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**SUPERIMPOSITION OF BOUNDARY
AND ITS IMPACT ON SYSTEM EFFICIENCY**

**South Asian Case Study and search
for 'organismic equilibrium'**

by

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Thesis submitted in partial fulfilment of the requirements for the
degree of

**Doctor of Philosophy
in
Systems Science**

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Abstract

Boundaries of Nation States around the world and also of their constituent units and conglomerations are often found to be arbitrarily drawn or superimposed, without any reference to their systemic imperatives. This study starts with a hypothesis that such superimposition creates *inefficient* spatial systems and hinders growth potential of the system or systems concerned and also increases the probability of conflicts and chaos.

In this regard special attention has been given to the territorial region of 'South Asia' which provides glaring examples of such superimposition. This regional scenario has been looked from different perspectives, both analytically and holistically.

A study on different characteristics of spatial systems has been made and a methodology has been suggested to dis-aggregate the complexity of spatial systems and evaluate/measure their efficiency.

Spatial systems are 'open hierarchical systems' and call for a holistic approach. However, many of the constituent entities of spatial systems are found to be, within specified limits, quantifiable through a hard systems approach. Therefore, a two pronged approach, combining both hard and soft systems approaches has been adopted.

Systems thinking has been applied in understanding different facets of organisational aspects and resolving problems thereof with significant success. There have been some attempts to apply systems thinking in different disciplines of social sciences also. However, attempts to apply systems thinking in the politico-administrative arena, especially to understand and evaluate the structural and functional aspects of present day Nation States, their sub-systems and supra-systems, has not yet been very extensive.

In this study attempts have been made to develop tools and methodologies to apply systems thinking in understanding spatial systems and in their administration. In this regard the 'Soft Systems Methodology -- SSM', has been applied in conjunction with other systems approaches to develop a 'hard-soft symbiotic process' of inquiry to analyse and understand systemic incongruities in spatial systems and to identify appropriate interventions thereof.

An attempt has been made to apply the concepts and methodologies so developed to the real world situation of present day South Asia. Thus, this study makes the following contributions to knowledge and to systems practice, in particular:

(a) It takes a step forward to apply systems thinking to the problematic of Nation States and inter-State issue at the regional and global levels and thereby extends the scope of systems science, in general.

(b) It develops a tool, the **Systemic Efficiency Matrix (SEM)**, for the evaluation of the *efficiency* of spatial systems, especially the Nation States, which was not attempted before. This will enable the political decision makers at national and other levels to make better assessments of their own and comparable situations, providing a better understanding of the issues concerned and better policy decisions.

(c) It provides political leaders at regional and global levels with a novel approach of '**Simultaneous Devolution and Consolidation (SDC)**' to resolve the system distortions arising out of superimposed boundaries in their respective arena. This may eventually help eliminate, or reduce, inter-state conflicts at regional levels through a better understanding of the holistic and interdependent nature of the regional systems.

(d) It emphasises a concept that global issues can not be resolved ignoring the regional hierarchies. It calls for more attention to the Nation State systems and their regional conglomerations, applying systems thinking and looking for a global spatial equilibrium which has to be organismic and hierarchical.

The concepts and tools developed in this study leave room for further research and investigation in this field through appropriate institutional support and development of necessary computer software.

In summary, it opens up a new and challenging arena for systems practitioners through the application of the systems paradigm in political and administrative policy planning and decision making processes, both at the national and international levels.

CONTENTS

Abstract	i
Acknowledgement.....	xviii
Dedication.....	xx
List of tables.....	xxi
List of figures.....	xxii

Chapter-1 : INTRODUCTION

Introductory notes /1

1.1 MOTIVATION /2

1. 1. 1 **Maladies in spatial delineation: A case for concern** /2

1. 1. 2 **The problem of horizontal segmentation:** /5

i. Fragmentation of space and superimposition of spatial boundary

ii. South Asia as specific example

1. 1. 3 **The problem of vertical segmentation** /6

i. Location of sovereignty and hierarchical control

ii. The undermining of the 'Nation State'

iii. ' Globalisation' without hierarchical consideration

- 1. 2 LOOKING AT SPATIAL SYSTEMS FROM 'SYSTEMS PERSPECTIVE' /9**
- 1. 2. 1 Spatial units as systems /10**
- 1. 2. 2 The rationale of 'intervention' /11**
- 1. 3 AIMS OF THE STUDY /12**
- 1. 4 OBJECTIVES SET FOR THE STUDY /13**
- 1. 5 PLANNING OF THE CHAPTERS /15**

Chapter-2 : LOOKING FOR THE APPROPRIATE METHODOLOGY

Introductory notes /18

- 2.1 IDENTIFICATION OF SYSTEM TRAITS: FRAMING THE ISSUES /19**
- 2.1.1 Issues to be addressed /19**
- 2.2 ADDRESSING THE COMPLEXITY OF SPATIAL SYSTEMS: THE HARD-SOFT SYMBIOSIS /20**
 - a)The hard systems analysis /20**
 - b)The soft systems approach /21**
 - c)Looking for the 'gestalt whole' /21**
- 2.2.1 Identifying the spatial systems and their characteristics /21**
- 2.2.2 Listing the system entities: sets, sub-sets and elements /22**
- 2.3 MEASURING THE EFFICIENCY /22**
- 2.3.1 The systemic efficiency matrix (SEM) /23**
- 2.3.2 Assessment and judgment /24**

2.3.3	'Delphi' method of opinion convergence	/25
2.3.4	The orgsnismic equilibrium model	/25
2.4	METHODOLOGY OF INTERVENTION	/26
2.4.1	Is there any need or desire for change?	/26
2.4.2	Designing the intervention	/26
2.4.3	Methodology of change	/27
2.4.4	Attaining the 'best possible' spatial efficiency: the Simultaneous Devolution and Consolidation (SDC)	/27
2.5	SUMMARY	/28

Chapter-3 : SYSTEMS THINKING AND ADMINISTRATION OF SPACE: DEFINITIONS AND CONCEPTS

Introductory notes /29

3.1	THE GEOGRAPHICAL PREMISES OF SPACE ADMINISTRATION	/30
3.1.1	Political geography	/30
3.1.2	Geopolitics	/32
3.2	PROMOTING "SYSTEMS GEOGRAPHY"	/33
3.2.1.	What is 'space'?	/33
3.2.2.	Defining a region	/34
3.2.3.	Identification of scales and hierarchy of regions	/35
3.3	THE ORGANISMIC NATURE OF A STATE	/38

3.3.1.	The self perpetuating nature of 'Statehood'	/38
3.3.2	'Mutation' of spatial entities	/39
3.3.3	Limits to fragmentation	/39
3.3.4	Boundary of a spatial unit and its efficiency	/40
3.4	UNDERSTANDING A SYSTEM	/40
3.4.1	Types of systems	/42
3.4.2	Environment of a system	/43
3.5	SYSTEMS THINKING AND SPATIAL SYSTEMS	/43
3.5.1	Space and spatial systems	/43
3.5.2	Characteristics of spatial systems	/44
3.6	DIFFERENT APPROACHES TOWARDS THE ORGANISATION OF SPACE	/47.
3.6.1	Exploitative Centralisation: the subjugation approach	/48
3.6.2	Integrative Centralisation: the assimilation approach	/52
3.6.3	Exclusive Regionalisation: the "Balkanisation" approach	/55
3.6.4	Interactive regionalisation: the equilibrium approach	/59
3.7	UNDERSTANDING SPATIAL BOUNDARY	/60
3.7.1	Growth of the boundary	/60
	Boundary and Frontier	
3.7.2	Dimensions of a boundary	/61
3.7.3	Non-spatial boundary	/62
3.7.4	Electoral boundary	/62
3.7.5	Types of boundary	/63
3.8	BOUNDARY FROM A SYSTEMS PERSPECTIVE	/66

3.8.1	System and its boundary	/66
3.8.2	Functional attributes of a boundary	/67
3.8.3	Fixing the boundary from systems perspective	/72
3.8.4	Constructive and disruptive boundary	/73
3.8.5	Equilibrium of the boundary	/73
3.9	THE SUPERIMPOSITION OF SPATIAL BOUNDARY	/75
3.9.1	Impact on superimposition	/75
3.9.2	Distortion of the boundary	/76
3.9.3	Global overview of boundary superimposition	/76
3.10	SUMMARY	/78

Chapter-4 : BOUNDARY SUPERIMPOSITION : TYPE-1 'CONGLOMERATION' OF SYSTEMS

Introductory notes /79

4.1	SOUTH ASIA HISTORICAL BACKGROUND	/80
4.2	SOUTH ASIA PRESENT STATUS	/83
4.3	SOUTH ASIA AS A SINGLE UNIT	/87
4.3.1	Unity within South Asia : the centripetal forces	/87
4.3.2	Diversity within South Asia ; the centrifugal forces	/92
4.4	THE END OF BRITISH RULE ; MALADIES IN THE SUCCESSOR STATES	/113
4.4.1	Present India as a singular unit	/116
4.4.2	Present Pakistan as a singular unit	/118
4.5	SUMMARY	/120

Chapter-5 : BOUNDARY SUPERIMPOSITION: TYPE-II 'FRAGMENTATION' OF A SYSTEM

Introductory notes /122

5.1 HISTORICAL OVERVIEW OF BENGAL REGION /124

5.1.1 Origin of the word 'Bengal' or 'Bangla' /124

5.1.2 Bengal in the early days /125

5.1.3 Archaeological findings /126

5.2 HISTORICAL DEVELOPMENT OF BENGAL BOUNDARY /127

5.2.1 Early shaping of the regional entity /127

5.2.2 Bengal boundary in the pre-British period /127

5.2.3 Bengal boundary during the British period /127

**5.2.4 Formation of the Eastern Bengal and Assam province
(1905) /131**

5.2.5 Impact of the formation of the new province /132

5.2.6 The restructuring of 1911: the 'sizing' of Bengal /135

5.2.7 Partition of Bengal: 1947 /135

5.3 BENGAL AS A SINGULAR UNIT /138

5.3.1 Ethnic identity; A melting pot /138

5.3.2 Common language /139

5.3.3 Territorial homogeneity /139

5.3.4 Socio-cultural harmony /140

5.3.5 Unified economy /140

5.3.6 Unified polity /140

5.4 IMPACT OF 1947 PARTITION OF BENGAL /143

5.4.1 A Nation divided /143

5.4.2 Changing the demographic composition /145

- 5.4.3 **Restructuring of the nodes and linkages** /146
- 5.4.4 **Perpetuation and deepening of the communal divide** /147
- 5.4.5 **Introduction of newer dimensions of social and economic conflict** /148
- 5.5 **SUMMARY** /156

Chapter-6 : UNDERSTANDING SPATIAL SYSTEMS: DISMANTLING THE COMPLEXITY

Introductory notes /158

6.1 UNDERSTANDING A SPATIAL SYSTEM /159

6.1.1 What is a spatial system /159

- a) The shape of a spatial system* /159
- b) The size of a spatial system* /159
- c) The configuration of a spatial system* /161
- d) The structure of a spatial system* /164

6.1.2 Characteristics of spatial systems /165

- i. Spatial systems are complex systems /165
- ii. Spatial systems are large scale systems /166
- iii. Spatial systems are hierarchical:
The '**tree schema**' /166
- iv. Hierarchies of spatial systems show '**holon**' properties.
/167
- v. Spatial systems may have different parameters acting
simultaneously /170

6.2 UNDERSTANDING A NATION STATE SYSTEM /171

6.2.1 Nation States as the pivot of space administration /171

6.2.2 Foundations of a Nation State system /173

- i. Historical foundation and political legacy /174
- ii. Common identity and cultural heritage /175
- iii. Possession of territory and ground control /175
- iv. Myths, beliefs, symbols and icons /175

6.2.3 Aim of the State /177

- i. Political culture and ideological mooring /177
- ii. Task /178

6.2.4 The structure of a Nation State system /178

- i. Contiguity of the territory /179
- ii. Institutional framework /179
- iii. Functional attributes /179

6.2.5 Environment of a Nation State system /180

6.2.6 The boundary of a Nation State /180

6.3 UNDERSTANDING THE COMPLEXITY OF A NATION STATE SYSTEM /181

6.3.1 On complexity /181

6.3.2 Complexity and spatial system /181

6.3.3 Complexity of a Nation State system /182

6.4 ANATOMY OF A SPATIAL SYSTEM /183

6.4.1 Dissecting the structure /183

6.4.2 Identification of basic factors /183

6.4.3 Sets/sub-sets and elements /188

**6.5 DIS-ASSEMBLY OF A SPATIAL SYSTEM FOR EVALUATION
The branching of the tree /188**

6.6 PRECAUTIONS AND PITFALLS /193

The danger of elementalism

6.7 SUMMARY /194

Chapter-7 : QUANTIFICATION OF THE EFFICIENCY OF SPATIAL SYSTEMS

Introductory notes /196

7.1 DEFINING EFFICIENCY OF SPATIAL SYSTEMS /197

7.1.1 The corrective function /198

**7.2 MEASURING THE EFFICIENCY OF SPATIAL SYSTEMS:
The hard systems approach /198**

7.2.1 Identification of the systems /198

7.2.2 Dis-aggregating the system entities /199

**7.2.3 Identification of cohesive and divisive factors in a
spatial system /200**

**7.2.4 Evaluation of the components , sub-sets/sets and
factors /201**

7.2.5 Scales of measurement /202

**7.2.6 Method to be applied for evaluation, or measurement
/203**

7.2.7 Addressing the soft issues /204

7.2.8	Using the 'Delphi Method' for opinion convergence	/205
7.2.9	Addressing the 'phantom factor' : X and other uncertainties	/207
7.2.10	Accounting for the time variance	/209
7.2.11	Assigning 'weightage' to the entities	
	A hypothetical application of 'weightage'	/209
7.2.12	Assessment and judgement	214
7.2.13	Ordering systems according to their relative efficiency	
		/216
7.2.14	Evaluating hypothetical systems	/217
7.3	THE SYSTEMIC EFFICIENCY MATRIX (SEM)	/217
7.3.1	Seven steps to draw SEM	/217
7.3.2	Evaluation of TIDE	/218
7.3.3	Focussing on sub-sets and elements	/218
7.3.4	Listing the system entities	/219
7.3.5	Drawing the SEM	/221
7.4	UTILITY OF SEM	/222
	a) Identification of efficient and inefficient systems	
	b) Projection of hypothetical alternative systems	
	c) Identification of specific system distortion	
	d) Comparison of Nations and spatial systems	
	e) Identification of different system traits	
	f) Indicating of the tolerance of a system	

- g) Identification of the points of depression for development planning
- h) Guidance to socio-political engineering for conflict resolution
- i) Predicting the State of homeostasis and synergy

7.5 A TYPICAL SEM ANALYSIS /226

7.5.1 TIDE evaluation for Bangladesh /227

7.5.2 The 'phantom factor-X' and the 'time variance' 236

7.5.3 Drawing the SEM for Bangladesh /238

7.6 LIMITATION AND CONSTRAINTS OF 'HARD SYSTEMS THINKING' FOR SPATIAL SYSTEMS /242

7.7 SOFT SYSTEMS METHODOLOGY - SSM : SOME REFLECTIONS /242

7.7.1 What is 'Soft Systems Methodology': History of development /243

7.7.2 Description of the methodology /246

7.7.3 From 'two streams' to 'three streams'? /250

7.7.4 Application in real world situation /253

7.8 AN APPROACH TOWARDS THE PROBLEM SITUATIONS OF SPATIAL SYSTEMS: A 'HARD-SOFT SYMBIOSIS' /254

7.8.1 The process of evaluation in the 'hard-soft symbiosis:

The 3Ds /258

- i. Data Management
- ii Delphi congruence for evaluation
- iii Decision through judgement

7.9 SUMMARY /260

Chapter-8 : THE QUEST FOR ORGANISMIC EQUILIBRIUM FOR SPATIAL SYSTEMS: THE 'OEM' AND THE 'SDC'

***Introductory notes* /261**

8.1 ORGANISMIC EQUILIBRIUM /262

8.1.1 Looking for the ideal /263

**8.1.2 Building the 'Organismic Equilibrium Model-OEM'
/264**

8.1.3 Rationale for building OEM /267

8.1.4 Critique of the equilibrium approach /268

8.2 ELIMINATION OF SYSTEM DISTORTIONS /269
Is it desired?

8.2.1 The hard option /269

8.2.2 The soft option /270

**8.3 THE CONCEPT OF 'SIMULTANEOUS DEVOLUTION AND
CONSOLIDATION (SDC)' : OPERATION' JANUS' /271**

8.3.1 'Operation Janus' /272

i. Assessment and judgment / 272

ii. Intervention: SDC /272

(a) **Devolution** - Salvaging the submerged entities /272.

(b) **Consolidation-1** - Mending the disruptions /272

(c) **Consolidation-2** -Moving towards 'Regional Unions'.
/273

8.3.2 Rationale of SDC /275

8.3.3 Why simultaneous? /276

8.4 REAL WORLD APPLICATION OF SDC: SOUTH ASIA /276

8.4.1 South Asia from systems perspective /277

8.4.2 The hard systems analysis /282

8.4.3 Application of the soft systems methodology /283

8.4.4 Present trend and the probable situations /287

8.4.5 A 'road map' to SDC /288

8.5 IMPEDIMENTS AND THE LIGHT AT THE END OF THE TUNNEL /289

8.5.1 Some P0sitive developments towards SDC /290

8.6 SUMMARY /292

Chapter-9 : DISCUSSION: A SYSTEMS VIEW OF WORLD ORDER

Introductory notes /293

9.1 THE WORLD AS A TOTAL SYSTEM /295

**9.1.1 *The Mackinderian' paradigm:*
*The concept of 'Heartland' /298***

9.1.2 The geo-strategic approaches /302

9.1.3 The 'free market' and 'globalisation' approaches /308

9.1.4 The 'world modelling' approaches /310

9.1.5 The 'universalist' and 'socialist' approaches /311

9.1.6 The systems approaches /312

9.2 GLOBAL EXPERIENCE OF SYSTEM DISTORTIONS DUE TO SUPERIMPOSITION OF BOUNDARIES /313

9.3 THE GLOBAL MODELLING AND THE STATUS OF 'NATION STATES: /317

9.3.1 Shall the States wither away? /317

9.4 WORLD ORDER FROM SYSTEMS THINKING /319

9.5 THE 'REGIONALISATION' OF THE EARTH SURFACE: SDC IN THE GLOBAL CONTEXT /321

9.5.1 Why build regions? /321

9.5.2 Fixing the territorial hierarchies /323

9.5.3 The wide divergence of 'size' /324

9.5.4 The EU : Setting the pace /325

9.6 THE COSMIC CONTINUUM /325

9.7 A NOTE OF HOPE FOR SYSTEMICITY /327

9.8 SUMMARY /331

Chapter-10 : SUMMARY AND CONCLUSIONS

Introductory notes /332

10.1 OBJECTIVES MET /333

10.2 CONTRIBUTIONS OF THE STUDY /334

- a) Extension of the paradigm of systems science:
Introduction of 'Systems Geography'
- b) Development of a methodology for the quantification of
the 'efficiency' of spatial entities
- c) Introduction of new concepts: SEM, OEM and SDC

- d) Development of useful tools for future researchers and administrators.
- e) Advancement of a concept of global equilibrium

10.3 WHAT NEXT? /335

10.4 CONCLUSION /335

References /337

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If fifteen years is too long a time to finish a dissertation, it must also be considered that working on a single theme over such a long period is equally painstaking and tiring for the researcher, as well as others involved in the process. The worst part of it was that because of unavoidable circumstances I had several long breaks and had to re-start the work time and again, almost from the scratches. However, on the positive side, this long persuasion has rewarded me with some understanding of the complex realm of systems.

