

# Table of Contents

<b>Table of Contents.....</b>	<b>XIII</b>
<b>List of Appendices .....</b>	<b>XIX</b>
<b>List of Figures .....</b>	<b>XXI</b>
<b>List of Tables.....</b>	<b>XXIII</b>
<b>Table of Acronyms .....</b>	<b>XXV</b>
<b>List of Mathematical Symbols.....</b>	<b>XXIX</b>
<b>1 Introduction.....</b>	<b>1</b>
1.1 Presentation of the Problem .....	1
1.2 Objective and Definition of the Topic.....	2
<b>2 Status of Research in the Field of Location Theory.....</b>	<b>3</b>
2.1 Location Theories .....	3
2.1.1 History of location theories.....	3
2.1.2 Site selection and site planning .....	5
2.2 International Site Evaluation as an Area of Research .....	5
2.2.1 The move from the national to the international view .....	5
2.2.2 Sabathil's approach .....	6
2.2.3 Tesch's approach.....	7
2.2.4 Goette's approach .....	7
2.3 Propositions.....	8
2.4 Proposed Solutions – Approach and Methodology .....	9
<b>3 Introduction to the Problem of International Developments.....</b>	<b>11</b>
3.1 Taxonomy .....	11
3.2 Conceptual Focus of Site Strategy .....	12
3.3 Market Entry Approaches .....	14
3.4 Site Selection as Part of the Development Process .....	17
3.4.1 The development process.....	17
3.4.2 The initiation phase of a project.....	17
3.4.3 The concept phase of a project.....	21
3.4.3.1 Fundamentals .....	21
3.4.3.2 Market and competition analysis.....	22
3.4.3.3 Site analysis .....	23
3.4.3.4 Production process analysis .....	23
3.4.3.5 Risk analysis .....	28
3.4.3.6 Profitability analysis .....	33
3.4.4 The detailing phase of a project .....	34
3.4.4.1 Fundamentals .....	34
3.4.4.2 Planning permissions and operating licenses .....	35
3.4.4.3 Engineering planning .....	35
3.5 Frame of Reference and Perspectives of Site Analysis.....	36
3.5.1 Terminology.....	36
3.5.2 Site favourableness .....	36

3.5.3	Objective and subjective site factors.....	38
3.5.4	Site factors with a once-off effect and site factors with continuous effect.....	38
3.5.5	Operational and functional site factors.....	39
3.5.6	Push and pull factors.....	39
3.5.7	Quantitative and qualitative site factors.....	41
3.5.8	Quantity-related and quality-related site factors.....	43
3.5.9	Site factors related to macro- and micro-environment.....	44
3.6	The Importance of Property Development in Industrial Companies.....	46
4	Real Estate Portfolios and Site Selection Criteria in Industrial Corporations.....	49
4.1	General Aspects.....	49
4.2	Real Estate Portfolios of Industrial Corporations.....	49
4.2.1	Difference between institutional and corporate real estate.....	49
4.2.2	Composition of corporate real estate portfolios.....	51
4.2.3	Basis for measuring the success of corporate real estate.....	53
4.2.4	Marketability of company real estate.....	55
4.2.5	Time availability of corporate real estate.....	57
4.3	Site Selection Criteria for Industrial Corporations.....	57
4.3.1	Operational determinants.....	58
4.3.1.1	Market.....	58
4.3.1.2	Raw materials.....	58
4.3.1.3	Logistical connections.....	58
4.3.1.4	Land.....	58
4.3.1.5	Infrastructure.....	58
4.3.1.6	Personnel.....	59
4.3.2	Functional determinants.....	59
4.3.2.1	Legal framework.....	59
4.3.2.2	Investment regimes.....	60
4.3.2.3	Taxation.....	60
4.3.2.4	Customs.....	61
4.3.2.5	Fiscal conditions.....	61
4.4	Case Study: Chemical Company BASF SE.....	62
5	Evaluation Methods: Fundamentals and Problem Definition.....	65
5.1	Fundamentals.....	65
5.2	System of Methods.....	66
5.3	System of Representation and Scaling.....	66
5.3.1	Nominal scale.....	67
5.3.2	Ordinal scale.....	67
5.3.3	Cardinal scale.....	67
5.4	Criteria values.....	69
5.4.1	Criteria values for quantity-related determinants.....	69
5.4.2	Criteria values for quality-related determinants.....	72
5.4.2.1	Approach (A): Importance by Diversity.....	72
5.4.2.2	Approach (B): Importance by Proportion.....	76
5.4.3	Discussion of problems involved in the methodological approach.....	80
5.4.3.1	Elimination of failing alternatives.....	80
5.4.3.2	Influence of the significance of criteria values.....	80
5.4.3.3	Substitutability between equivalent criteria values.....	82
5.4.3.4	Concave result distribution: dominance of extremes.....	83
5.4.3.5	Relationship between criteria value and fulfillment degree.....	85

