

Table of contents

List of Authors	V
Foreword	VII
Preface	IX
List of Abbreviations	XIII
List of Figures	XVII
List of Tables	XXI
1 Strategy and estimating	1
1.1 Sales and marketing strategies	1
1.2 Production and procurement strategies.....	5
1.3 Financing strategies.....	8
2 Estimating costs in heavy construction	11
2.1 Foundations of construction business management.....	11
2.1.1 Estimating goals.....	11
2.1.2 Key financial cost terminology.....	12
2.1.3 Types of construction contracts.....	17
2.1.4 Estimating methods.....	20
2.1.5 Further development of the pre-estimate.....	24
2.1.6 Coexistence of construction schedule, risk management plan and capital commitment plan.....	26
2.1.7 Liquidity planning and capital cost.....	28
2.2 Estimating of earthworks.....	33
2.2.1 Introduction.....	33
2.2.2 Construction site conditions.....	34
2.2.3 Bases of calculation.....	36
2.2.4 Preparatory work, systematization of the earthwork engineering services.....	43
2.2.5 Corresponding factors of construction execution.....	44
2.2.6 Calculation of the partial activities.....	45
2.2.7 Conclusion.....	50
2.3 Estimating in road construction.....	51
2.3.1 Construction specifications.....	51
2.3.2 Direct costs of the partial activities.....	52
2.3.3 Overheads and other surcharges.....	53
2.3.4 Calculation example.....	53
2.4 Estimating in bridge construction.....	65
2.4.1 Basics.....	65
2.4.2 Example – Steel composite bridge.....	67
2.4.3 Example – Prestressed concrete bridge.....	89
2.5 Estimating in tunnel construction.....	122
2.5.1 Introduction.....	122

2.5.2	Example – Cutting shield boring	122
2.5.3	Example of traditional tunnel construction	143
2.5.4	Example – Floating assembly	163
2.5.5	Costing and pricing	169
2.6	Estimating of foundation engineering works	180
2.6.1	Basics	180
2.6.2	Costing and pricing	182
2.6.3	Examples	183
3	Special aspects of the estimating process	205
3.1	Claim management	205
3.1.1	Introduction	205
3.1.2	Contractual basics	205
3.1.3	Chosen change orders during the construction process	206
3.1.4	Example calculation	206
3.2	Construction in foreign countries	208
3.2.1	Financial risks and dispute resolutions	209
3.2.2	Safeguarding foreign construction projects and export transactions	211
3.2.3	Hedging foreign exchange transactions	220
3.3	Calculation of risks	220
3.3.1	Major functional risk sectors	221
3.3.2	Typical risk sharing in life-cycle valuations of construction projects	225
3.3.3	Cost accounting assessment of risks	229
3.3.4	Risk evaluation tools	230
3.3.5	Risk transfer	232
3.4	Features of joint ventures	233
3.4.1	Basics	233
3.4.2	Characteristics of the estimating process	235
3.5	Using estimating software	239
3.5.1	Objectives and benefits	239
3.5.2	Recourse to master data	239
3.5.3	EDP evaluation	241
3.5.4	Master data organization	242
3.5.5	EDP master data	246
3.5.6	Example – Topsoil excavation and storage	248
3.5.7	Example – Soil excavation and integration	249
3.5.8	Approaching the market price	249
3.5.9	Summary and conclusion	251
	References	253
	Index	257