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Dedication

**To all those
who endeavour to bring
systemic congruence
between order and disorder**

List of Tables

- 4.1 SAARC countries: Area and Population
Computed from various sources /85
- 4.2 Broad overview of ethnic traits in South Asia /96
- 4.3 Number of persons speaking the major languages in India,
Pakistan and Bangladesh /103
- 4.4 Population by religious denomination in India, Pakistan and
Bangladesh /110
- 6.1 Dis-assembly of a Nation State system /189
- 7.1 Quality of life model: weighted categories of variables /211
- 7.2 A hypothetical distribution of weightage between the different
factors of a Nation State /212
- 7.3 Factor values of a hypothetical system before applying
weightage /214
- 7.4 Factor values of a system after applying weightage /220
- 7.5 A summary list of areas of national goals concern and the
corresponding principal indicators of goal output /220.
- 7.6 Expected efficiency at different hierarchical level: A notional
view /223
- 7.7 Assumed weightage to factors /238
- 7.8 Aggregate value of the factors /240

List of Figures

- 1.1 'Billy looks at Boney....' - A Gillary cartoon /3
- 1.2 Looking for the global equilibrium /14
- 3.1 Hierarchy of spatial systems /37
- 3.2 Exploitative centralization /50
- 3.3 Integrative centralization /54
- 3.4A Exclusive regionalization /57
- 3.4B Interactive regionalization /58
- 3.5 Boundary and Frontier /65
- 3.6 Different functional attributes of boundary /71
- 3.7 Representation of systemic traits /74
- 3.8 Types of superimposition /77
- 4.1 South Asia : before 1947 /84
- 4.2. A South Asia: after 1947 /85
- 4.3 Major linguistic divisions in South Asia /104
- 4.5 The Geo-strategic systems of South Asia /108
- 4.6 The Rice-Wheat divide /112
- 5.1 The Bengal region: General /123
- 5.2a Presidency of Fort William: Circ. 1850 /133
- 5.2b Bengal under the Lt. Governor (1853-1905 /133
- 5.2c Bengal after 1905 reorganisation /134
- 5.2d Bengal after 1911 reorganisation /134
- 5.3 The partition of Bengal and Assam in 1947 /137

5.4	Splintering of the Water basins	/151
5.5	Jute and the partition	/154
6.1	Spatial configuration on a two-dimensional plane	/163
6.2	The 'Tree Schema'	/168
6.3	The Decomposition System Tree	/169
6.4	Nation States as the pivotal system	/172
6.5	Historical foundation of a Nation State	/176
6.6A	Leavitt's organisational model	/184
6.6B	Organisational model of a Nation State based on Leavitt model	/184
7.1	Tolerance of a system	/224
7.2	A typical SEM projection	/241
7.3	The '7-stage' SSM	/244
7.4	The 'two-stream' SSM	/245
7.5	The root definition	/247
7.6	The CATWOE	/248
7.7	Jung's three streams of consciousness	/252
7.8	The 'Hard-Soft Symbiosis'	/257
8.1	The OEM	/266
8.2	The SDC	/274
9.1	Mackinder's world	/300
9.2	Spykeman's world	/303
9.3	The 'pan regional concept' of the Germans	305
9.4	Saul Cohen's Geo- strategic and Geo-political regions	/306
9.5A	Hierarchy of spatial systems	/328
9.5	The cosmic continuum	/329

INTRODUCTION

“Geographical factors, in terms of variation and means of manipulating the variation have been recognised in politics as far back as records go. They are repeatedly mentioned in Herodotus. They may have receded into background during the ages of spirituality, when political behaviour tended to be directed by the ‘faith’ alone, but they came back into limelight again with (the age of) enlightenment.”

—Jean Gottman (1973)¹

Introductory notes

Political power, from the earliest days of our community living, has always been based on its capability of exercising control over certain geographical territory, which remains the principal source of its legitimacy and authority till date. This inspired the power aspirants to exploit and organise the geographical space through the seizure of politico-administrative authority over given territories and centralisation of the same at certain territorial nodes at the expense of others.

The earth surface, on the whole, abounds in examples of such organisation and exploitation throughout the length and breadth of history. In the words of O’Tuathail:

“ Although often assumed to be innocent, the geography of the world is not a product of nature but a product of histories of struggle between competing authorities over the power to organise, occupy and administer space. Imperial systems throughout the history, from classical Greece and Rome to China and the Arab World, exercised their power through their ability to impose order and meaning upon space.” ²

It is needless to mention that *space*, particularly geographical space, is the basic platform of human existence on which all human activities are performed and as such utilisation or manipulation of space is a subject that deserves special attention.

The concept of modern Nation States, with *total* and *effective* control on respective territories, *legitimised by popular mandate*, is a relatively recent phenomenon. It is obvious that the *genesis* of the Nation States around the world has not been and could not be uniform or identical. Each of the presently recognised Nation States

¹ Jean Gottman (1973), *The Significance of Territory*, University Press of Virginia ,Charlottesville,VA.

² Geroid O’Tuathail (1996), *Critical Geopolitics* ,Routledge, London.

has its own trajectory of development, starting from antiquity till this date. In many cases, developments have been highly arbitrary, through the dictates of imposing forces, external or internal.

It is on this premise that the present study has been set to investigate the problematic of segmentation and stratification of the earth's surface into Nation States and their sub-systems, or supra-systems.

1.1 MOTIVATION

1.1.1 Maladies in space administration: A case for concern

It may be presumed that had there been no human interference and engineering, our earth surface would have been quite different than what we see today. Left to herself Nature would have, perhaps, organised the biosphere into an integrated whole with the component entities at different hierarchical levels set in symbiotic and homeostatic equilibrium, in other words, these interacting levels support each other to provide effective regulation.. (The deep-sea biosphere, beyond human interference, may be an example.)

The entire earth surface has been compartmentalised into administrative units of different kinds and sizes with different aims and motives. As such, it is rightly said that the Geography of the present world is not something that was already possessed by the earth, but an "*active writing of the earth* by ambitious endo-colonizing and exo-colonizing states who sought to seize space and organise it to fit their own cultural visions and material interests."³

It is well recorded that the boundaries of many of the present day Nation States were drawn by the colonial powers over negotiating tables⁴, in the course of settling their clashes of interest, exchanging and trading territories like any other market commodity. This happened especially in the case of Africa, where territorial boundaries were drawn giving exclusive control of the natural resources of certain regions to certain colonial powers, to the explicit exclusion of others. And this was done totally bypassing the wishes of the local inhabitants or the demand of territorial system imperatives. (**Fig. 1.1** is a classic depiction of how even contemporary cartoonists viewed this aspect).

³ O' Tuathail (1996), *ibid.*

⁴ Boulding (1987) ; Also, Anne Godlewska and Neil Smith eds. (1994), *Geography and Empire*, Blackwell Publishers, Oxford, give some details in this regard. Apart from the negotiated settlements between the colonial powers on their territorial claims in Africa, one ready example is that of the partition of South Asia in 1947. Lord Cecil Radcliffe, who delineated the boundaries of India and Pakistan, including that of present Bangladesh , never visited the territories he was dividing.

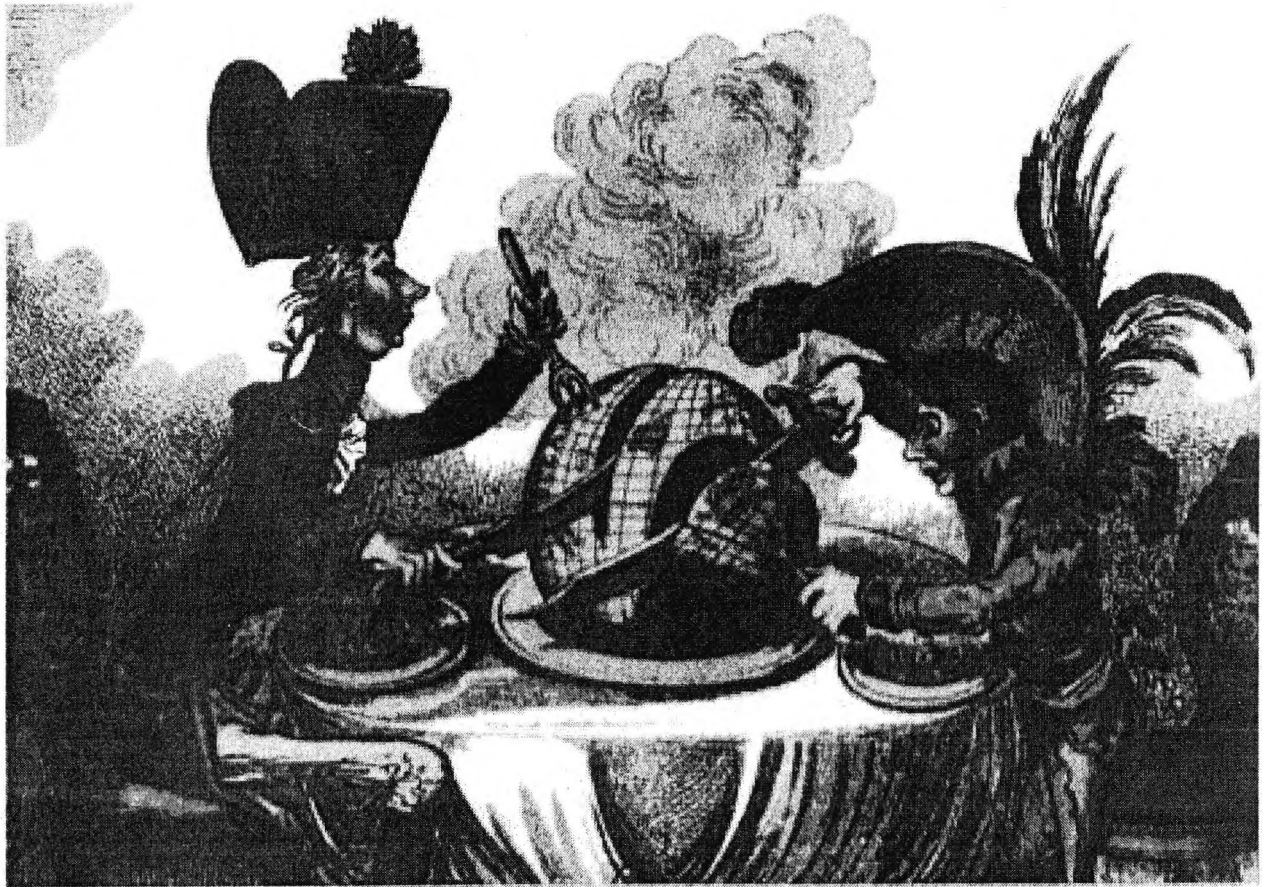


Fig. 1.1 The 'writing' of the earth surface

Billy looks at Boney's carving tool, and opening his eyes with amazement, says to himself, - "*O! O! Mr. Greedygut! To be sure he is helping himself to a slice where the plums are found to be thickest...*"

-- Gillary's commentary to his caricatures, London: John Miller and Edinburgh: W. Blackwood, Bibliotheque Nationale, Paris..

From: *Geography and Empire*, Anne Goldweska and Neil Smith, eds (1994), Blackwell Publishers, Oxford.

Such arbitrarily drawn boundaries cut across habitats and linguistic regions indiscriminately and without any solid rationale, leaving innumerable socio-political irritants here and there to perpetuate and spark off bloody confrontations at periodic intervals. African leaders often describe it as a '*delayed action time bomb*'.⁵

In Asia also, over the last few centuries, age-old nations with distinctive identity were subjugated by the colonial powers. Territorial boundaries have been drawn or *written* by the colonisers through their superior military-technological prowess to serve their own purposes --- in most cases only to facilitate economic exploitation and religio-cultural domination, or to suit certain administrative convenience.

The 'new lands' were seen as:

'... an El Dorado of unknown resources, a place for guaranteed profitable investment of surplus wealth; a limitless market for manufactured goods; a continent where middle-class public servants and soldiers (of the conquering power) could find employment which would advance their status.'⁶

However, sponsors of all such expeditions had their own arguments upholding their 'civilising missions'. Indeed there were people who really believed that proselytising the 'heathens' is the noblest duty of the 'civilised' men and did endure all the hardships, sometimes even spending a lifetime in hostile territories, in that pursuit.

To any colonial power geographical territories could be nothing but mere objects of exploitation. As such many internal administrative boundaries within the colonial possessions were drawn ignoring local territorial and demographic perspectives. In the process age-old national entities were splintered into pieces or amalgamated with others, establishing altogether new administrative frameworks, only to suit the aims of the rulers.⁷

⁵ President Chadley Ben-Zadid of Algeria used this expression in a speech in early 1983. See Prescott (1987)

⁶ Prescott (1987); Although this comment has been made for the continent of Africa, it is applicable to other continents also. -- Author.

⁷ Colonisation of the continents '*America*' and '*Australia*', changing their entire landscape through the siting of new settlements, townships and workplaces destroying earlier demographic patterns, laying of new communication networks and the total replacement of language, culture and lifestyle, even the place names, is a glaring example of '*active writing of the earth*' in recent past. Within the United Kingdom assimilation of Wales into the English domain may be cited as an example of *endo-colonisation*. In South Asia the gradual 'taking over' of the tribal regions by the plain-landers is a similar phenomenon. The "Monroe doctrine", unilaterally proclaimed by the US in 1823 declaring that : "No nation outside of America (meaning other European powers) is allowed to obtain new territory in the Western Hemisphere, or to establish a new government over any part of it" may also be taken as an example of such active writing of the earth surface, of a different type.--Author

As long as the extraneous control was strong and overpowering, consequences of such territorial distortions remained dormant or buried under the 'new order'. But, as soon as the umbrella weakened, the original personality of the subdued territorial units re-emerged with *increased* vitality. Demand for rapid development and distributive justice brought forward inter-regional conflicts to surface and fault-lines along all sorts of territorial and demographic divides again came into play.

This is clearly demonstrated by the collapse and fragmentation of the colonial empires in the last century and the recent disintegration of Pakistan, USSR and Yugoslavia. Demands for secession by regional entities in many other countries, including Indonesia, the Philippines, India, Sri Lanka and Russia may also be noted and examined from this perspective.

Here we identify two specific problem areas:

- (a) The problem of horizontal segmentation,
- (b) The problem of vertical segmentation.

1.1.2 The problem of horizontal segmentation

i. Fragmentation of space and superimposition of spatial boundaries

'Horizontal segmentation' denotes the physical division of the earth surface into various segments, which are then administered or controlled from chosen node or nodes. As already mentioned, such segmentations are often arbitrarily imposed, causing system distortions.

Two types of distortions due to such arbitrary segmentation may be noted. There are examples where *several* national entities are found to be bundled into a single entity. On the other hand there are examples of *singular* national entities being fragmented and distributed to several politico-administrative entities.

One can hardly find a Nation State around us without a certain degree of internal discord between its component sub-systems or regions. Even within an otherwise homogenous national entity, one segment may try to overpower the other to gain political control and greater access to the State resources. Up to a certain limit such

However, there are others who would consider the colonial or imperial expansion as "Great instance of cultural diffusion on a continental scale" for "... a people that desperately needed deliverance from the evil's of slavery and spiritual oppression." -L.H. Gann and P.D. Duignam eds. (1969), *Colonisation in Africa*, Cambridge University Press, Cambridge.

confrontation may not pose any serious hindrance to normal space administration.⁸

However, when the contending segments develop into clearly distinct entities with strong desire of self-identification, appearance of the *Siamese twin syndrome*⁹ is inevitable, where the price of such imposed *unity* exceeds the benefits and the development potentials of the concerned spatial system or systems are greatly hindered.

ii. South Asia as specific example

Although there are innumerable instances of arbitrary boundary superimposition all around the world, in this study we shall especially look into the situation in South Asia, the erstwhile "Indian sub-continent".¹⁰ The departing British colonial administration in 1947, in the wake of the World War II, decided to divide the mainland sub-continent into two independent countries, the republics of India and Pakistan, whose boundaries were fixed hastily and to a large extent arbitrarily. Pakistan was given two chunks, one in the west and the other in the east, generally curving out the regions where Muslims were in a numerical majority. Present Bangladesh, born in 1971, being the eastern chunk of the earlier Pakistan, obviously inherits the borderlines drawn in 1947. This "partition" caused large scale migration of the religious minorities from either side of the border. More than 20 million people were uprooted from their ancestral homes, driven to the other side of the newly imposed border, leaving all their belongings behind. Millions were killed brutally in communal frenzy.¹¹

1.1.3 The problem of vertical segmentation:

i. Location of sovereignty and hierarchical control

If the horizontal segmentation is meant for physical identification of spatial units, some sort of hierarchical ordering is required for their proper administration, which we may call vertical segmentation.

⁸ See Chapter 7.4(f) and Fig. 7.1

⁹ Twins who are born with some of their organs joined and have to live together in that state, which is certainly a great hindrance to their free movement. They need to be operated upon to be separated. Such twins are generally termed "Siamese twins", probably because of such a pair from Siam (presently, Vietnam or part of it) getting wide coverage. When divergent territorial systems are engulfed into a singular political framework, a similar situation may arise, which we have termed as the "Siamese Twin Syndrome". See also Chapter 3.

¹⁰ Today 'South Asia' constitutes of the seven countries south of the Himalayas: Bangladesh, Bhutan, India, the Maldives, Nepal and Pakistan.

¹¹ See Ahmad, Nafis (1952) and Vakil (1950)

In today's world, "Nation States" are meant to be the *king pins* for all intra-national and international activities.¹² However, as we look around the globe, we find that none of the *sovereign* States are *absolutely sovereign* in real terms. There are States totally dependent or subservient to some other bigger player or players in the world arena. And there are others found to surrender part of their sovereign authority to regional conglomerations voluntarily. The European Union may be cited as an example.

On the other hand, within a sovereign State we find several hierarchically placed layers of administrative structures, each of them enjoying different degrees of control over their sub-ordinate units by virtue of delegated or assigned authority. In certain cases there are sub-ordinate units within States that enjoy autonomy almost nearing sovereign status. Quebec, the French speaking province of Canada, may be an example. The world seems to be moving more and more towards a concept of *shared sovereignty*.

Here, the problem is that of determining the exact locations of the hierarchical levels, starting from the individual human being, forming the lowest rung of the societal ladder and then moving upwards, through the family, local community, districts/counties, provinces/states, reaching the Nation State convergence. From there we again move upwards through the currently fashionable regional conglomerations of States, finally reaching the global apex.

ii. The undermining of the Nation States

Human control today covers almost the entire space available on the earth surface. Even the uninhabitable lands and the waters have not been spared. The 'scramble' for the unexplored lands has come to an end with all the 'blank spots' having been 'discovered' and brought under the control of one or other 'Nation States'.

The development of the concept of modern 'Nation States' replacing the earlier empires, kingdoms, or chieftain-ships has been one of the most significant phenomena in the process of spatial administration of the earth surface. Nation States have brought a revolutionary change in the human societal setting through the incorporation of the participation of the common man in the running of State affairs. Although this 'participation' varies in degree and form very widely from State to State, and in many cases it is still being covertly denied, the principle, never the less, has been rooted firmly. The United Nations, with all its limitations,

¹² In this study we have chosen the convention of using capital 'S' and capital 'N' to denote 'sovereign' 'States' and 'Nations', while the word 'state' with small 's' will be used for the sub-ordinate units without sovereignty. We shall discuss more on the pivotal status of Nation States in next chapters.

provides a global platform for international co-operation and conflict resolution.

However, the genie of human greed, lust for power and ethnocentrism remains a constant threat to such co-existence and the very concept of 'sovereignty' of states around the world is now under serious threat. Nation States as institutions are being challenged today by giant multinational corporations and the institutions of 'globalisation', leading towards a new phase of domination-subjugation on a global scale.

iii. 'Globalisation' without hierarchical consideration

The problematic of both horizontal and vertical differentiation of space is to fix the rationales in locating the points of demarcation or stratification and then assign the quantum of control and authority (i.e. share of the *sovereignty*) at each of those levels.

In this regard the present spate of 'globalisation' in almost all spheres, effacing all hierarchical differentiation, raises alarms in the underdeveloped countries, who have to bear the brunt of the unabated '*time-space compression*'. There are many in the affluent societies also who are concerned that the affluence currently enjoyed by the developed nations because of the globalisation, may not last long enough, unless the vital issues of mutual interdependence on the global scale are addressed properly and on a broader perspective.

In this regard Bauman comments:

"... it (globalisation) is a process which affects all of us in the same measure and in the same way ... an intractable fate of the world and an irreversible process ... a fad word on everybody's lips, a pass-key meant to unlock the gates of all past and present mysteries. For some 'globalisation' is what we are to do if we wish to be happy, for others 'globalisation' is the cause of our unhappiness."¹³

In this study it has been put forward that although many of the pertinent issues confronted by us must be taken up *globally*, the current trend of looking at all world issues through a *global aggregation*, ignoring the intermediate hierarchical levels of the territorial and demographic structures, may be counterproductive in the end. This concern is now being echoed all around the world:

"The visual image of planet earth used in the discourse of global ecology disguises the fact that at the ethical level *the global* construct does not symbolize the planetary consciousness. The *global reach* by narrow and selfish interests is not based on

¹³ Zygmunt Bauman (1998), *Globalization: the Human Consequences*, Polity press. Cambridge.

planetary or *Gaian* ethics. In fact, it abstracts the planet and peoples from the conscious mind and puts global institutions in their place.”(Emphasis added).—Vandana Shiva (1993)¹⁴

However, there are others who would term the above statement as politically motivated overstatement and argue that globalisation is only a natural trend in the development of the present world economic system.

This study presents a hypothesis that attainment of the optimum possible efficiency for the spatial systems on the earth's surface is not possible if the spatial boundaries, horizontal or vertical, are fixed arbitrarily ignoring their natural settings. To place it the other way, arbitrary fragmentation or stratification of space is against the dictates of nature and hinders the systemic potentials of the concerned system or systems. In certain cases the consequences may be catastrophic.

Such concerns over the improper delineation of spatial boundaries, motivated the present study. This looks to the problematic of space administration in general from a systems paradigm and applies systems thinking/systems approach to understand the system distortions caused by improperly drawn spatial boundaries. And, also suggests appropriate interventions to improve the problem situations.