<b>6</b>	<b>Evaluation Methods for Production Site Planning .....</b>	<b>89</b>
6.1	General Aspects .....	89
6.2	Qualitative Methods .....	90
6.2.1	Standard .....	90
6.2.2	Checklist .....	92
6.2.3	Pairwise comparison .....	94
6.2.4	Preference matrix .....	96
6.2.5	Classification tree .....	100
6.2.6	SWOT Analysis .....	103
6.3	Quantitative Methods .....	106
6.3.1	Overview .....	106
6.3.2	Benefit analysis .....	107
6.3.3	Rating as a special application of the benefit analysis .....	112
6.3.4	Cost-benefit analysis .....	117
6.3.5	Cost-effectiveness analysis .....	122
6.4	Supporting Methods .....	126
6.4.1	Sensitivity analysis .....	126
6.4.2	Scenario analysis .....	128
<b>7</b>	<b>The Process of Site Analysis for Production Facilities .....</b>	<b>135</b>
7.1	General aspects .....	135
7.2	Time span of a site analysis .....	136
7.3	Structure of a Site Analysis .....	137
7.4	Structure of the Site Analysis Process .....	138
7.5	Stages of Site Analysis .....	139
7.5.1	Stage 1: Establishment of project organization .....	139
7.5.2	Stage 2: Project definition .....	141
7.5.2.1	Determination of demand .....	142
7.5.2.2	Analysis of stock of existing production facilities .....	143
7.5.2.3	Strategic orientation of the site .....	143
7.5.3	Stage 3: Definition of regional scope .....	144
7.5.4	Stage 4: Regional screening .....	146
7.5.5	Stage 5: Longlisting .....	146
7.5.6	Stage 6: Shortlisting .....	147
7.5.7	Stage 7: Site visits .....	147
7.5.8	Stage 8: Selection of preferred site options .....	150
7.5.9	Stage 9: Definition of preferred site .....	150
7.5.10	Stage 10: Decision .....	151
7.6	Summary .....	153
<b>8</b>	<b>Determinants of Production Site Determination .....</b>	<b>155</b>
8.1	General Aspects .....	155
8.2	Information Gathering .....	156
8.2.1	Framework conditions of information gathering .....	156
8.2.2	Sources of information .....	157
8.2.3	Case study: Industrial parks in the People's Republic of China .....	159
8.3	Relevant Production Site Factors .....	160
8.4	Macro-Environment Determinants for Sites .....	161
8.4.1	Centrality of the market .....	161
8.4.2	Site references .....	164
8.4.3	Political environment and business ethics .....	167

8.4.4	Legal system .....	169
8.4.5	Fiscal system, taxes, and customs duties.....	170
8.4.6	General socio-economic conditions .....	171
8.4.7	General socio-cultural conditions.....	171
8.4.8	Climate.....	172
8.4.9	Natural disasters.....	173
8.5	Micro-Environment Determinants for Sites .....	174
8.5.1	Site location .....	174
8.5.2	Site references .....	175
8.5.3	Incentive schemes .....	177
8.5.4	Environmental impact .....	179
8.5.4.1	Emissions .....	179
8.5.4.2	Immissions .....	180
8.5.4.3	Landscape protection and nature conservation .....	180
8.5.4.4	Land contamination.....	181
8.5.5	Availability of land .....	185
8.5.5.1	Planning of land use .....	185
8.5.5.2	Investment density .....	188
8.5.6	Site nature .....	189
8.5.6.1	Technical site aspects.....	189
8.5.6.2	Layout .....	189
8.5.6.3	Topography .....	190
8.5.6.4	Subsoil.....	191
8.5.6.5	Obstacles and existing structures .....	192
8.5.7	Land rights .....	192
8.5.7.1	Legal site aspects .....	192
8.5.7.2	Land ownership.....	193
8.5.7.3	Existing foundation in possession rights .....	196
8.5.7.4	Land acquisition by foreigners.....	196
8.5.7.5	Securing of rights in a plot.....	197
8.5.7.6	Securing the rights in land and buildings .....	199
8.5.7.7	Eligibility as collateral .....	199
8.5.7.8	Restrictions on disposal .....	200
8.5.8	Urban land-use planning and building legislation.....	201
8.5.8.1	Regional planning and urban land-use planning .....	201
8.5.8.2	Types of building land .....	203
8.5.8.3	Ability to obtain planning permission .....	204
8.5.8.4	Usability for construction.....	204
8.5.9	Technical infrastructure .....	208
8.5.9.1	General aspects .....	208
8.5.9.2	Exterior development (infrastructure facilities).....	210
8.5.9.3	Interior development (OSBL infrastructure connections).....	215
8.5.9.4	Internal infrastructure distribution (ISBL) .....	220
8.5.10	Land price .....	220
8.5.10.1	Economic land aspects .....	220
8.5.10.2	Residual value.....	222
8.5.10.3	Comparative value .....	225
9	Discussion of Methods in Context of the Site Analysis Process.....	229
9.1	Fundamentals .....	229
9.2	Summary Discussion of Evaluation Methods .....	231
9.3	Discussion of Site Analysis Processes and Recommendation.....	234
10	Case Study: Strategic Site Selection in Russia.....	237
10.1	Initial Situation .....	237

10.2	Site Analysis Process.....	237
10.2.1	Creation of the project team.....	238
10.2.2	Definition of fundamentals.....	238
10.2.2.1	Determination of demand.....	238
10.2.2.2	Strategic orientation.....	242
10.2.2.3	Definition of the strategic site objectives.....	242
10.2.2.4	Analysis of existing sites.....	243
10.2.3	Definition of regional scope.....	244
10.2.4	Regional screening.....	246
10.2.5	Longlisting.....	248
10.2.6	Shortlisting.....	251
10.2.7	Site visits.....	254
10.2.8	Selection of preferred site options.....	254
10.2.9	Definition of preferred site.....	258
10.2.10	Decision.....	260
11	Summary and Outlook.....	261
12	Bibliography.....	263
	Appendix 1: Tesch's Model of Site Factors.....	281
	Appendix 2: Comprehensive List of Macro-Environment Site Factors.....	285
	Appendix 3: Comprehensive List of Micro-Environment Site Factors.....	293
	Appendix 4: Hazardous Materials - Selected Limits or Target Values.....	309
	Appendix 5: Questionnaire.....	313
	Appendix 6: Weighting of qualitative Criteria.....	317
	Appendix 7: Assessment tables according cost-effectiveness analysis.....	321
	Appendix 8: Assessment table according sensitivity analysis.....	331