## Contents

Series editors' preface Preface	<i>page</i> xi xiii
CHAPTER 1	
REFLECTIONS ON THE COMMONS	1
Three influential models	2
The tragedy of the commons	2
The prisoner's dilemma game	2 3 5
The logic of collective action	
The metaphorical use of models	7
Current policy prescriptions	8
Leviathan as the "only" way	8
Privatization as the "only" way	12
The "only" way?	13
An alternative solution	15
An empirical alternative	18
Policy prescriptions as metaphors	21
Policies based on metaphors can be harmful	23
A challenge	23
CHAPTER 2	
AN INSTITUTIONAL APPROACH TO THE STUDY OF	7
SELF-ORGANIZATION AND SELF-GOVERNANCE IN C	PR
SITUATIONS	29
TI . CDD situation	30
The CPR situation	30
CPRs and resource units  Rational appropriators in complex and uncertain situations	33
Kational appropriators in complex and uncertain situations	55

## Contents

Interdependence, independent action, and collective action	38
The theory of the firm	40
The theory of the state	41
Three puzzles: supply, commitment, and monitoring	42
The problem of supply	42
The problem of credible commitment	43
The problem of mutual monitoring	45
Framing inquiry	45
Appropriation and provision problems	46
Multiple levels of analysis	50
Studying institutions in field settings	55
CHAPTER 3	
ANALYZING LONG-ENDURING, SELF-ORGANIZ	ED, AND
SELF-GOVERNED CPRs	58
Communal tenure in high mountain meadows and forests	61
Törbel, Switzerland	61
Hirano, Nagaike, and Yamanoka villages in Japan	65
Huerta irrigation institutions	69
Valencia	71
Murcia and Orihuela	76
Alicante	78
Zanjera irrigation communities in the Philippines	82
Similarities among enduring, self-governing CPR institution	
Clearly defined boundaries	91
Congruence between appropriation and provision rules a	
local conditions	92
Collective-choice arrangements	93
Monitoring	94
Graduated sanctions	94
Conflict-resolution mechanisms	100
Minimal recognition of rights to organize	101
Nested enterprises	101
CHAPTER 4	
ANALYZING INSTITUTIONAL CHANGE	103
The competitive pumping race	104
The setting	104
The logic of the water-rights game	106
The litigation game	111

## Contents

The Raymond Basin negotiations	111	
The West Basin negotiations	114	
The Central Basin litigation	123	
Conformance of parties to negotiated settlements	125	
The entrepreneurship game	127	
Reasons for forming a district to include both basins	130	
Reasons against forming a district to include both basins	131	
The polycentric public-enterprise game	133	
The analysis of institutional supply	136	
Incremental, sequential, and self-transforming institutional		
change in a facilitative political regime	137	
Reformulating the analysis of institutional change	139	
CHAPTER 5		
ANALYZING INSTITUTIONAL FAILURES		
AND FRAGILITIES	143	
Two Turkish inshore fisheries with continuing CPR problems	144	
California groundwater basins with continuing CPR problems	146	
A Sri Lankan fishery	149	
Irrigation development projects in Sri Lanka	157	
The fragility of Nova Scotian inshore fisheries	173	
Lessons to be learned from comparing the cases in this study	178	
CHAPTER 6		
A FRAMEWORK FOR ANALYSIS OF SELF-ORGANIZING		
AND SELF-GOVERNING CPRs	182	
The problems of supply, credible commitment, and mutual		
monitoring	185	
A framework for analyzing institutional choice	192	
Evaluating benefits	195	
Evaluating costs	198	
Evaluating shared norms and other opportunities	205	
The process of institutional change	207	
Predicting institutional change	210	
A challenge to scholarship in the social sciences	214	
	_	
Notes	217	
References	245	
Inday	271	