1.2 LOOKING FROM THE 'SYSTEMS PERSPECTIVE'

Orthodox social sciences generally treat social changes in terms of individual societies, equated with individual countries (Taylor, 1996). Thus, the 'British society', the 'Canadian society', the 'US society', the 'Russian society' etc. are discussed as distinct entities. In the arena of political geography Wallerstein (1979) expressed views rejecting such a fragmented approach. In his '*world system analysis*' he has postulated a 'world system' which is *global* in scope and countries and societies are now to be viewed as parts of a larger whole. Taylor elucidates:

“ a particular social change in one of these countries can be fully understood only within the wider context that is the world-system. For instance the decline of Britain since the late nineteenth century is not merely a 'British phenomenon', it is part of a wider world-system process which we shall term 'hegemonic decline.'”¹⁵

This brings the *systems perspective* into play in the arena of political geography to some extent. However, both Wallerstein

¹⁴ Vandana Shiva (1993), 'The Greening of the global reach' in *Global Ecology: A new Arena of Political Conflict*, Zed Press, London.

¹⁵ Peter J. Taylor (1996), *Political Geography: World Economy, Nation-State and Locality*, Addison Wesley Longman Limited, Essex.

and Taylor concentrate primarily on the interplay of world economy, which is only one of the aspects that come across in the course of space administration.

When one talks of spatial systems such as the Nation States, their subsystems, or conglomerations, one can not keep himself confined to only one or two such aspects. The entire spectra of their structure consisting of so many dimensions and covering so many disciplines need to be taken into consideration.

This obviously necessitates a holistic approach applying *systems thinking*.

1.2.1 Spatial units as systems

It has already been noted that spatial units are 'systems'. The holistic concept of systems science, originating from physical and biological sciences, has been finding way into other disciplines, over last several decades, particularly in addressing complex and messy situations. Ludwig von Bertalanffy, one of the founding fathers of present day systems thinking, postulated a 'General Systems Theory' as a common framework for systems in different disciplines.¹⁶ Working from various angles others, notably, Boulding (1985), Rapoport (1983), Churchman (1976), Laszlo (1981), Koestler (1973), Checkland (1991) and Chestnut (1982), Van Gigh (1974), Flood and Carson (1988), among others, have made significant contributions in this regards.

However, most of the efforts have been, to a large extent, directed towards the corporate human activity systems, or organisational management. The wider issues related to spatial systems, such as the formation and functioning of present day Nation States and their sub/supra-systems, have been found to be dealt only marginally.

This study is an attempt to apply systems thinking to space administration in a straight forward manner, especially addressing the problems arising out of superimposition of political boundaries around the world, creating systemically distorted and inefficient spatial systems.

Looking from a systems perspective it is found that just as a living organ in an organism can not be taken as a random purposeless aggregate of some physio-chemical components, a politico-administrative spatial unit also can not be carved out arbitrarily. In order to have systemic attributes the boundary of a spatial unit

¹⁶ William Gray and Nicholas Rizzo (eds.) (1973), *Unity Through Diversity, A Festschrift for Ludwig von Bertalanffy*, Gordon and Breach, London.

must be drawn in such a manner as to fit into one or the other hierarchical systemic levels.

Arthur Koestler (1973) introduced the concept of 'holon'¹⁷ to describe intermediate systems as having systemic linkages both upward and downward, like the double headed mythical serpent 'Janus'. Thus a spatial system must fit into one or the other hierarchical levels within its broader systemic outfit, showing clear systemic attributes. Otherwise, it may be rejected by the wider system, as well as the narrower component systems, just as a body organ rejects foreign materials which do not conform to its organismic structure. (We shall have further discussions on 'hierarchy' and 'holon' in Chapter 6).

1.2.2 The rationale of intervention

One of the main thrusts of current systems thinking is to identify system distortions and at the same time suggest probable remedial measures, or interventions.

To suggest remedies to the territorial ambiguities in State formations that is found around us is undoubtedly an ambitious proposition. However, given the fact that proper management of the territorial space is one of the most vital issues of our time, that engulfs almost every aspect of human existence, even a marginal success in this direction shall be worthwhile.

It may be hoped that the ever increasing potential of computer technology in handling complex evaluation and mensuration shall enhance our own capability in this regard as time goes on. Here we share the optimism of James Bird:

"Systems theory will become more sophisticated and able to deal with problems thought intractable for it at present, such as the energy flows between components, incorporation of novelty, goal-seeking aspects of behaviour, and even humanistic features such as the sympathetic understanding of human actors within systems."¹⁸

There have been attempts in other fields to build *global models*, especially to project various economic and environmental problems confronting the international scenario. It is time that systems practitioners also started looking at such broader issues applying systems thinking, especially to the problems of Nation States and their interactive relations on the regional and global scale, and also to look for higher values and more humane interpretations of the issues confronting us. The task is onerous and up-hill, no doubt. But, must not we try? In the words of Churchman:

¹⁸ James Bird (1993), *The Challenging World of Geography*, Oxford University Press, London.

“ ... What is ‘survival’ for the human species? if the human species remains as selfish, as cruel, as heinous, as we are today, and if these ‘qualities’ of human species goes on escalating , then why should we survive, by slaughtering beautiful species of birds, levelling mountains and spoiling oceans? Why should we survive as an evil species of nature?”¹⁹

1.3 AIMS OF THE STUDY

This study looks to spatial units as *systems* and attempts to apply *systems thinking/systems approach* to all spatial systems, especially to the segmentation of the earth surface in the shape of Nation States and other administrative units.

The top level aim of this study, as indicated in its title, is to highlight the fact that when a spatial unit, especially that of a Nation State, is not demarcated or carved out properly and its boundary is drawn arbitrarily without proper reference to its systemic imperatives, structural and other incongruity is inevitable. It also aims to show that spatial entities with such superimposed boundaries require higher input of *energy* for their sheer sustenance. In other words, *superimposition* of boundary causes *loss of efficiency* to the system or systems concerned.

In this regard, this study attempts to develop appropriate tools/models to measure the ‘efficiency’ of spatial systems.

This study aims at mensuration/evaluation of the efficiency levels of different spatial systems using the tools so developed and then looks for alternative systemic configurations in order to suggest better alternatives.

This study also aims at suggesting interventions that may remove system distortions at various National or regional levels due to superimposed boundaries and thereby improve the overall system efficiency at different hierarchical levels of the global spatial system.²⁰

This study finally looks forward to highlight the *organismic equilibrium* of all the spatial systems around us starting from the elementary units up to the global system

¹⁹ C.West Churchman (1976), ‘The niggling and the grand’ in *World Modeling : A Dialogue*, C. West Churchman and R.O.Mason eds., North-Holland, Oxford.

²⁰ “Hopefully, systems methodology can help nations to meet the needs of their people.” – Harold Chestnut (1982), ‘Nations as large scale systems’, in *Large Scale Systems*, Yacob Y. Haimes (ed.), North-Holland, Oxford.

1.4 OBJECTIVES SET FOR THE STUDY

This study will have the following objectives in order to achieve the above aims:

- i) To develop a methodological approach identifying the methods of inquiry appropriate to different aspects of the problematic.
- ii) To adopt a systems perspective in understanding the structural and functional attributes of different types of spatial entities, especially those of Nation State systems, introducing the concept of *Systems Geography* to look to the different aspects of territorial space that relates to the present study.
- iii) To undertake two case studies on two different types of boundary superimpositions. The first on the South Asian sub-continent, the erstwhile historical region of the so-called 'British India', taken as a singular politico-administrative unit, where several distinct spatial systems were bundled together. This will show that a conglomerate spatial entity, having several distinct spatial systems within its fold, has to face additional burdens in managing greater number of internal discords and consequent system distortions and in the process efficiency of the system is compromised. The second case study shall be on the 'Bengal region' at the eastern flank of the sub-continent, taken as an example of a singular system having been disintegrated and distributed to several politico-administrative units. This will highlight an opposite scenario, where a singular system, being fragmented into several units, also causes inevitable loss of systemic efficiency.
- iv) To develop necessary tools and appropriate methods, applying both the 'hard' and 'soft' systems approaches, to evaluate the efficiency of given spatial systems *dismantling* their complexities in a systematic manner.
- v) To identify the distortions caused to a spatial system due to super imposed boundary and to identify and suggest appropriate interventions in order to remove such distortions and improve the problem situation.
- vi) To look for the regional and global organismic equilibrium of spatial systems. (**Fig. 1.2** gives a general schema of the global stratification of spatial systems as envisaged in this study).

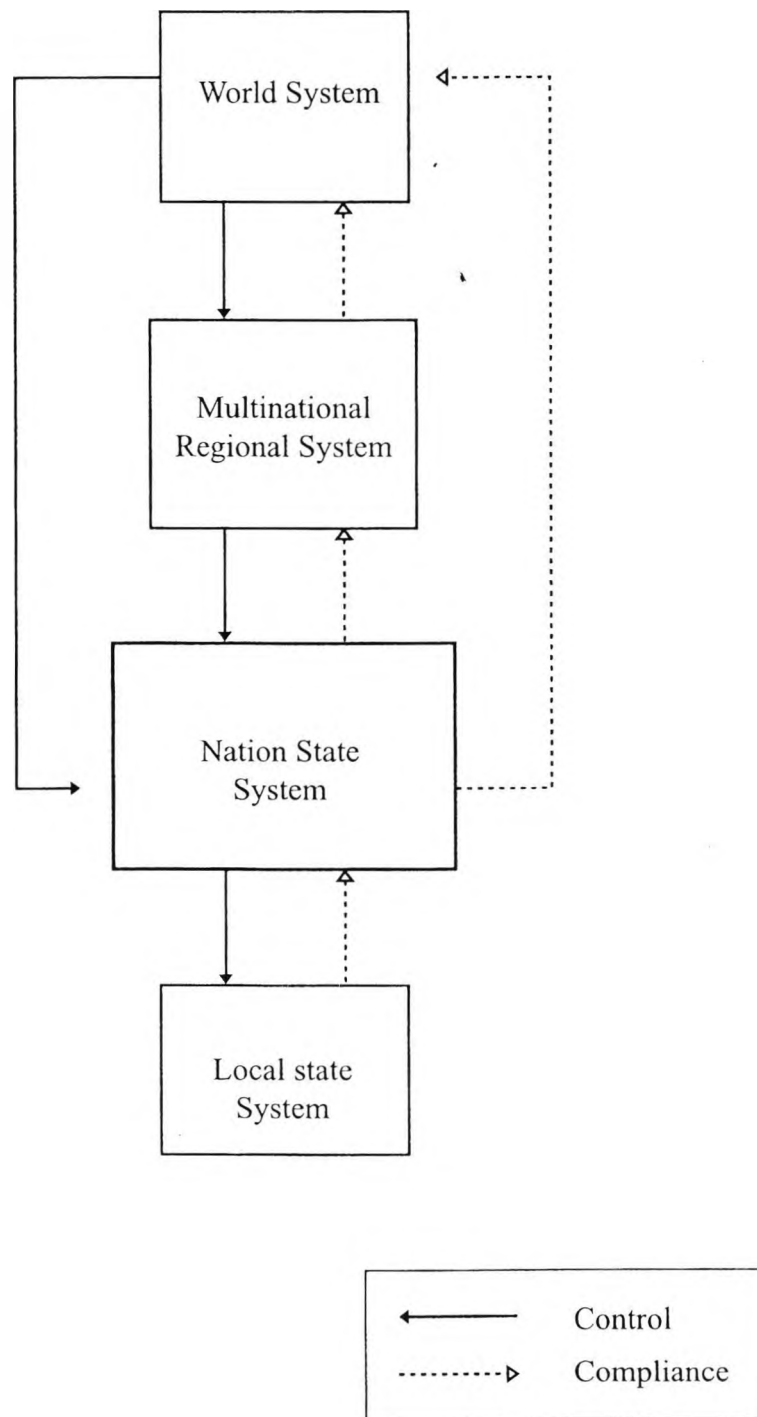


Fig. 1.2 : Looking for the Global Equilibrium

1.5 PLANNING OF THE CHAPTERS

The study has been divided into the following eight chapters, chapters 2 to 10, in the manner described below:

Chapter 2 is devoted to discussion on the methodology.

Chapter 3 is devoted to some generalised theoretical discussion on different aspects of territorial space and its boundaries from a systems point of view. Certain basic terms and tools of investigation used in this study have been explained or defined briefly in this chapter.

Chapter 4 looks at a particular spatial region, the region of South Asia, especially the *historical region*²¹ termed as the 'British India'. We have considered it as an example of a *multinational entity being treated as a single administrative unit*. This investigation shows the regional divisions and diversification within the sub-continental landmass. We have listed the centripetal and centrifugal forces acting on the total spatial system of South Asia.

Here it should be pointed out that the discussions on the historical or territorial aspects of the region have not been made extensive. It is partly because it would have taken us to a much wider context which is not necessary for the purpose of this study. As already mentioned, the this case study is intended only to get a data pool of the historical narrative and the geographical settings to be used for our exercise in the development of matrices and models. Here we are concerned with the basic structure and functions only to place them as examples of system attributes and therefore only a limited detail has been considered. Equally there has only been limited corroboration with regard to the general narratives. It is expected that once a model is established, further investigation may be conducted through the updating and improvement of available information.

However, most of the historical and geographical narratives and lines of argument have been based on well acclaimed available texts²². On some aspects there may be contrary assertions by other authors and there are ongoing debates also on certain

²¹ We consider a 'historical region' to be one that once existed and played a definitive role on the course of history.

²² For the history of South Asia in general we have followed mostly Percival Spear and Romila Thapar, both being acclaimed for their depth of judgement and non parochial scientific approach towards history.

issues, but that should not affect the general purpose of the current study.

Chapter 5 looks into another specific case, at a lower hierarchical level. Here an identifiably distinct spatial system, the *Bengal* region, situated in the North Eastern part of South Asia, inhabited by a people having a common language and heritage and also having an otherwise integrated ecosystem, has been fragmented by boundary lines drawn or *superimposed* on political or other considerations. The aim is to examine the impact of the fragmentation of a *singular* system into *several* politico-administrative units. Effects of such fragmentation on the overall system have been noted and the positive and negative impacts on the component units have been listed.

In this case also, as in the earlier case study, certain historical and geographical aspects have been narrated only as inputs for a hypothetical exercise and our descriptions and observations may leave room for further elaboration or corroboration, which has not been deemed necessary for this study²³.

Chapter 6 gives an analytical and systemic approach to the understanding of different characteristics of spatial systems. It attempts to dismantle the complexities of spatial units *systematically* and thereby identify different system components and their sets, sub-sets and elements.

Chapter 7 makes an attempt to develop equations, matrices or models to depict the relative impact and correlation of different elements, sub-sets and sets of a system in order to develop a methodology for the purpose of evaluating or quantifying the efficiency of a spatial system, leading to what has been termed--the "Systemic Efficiency Matrix - SEM". It employs both the 'hard' and 'soft' systems approaches together to spatial systems suggesting a 'hard-soft symbiosis' as the inquiring process for spatial systems.

Chapter 8 looks into application of the notions and models developed in chapters 2, 5 and 6 to real world situations. . It highlights the *organismic* and *gestalt* character of spatial systems. Here an attempt has been made to develop conceptual models, termed the "Organismimost efficient and idec Equilibrium Model-OEM" to indicate the most efficient and ideal configuration of a given spatial system. Based on such conceptual models and appreciating the ground realities a mode of intervention has also

²³ For Bengal history we have generally consulted, apart from others R.C. Majumder, Sunity Kumar Chatterjee, Nihar Ranjan Chakravorty and Mohar Ali, who are lauded as the authorities in this regard.. For geography we have mostly followed O. H. K. Spate (1948, 1965., 19 67) , Nafis Ahmed (1952, 1968) , among others.

been suggested through a process that has been termed the **'Simultaneous Devolution and Consolidation-SDC'**.

Chapter 9 contains a discussion on a wider perspective of the '*world as a total system*'. We have discussed different approaches taken up by others in other disciplines addressing global issues, advancing different concepts of *global modelling*.

However, we find that a systems approach placing the Nation States at the pivot of global space administration and development of appropriate regional conglomerations of such Nation States around the world, to act as 'buffers' between the Nation States and the global apex, is necessary for the attainment of a global system equilibrium.

Chapter 10 gives a summary and the concluding remarks and shows how the objectives of the study have been met and its aim achieved.

Chapter-2

LOOKING FOR THE APPROPRIATE METHODOLOGY

Alice B. Toklas leans forward to Gertrude Stein in his deathbed and whispers, " Tell us Gertrude, what is the answer to it all?"

Gertrude replies, "What is the question?"

-- Quoted from C.W. Churchman's foreword to John P. Gigh's *Applied General Systems Theory* (1974).

Introductory notes

The top level aim of this study, as stated in the earlier chapter, is to look into the different aspects of spatial systems in relation to their boundaries in assessing their systemic efficiency and thereafter try to identify, or suggest, more efficient alternative system configurations, if available. Consequently, to facilitate our investigation and subsequent formulations it is necessary that we look for the appropriate methodology²⁴ or the methods of investigation suitable for the specific purpose/s.

Such an investigation dealing with a wide range of issues, may require different methods to address different issues and situations. Therefore, instead of any pre-designed singled-out methodology it may be necessary to put together a set of divergent methods to serve that purpose. In this chapter a methodological approach has been developed aimed at identifying the appropriate methods to address the specific problem situations that arise out of our inquiry into the problematic of superimposed spatial boundaries.²⁵

²⁴ Checkland has strong reservation towards the 'mis-use' of the word "methodology" (see - the *Systemist*, 2002). He makes a clear distinction between "method " and "methodology". He contends that "methodology" is the 'logos of method', or the principles upon which a method is based. Thus the term methodology is to be reserved only for those modes of inquiry that exhibit unique epistemological content. However, we have used the two terms here interchangeably and in a general sense.

²⁵ This approach is congruent to what Mingers terms "multi-methodology", which allows application of two or more methodologies simultaneously, See Mingers, John, 'The History and Development of Soft Systems Methodology', in the *Systemist*, 2002.

2.1 IDENTIFICATION OF THE SYSTEM TRAITS: FRAMING THE ISSUES:

The quotation at the beginning of this chapter highlights the importance of framing the right questions. Thus identification of the right issues is the most important step in any investigation.

Therefore, it is no surprise that spatial systems, being large scale and complex systems, are not ordinarily amenable to scientific and easy mensuration. The difficulties encountered in this sort of exercise with large scale complex systems has been voiced by Haimes (1982) in the following words²⁶:

'Large scale systems encompass a variety of aspects, components, resources, decisions, constraints and exogenous variables intertwined in a complex input-output causal relationship, and they reflect multiple goals and objectives, often conflicting and non-commensurable, in response to a hierarchy of constituencies and decision makers'.

For the purpose of our current study we shall be investigating spatial systems from different perspectives and decipher their structures, systemic characteristics, inherent strengths and weaknesses, boundaries and environment. In order to go for systematic measurements/evaluations of all such aspects we have to use appropriate method/methodologies and ascertain the systemic efficiency levels of different systems. The first task in this regard is to list the 'issues' to be addressed.

2.1.1 Issues to be addressed

The following issues are likely to be encountered during the current investigation.

- (a) Identification of spatial systems and their characteristics.
- (b) Dismantling of the complexity of a spatial system
- (c) Identification of system traits: '**hard**' and '**soft**'.
- (d) Measurement of the system traits
- (e) Fixing the appropriate scales for the measurement/evaluation of different system traits.
- (f) Addressing the 'whole' system
- (g) Measuring the system efficiency
- (h) Identification or fixing the system objectives and goals

²⁶ See Y.Y. Haimes, *Large Scale Systems* (1982), North Holland , Oxford.

- (i) Identification of the system distortions, in view of the system objectives and goals.
- (j) Identification of alternative system configurations.
- (k) Identification of the optimum efficient system configuration and settling for the sub-optimum.
- (l) Identification of issues for intended intervention.
- (m) Assessment and judgement for the fine tuning of soft trait evaluation- The 'Delphi exercise'.

2.2 ADDRESSING THE COMPLEXITY OF SPATIAL SYSTEMS: THE HARD-SOFT SYMBIOSIS.

The most pertinent question related to all the issues raised above is how do we handle the complexities of spatial systems. On the whole, spatial systems need to be treated holistically. However, many of the elements constituting a system may be found to be *simple* and *hard*, thereby readily *quantifiable*, at least to the extent. enough for the purpose of the particular study. There are many aspects related to spatial systems, though, that can not be readily quantifiable.

Recalling the words of M'Pherson (1974):

... ' a system scientist (should) be both a holist (looking at the system as a whole) and a reductionist (converting the system into many simpler parts) at the same time.'

Hence it is necessary to take cognisance of the physical aspects (*hard*) as well as the non-physical or value-related aspects (*soft*) of systems. Also we have to take cognisance of the time-bound or accidental surge and 'gestalt emergence', if any.

A methodology is therefore adopted that comprises a two pronged approach, both *reductionist* and *holistic*. It has been termed the '**hard-soft symbiosis**',²⁷ which has three components:

a) The hard systems analysis

Since spatial systems are found to consist of both the 'hard' and 'soft' components, different approaches can be adopted for the two types of system components.

First a *reductionist* approach is adopted to dismantle the complexity of a system and evaluate its different constituent 'hard' entities, with necessary precautions to cover accidental and other time-variant factors, as far as those are identifiable and measurable.

²⁷ See Chapter 7.

