, 106, 107, 123, 158  
     waste 96  
 Market-based instruments 27, 47, 48, 50, 52, 53, 54, 58, 60, 62, 65, 70  
 Market coverage 209  
 Market economy 9, 18, 20, 29, 122  
 Market opportunities 94, 124, 125, 128, 131, 132, 134, 151, 185, 197, 198, 207, 239  
 Marketing mix 28, 44, 145, 207, 208, 210, 212  
 MBI *see* Market-based instruments  
 Microelectronics 34, 79, 80, 81, 82, 83, 84, 86, 90, 221  
  
 Natural capital 4  
 Neoclassical economic theory 7, 8  
 Networking 34  
 New-venture approach 228  
 Non-point sources 50, 83  
  
 Objectives  
     corporate 36, 49, 99, 110, 111, 113, 114, 119, 122, 159, 171, 229, 243  
     market 111, 113, 110, 135  
     performance 16, 111, 114  
     profit 14, 16, 110, 111, 113, 117, 152

- Offsets 56, 57
- Open communication 38
- Opinion survey 25
- Organization
  - goal-oriented 17, 231
  - project- 228
- Organizational structures 129, 231, 234, 235, 236, 237
- Ozone hole 35, 71, 162
  
- Petroleum industry 76, 77
- Pigovian taxes 4, 59
- Pluralistic democracy 27
- Point sources 50, 83
- Political programmes 26
- Polluter fees 11, 199
- Population 6, 9, 12, 35, 53, 72, 178, 251
- Portfolio 124, 126, 149, 175
- Prevention 11, 50, 61, 94, 96, 127, 173, 174, 175, 190, 197, 198, 210, 211
- Pricing policy 207
- Product life cycle (PLC) 130, 131, 132, 133
- Product policy 210
- PROMETHEUS 90
- Public policy 9, 27, 220
  
- QFD *see* Quality-Function Deployment
- Qualifications 244
- Quality-Function Deployment 205
  
- Recycling 43, 86, 89, 93, 94, 95, 133, 134, 199, 201, 202, 210, 215, 228
- Research Group on Environmentally Oriented Corporate Management 117, 144, 205, 207, 239
- Resources
  - natural 10, 13, 72, 91, 94, 186
  - non-renewable 12, 179
  - renewable 142
- Responsible shareholder-value optimization 14, 18, 112
- Return on technological superiority 73
- Right-to-pollute 54
- Risk analysis 128, 170, 171
  
- RSO *see* Responsible shareholder-value optimization
  
- Safety threshold 172
- Scenario 38, 91, 136, 154, 157, 182, 200, 225, 251
- Scenario analysis 153, 158, 159
- Second Law of Thermodynamics 96
- Second-order market relationships 96
- Shareholder value 249
- Social trends 23
- St Gallen management concept 32
- Stakeholders 14, 18, 36, 109, 111, 143, 182, 228, 249, 251
- Strategic control 108, 165, 169, 172, 173, 175, 177, 185, 195, 198
- Strategic hexagon 20, 32, 33, 35, 36
- Strategic radar 36, 152
- Strategic star 31, 33
- Strategy
  - competitive 32, 126, 127, 134
  - cooperation 207
  - defensive 123, 130, 133, 162
  - generic 32, 121, 122, 123, 124, 143, 144, 145, 149, 172
  - innovation-oriented 135, 136, 139, 140, 141, 145, 154
  - offensive environmental 211
  - opportunity-oriented 134, 144, 145, 190
  - risk-oriented 128, 130, 133, 144, 145
  - robust 252
- Strict liability 67, 68, 69
- Sunk cost 65, 139, 141, 217
- Sustainability 12, 251
- Sustainable Development 7, 8, 11, 13, 14, 20, 92, 106, 110, 144, 201, 213, 214, 249
- Sustainable thresholds 4
  
- Target-based R&D 221, 222, 223
- Technology 6, 10, 12, 13, 15, 19, 31, 33, 34, 35, 37, 38, 39, 52, 58, 72, 74, 76, 79, 81, 82, 83, 85, 86, 88, 89, 95, 123, 130, 133, 139, 141, 144, 157, 162, 169, 173, 178, 183, 185, 192, 195, 202, 203, 204, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 225, 232, 233

- best available 52, 184, 206, 216, 218
- clean 12
- end-of-pipe 13, 36, 52, 57, 61, 85, 127, 129, 137, 145, 148, 200, 214, 217, 219
- integrated 37, 38, 61, 144, 200, 202, 214, 216, 217, 218, 219, 220, 221, 222, 223, 226, 228
- key 34, 140
- sustainable 213
- Tradable emissions rights 11
- Tradable permit 50, 54, 55, 56, 59, 73
- Trend-breaks 151, 152
- UN Center for Transnational Corporations 73
- Unlearning 35, 38
- Value chain 121, 135, 186, 191, 192, 197, 222
- VDI 80, 84, 138, 184
- Waste 10, 36, 51, 62, 76, 77, 92, 94, 95, 133, 170, 173, 175, 186, 198, 199, 201, 202, 210, 214, 226, 237, 246
- Waste-water levy 47, 59, 60, 61
- Weak signals 152, 154, 159, 160