### Contents

List of tables and figures	xi
Acronyms and Abbreviations	xii

#### Part I. Introduction

Chapter 1. South Africa as a case study	
I. Purpose of the project	3
II. The arms embargo method	4
III. The military industrialization process	12
Notes and references	19
Chapter 2. Historical impediments to embargo implementation	
I Introduction	21

1.	Introduction	21
II.	Resource factors	21
III.	Political factors	27
	Notes and references	32

# Part II. The development of South Africa's military industry

Chapter	3. The historical background	
I.	Introduction	37
II.	1912–39	37
III.	1939–45	37
IV.	1945–61	38
	Notes and references	40

## Chapter 4. The organization and structure of the modern arms industry

I.	Introduction	41
II.	Reorganizing the institutional structure	42
III.	The Armaments Board	44
IV.	Armscor	45
	Notes and references	58



### Part III. The sectors of the military industry

Chapter	5. The aircraft industry	
I.	Introduction	63
II.	Establishment of the Atlas Aircraft Corporation	65
III.		66
IV.		69
V.	Atlas-Mirage-3/F-1	70
VI.	Atlas 'Cheetah'-the 'new' fighter design	73
VII.	Spare parts and engines	77
VIII.	Other aircraft producers	78
	Notes and references	78
Chapter	6. The armoured vehicle industry	
I.	Introduction	81
II.	Armoured cars	82
III.	Tanks	85
IV.	Field artillery	87
V.	Army trucks and specialized versions	95
VI.	Engines	99
	Notes and references	100
Chapter	7. The missile industry	
I.	Introduction	103
II.	Missile projects	105
	Notes and references	111
Chapter	8. The warship industry	
I.	'Introduction	113
II.	Projects	117
	Notes and references	122
Chapter	9. Infantry weapons and small arms	
I.	Introduction	124
II.	The producers	124
	Ammunition and explosives	126
IV.	Small arms	129
	Notes and references	134
Chapter	10. Military electronics and communications equipment	
I.	Introduction	135
	From investment to disinvestment	137
III.	South African producers	140
IV.	1	144
	Notes and references	147

Chapter	11. The CBW industry	
- I.	Introduction	149
II.	Chemical weapons	149
III.	Bacteriological weapons	150
	Notes and references	151
Chapter	12. Nuclear technology	
I.	Introduction	153
II.	The nuclear research programme	155
III.	The Ucor uranium enrichment process	158
IV.	The nuclear energy programme	160
V.		162
	Notes and references	171
Chapter	13. South Africa's arms exports	
I.	Introduction	173
II.	The flow	175
III.	Armscor's sales organization	182
	Notes and references	186
Part IV	7. Implementation and disimplementation	
Chapter	14. Embargo implementation	
Ī.	Introduction	191
	The UK	194
III.	The United States	201
IV.	France	207
V.	FR Germany	212
VI.	Italy	215
VII.	Japan	216
VIII.		217
	Notes and references	227
Chapter	15. Summary and conclusions	
I.	Introduction	229
II.		231
III.	The motives for disimplementation	238
IV.	Final assessment	240
	Notes and references	241

ix

### Appendices

#### Appendix 1. Sources and methods

I.	International sources of information	242
II.	South African sources	242
III.	Implementation analysis	243
IV.	Terminology	244
	Notes and references	246

## Appendix 2. UN Security Council resolutions on the arms embargo against South Africa

I.	Resolution 181 (1963) of 7 August 1963 (voluntary)	248
II.	Resolution 182 (1963) of 4 December 1963 (voluntary)	249
III.	Resolution 418 (1977) of 4 November 1977 (mandatory)	250
IV.	Resolution 558 (1984) of 13 December 1984 (voluntary)	252
Appendix	3. Selected bibliography	
I.	Books	253
II.	Special reports	255
III.	South African official reports	258
IV.	Yearbooks	258
V.	UN documents	259
		_

## Appendix 4.South Africa's major weapons industry: the dependenceon foreign military technology261