Here in a limited sense, a system or sub-system is to be studied in isolation, treating it as a sort of '*black box*'²⁸.

b) The soft systems approach

To examine the soft characteristics of the system, a *holistic* approach is needed. In this manner the system is comprehend as an organic or organismic whole. Now, any system with organic or organismic characteristics must be *open* as well as *hierarchic* ²⁹. In this regard we would like to adopt the '**Soft Systems Methodology—SSM**' developed by Checkland³⁰ can be adopted as the appropriate inquiring process.

c) Looking for the 'gestalt whole'

Spatial systems being highly complex and 'organismic' are found to show '*gestalt*' properties. Therefore, even after the evaluation of the hard and soft components, it may often need to be looked holistically for any *gestalt emergence*.

2.2.1 Identifying the spatial systems and their characteristics

One important step in our investigation, as mentioned earlier, is to identify the very systems involved in the problematic. Any spatial system, except the lowest and the highest in the hierarchy, is found to consists of several other component systems/sub-systems on the one hand and forms a part of other wider system/s on the other. Koestler(1973) terms this two-way structures of systems as 'holons'. (See also Chapter 6.1.2).

Thus, to understand any spatial system it is necessary to decipher the different hierarchical layers or levels of the system in question and its sub-/supra-systems. For this exercise the '*Tree Schema*' suggested by Koestler (1973) and the '*Decomposition System Tree*' suggested by Van Gigch (1974) may be found useful. Both of these will be considered in details in Chapter 6.1.2. In short, both the approaches suggest branching of the systems and sub-systems just as a tree branches out. Chapter 6 will also include an investigation into the characteristics of systems in general. This general investigation is clearly applicable to spatial systems as well.

²⁸ See chapter 6, section 2.4.

²⁹ See chapter 5, section 1.2.

³⁰ As presented by Checkland (1982),

2.2.2 Listing the system entities : the sets , sub-sets and elements

The 'Tree Schema' and the 'Decomposition Tree' as mentioned above, provide convenient tool to dis-aggregate a system in a systematic manner. Here a *top-down* approach is adopted to dismantle the complexities of the system into hierarchies. However at the evaluation stage, once the hierarchies are clearly identified, an opposite approach, starting from the elements at the bottom and then proceeding upwards step by step, may also be adopted.

As the exercise has to be essentially a trial and error game and requires recursion at every stage, deciphering the structure of the system with a *top-down* approach and thereafter going for a *bottom to top* exercise with discrete analysis, block by block, may be a rewarding manner in which to proceed.

Using the above approach it is possible to draw up a list of system entities — sets, sub-sets, elements ---- that comprises a spatial system, especially a Nation-State. Such a list will be given in Chapter 6, section 5, Table 6.1. However, it must be pointed out that it is only a proposition based on the present researcher's *world view* and there may be other alternative schema based on the views of other investigators, that may be equally or even more applicable.

2.3 MEASURING THE EFFICIENCY

Once the complexity of a system has been deciphered and the system components thereby identified in their hierarchical order, it is possible to venture into the evaluation/mensuration of the system's overall 'efficiency'. Here it is necessary to look for the following aspects in relation to the system/systems under consideration.

- a. Structural strength and weakness of the system
- b. Cohesive forces and Divisive forces within the system
- c. Environmental *constraints and support* affecting the system.

In the *real world* spatial systems have been shaped and de-shaped by divergent forces, both internal and external. As such, there is no *ideally efficient* spatial system on the earth surface. Therefore, it is necessary to undertake a comparative evaluation of alternatives to ascertain the optimum and identify the systemic distortions. In this investigation particular focus will be given to the distortions due to superimposed boundaries of spatial systems, superimpositions that hinder or diminish the efficiency of a given system.

The systemic efficiency matrix (SEM)

A traditional SWOT analysis can be undertaken in order to understand a system. However, a more rigorous and suggestive exposition of a systems structure and composition may be necessary in order to evaluate its efficiency. After the identification and evaluation of the component factors, sets/sub-sets and elements, the overall status of the efficiency of the system under investigation may be projected graphically. This has been termed the **Systemic Efficiency Matrix, or SEM**.

In order to evaluate the elements, sets and sub-sets in a systematic manner, the following seven step procedure is followed so as to be able to draw the SEM. Detailed application of this seven step approach will be given in Chapter 7.

Step-1

To examine the overall system to understand its goals, structure and basic characteristics from a holistic view and to identify the basic *factors*, at the hierarchical level immediately below the apex, such as the **Territorial factor (T)**, the Interactive factor (I), the Demographic factor (D) and the Environmental factor (E); their meanings and scope being self-explanatory. This analysis has been termed the TIDE analysis.

Step-2

To dismantle the 'factors' as identified in step-1 into sets and sub-sets. And to finally identify the elements at the bottom. This exercise follows the 'tree schema' as suggested by Koestler(1973) and the 'decomposition system tree schema' as suggested by Van Gigch (1974) (further discussion in Chapter 6.1.2).

Step-3

To evaluate the elements and consolidate the elemental values to obtain the values of the subsets/sets.

Step-4

To consolidate the set/sub-set values to obtain the factorial values.

Step-5

To identify the gestalt properties, surges and accidental inputs influencing the observed system on the whole and computing all of them to a top-up factor, the Factor X and to assess its impact on the system concerned. To this the time variance, if any may also be noted introducing a time variance corrective function $f(t)$ to the related values. (This step may be added to the evaluations at the lower hierarchical levels also. However, consolidation of all the variants at the factor level only may be convenient, treating the lower level entities as complete 'black boxes'.)

Step-6

To allot 'weights' to the factors and apply the same to obtain their weighted values for the final computation. This 'weight' is calculated by the observer using his experience, exposure to the concerned issue and applying his own intuition and judgement. However, at this step the observer may take recourse to group consensus to be obtained through discussions, polls or the Delphi method as discussed later.

Step-7

To draw the Systemic Efficiency Matrix (SEM) by consolidating the factorial values as obtained in step-6. A series of iterations covering all the seven steps may be undertaken to refine the result.

2.3.2 Assessment and judgement

The above exercise of drawing the SEM for a spatial system is, none the less, a hard system approach. This evaluation can be improved upon by adding soft approaches on top of it.

Here, it is necessary to have recourse to 'Assessment' and 'Judgement', whereby the investigator/researcher is to conduct his or her own assessment as an 'expert' and thereupon give their own judgement on issues that evade direct quantification or measurement. Individual assessment and judgement are bound to be based on the observer's own 'Weltanschauung' and therefore it has the pitfall of being biased. However, in assessing 'soft' systems such pitfalls are unavoidable.

In spite of such limitations one may venture quantification of judgement applying weights to the observer's notional evaluation of soft entities. Further focus on this aspect is provided in Chapter 7, section 7.2.9. To minimise the individual bias it is possible to have recourse to group opinion convergence. In this

regard the 'Delphi' processes of inquiry can be looked to as a suitable instrument.

2.3.3 'Delphi' method for opinion convergence

The Delphi processes are inquiring systems 'by which we aim at discovering the truth'. Van Gigch (1974) describes the various Delphi processes:

The Lockean Delphi, named after the method of inquiry devised by philosopher John Locke, relies on "agreement as the sole or major principle for producing information" and therefore looks for the consensus amongst the participants into the inquiry and hence it is called the 'consensual Delphi'.

The Hegelian Delphi, named after the German philosopher Friedrich Hegel, is based on the attempt to reach the truth through conflictual propositions, a plan and a diametrically opposed counter-plan to be treated simultaneously.

The Kantian Delphi, named after Emmanuel Kant, 'looks to elicit alternatives on which to base a comprehensive overview of an issue'. Building cost-benefit and cost-effectiveness models is regarded as a form of Kantian Delphi.

However, it appears that the Lockean or the 'consensual' Delphi may be better suited to our inquiry into spatial systems. Here a selected group of experts are asked to give answers to a list of questions in several rounds, where the experts remain anonymous. The experts answer the questions discretely without knowing each other. A probability distribution of the answers is prepared after each round and the participants are allowed to evaluate that before entering the next round.

Although in this process the respondents may be influenced to a certain extent by knowing the answers of their unknown peers, the result is improved through iteration and better agreement is achieved.

2.3.4 The Organismic Equilibrium Model (OEM)

If spatial systems are considered to be 'organismic' it is also logical to look for the 'organismic equilibrium' of such systems. That means the system must survive over time though some sort of 'homeostasis'.

Here it is possible to adopt conceptual modelling of the alternative configurations in and around the given system, redrawing its boundary hypothetically and changing the values of the

interacting traits to look for the optimum efficient configuration, which may be depicted by an Organismic Equilibrium Model (OEM).

In this conceptual exercise it is necessary to ensure the equilibrium of the system by regulating the inputs and outputs, although certain level of emergence may be allowed. Like biological organisms, a spatial system, say, a Nation State, may grow until it reaches certain limits with regard to economic, social and other perspectives. It may even expand its territory by acquisition, merger or otherwise. In such a situation output may exceed the input. However, like the biological organism, such growth in spatial systems, if allowed to go unchecked, may eventually bring catastrophe. Overextended empires have thus fallen apart and overgrown economic or military prowess may lead Nations to over-development and spiralling aspirations that may eventually turn counter-productive.

Further discussions on OEM are provided in Chapter 8.1.

2.4 METHODOLOGY OF INTERVENTION

2.4.1 Is there any need or desire for change?

The very title of this study indicates a proposition that superimposition of spatial boundaries, creating spatial units for administrative or other purposes, often causes distortion to the natural settings and thereby deters the growth potential of the given spatial system/systems. Now, if investigation over a certain spatial system confirms such distortion and consequent hindrance to the system efficiency, the pertinent question arises: does it generate any desire or need for change?

For an answer to this question one has to look to the purpose and objectives of the system. For example, a traditional CATWOE analysis may be adopted, to identify the CUSTOMER and the OWNER and read their desires. Once the desire of the customer/owner is known, 'intervention' to attain the targeted change may be designed.

2.4.2 Designing the 'intervention'

To design the 'intervention' it is necessary to know identify and evaluate the distortions to the system concerned due to the superimposed boundary. In this context it is important also to identify the causes of such distortions. Once all the distortions can be identified, removal of all such distortions will yield the ideal system with the optimum efficiency output.

However, in real world situations, attainment of the ideal as given by the OEM may not be attainable and feasible. There may be issues that might be mutually counterproductive. What is good for the gander may not be good for the goose. This will require trade-offs and hence there may be the need to be satisfied with something less than the optimum.

In the words of Van Gigch (1974):

'Any system improvement, designed in the isolation of a single system, may be optimum for that particular system. However, by neglecting interactions with and effects of other systems, an isolated improvement cannot but result in a sub-optimum solution'.

2.4.3 Methodology of change

The very title of this study questions the rationality of the existing boundaries of many of the present day Nation States around the world. Now, questioning the basis of a spatial system boundary leads the inquiry onto probable alternatives. Once the alternatives are identified, the next logical course of action is to look for intervention in order to proceed towards a better and more efficient system.

While inquiring into a system both introspective and outward looking approaches have been applied. This applies to the position adopted in relation to the system improvement also.

To improve a spatial system it is possible to go for the traditional 'system improvement' where the pre-designed system remains unchanged on the whole, and changes are made here and there to improve the problem situations or remove the system distortions as much as possible without disturbing the structure and task of the system. Here the changes are only 'incremental'.

The other course is that of 'system design', which may require redesigning the system in order to achieve the targeted goal or efficiency. This may be termed a 'revolutionary' change.

2.4.4 Attaining the 'best possible' spatial efficiency: the Simultaneous Devolution and Consolidation (SDC)

Once the system distortions can be identified and the efficiency levels of different configurations of a given spatial system, real or hypothetical, measured, it is possible to look for possible 'intervention' in order to improve the problem situation and reach the 'best possible' efficiency level. There is the need to look for the

shortest path to reach our goal, which again must be the one that is 'possible' and 'feasible'. Thus there is the need to look for optimisation and sub-optimisation, since the most 'optimum' configuration may not be practically feasible or cost effective because of other constraints. Hence a 'trade-off' may be necessary, settling for a 'sub-optimum', something near the optimum.

Thus one can build models for the 'optimum', such as the OEM, and finally settle for the 'sub-optimum'. In this regards this study suggests a method of Simultaneous Devolution and Consolidation (SDC), through which distortions due to superimposed boundaries may be minimised, if not removed. This had been discussed in further in Chapter 8.4.

2.5 SUMMARY

In this chapter methods suitable for the identification, understanding and evaluation of different systems, system traits and their efficiency have been discussed. Modes of intervention for the improvement through removal of system distortions have also been discussed. A combination of both 'hard' and 'soft' approaches, a hard-soft symbiosis, has been proposed to address the complex problematic of spatial systems, especially suggesting application of SSM to look to the soft systems and the 'Delphi' exercises for assessment and judgement.

Chapter-3

SYSTEMS THINKING AND ADMINISTRATION OF SPACE: DEFINITIONS AND CONCEPTS

'The concept of 'system' constitutes a new paradigm.... Contrasting the blind laws of nature of the *mechanistic* world view and the world process, with an *organismic* outlook of the *world as a great organization*' (Italics added).

– von Bertalanffy,³¹

Introductory notes

The above quotation from one of the founding fathers of systems thinking depicts the fundamental premise and the goal of the modern systems science paradigm; the premise being the cultivation of an *organismic* outlook contrasting the *mechanistic*, and the goal being the conception of the world as a great *organisation*.

In the previous chapter we have mentioned that all spatial units are *systems* at various hierarchical levels and at various degrees of systemic integration. In this chapter we shall apply *systems thinking/systems approach* to understand certain characteristics of such spatial units and their administration.

We understand that the study of space and spatial entities related to the earth's surface is basically a domain of geography, which has been covered by geographers of different schools for centuries. Therefore, it may be useful for us to have a glimpse into the domain of geography to find some relevant materials that may help us in our study, before having a wider look at spatial systems from a systems perspective.

³¹ L. Von Bertalanffy, in the foreward to E.Lazlo's *Introduction to Systems Philosophy.*, Gordon and Breach, London, 1972.

3.1 THE GEOGRAPHICAL PREMISES OF SPACE ADMINISTRATION

Text books mention the word *Geography* being derived from the word 'ge', meaning *earth* in Greek. It has been defined as:

“ the study of the physical features of the earth and its atmosphere , and of human activity as it affects and is affected by these , including the distribution of populations and resources and political and economic activities.”³².

However, today geography as a discipline is not confined to mere cartography or description of the earth's surface. It has branched out to different directions encompassing other disciplines, giving rise to newer disciplines. For our current investigation we may have to occasionally delve into some of them, especially *Political Geography*, *Geopolitics*, *Physical Geography*. Here we shall have a short account of the development these disciplines.

3.1.1 Political Geography

Political geography has been defined by different geographers differently. Here we quote a few of them.

Hartshorne defines Political Geography as:

“the study of aerial differences and similarities in *political character* as an inter-related part of the total complex of aerial differences and similarities. ----- the science of *political areas*, ---- ‘the study of the *state* as a characteristic of areas in relation to the other characteristics of areas’³³.

In the same vein Lewis M. Alexander (1957) defines Political Geography as

‘the study of *political regions*, while a political region may be defined as a portion of the earth surface, throughout which a common type or types of political behaviour takes place. Again, the ‘behaviour’ most frequently cited in the delimitation of political regions is that of a political control over territory by a particular government.’³⁴

On the other hand, Valkenburg (1939) defines Political Geography, a bit differently, as ‘the geography of states providing a *geographical interpretation of international relations*³⁵, while

³² *New Oxford Dictionary of English* (2001), Oxford University Press, New York.

³³ R. Hartshorne, “Recent developments in PG”, *American Political Science Review*, 29(October,1935).

³⁴ Lewis M. Alexander (1957), *World Political Pattern*, Chicago.

³⁵ S.Van Valkenburg (1935), *Elements of Political Geography*, Prentice-Hall.

Cohen (1964) describes it as 'a discipline which treats a political phenomenon geographically'³⁶.

In recent literature we get the following definition of Political Geography from Agnew (1977):

.... 'a discipline that concerns with the process involved in creating the uneven distribution of *power* over the earth surface and its consequence on human population, while this *power* is manifested geographically in the definition of boundaries between states or other political-territorial units, in the control exerted by the powerful states and empires over less powerful ones, and in the material and emotional connections people make between themselves and the places or territories that they inhabit, thus limiting others to them'³⁷

In all the above definitions we find that the common emphasis is clearly on the 'political aspect of an area' and the 'state' in particular.

Historical growth of Political Geography

Although political geography is being treated as a separate discipline only since the late nineteenth century the beginning of the paradigm may be traced back to at least 2000 years.

Aristotle (384-322B.C) discussed the relationship between 'environment' and 'human spirit and intelligence'. In his observation:

'the people of cold countries, particularly of Europe, are full of spirit, but lack in intelligence and skill. This is why they continue to remain comparatively free, but attain no political development and show no capacity to govern others'. On the other hand, 'the people of Asia', he adds, 'are endowed with skill and intelligence, but are deficient in spirit, and this is why they continue to be people of subject and slaves.' He then describes the Greek stock intermediate in geographic position 'uniting the qualities of both set of peoples, possessing both intelligence and spirit.'³⁸

These observations by one of the greatest thinkers mankind ever produced are, no doubt, amusing and may be brushed aside as too sweeping and parochial. But, this certainly indicates that the discourses in Political Geography are as old as that, if not older.

³⁶ Saul Bernard Cohen (1964), *Geography and Politics in a Divided World*, London.

³⁷ John Agnew(1977), *Political Geography, A Reader*, Arnold. London.

³⁸ Aristotle, *Politics* (Book vii, chap.7).

However, these thoughts were largely submerged under religious doctrines during the Middle Ages, when geographical discourses were side-tracked by religious identities. The study of the relationship between physical and political phenomena started again in Europe from the beginning of the sixteenth century, notably by Bodin (1530-96) and Montesquieu (1689-1733) among others.

Anne-Robert-Jacques Turgot (1727-81), a Frenchman, is reputedly the person who first used the term 'Political Geography'. He is considered to have been an innovative state administrator at a time when the 'administrative state' of the *ancien regime* was collapsing because of the contradictions of France's absolutist monarchy³⁹.

The nineteenth century saw a systematic development in the field of Political Geography. Karl Ritter (1779-1859) and Friedrich Ratzel (1844-1904) in Germany being among the pioneers. Ritter and Ratzel are considered to be the architects of the *organismic* school of Political Geography.

Alexander (1935) mentions three historical approaches to the problematic of Political Geography: i) the study of environmental relationship, ii) the study of National power, and iii) the study of political regions.

However, how far these three are independent of each other and how far they are inter-twined, may not be very clear. Particularly the study of *National power* and the study of *political regions* are certainly symbiotic. This leads us to 'Geopolitics'.

3.1.2 'Geopolitics': the global expanse of Aerial differentiation.

The term '*Geopolitics*' is used very broadly to mean 'the politics of or with the space'. It has been termed as the 'active writing of history on the geographical space', particularly by the imperial powers.

The naming of the discourse is attributed to Kjellen, a Swedish geographer, who used the term in an article published in 1899 on the boundaries of Sweden⁴⁰. Kjellen used the word '*Geopolitics*' defining it as 'the natural environment of the state'.

³⁹ Sven Holder (1992), 'The ideal State and the Power of Geography: The Life-work of Rudolf Kjellen', *Political Geography*, 11 (May, 1992).

⁴⁰ Sven Holder, (1992), *op. cit.*

The discourse was given greatest momentum by the British geographer Halford Mackinder with the publication of his essay - '*The Geographical Pivot of History*' in 1904. It was looking at the globe 'with a god's eye view' suggesting organisation of the global space through nodal control, using the centrality and locational advantage of certain regions over others'.

Alfred Mahan and Spykeman in the United States, Friedrich Ratzel and Karl Haushofer in Germany were among others who 'helped codify a mode of reasoning about international affairs' in a similar vein and in the context of World War II, these concepts came to be organised and categorised as the new paradigm of geographical reasoning⁴¹.

The discourse of *Geopolitics* earned disrepute, especially when it was blamed for having been practised and used by the Nazis to justify their global adventure during World War II.⁴²

However, over the last two decades there has been a surge of renewed interest in this field from geographers, as well as social scientists, particularly since the end of the Cold War.

3.2 PROMOTING 'SYSTEMS GEOGRAPHY'

The discourses in geography as indicated above concentrate mainly on the physical and demographic aspects of the territorial space. To have a deeper understanding of the concept of space and its intricate structural imperatives, a *systems approach* may be highly rewarding to unfold the cobweb of the geographical, territorial and demographic issues that haunt today's mankind (Huggett, 1980⁴³).

This may be called the '*Systems Geography*'.

3.2.1 What is 'space'?

For any spatial system *space* is the foundation on which the system is structured. However space becomes meaningful only when it is associated with *action*. Benno Werlen (1993) writes:

"Space is shorthand for all material conditions affecting the corporeality of the actor". Therefore, he adds, "Space is

⁴¹ Gearoid O'Tuathail (1996). *Critical Geopolitics*, Routledge, London.

⁴² Alexander (1957) notes: 'The Germans expanded Geopolitics to denote a basic knowledge of the overall physical, ethnic and economic foundation of the state. During Hitler's regime the term came to include non-geographic concepts, such as the Nazi theory of racial supremacy.'

⁴³ Richard Hugett in his *Systems analysis in Geography* strongly argues in favour of similar approaches.

neither an object nor *a priori* but a frame of reference for actions"⁴⁴.

That means we conceive space only as the *frame of reference* for our actions and, again, for any action we need the *actor*. This means a vast tract of open space, without any *actor* acting on it, deserves little or no attention as a spatial system.

3.2.2 Defining a region

Geography being considered to be the study of 'aerial similarities and dissimilarities' of space, it is through the identification of such similarities and dis-similarities that one may compartmentalise the earth surface into 'regions'.

Thus, the word *region* is generally used to denote given segments of geographical space based on given specific parameters and scales of observation.

Schwartzberge⁴⁵ defines region as, "... a segment of space differentiated from others on the basis of one or more defining characteristics".

Bernton Stein⁴⁶ adds "time" to this definition: "A region is a perceived segment of the time space continuum differentiated on the basis of one or more defining characteristics".

These are all about territorial regions. One may also identify and define *non-territorial regions* based on social stratification or other distinctive traits or linkages that bind groups of people together, irrespective of their spatial distribution.

One may even venture to identify *historical regions*, to denote regions that existed in some specific era of history. For example, ancient Egyptian, Babylonian or the Indus basin civilisations had a distinct bearing on definite segments of earth and had their distinctive characteristics to form both territorial and demographic regions, although none of them exist today, we find them in history only.

Political region

In dealing with spatial systems *political geographers* have to look for *geopolitical* regions and other types of conglomerations, by searching for specific system traits and looking for the interrelations

⁴⁴ Benno Warlen (1993), *Society, Action and Space: An Alternative Human Geography*, Routledge, London.

⁴⁵ As quoted by Alexander, op. cit.

⁴⁶ *ibid*

amongst those traits. Such interrelations produce *organisation* and thereby cause *integration* into systems. In the process different hierarchical levels are also identified. We shall discuss this issue again in later pages.

Geographers look to 'regions' from different perspectives. Lewis M. Alexander (1957) looks at Political Geography as 'the study of political regions', while he defines a *political region* as 'a portion of the earth surface, throughout which a common type or types of political behaviour takes place'. Again for the delimitation of political regions his emphasis is on the 'political control over a territory by a particular government'. In terms of such 'political control over territory by a particular government' the land surface of the world is divided into many political regions, ranging in levels from national units down to provinces, counties, townships and villages⁴⁷.

'Regionalism'

A region is said to be "politically distinct" when its population has a "distinct sense of regionalism". Stein defines 'regionalism' as an attribute "*to refer to the feelings, attitude, ideological elements or action imperatives which are attached by men as objectives or statistical distributions of space and in time*"⁴⁸.

3.2.3 Identification of scales and the hierarchy of regions

It may be noticed that in constructing "regions" one invariably encounters the questions of scale and parameter. Different sets of regional identities do emerge depending on the parameters used and the scales referred to. Thus there are the tiny entities of village hamlets at the bottom, leading to the ultimate global composite through several intermediate stages of administrative and political units.

The broadest possible scale is the global scale, taking the entire planet earth as a composite ecosystem made up through the intricate relationships between the myriad of its component systems and sub-systems, territorial and non-territorial, structure

⁴⁷ Lewis M. Alexander (1957), *World Political Patterns*, Chicago.

⁴⁸ *ibid*

and functional, all having a finite limit, not exceeding that of the planet itself, including its biosphere and atmosphere⁴⁹.

In the course of this journey through a vertical plane sudden changes in the *level of concentration* of relations and the *type of such relations* between the elements are observed across the system boundary at each hierarchical level while crossing over from one hierarchical level to another.

While the entire earth surface is a single natural system, different levels of space configuration may be identified within this System, based on varied degrees of interaction amongst the component elements, starting from the smallest units of human habitation at the bottom and then moving upwards, finally reaching the global level.

Klir (1985) in his '*Architecture of Systems Problem Solving*' through a process of 'distilling the notions of systems from various disciplines, categorizing and then integrating them into a coherent whole' indicates a hierarchy of six epistemological types of system covering the various disciplines.⁵⁰ Klir's conceptual framework of system hierarchy may be useful in identifying the hierarchy of spatial entities as well.

However, identification of clearly distinct layers of spatial entities, both at the micro and macro levels, is a challenging task. Understanding the intricate relationships between man and his dwelling space is essential to solve this riddle. It is through this paradigm that we can have a deeper insight into the space and investigate comparative advantages and disadvantages of the different systems and forms of space administration.

Starting from this WORLD SYSTEM at the apex we can identify at least five discernible hierarchies or scales of spatial organisation: (**Fig. 3.1**)

- * **The World System**
- * **The Multinational Regional Systems**
- * **The Nation State Systems**
- * **The Sub-National systems**
- * **The Local state Systems**

Below the 'local state' we may put 'family' as another level.

⁴⁹ Kenneth E. Boulding (1985), *The World as a total System*, Sage Publications Inc., London..

⁵⁰ The hierarchical levels of systems identified by Klir are: the 'source system' at level-0, the 'data system' at level-1, the 'generative system' at level-2, the structure system at level-3, the 'meta system' at level-4 and the 'meta-meta system' at level-5. See Flood and Carson (1988), p-128.

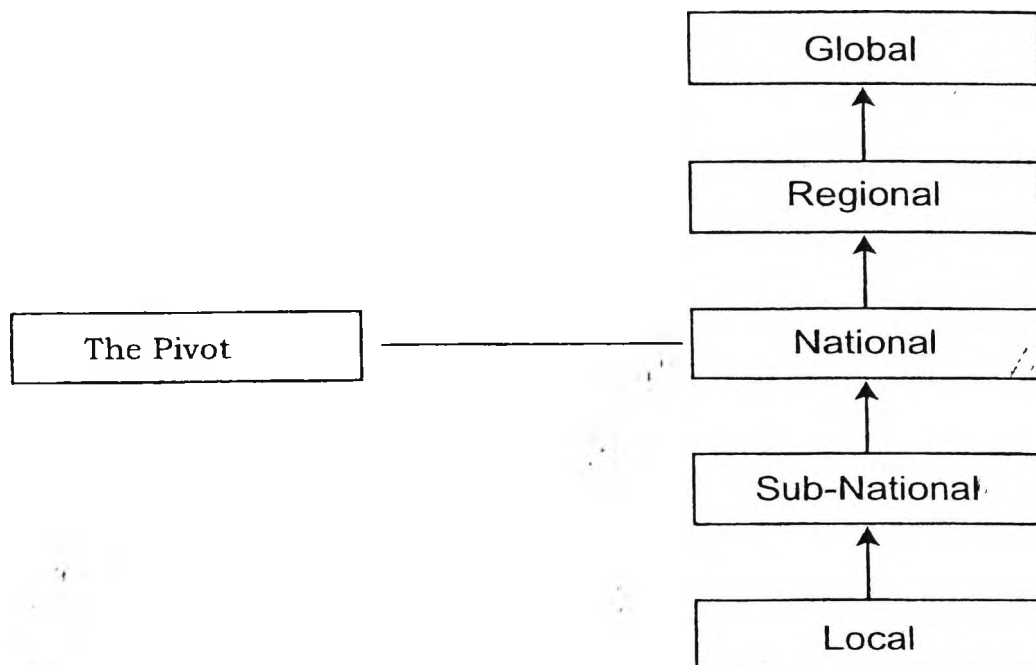


Fig. 3.1 Hierarchy of spatial systems

In modern space management, apart from the *size* of the territory, the ever increasing number of responsibilities conferred on the administration increases the *complexity* of spatial systems at all levels exponentially.

Stratification of the space at *hierarchical* levels makes the management of such complexity easier. In fact scaling down large scale systems into hierarchically stratified sub-systems is the only answer to cope with their complexities and administrators, managers and systems engineers dealing with complex organisations have to cope with situations through trial and error⁵¹.

3.3 THE ORGANISMIC NATURE OF A STATE

Karl Ritter (1779-1859) and Friedrich Ratzel (1844-1904) brought forward the *organismic* theory of culture and statehood treating cultures and States as living organisms⁵². Ritter, borrowing from Darwin, felt that just like any other organism a culture or civilisation fights for space crushing out the weaker; *survival of the fittest* being the rule⁵³.

Ratzel had the same view. In his words " State was an organic entity in itself, involved in an endless struggle for space or 'living room' (*lebensraum*). " He reasoned that States, as well as living beings, were subject to the laws of natural selection. with only the strong surviving⁵⁴.

Kjellen(1864-1922) advanced a step beyond Ratzel. He thought of the state not only as a living organism, but also as a *conscious being* equipped with moral-intellectual capacity⁵⁵.

3.3.1 The self perpetuating instinct of 'Statehood'

A Nation State, however small in size or irrational in its structure, once recognised by the international community as a sovereign entity, immediately acquires a personality of its own. Once founded, the natural tendency of a State is to retain its control over the given space at any cost. Forces develop around the State apparatus, both internal and external, that would find interest in its perpetuation.

⁵¹ *ibid.*

⁵² This 'animal instinct' of Nations, States, cultures and civilisations was recognised and espoused even in the mediaeval period. The fourteenth century Arab historiographer Ibn -Khalidun is particularly noted for his widely acclaimed thesis on the 'birth, maturation and decay' of Nations and civilisation. See Ibn Khalidun, *The Mukaddimah*, (Original 1377), English translation (1967) Princeton University Press, Princeton..

⁵³ Lewis M. Alexander, *op. cit.*

⁵⁴ *ibid.*

⁵⁵ *ibid.*

Even an imposed Statehood, otherwise totally inefficient, acquires an instinct of self perpetuation like an animal in the lower hierarchy of evolution. Any suggestion as to its territorial incongruity or any proposition to alter its boundary is bound to be taken as an act of interference to its sovereign existence and is fiercely resisted.

3.3.2 'Mutation' of spatial entities

This, however, can not altogether prevent changes in State boundaries. Over the longer period of time, political and social upheavals often overpower the State organism to give way to changes in their boundary. Newer entities are created in the process; a process somewhat akin to the biological *mutation*. Thus a large number of new States were founded in this process after the two world wars. Of late, after the fall of communism, a host of new Nation States has emerged in Eastern Europe and Central Asia. Many other *national* entities are still struggling all around the world asserting their separate identities and seeking to achieve the status of separate Nation States⁵⁶.

3.3.3. Limits to fragmentation

In the above context one obvious question arises: where shall we draw the line in this course of fragmentation of the earth surface? How do we identify a group of people as a *Nation*, or a given territory be recognised as a *Nation State*?

In order to get an answer to these questions, one has to, first of all, determine the purpose of Statehood in modern times. Obviously the avowed *goal* of any Nation State must be the fulfilment of the desires and expectations of its people. This 'desire and expectation' may differ from nation to nation, at least in degree. However, the basic expectation of the people from the respective Nations State may not differ very much. Those are, to list a few, --- maintenance of peace and order in the societal settings, a better standard of living for the citizens, facilitating national achievements and advancement in various fields, satisfying the inescapable '*national ego*'—etc..

This is where the notion of the *efficiency* of a spatial unit becomes relevant, where '*efficiency*' is the measure of the strength and weakness of the concerned entity. In the case of a Nation State efficiency may be expressed by its capability to maintain its territorial integrity and internal social harmony, to generate, harness or manage adequate resources to satisfy the demands of

⁵⁶ Examples: *Tamil Eelam* in Srilanka, Kashmir, Assam, Nagaland etc. in India, Chechniya in Russia. East Timor in Indonesia, which was fiercely fighting against Indonesian control, is now an Independent State.

its citizens and to achieve a sort of *organismic equilibrium* within and without, both horizontal and vertical. (We shall have more discussions on this in later chapters).

Organisation and reorganisation of spatial administrative units are meaningful and worthwhile only if those efforts are directed towards improvement of such systemic attributes leading to a higher level of *efficiency*.

3.3.4 Boundary of a spatial unit and its efficiency

A Nation State, in order to be efficient, must contain the required territory and resources to cater for its population properly. In this regard the problematic of space administration is obviously compounded by the limitation of resources on the earth surface. Competing claims over this limited resource pose distributional problems between different spatial units, generating conflicts, often with dire consequences.

Consequently, demarcation of the spatial units by well defined boundaries is essential to regulate the mutual relations of spatial entities in a well-defined and structured pattern. In reality, if the boundaries of Nation States were drawn in a clear, accurate, consistent, equitable and legally acceptable manner, a wide range of conflicts and tensions around the world could have been avoided.

This study asserts the importance of the territorial boundary of different spatial units, especially those at the Nation State level, for proper and efficient administration and management of space in general and puts forward a hypothesis that systemic *efficiency* of a given spatial entity as a politico-administrative unit depends on the proper identification of its system boundary. Putting it another way, this study emphasises that for any *goal seeking* spatial unit the boundary should be delimited in such a way as to achieve maximum possible systemic *efficiency*. (We shall take up 'boundary' again in section 2.7 and efficiency in chapter 5.)

3. 4 UNDERSTANDING A 'SYSTEM'

Today the word *system* is used in almost all sciences, and has penetrated even into our everyday language and into the jargon of the mass media.⁵⁷ However, the word 'system' as used in Systems Science has a certain special connotation.

We define a system, after Berrien (1968),

⁵⁷ Kramer, Nic J.T.A. and Jacob de Smit (1977), *Systems Thinking*, Martinus Nijhoff Social Science Division, Leiden.,

as 'a set of components' where such components 'interact with each other' and 'having a *boundary* which possesses the capability of filtering both the *kind* and *rate* of *inputs* and *outputs* to and from the system.'⁵⁸

Flood and Carson (1988) put it in simpler words: ' (a system is) an assembly of elements related in an *organised whole*', where an element is 'anything that is discernible by a noun or a noun phrase that all informed observers would agree exists'.

A system may also be described as 'an entity defined by what is called, its 'organisational invariance' or the 'constancy amid change.'

Ervin Laszlo places this characteristic of a system more succinctly:

'A system ...is a collection of parts conserving some identifiable set of (internal) relations, with the summed relations (i.e. the system itself) conserving some identifiable set of (external) relations to other entities (systems).'

Laszlo identifies two types of systems, *natural* and *technical*. A 'Natural System' is that which by itself can conserve its organisational *structure* and *functions*, 'which does not degrade its organisation to thermodynamic equilibrium in virtue of balance of its internal relations with its external relations'. In contrast 'where the internal relations of sets of elements are to be externally constrained to remain invariant, (e.g., the molecules of a gas kept at constant temperature and pressure)' he considers it to be a 'Technical System'.⁵⁹

This definition attributes both *structure* and *function* to a system and thus while looking at any spatial system we must look for the structure within and the functions performed by the structure, the two being rather inseparable. Berrien (1968) maintains: "The structure of a thing determines its functions. ... Without structure, function is impossible'.

A system is taken to be something *more* than the aggregate of its elements, *the whole being greater than the sum of its parts*, as the popular dictum goes. This characteristic of a system is termed: *emergence*⁶⁰. Spatial systems with higher 'emergence' are naturally the stronger players.

⁵⁸ F. Kenneth Berrien (1968), *General and Social Systems*, Rutgers University Press, New Jersey.

⁵⁹ Ervin Laszlo, (1969)

⁶⁰ Flood and Carson (1988): " Instead of being merely an aggregation of shaped materials, an airplane can fly. Instead of being a blob of cells , we can walk and talk."

3.4.1 Types of systems

Checkland identified four types of systems⁶¹:

- (i) Natural systems,
- (ii) Designed physical systems,
- (iii) Human activity systems, and
- (iv) Designed abstract systems.

It is very difficult to confine spatial systems in any one of these categories. Nation States or other politico-administrative systems, at different hierarchical levels, as we find around us, show attributes of all of the four categories, albeit in different degrees of prevalence.

Thus, all spatial units have certain features of a *natural system* in as much as they possess certain *antecedent* properties which is an attribute of a natural system. They are also 'designed' and 'physical', either through wishes of the concerned population, or through the dictates of the power brokers. Again, politico-administrative units are certainly manifestations of 'human activity' on the earth surface. Finally, all spatial systems, national, local or regional, are essentially products of human *desire*, which is by and large 'abstract'.

Miller(1965) has identified three types of systems:

- i) conceptual,
- ii) abstract, and
- iii) concrete.

The first, the conceptual systems, are those composed of symbols, such as a language; the second, the abstract systems, are those based on the relationships abstracted by an observer in the "light of his interest, theoretical viewpoint or philosophical bias"; while the *concrete* systems are " non-random accumulation of matter-energy, in a region in physical space-time, non-randomly organised into co-acting, interrelated subsystems or components"⁶².

Spatial systems fit more in the third category, than that of the 'concrete systems', although they may have both 'conceptual' and 'abstract' features.

Systems are also looked at as being *hard* and *soft*, or *closed* and *open*. Hard systems are those that allow easy mensuration, while

⁶¹ *ibid*

⁶² Miller, J.G. 'Living Systems :Basic Concepts', *Behavioural Science*, 1965: 10.

soft systems are those which are complex, having conceptual features and can not be easily handled.

Open systems are those which accept and respond to inputs as opposed to the closed systems which are *assumed* to function within themselves only. ⁶³ In the words of Flood and Carson (1988):

“ ... in the theoretical construct of a closed system ... relationships do not exist between elements of a system, and everything external to that system. Conversely, an open system exchanges material, information, or energy with its environment across a boundary.”

This means that a system, whether it is closed or open, must have a *boundary*, where 'boundary' is the watershed between a system and its *environment*.

3.4.2 Environment of a system

Concentration of relationships between elements distinguishes a system from its environment. As one crosses a system boundary there must be noticeable change in the level of concentration of *energy*, which indicates a change in the intensity of interactions between the components or the type of their relationships. In this regard Simon(1973) mentions sharp change in energy level when we move from the atomic level to the molecular and higher levels in physical/biological world (see section 9.5.1).

Checkland (1981) defines *environment* of a system as : 'what lies outside the system boundary in a formal system model'.

3.5 SYSTEMS THINKING AND SPATIAL SYSTEMS

3.5.1 Space and spatial systems

For any spatial system the *space* or territory holds the structure and also the functions related to the structure. Here more emphasis is on the structure and function, rather than matter and substance. Thus in the case of spatial systems one has to look more for the '*organisation*' and find the physical settings of the elements into it and the interaction between them.

⁶³ Flood and Carson (1988)

However, it should be noted that all real systems are open, only the degree of openness may vary among systems. For example, a watch that maintains proper time as long as the mainspring tension does not drop below a given level may be considered as a 'closed' system. Therefore, to keep this system functioning new inputs are necessary after given periods, which makes it 'open'. Thus a closed system is only a "convenient assumption for a limited analysis of one part of a system's behaviour".

This makes the approach of systems science towards understanding a spatial system both *holistic* and *reductionist*, i.e. looking at the system as a *whole* and at the same time reduction of the system into many simpler forms in order to identify and understand its building blocks.⁶⁴

Although our 'organismic' view makes spatial systems analogous to biological beings, they are, in a way much more *messy*. Being essentially 'human activity systems', they display no clear-cut structure and different people may look to them differently. In the words of Flood and Carson(1988):

"... even with the same interests and purpose, the set of systems identified by researchers would not necessarily overlap in totality. This all stems from the individual perceptions of what is going on in the situation, which is also intricately related to beliefs, values, and ideas. ... then attempts to define a specific technique to system identification is either pointless, dangerous, or both.... A meaningful contribution, however, in the context of system diagrams as such, can be made by offering a number of insights, guidelines and rules of thumb."

This observation is more true of spatial systems.

3.5.2 Characteristics of spatial systems

Standard texts on System Science describe complex and large scale systems from various perspectives. All the basic characteristics attributed to social and other complex systems may very well be attributed to spatial systems also. Looking to the various propositions on the characteristics of highly complex systems we may consider spatial systems as follows:⁶⁵

- a) Spatial systems are *complex* and *large scale* systems.
- b) Spatial systems are *soft* systems with many *hard* system attributes
- c) Spatial systems are *hierarchical* systems and show 'holon' properties, (except at the lowest and the highest strata).
- d) Spatial systems are '*organismic*' and therefore show self-stabilising and self-organising properties.
- e) Spatial systems may have *different parameters* acting simultaneously..
- f) Spatial systems show both *invariant and variant* properties and therefore, elements of spatial systems may be '*multivariate*'

⁶⁴ M'Pherson, P.K. 'A perspective on systems science and systems philosophy', *Future*, 6(3), 1974.

⁶⁵ See Flood and Carson (1988) ; van Gigch (1974); Koestler(1973) and others.

We shall take up to all these characteristics of spatial systems at the relevant stages of our discussion.

In considering spatial units as systems, Miller (1965) conceived of the universe – from the solar system at one extreme to atoms at the other--- as 'a system containing systems'.

In the words of Berrien (1968):

' Such a concept (a system containing systems) can be applied to a cell within a tissue, to organs within an organism, to companies within an industry, to nations within an alliance. Each of these levels of organisation can be conceived as a system composed of subsystems in which relations between the subsystem components result in a certain output that contributes to the larger system.'

In this study spatial systems have been viewed from this conceptual framework.

Thus, spatial units, as one finds around the world, are found to be in *hierarchical* order, starting from the space occupied by an *individual* at the bottom to the entire *earth surface* at the top, with the *family*, the *local state* (or community), the *Nation State* and the *regional groupings of States* at intermediate stages. At each of these hierarchical stages, the concerned spatial unit has systemic attributes that may be described and measured through the number of elements and intensity of their interrelations together with the *emergence*, if any.

Spatial systems, such as Nation States, are comprised of several other systems and subsystems, in horizontal or vertical association. In systems terms, they are essentially 'large scale systems'. Consequently the study of organisation and management of any sizeable spatial unit on the earth surface is bound to encompass complexities covering several academic disciplines.

To decipher the intricate relations between different parts of a spatial unit one has to tread the domains of geometry, physics, chemistry, as well as, different branches of social and behavioral sciences. This obviously necessitates a holistic approach. Any sectarian approach in this regard may be as futile as the story of the attempts by the six blind men to size up an elephant by touching its different limbs. This has been one of the fundamental premises on which the edifice of systems thinking has been built.

Academic disciplines today are increasingly becoming so much varied and fragmented that we may be led to different

worlds altogether if we try to find solutions to global issues through isolated attempts in different disciplines and sub-disciplines. Such fragmentation of the present day intellectual arena has resulted in a plethora of academic paradigms each having its own vocabulary and technical jargons hardly understandable to others not familiar with the particular mode of inquiry.

To quote Boulding (1956):

"One wonders sometimes if science will not grind to a stop in an assemblage of walled-in hermits, each mumbling to himself words in a private language that only he can understand."⁶⁶

Peter J. Taylor (1988) while identifying various trends in modern geography emphasises 'the *rediscovery* of global scale and favours a *regional* geography from a *global* approach 'transcending the state' to draw, what he calls, -- a broad 'framework for world-system analysis'.⁶⁷

This "God's eye view" of the earth surface obviously calls for an integrated and holistic conceptual framework for our 'global village', if it may be called that way. The Cancun (1981) and Rio (1992) meetings between the 'First World' and the 'Third World' governments, popularly referred to as the 'Earth Summit', are 'symptomatic of the current concern for world-wide perspective and global thinking'. In the words of Inkeles (1975):

"The widespread diffusion of this sense of a new, emergent global inter-relatedness is expressed in numerous ideas, slogans and catch phrases which have wide currency, such as 'world government', 'the global village', 'spaceship earth', 'the biosphere', and the ubiquitous cartoon of a crowded globe with a light fuse protruding from one end, the whole labelled 'the world population bomb'.⁶⁸

Application of *systems thinking*⁶⁹ may help to look to the world with such a holistic view.

From systems approach the entire earth surface may be considered to be a WHOLE SYSTEM. The complexity of this *whole* may be reduced to *sets* of interacting *elements*, organised in different

⁶⁶ Boulding, K.E., 'General Systems Theory-- the skeleton of science' in *General Systems*, 1, 1956.

⁶⁷ Peter J. Taylor (1988) 'World-system Analysis and Regional Geography' in *Professional Geographer* 40(3), 1988.

⁶⁸ Inkeles, A., (1975) 'The emerging social structure of the world', *World Politics*, 27.

⁶⁹ See *Systems Thinking*, Nic J.T.A. Kramer and Jacob de Smit (1977), Leiden: also, *Systems Thinking*, F.E. Emery ed. (1969, 1981), Penguin, London.

systems and sub-systems and arranged in *hierarchies*.⁷⁰ Thereafter, each of these elements, sets, sub-sets, systems, sub-systems or hierarchies may be studied and evaluated from different angles in order to ascertain the overall *system efficiency*. This exercise has been taken up in chapters 6,7, and 8.

This may, in turn, enable us to predict the possible alternative configurations that would meet defined aims and objectives of space management.

3.6 DIFFERENT APPROACHES TOWARDS THE ORGANISATION OF SPACE

It has been mentioned earlier that the principal aim of political authority, from the earliest days, has been the organisation and exploitation of the *geographical space*; geographical space, in this context, being portions of the earth surface available for human manipulation.

Thus, space and the spatial variations, in most cases, followed the dictates of the conquerors, frequently neglecting the intrinsic factors associated with the space concerned. Power being the principal vehicle of change, '*civilisation*', as it is traditionally understood, may be considered as only the by-product of the power game which shaped and reshaped the global scenario throughout the length and breadth of history'.

While the emerging powers carried on sweeping conquests bringing wide expanse of territory under a centralising authority, the declining civilisations gave in to the forces of decay, throwing the components away from each other. The rise and fall of the great empires in the early and medieval periods of history and those of the colonial period all bear testimony to that.

In a narrower sense, any politico-administrative region is acted upon by two opposite tendencies of integration and disintegration. On the one hand there are elements and functions that tend to create an integrated system. On the other hand there are at least some factors that oppose such integration. This simultaneous thrust of the *centripetal* and the *centrifugal* forces on a given geographical space leads to conflicting claims of national or territorial identity that makes the demarcation of the boundaries between different *Nations*, or *States* a complex issue.

⁷⁰ The original connotation of the word *hierarchy* meant the vertical authority structure in human organisations. 'In application to the architecture of complex systems' Simon defines 'hierarchy' as 'a set of Chinese boxes of a particular kind. A set of Chinese boxes usually consists of a box enclosing a second box, which, in turn, encloses a third-- the recursion continuing as long as the patience of the craftsman holds out.'--- Herbert A. Simon (1973) *Hierarchy Theory*, George Braziller, New York.

Depending on the nature of forces and interactions that produce systemic characteristics in spatial units and observing the various types of spatial units as we find today all over the world, we may broadly identify four distinct approaches towards space management:

- i. **Exploitative centralisation:** the subjugation approach,
- ii. **Integrative centralisation:** the assimilation approach,
- iii. **Exclusive regionalisation:** the "balkanisation" approach, and
- iv. **Interactive regionalisation:** the equilibrium approach.

3.6.1 Exploitative centralisation: the subjugation approach

Human ability to understand and analyse global spatial configuration has always been tinted by the observer's own perception. Central powers, ruling over peripheral regions, or, great powers, with global ambitions, frequently neglect or undermine the geographical content of the political framework.

Pascal Girrot accuses the Soviet geographers of not considering what is called the "human" phenomenon, whilst he blames the North American geographers for neglecting a large part of "physical phenomena".⁷¹ However, the common denominator in the approaches of both sides was the promotion of the concept of a *core* considered to be the necessary and unavoidable lynch-pin around which the rest *must* revolve.

Mackinder (1904) in his *Geographical pivot of History* promoted this concept of *core control* on a global scale. His assertion that Eastern Europe and central Asia constitute the 'pivot' of the global power structure, surrounded by an 'inner crescent' and an 'outer crescent',⁷² came out of his bold and sweeping generalisation of the historical trends over the centuries preceding the rise of the modern maritime powers.⁷³ However, his aim was to suggest a guideline to serve the imperialist designs of his own country.⁷⁴ With that end in view he revised his model in the wake of the First World War (Mackinder, 1919). He now named central Asia as the 'Heartland', not the 'pivot area', as he named it in his earlier formulation.

⁷¹ This reflects that geographical theories have been largely influenced by the 'world view' of the observer in both the cases, which again was tinted by their ideological and personal interest.

⁷² See Fig. 8.1

⁷³ Taylor (1985) considers this Mackinder model to be 'a historical-geographical rationalisation for the traditional British policy of maintaining a balance of power in Europe so that no one continental power could threaten Britain.'

⁷⁴ 'Geography, for Mackinder, was, above all, an instrument of social imperialism, a domestic force in a renewed incitement to empire.... an incitement of an imperial imagination, a challenge to ordinary British people to think of their interest in global terms.' –Gearoid O Tuathail (1996), *Critical Geopolitics*, Routledge, London..

Mackinder asserted:

“Who rules East Europe commands the Heartland
Who rules the Heartland commands the World-Island
Who rules the World-Island commands the World.”⁷⁵

The revolutionary advancements in communication technology and the changes in the global distribution of power and wealth have made Mackinder's hypothesis out of fashion in the present day global context. However, if the essence of his hypothesis is taken to be an advocacy for the practice of controlling the earth surface from positions of nodal advantage, it is still the most widely practised norm in state craft all over the world. We shall come back to Mackinder again in chapter 8.

Countries projecting themselves as 'world powers', or those aspiring to be, have their own set of Mackinders, the '*Geographers of Empire*', conceiving theories to suit the purpose of respective national interest in subjugating smaller entities in and around and suggesting ways and means for *global conquest* through other avenues.

We call it --- the **Exploitative centralisation**, or the *subjugation approach*, where the aim is subjugation of the *periphery* by a *core* through a coercive control mechanism.

Fig 3.2 gives a schematic exposition of a coercive centralisation approach of space management, where the thick broken line represents the *ruling power* with an *apex* and a *ruling coalition* forming the *controller* supported by an *administration* having instruments of *direct* and *indirect* control to control the *client /periphery* assisted by the support of a *co-opted elite*. The co-opted *elite*, linked to the periphery and the administration, as well as the controller, plays a significant role in this process⁷⁶. This pattern of *elite collaboration* may be noticed in the present day administration of the bigger countries where several peripheral entities have been tied to a core nation and the core nation meticulously cultivates collaboration within the periphery.

⁷⁵ Mackinder (1919)

⁷⁶ 'Robinson (1973) has elaborated this into a theory of collaboration whereby certain peripheral elites interact with core states to help produce imperialism. This explains why European powers could control so much of the periphery with relatively little military involvement. Clearly British control of India would have been impossible without collaboration'—P.J.Taylor(1985), *Political Geography, World – economy, Nation-state and Locality*, Longman.

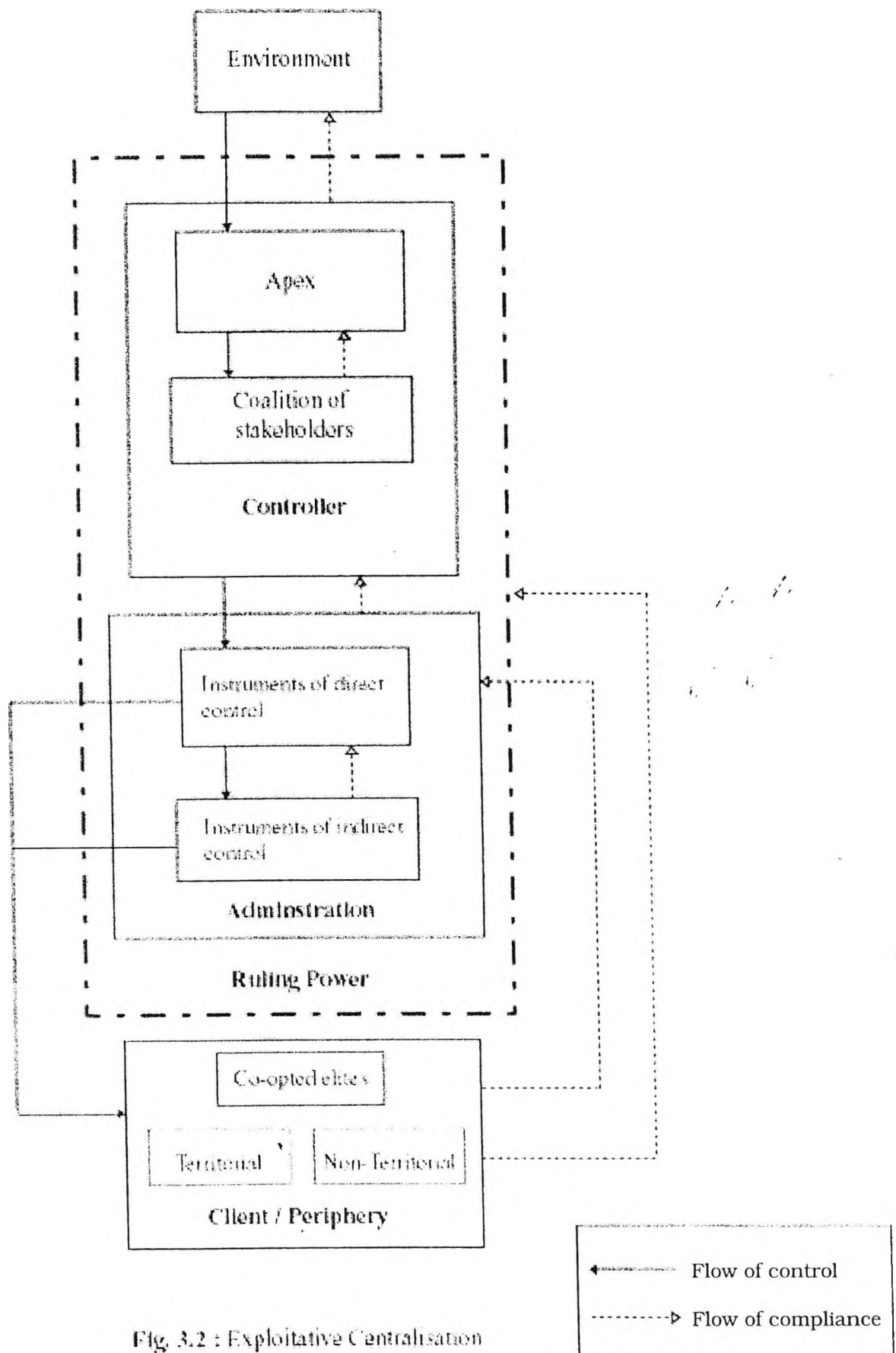


Fig. 3.2 : Exploitative Centralisation

Clearly in all such systems one strong centre controls divergent territories through the organisation and manipulation of space by the application of forces, primarily military, supported by economic and ideological control. Such centralisation is often idealised as being essential for 'progress'. Allegiance is cultivated or exacted from the recalcitrant in the name of sovereignty and development. The bigger the space thus controlled, the greater is the accumulation of power at the centre and therefore the greater is the probability of coercion in order to keep the periphery subjugated.

In this type of situation diversity within the geographical space is underplayed and often submerged, to give pre-eminence to the authority of the core. Icons of the ruling power are carefully promoted to further suppress the subjugated entities. Fear-psychosis, fear of going astray, is cultivated to keep the recalcitrant within the superimposed system.⁷⁷ In this process regions having fundamental divergence between them or various people having little in common are bundled together under a unitary administration.

In the opposite scenario homogenous regions or people bearing unmistakable common traits may be thrown to different sides of a politico-administrative border using the same brute forces of coercion.⁷⁸

The very assertion that bigger areas could be controlled by just controlling the "core"⁷⁹ and that in this process the whole world may be controlled, as visualised in the Mackinder hypothesis, ignores the many other factors that influence and effect geographical space. The domino visualised is fraught with the danger of an inevitable backlash from the missing system imperatives and the superstructures built on this hypothesis are destined to eventual collapse. Coercive control without popular legitimacy and systemic integration can not hold out for long. Failure of the Axis powers in World War II against popular global apathy and the dissipation of colonial empires after the 'victorious'

⁷⁷ Pakistan cultivated such fear -psychosis in the then East Pakistan . It was repeatedly propagated that East Pakistan was vulnerable to Indian military attack and that East Pakistanis will have to accept Indian subjugation if they are not protected by the military might of the West Pakistan. Similarly, in 1947 fear psychosis was cultivated in the minds of the Bengali Hindus towards the anticipated domination of the Muslim majority in a unified Bengal, which drifted the two communities wide apart paving the way for the partition of Bengal..

⁷⁸ Example: the Kurds, historically a distinct people who commanded over a given territory for a long period, were denied their separate national identity. while the disintegrated Ottoman empire was 'balkanised' into several new States. Presently the Kurdish people, splintered in Iraq , Iran, Turkey and Syria, are fighting relentlessly to have a Nation State of their own .

⁷⁹ Burghardt(1969) identifies three types of *cores* :a) the nuclear core, around which the State grew, b) the original core, that existed before, but super-ceded by c) the contemporary core.—Burghardt, "The Core Concept in PG: a definition of terms", *Canadian Geographer*, xiii , October, 1969.

bombing of Hiroshima-Nagasaki, or the sudden demise of the apparently infallible Soviet Union are all glaring examples of such systemic backlash.

3.6.2 The integrative centralisation: assimilation approach

The geographical space around us shows variable degrees of divergence both in its territorial and demographic contents. Geography has been described as being the study of 'aerial similarities and differences'.⁸⁰ In that context *regionalisation* of the earth surface on the basis of such similarities and dissimilarities is a rational exercise. Once such *regions*⁸¹ are identified, their systemic traits appear obvious. However, the distinctive characteristics of the regions are often subdued under different superstructures.

Systemic realities have intrinsic strength which, even if subdued for a period, for whatever reason or reasons, tend to show up again at the earliest opportunity. In the words of Jean Gottman again:

"As the twentieth century grew older, well established Imperial or National structures were shattered or crumbled and with rejuvenated vitality old regionalism challenged the national entity".⁸²

The above assertion highlights two entities -- the "region" and the "Nation". However, wide divergence prevails amongst geographers and social scientists as to the exact definition of these two terms. We shall look to that later.

It is needless to mention that decision makers perceive geographical factors from their respective 'world view', which is again limited to their *own time* only. Application of political decisions based on such sectarian and time-bound prescriptions often produce results that have lasting, far reaching and often mutilating impacts on the space concerned. For example, divisive communalism was a major factor overshadowing other systemic imperatives during the last days of the British Raj in the subcontinent. This was, indeed, a transient societal psyche, generated by the frustrations and failures of the contemporary political elite, divided along religious lines. However, the decisions taken at that particular stage drove the subsequent course of history towards a direction that can not be redirected now, even if it

⁸⁰ Hartshorne (1954), as quoted by Prescott (1972), defines Political Geography as "the study of aerial differences and similarities in political character as an inter-related part of the total complex of aerial differences and similarities".

⁸¹ For the definition of 'region' see 2.2.

⁸² Even in the post colonial era we find that traditional regionalism, temporarily submerged under the euphoria of the founding of new 'Nation States', reappear when that euphoria is subsided. The latest example is the renewal of the demand for 'Pakhtoonkhoa' (land of the Pakhtoos) by the Pathans of Pakistan.

is found to have been counterproductive. Moreover, *unperceived* factors may show up in the course of time to conflict with the perceived course of space administration.

In the larger *super-states*, comprised of a number of divergent component units, conflicts between the 'regional' and the 'National' identities are too obvious. Such States are found to carefully nurture the so-called concept of "unity in diversity" and undertake various measures to build up a process of *assimilation*. Divergence of regional identities is underplayed and the "common" objectives of the total polity highlighted. Here centre-periphery dichotomy is manipulated in a manner that strengthens the centre and weakens the periphery. The end result is an integration through forced machination and cultivation of 'bias'.

There are countries where one dominant segment of the population, either localised (as the Hindi speaking majority in India, the Punjabis in Pakistan, the Russians in Russia etc.) or spread out all over the country (as the *White Anglo- Saxons* in the USA) virtually controls the State machinery. In both situations smaller regional entities or the minority groups may gradually give in to the overpowering dominance of the *core*, having no other option.

This type of *integration* is accentuated by the fact that once a State structure is founded and gains recognition as a sovereign entity by the world community, by whatever twist of historical events, it starts enjoying an unfettered right and authority over its territory. This *authority* soon turns into a convenient tool for further centralisation.

We call it -- the **Integrative Centralisation**, or, the assimilation approach.

However, such *integration* may not be always conclusive. There are examples where the core has been successful in *assimilating* the periphery (territorial or non-territorial) into its own umbrella, or at least, minimising the divergence to a tolerable limit. The USA and China may be cited as examples. In other situations the centre-periphery conflict may remain unresolved with periodic outbursts posing perpetual threats to the very existence of the super-structure. India, Russia, Indonesia, Pakistan, among many others, may fall into this category. In **Fig.3.3** we have a graphic illustration of a State structure of the above category showing the interactive relations between its different organs and elements, which is self explanatory.

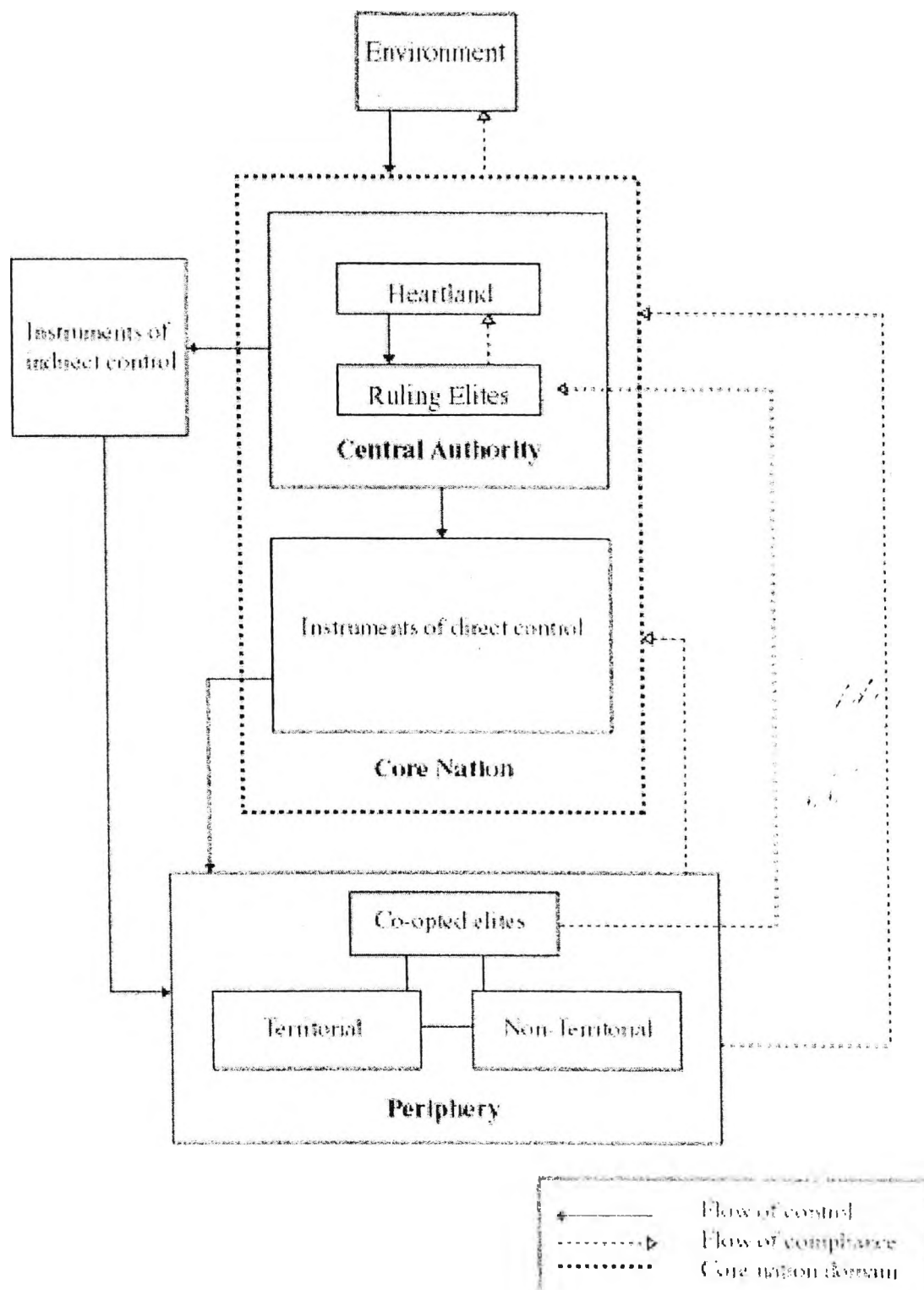


Fig. 3.3 : Integrative Centralisation

3.6.3 Exclusive regionalisation : the isolationist approach

The earlier two approaches towards space administration are based primarily on the cultivation of the centripetal, or the unifying forces. There could be an opposite approach that would cultivate the centrifugal, or divisive forces in order to bring an end to the core domination through the equitable distribution of power between the component units. Obviously this approach aims at strengthening the regional and local identities of the component units, where the divisive forces of local patriotism may eventually overpower the unifying factors and thereby lead to compartmentalisation, or fragmentation of the space into smaller units. This is often ridiculed as "Balkanisation", reminiscent of the fragmentation of the Balkan peninsula after the fall of the Ottoman empire.

It has been already mentioned that, imposition from external forces has been greatly instrumental for the fragmentation of regional spatial systems all around the world. Imperial or colonial powers have often drawn arbitrary lines on maps to divide the space without any reference to systemic imperatives⁸³. Instances abound around the world where genuine claims of regional or national identity have been denied under the garb of supra-national considerations preferred by one or the other *core* nations capable of subjugating the weaker periphery in the name of 'progress' or 'stability'.⁸⁴

However, divisive local patriotism and religious, tribal or ethnic divides are no less responsible for such fragmentation. Often small enclaves of a particular linguistic or ethnic group comes out with demands for sovereignty.⁸⁵

It has been observed that local patriotism, to be effective, must be based on sound reasoning and forceful arguments, which unites the people concerned and is capable of arousing their passion to fight to the last.⁸⁶ On the other hand, it must also be cost-effective and attainable, otherwise, it may end up in failure and disaster.⁸⁷

⁸³ Anne Godlewska and Neil Smith eds.(1994), *Geography and Empire*, Blackwell Publishers, Oxford: see Fig 1.1.

⁸⁴ Yugoslavia, before its dis-integration, for example.

⁸⁵ Tamil separatists in Sri Lanka, Chechen separatism in Russia, Basque rebels in Spain, for example.

⁸⁶ Example: Bangladesh, East Timor. In the case of Bangladesh, linguistic and ethnic differences coupled with economic disparity and administrative injustice created a situation that fomented widespread dissatisfaction in 'East Pakistan' resulting in a mass movement for autonomy at the beginning, which soon culminated into a bloody confrontation. The very fact that East Pakistan was separated by a 1500 mile hostile territory of India was a boon for the Bengalees of East Pakistan. In East Timor, the religious divide between the Muslim Indonesia and the overwhelmingly Christian East Timor having strong link with the Christian West was the determining factor that forced Jakarta to the UN brokered settlement .

⁸⁷ Example: Biafra in Nigeria, *Khalistan* in India. Biafra, the province of Nigeria that tried to pull out of the Nigerian Republic failed because it could not mobilise enough international support and the

It is needless to mention that over-compartmentalisation of space into unworkable fragments based on local sentiments alone, which may be at times exaggerated and transient, may defeat the very purpose of attaining separate identity and may lead to a territorial anarchy. On the other hand, denial of autonomy or independence to potentially identifiable distinct spatial units generates spiralling conflicts, causing unnecessary loss of energy and efficiency to the whole system.

However, proper configuration of the spatial units and their sub-units within the global territorial system remains the most crucial and challenging aspect of space administration. In this regard identification of spatial regions with strong systemic characteristics and their recognition as distinct politico-administrative units may be deemed desirable and necessary to contain territorial conflicts, or at least to bring it down to tolerable limits.

Here we may have two situations. In the first case this may lead to 'isolation', where the space concerned is cut off from others and allowed to take a totally isolated course.

We call it the EXCLUSIVE REGIONALISATION, or the isolationist approach.

Advocates of this approach may argue that energy, intrinsic to any reasonably identifiable spatial unit, however small, with a reasonably integrated population, must have systemic properties and if conserved and managed properly, it should grow and create enough resources to sustain the system. Here the stress is on *conservation*. As the latest technological breakthrough reduces the comparative importance of natural resources, increasing the role of skill and intellect dramatically, and as the decreased cost and time for transportation devalues *locational* advantage of traditional industrial hubs, the necessity to be 'big' or 'nodal' is no longer absolutely essential for growth and advancement.⁸⁸ The little

disruption of supply lines caused acute famine taking heavy tolls and brought misery to the population. In the case of *Khalistan* the terrain was not clearly identified. The Sikhs are spread all over India in great numbers and their concentration in Punjab is not exclusive, about half of its population being non-Sikhs. The other disadvantage for them was that the land that they claimed as *Khalistan* was landlocked having no friendly neighbour, or direct international outlet.

⁸⁸ Thurow (1996) comments: '.... some of the wealthiest countries of the world (for example, Switzerland, Austria, Norway, Sweden) and some of the fastest -growing countries in the world (Singapore, Hong Kong, Taiwan) are small -- often nothing more than city-states.'

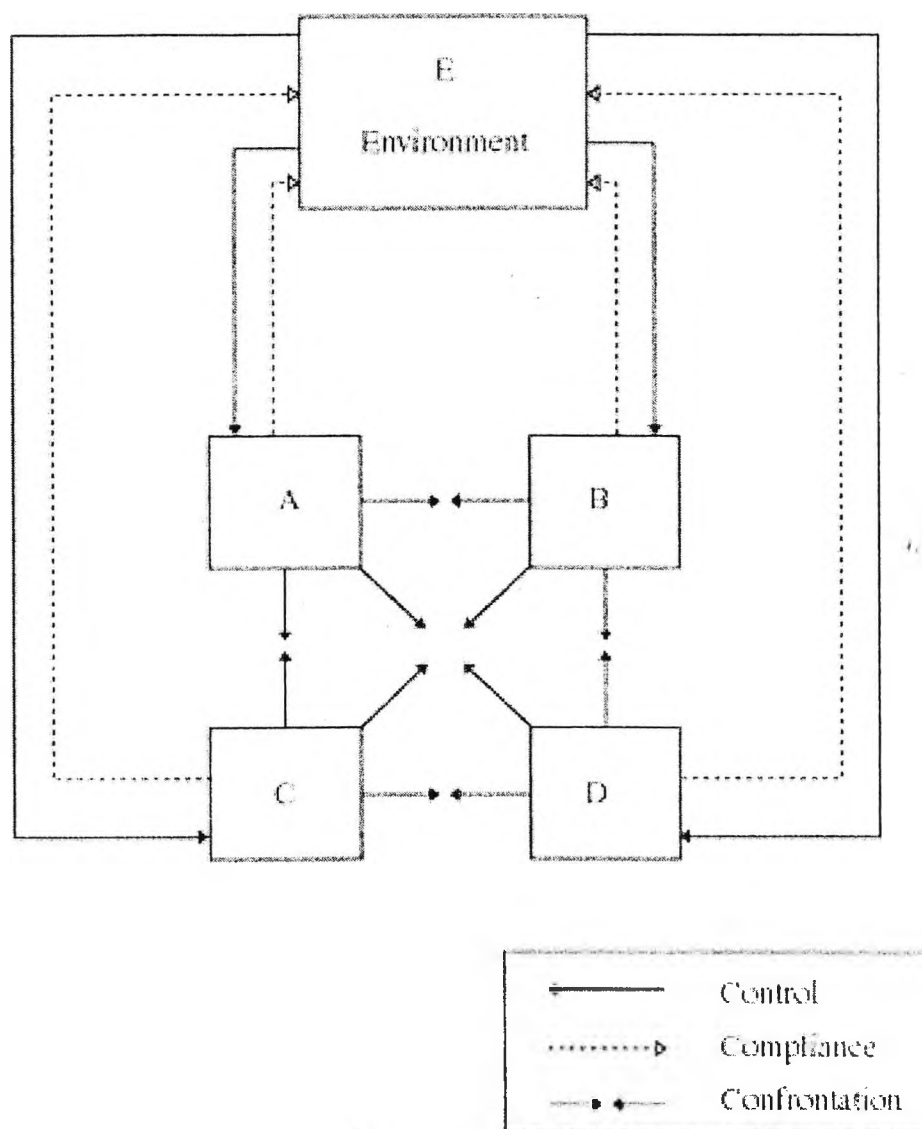


Fig. 3.4.A : Exclusive regionalisation

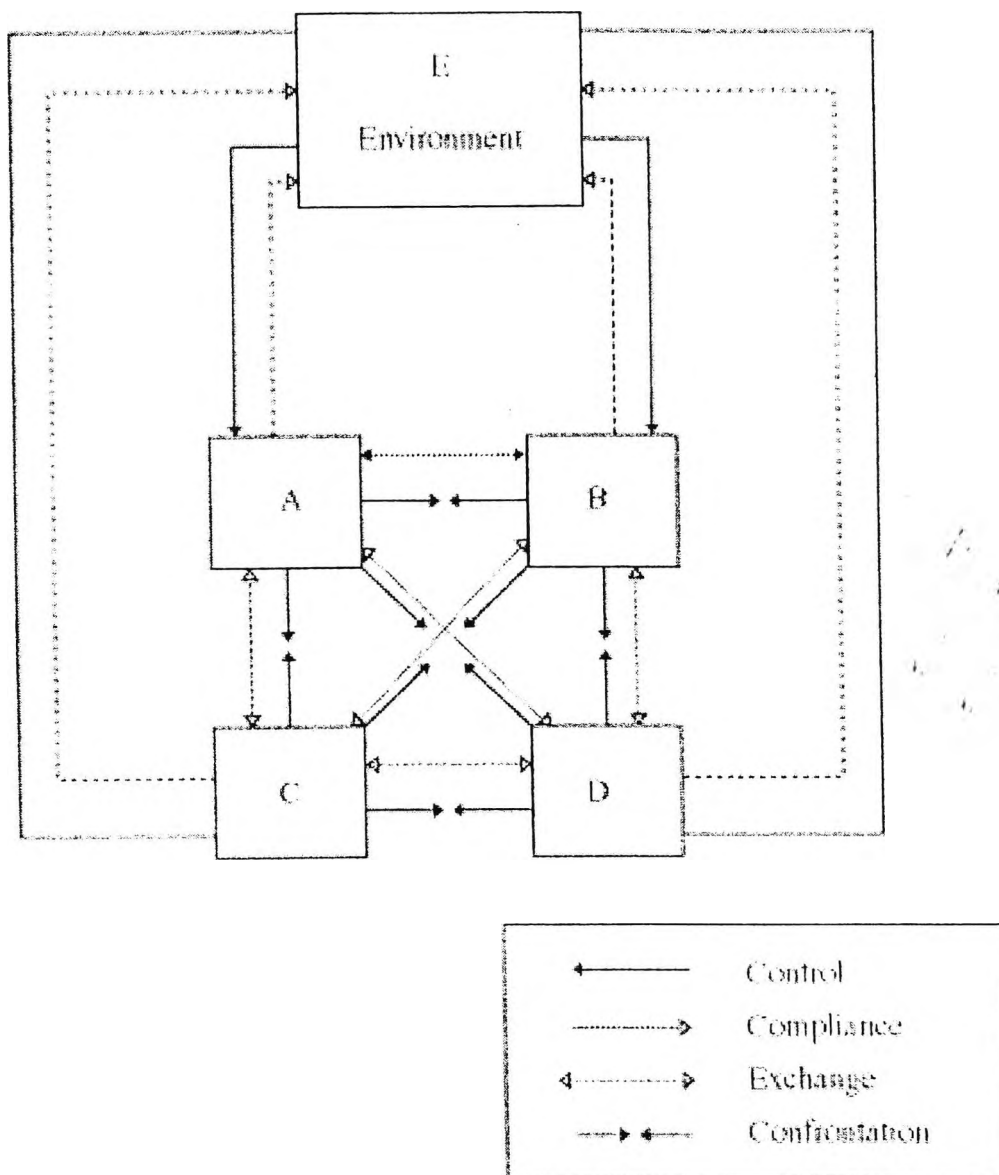


Fig. 3.4B : Interactive regionalisation

'Tigers' in the present day world economy like Hong Kong, Taiwan, Singapore, South Korea and Malaysia give weight to this argument. Countries practising an isolationist stance on the regional scenario, like Israel, Cuba, Burma or Iran, may also be cited as examples.

Fig. 3.4.A gives a structural pattern of exclusive regionalisation, where the four regional units, A, B, C and D confront each other and therefore have no direct interaction. All of them, however, maintain both control and compliance relations with the environment. Whatever interaction they have between themselves is through the environment, indirectly.

3.6.4 The interactive regionalisation : the equilibrium approach

Regionalisation, however, should not always mean segmentation into mutually exclusive units as described above. In the present world there is little scope for living totally isolated, although the tendency of self identification is always there. The ideal situation is the *simultaneous* 'regionalisation' and 'co-ordination', where regional identities are recognised properly and at the same time all such regional units develop proper interfaces for mutual exchange between themselves for mutual benefit.

We call it INTERACTIVE REGIONALISATION or the equilibrium approach. **Fig.3.4.B** depicts a situation where the four spatial units have both the *exchange* and *confrontation* relations between them and also with the environment. This creates an interactive combination which tends towards a state of *equilibrium*, with a varied degree of success. This may lead us to three situations: a) Sub-regional entities are recognised and accommodated within a unitary State framework (example: the UK endeavour to accommodate regional aspirations of Scotland, Northern Ireland and Wales); b) Regional units (states or provinces) mutually agreeing to join a federal State structure (example: the US, Switzerland , etc) and c) Independent States delegating a part of their sovereignty to a regional grouping of States. (e.g. the EU).

3.7 UNDERSTANDING THE SPATIAL BOUNDARY

'It is along the borders that one can best appreciate the acuteness of (the) perpetual struggle over space in global politics' – O'Tuathail (1996)

3.7.1 Growth of the boundary

The boundary of a spatial system is essentially the product of human habitation and its interactions on the space, both internal and external. Thus in prehistoric days when a certain number of human beings, forming a family or a clan, lived together asserting their 'sovereign' rights on a specific terrain, we got the earliest prototype of a 'State' by the combination of land and people.

It began with the semi-permanent human settlements in the early Stone Age when the hunter-gatherer early Man gradually shifted to agriculture and thereby drew an imaginary boundary around his home and hearth, where he would not allow any alien to intrude.

Boulding (1985) traces the earliest political system on our planet in the kin groups or extended families of the pre-agricultural days. According to him 'even the nuclear family of parents and children' has political aspects. A family is thus a mini-state with its own 'sovereign' in the parents.

The basic constitution and management of a family has not changed much over time. As in the days of hunting-gathering, the head of a modern family together with its other earning members goes out of the 'home' every morning to earn and fetch the necessities for other non-earning members of the family. A modern family also picks up a living space where it can manage its living and moves from one place to another in search of a better living, just as the hunter-gatherer family moved from one place to another in search of a better *catch*. Thus the basic *culture* of the family has remained unchanged over the last 40,000 years or more.

With the increase in human population it became increasingly difficult for small family units to survive in isolation. It became necessary to group several families together in a given space. The shift from the 'kin based group' to the 'habitat based group' was a revolutionary change. In the words of Sir Henry Maine and Lewis Morgan it was indeed 'a fundamental transition in political terms'.⁸⁹

⁸⁹ Boulding (1985), *The world as a Total System*, Sage, London.

The most important characteristic of a domicile-based group was that it now admitted non-kin into its fold and thereby its size expanded based on the sustaining capacity of the terrain under its control. Being settled at a given habitat this new human conglomeration now looked to more permanent modes of sustenance. Agriculture was its most revolutionary innovation. The next was the development of language. Agriculture and language together gave the human society the necessary instruments and platforms for more intricate societal interactions. It may be argued that small families (kin groups) living in isolation could not have developed languages beyond a few most essential expressions. It is obvious that wider non-kin interactions required more and more expressions and vocabulary. The non-kin habitat based societies also needed nodal centres to control wider space. That eventually turned into cities. Boulding (1985) considers that no pre-agricultural society ever really developed cities or empires.

3.7.2 Dimensions of a boundary

A geographical boundary is defined by a one-dimensional line of demarcation that separates a system from its environment on a two dimensional plane.

The third dimension

This traditional two-dimensional boundary⁹⁰ is now being threatened by the newer modes of communications of modern times introducing a third dimension⁹¹ allowing penetration or intrusion from the sky. Today even the most interior part of a State may be reached from above, since there is no physical barrier to demarcate boundary of the space upwards. Bunge calls it "today's *three dimensional geography*"⁹² and asserts that this new phenomenon of 'three dimensional geography' makes State boundaries almost redundant.⁹³

The fourth dimension

With the revolutionary developments in the field of electronic communication, national boundaries are now violated from another direction also -- through the invisible *electronic super highway*. This in reality adds another dimension to our concept

⁹⁰ Length and breadth.

⁹¹ Height.

⁹² Bunge (1987)

⁹³ *ibid.*: The two 'Gulf Wars' manifest this argument.

of boundary. Extending the proposition of Bunge we may call today's geography as being *four-dimensional*.

3.7.3 Non-Spatial boundary

So far we have looked into spatial regions, that is regions based on geographical space. However, a given geographical space is meaningless without habitation. It is worth only when it has some kind of human habitation, permanent, or, temporary. Therefore, *population* becomes the most important factor in defining and describing any region. A vast stretch of territory without any population hardly demands any attention.

Now the population of a given region may be composed of different strains of ideology, religion, ethnicity or group interest spread all over the territory. When divergent groups or segments of population are spread and mixed all over a territory their territorial segmentation is not possible. We need then to draw demographic or 'Diasporic' boundaries. We call them *non-territorial* boundaries. In this regard Thurow points out the present day situation in United States:

“ In the United States, demands show up not as geographic separatism but in demands for ethnic quotas and privileges. Every American citizen can now claim to belong to a minority group”⁹⁴.

Harm J. de Blij (1973) identifies 'emotional nationhood' and cites as example the French speaking Belgians who feel 'stronger emotional ties with France than with their own country'. Similarly, the Bengali speaking people of the then East Pakistan felt [before 1971] 'more in common with their neighbors across the border in India than their own countrymen in West Pakistan'.⁹⁵

3.7.4 Electoral boundaries

Modern States, being governed, at least theoretically, by public representatives, the question of "representation" and the mode of selecting or electing such representatives attains cardinal importance in the formulation of any theory for space administration.

In a democratic society, *who rules the country* is determined by *who represents the people* and to determine this representation periodic elections have become the general norm.

⁹⁴ Lester C. Thurow (1996), *The Future Of Capitalism*, Penguin (1996)

⁹⁵ Harm J. de Blij [1973], *Systematic Political Geography*, John Wiley, New York.

Electoral *constituencies* are carved out generally on the basis of geographical segmentation. Here fixation of the boundaries of the constituencies is crucial, which effects the outcome of the elections in so many ways. A constituency may be carved to suit certain candidate, party, or community. On the other hand slight change in the delimitation, excluding or including given pockets of voters, may effect the outcome of the election drastically.

In a population divided by religion, race, caste, ideology or some other denomination, mere geographical segmentation may not properly satisfy the group interests of different contesting Diaspora, particularly the smaller groups or the minorities. The most widely used solution in this regard is the 'proportional' system of representation⁹⁶.

Thus two distinct types of electoral representation is found in practice today:

- i) the Majoritarian system, and**
- ii) the Proportional system.**

In the Majoritarian system electoral constituencies are geographical and distinctly separate, each constituency electing one representative on the 'one man one vote' basis and the outcome decided on the 'first past the pole' principle. In this system votes are distributed among several parties and a party may sweep all the seats with minority votes.

In the Proportional system the entire country or part of it constitutes a '*multi-member constituency*' and several representatives are elected from one such common constituency who represent it collectively, where the electoral outcome is determined proportionate to the votes received by the parties or panels of candidates. In this system generally no party can *sweep* the election and smaller parties who could have never won a seat in the majoritarian system may get seats proportionate to the total votes polled by them.

The basic principle guiding these two systems is clearly different and applied to the same societal setting they produce strikingly different patterns of representation.⁹⁷

3.7.5 Types of boundary

⁹⁶ For a detailed discussion on the issue : Arendt Lijphart(1984), *Democracies*, Yale University Press.

⁹⁷ Andrew McLaren Carstairs (1980), *A Short History of Electoral systems in Western Europe*, George Allen and Unwin, London.

E. Huntington (1951) describes the characteristics of boundaries in the following words:

'Many political boundaries depend on land forms, water bodies, soil, minerals, climate, vegetation and even the distribution of animals. Many others depend on the distribution of races, languages and religions or upon the ability of strong countries to take territory away from weak ones.'⁹⁸

On the horizontal territorial plane we have three different possibilities, giving rise to three types of boundaries:

a. *Fuzzy boundary*-- Extended frontier (**Fig 2.5a**)

There may be a situation where the system is bounded by an extended frontier leaving the boundary nebulous or undefined. This may be a tract of space where the system concerned and its environment (or, another contending system) overlap their authority.

b. *Porous boundary*-- Limited frontier (**Fig 3.5b**)

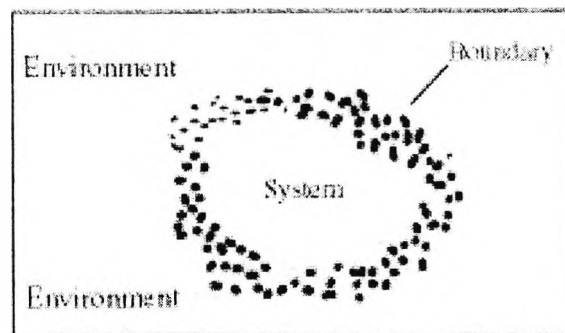
There may be another situation where the *extended frontier* gradually gives in to the pressure from the opposite sides and shrinks to a narrower strip of space allowing penetrations from either side, giving us a *porous boundary*. Here the boundary is more or less defined, but not at all points or on all sectors, leaving holes in it.

c. *Closed boundary*-- No frontier (**Fig 3.5c**)

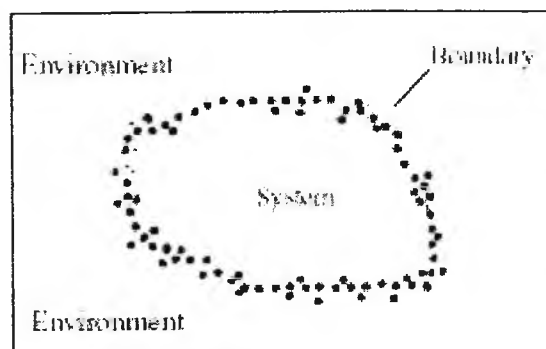
There may be a third situation where the boundary is a well defined line of demarcation and under the total control of the system administration, leaving no holes for unauthorised exchange. This gives a *closed boundary* and no frontier.

As stated earlier, most of the boundaries of present day Nation States are products of historical events or accidents, in many cases having little or no reference to the spatial imperatives or system dynamics. In other words, State boundaries are generally legacies of historical developments or products of time constrained group interactions, often directed by mere individual or personal choices of the decision makers of a given period or simply imposed by external factors unrelated to the space concerned, serving external interests only.

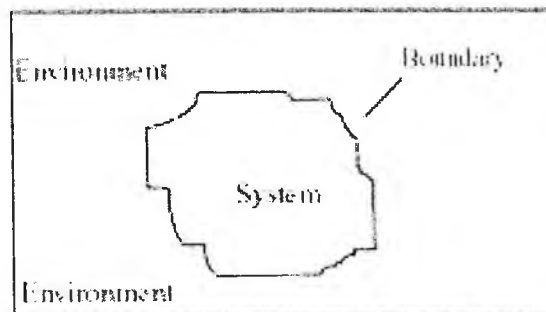
⁹⁸ E. Huntington (1951), *Principles of Human Geography*, New York.



A. Fuzzy Boundary : Extended Frontier



B. Porous Boundary : Limited Frontier



C. Closed Boundary : No Frontier

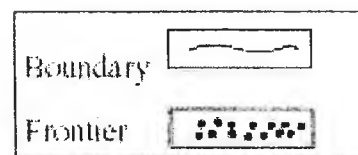


Fig. 3.5: Boundary and Frontier

An ideal boundary shall be the one that grows out of systemic interactions, nothing being imposed externally. From this point of view we may identify two types of boundaries : *Systemic* and *non-systemic*.

J. Gottman [1951] mentioned *antecedent boundary* and *subsequent boundary*, where an antecedent boundary is one which forms the foundation of a spatial demarcation that is subsequently altered or improved through negotiations between the contending parties.⁹⁹

Thus a non-systemic antecedent boundary may be improved subsequently to attain a more systemic structure.

Gottman also identified four different types of boundaries from different perspective: Physiographic, Anthropogeographic, Geometric and Indeterminate.¹⁰⁰

3.8 BOUNDARY FROM A SYSTEMS PERSPECTIVE

3.8.1 System and its boundary

From systems thinking, "boundary" may be looked upon as the *watershed* between a system and its environment. In the case of a watershed between two river basins there is little or no flow of water from one basin to the other across the watershed, which is generally the dividing line from where water flows towards opposite directions. Similarly, across a *system boundary* exchanges tend to be non-existent, or insignificant compared to the exchanges within the concerned system.

Spatial systems may have both horizontal and vertical boundaries. When we consider the two dimensional surface of earth to be divided into geographical units, we get the horizontal segmentation. On the other hand, if we look to different levels of spatial organisation from a individual or family dwelling house at the lowest level to the world system at large, we get the vertical segmentation.

From the geographical aspect regionalisation of space is horizontal. But, the moment this geographical space is acted upon by human beings, the situation changes dramatically. Regionalisation of the geographic space now fragments various other non-territorial societal systems as well, like transport networks, languages, ideological linkages, economic and commercial exchanges and so on. Here we have both horizontal and vertical segmentation which

⁹⁹ J. Gottman [1951] ' Geography and International Relations; in *World Politics*, New Haven.

¹⁰⁰ Ibid.

produces a complexity that can not be depicted by a two dimensional model.

This requires the introduction of the concept of *hierarchy* and the situation becomes more like the parable of the *Chinese boxes* described by Simon (1973).¹⁰¹ We shall look to the question of 'hierarchy' further in chapter 7.

3.8.2 Functional attributes of boundary

As the world shrinks dramatically in terms of communication coupled with the exponential increase in the interactions and exchanges between spatial units, there are many who would believe that nation State boundaries are bound to wither away very soon. Isaiah Bowman (1934) wrote,

"The process of regional regrouping goes on ceaselessly in the economic sphere and ignores the artificial boundaries of countries and States."

That was a time when the communication revolution of the later twentieth century, such as the electronic super highway, was inconceivable. Today, when 'head to head' communication between individuals ignores all national or international barriers and the globalisation of trade, commerce and industry makes it impossible for any Nation or State to remain isolated from the process, Bowman's assertion may appear to be all the more convincing.

But there are people who would hold a completely opposite view. As John Naisbett writes:

"Unified Europe is doomed to failure. It fails to reconcile that although people want to come together to trade more freely, they also wish to be independent politically and culturally. ...As the world becomes more universal, people will strive to retain more of their ethnic identities, including their languages, cultures and even customs. The tension between the universal and the tribal is likely to increase, not diminish"¹⁰².

However many would not agree to such assertion. In general the EU is taken to be making steady progress towards co-ordination and consolidation, although there is certainly strong opposition

¹⁰¹ Simon comments: "Hierarchy in complex systems is like a set of Chinese boxes. One box encloses a second box, which, in turn, encloses a third-- the recursion continuing as long as the patience of the craftsman holds out." -- Herbert A. Simon, 'The organisation of complex systems', in *Hierarchy Theory*, Howard H. Patte ed. (1973), George Braziller, New York.

He however mentions a difference: "While the ordinary set of Chinese boxes is a sequence, or a complete ordering of the component boxes, a hierarchy is a partial ordering. Specifically, a tree." -- *ibid*.

¹⁰² John Naisbett (1995), *Global Paradox*, International Herald Tribune.

in many member countries, who are afraid of losing their national identity, which they wish to retain at any cost. Whatever is the situation inside Europe, the EU exercise is being watched closely by others in other parts of the world. Whether it can become a role model for other regional grouping will depend much on the developments in next few decades.

It must also be recognised that such supra-national unity may not remove the inherent craving for separate identity of local patriotism. That such craving has not diminished in any way on the European soil, even against the backdrop of the EU, is amply demonstrated by the latest development within the United Kingdom, where nationalist aspirations of the people of Scotland and Wales had to be recognised by granting them separate parliaments with given powers and functions.

Nesbitt thinks that just as the companies are decentralising and computers becoming smaller, so too will States, giving rise to a new era of self-rule and "a world of 1000 countries".¹⁰³

In today's world, geographical boundaries of the Nation States are becoming more and more porous allowing intense interactions, but in no way it signifies that State boundaries are withering away. In spite of all the internationalisation, Nation States around the globe are all found to vie with each other, especially with their immediate neighbours, for the possession of even small patches of territories. For all practical purposes possession and effective control of the ground has remained vital to the space administration. Claims and counter claims of sovereignty over territories still dominate the global scenario both horizontally and vertically.

Looking from a different angle, The ever-increasing visa restrictions in international travel is a pointer to show that although interactions and interdependence between Nation States is on the increase exponentially, the *desire of self preservation* in individual Nation States has not diminished in any way. Countries within the same economic blocks are liberalising movements and exchanges between themselves, but severe restrictions are being imposed one after another to prevent movement from one block to another.¹⁰⁴

Therefore, State boundaries do exist today and probably shall exist for a period much longer than predicted by those who prophesise the disappearance of State boundaries in the near future.

¹⁰³ John Naisbitt, op. cit.

¹⁰⁴ Thurrow (1985)

On the practical side of it, boundaries appear to be unavoidable and necessary instruments for better and effective administration of the space and for the survival of the different national identities in the midst of the fierce competition in an atmosphere of the survival of the fittest. In the words of Haushofer, the boundary of a nation state today is a '*biological battlefield in the life of the people*'.¹⁰⁵

We shall now discuss the specific utilities and functional attributes of spatial boundaries in general.

a. Boundary as a means of identification of building blocks

A boundary demarcates and as such identifies different systems from one another. We have the "simple" systems and "compound" systems, where a simple system is one composed of a single set of elements with identical or near identical attributes and a compound system is one having several distinctive sets or sub-sets connected through certain common attributes. The boundary identifies the building blocks in such a complexity, where the different blocks demarcated by the boundary are, more or less, homogenous. In real life we find not only the State boundaries, but also boundaries drawn to demarcate difference provinces, counties, villages etc. to facilitates identification.(Fig. 3.6a).

b. Boundary as a container for energy conservation

In the context of space management, boundary plays a vital role in conserving the internal energy of a given spatial system. In this regard boundaries may be seen as the outer surfaces of a container of fluids defining and limiting the quantum of the contents and also conserving the same. In real world situations without fixing territorial boundaries it will be almost impossible to plan any economic development of a region. In fig. 3.6b the deflecting arrows show how boundary restricts the population and the resources of a given territory from spreading away.

c. Boundary as an instrument for conflict resolution

A boundary is also a useful instrument for conflict resolution. A boundary between two spatial systems acts as the buffer, without which elements of conflict between them may increase manifold harming both the systems. In plain terms a boundary between two territorial regions defines and identifies the conflicts and communications between them and thereby makes containment or resolution of conflicts easier (Fig. 3.6c)..

¹⁰⁵ Mentioned by Harm J. de Blij [1973], *Systematic Political Geography*, John Wiley, New York.

d. Boundary as reservoir of sovereignty

The concept of "Nation State" as the principal depository of "sovereignty" gives Nation States an all-pervading authority over its territory and population. The United Nations' charter makes international boundaries sacrosanct, allowing unhindered and unlimited authority to the States over the territory within their recognised boundaries. Thus boundary acts as the reservoir of sovereignty. This is proved even by the events of occupation of a given territory by external powers, such as observed in recent happenings in Iraq. Here, immediately after the occupation, the occupation forces have declared their intention to hand over the sovereignty of the country to an elected government of that country as early as possible. That means the boundary of the country plays an effective role even after the total annihilation of its State machinery. In **Fig. 3.6d** the deflecting arrows from outside depict the strength of the boundary in shielding the territory and the arrows from inside depict the internal resistance. This could not happen with an undefined or nebulous frontier.

e. Boundary as the regulatory valve for exchange control

A boundary that separates two spatial systems acts as the gateway between the two and thus controls the cross boundary exchanges acting as a regulatory valve (**Fig. 3.6e**).

f. Boundary as the facilitator of internal communication

Boundary facilitates communication and interaction between the elements bounded by it. Being deflected at the boundary the internal communication becomes more intensive, that leads to the territorial integration. In the absence of the boundary such communication could flow outwards unhindered at the expense of the local networking. Fig. 3.6f shows how boundary augments the internal communication network.

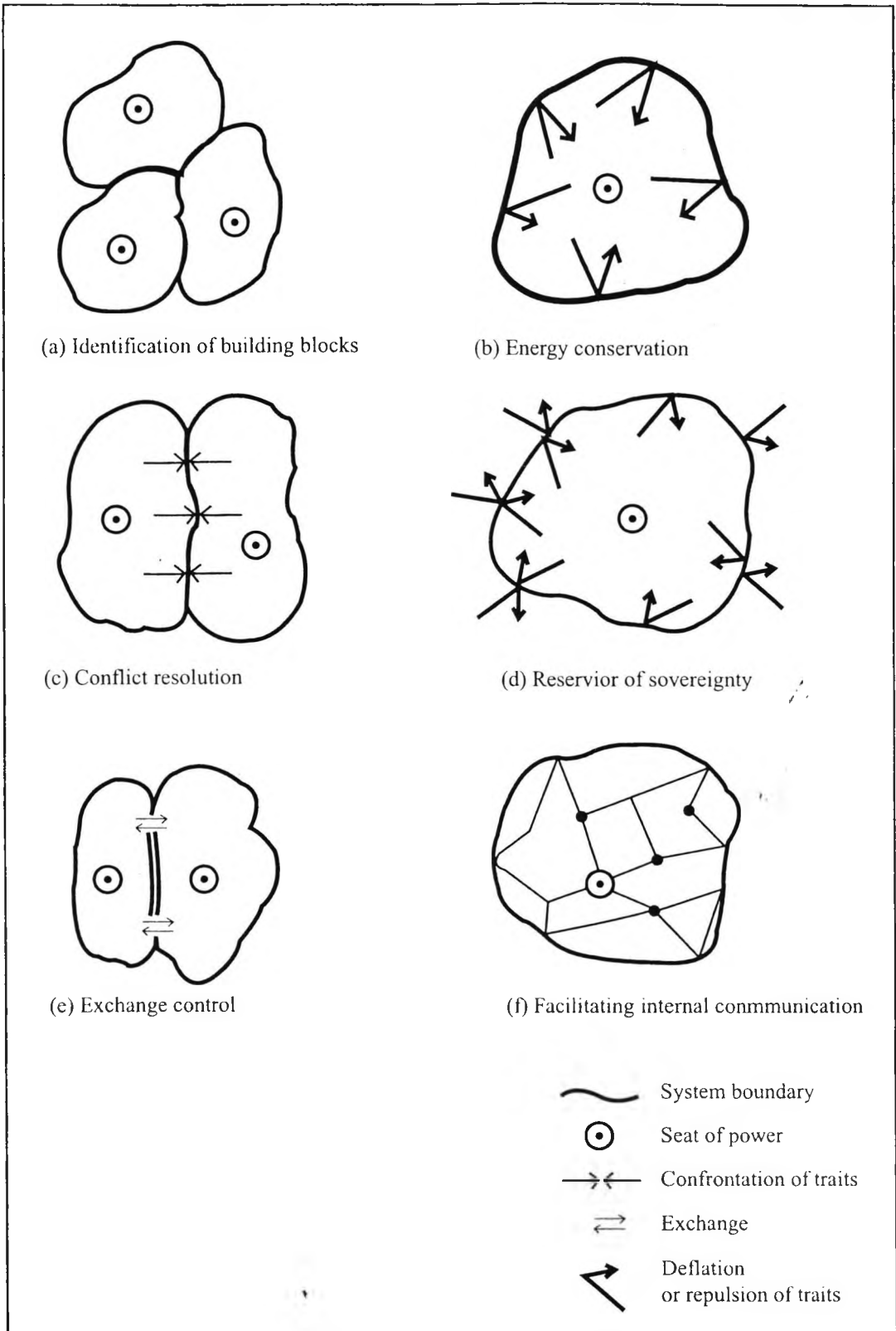


Fig. 3.6 : Different Functional Attributes of Boundary

3.8.3 Fixing the boundary from systems perspective

The 'single trait' and the 'multiple trait' representation

In characterising a spatial system one can identify different traits of the system separately and measure the prevalence of such traits over the given space and locate the watershed and thereby the system boundary.

Based on the divergence of traits, the simplest system is a single trait system where the system is comprised of only one trait, say, religious or ethnic denomination, with the entire population belonging to the same religion or ethnic identity. Such a system may be represented by a neat circle as shown in **Fig 3.7a**.

The next situation to be considered is where a single trait on a given space is observed not to cover the whole area or having differences in its prevalence over different parts of the concerned space. Part of the population or territory may remain outside the trait and at some points areas outside the space under consideration may show the same traits. Such systems may be represented by a 'distorted circle', i.e. a circle with its circumference having inward depressions and outward protrusions. This may be called *single trait distorted or uneven distribution system* (**Fig 3.7b**).

To demonstrate that a system is composed of numerous traits we may draw single trait projections for all the observable traits separately and construct the complex system by their superimposition. In **Fig 3.7c** such a system where several traits have been represented by several concentric circles has been shown. These circles have been made unequal to show that the traits differ in their strength and prevalence although they encompass the concerned space evenly. This may be called an ideal multi-trait system. (For a strictly ideal situation, where the traits are equally prevalent all over the system these circles should be of equal radii and therefore coincide.)

In **Fig. 3.7.d** shows a system with different traits covering the concerned space in different degrees of prevalence and strength. We represent such traits by 'distorted circles' which may or may not be concentric. Obviously, such a system will not have any specific central node.

In practical fields, identification of the different traits of a system and the evaluation of the extent of their coverage over system concerned may give a clearer picture of its structural integrity of a territorial unit. Fredrerick Ratzel [1923] writes, 'The strongest States are those in which the political idea completely fills the body

of the State in all parts. Those sections of the State in which the idea does not gain acceptance fall apart'.¹⁰⁶ Here 'political idea' (together with other shared values or common identity of the population), being system traits, may be depicted graphically to show their coverage of the national space, which in turn should give the level of national solidarity.

3.8.4 Constructive and disruptive boundary

A properly constituted boundary evolved through a process of natural adjustments and re-adjustments over a period of time, or

being based on clearly defined and identifiable parameters, gives an efficient spatial system. This type of boundaries may be called - **constructive boundaries**.

On the other hand a boundary imposed around a landmass, ignoring the natural system demands, causes loss of energy and efficiency. Such "superimposition" brings system distortions and consequent conflicts within and without the boundary, thereby causing further loss of energy and efficiency to the entire system, which affects the neighboring systems also. This type of boundaries may be called **disruptive boundaries**.

3.8.5 Equilibrium of the boundary

A system remains unstable until its boundary attains equilibrium. Boundaries based on sound historical and systemic foundations attain equilibrium through the very process of their evolution. Unnatural boundaries may also submit to temporary equilibrium due to extraneous factors, such as recognition of the outside world,¹⁰⁷ or through the active support of stronger powers and acceptance by neighbours.

Thus equilibrium may be **static**, **dynamic**, or **coercive**.

a. Static equilibrium: the melting pot

In this situation when centripetal forces are too great and centrifugal forces are too weak, component units cling together in harmony through complete fusion forming a compact entity- a true *Melting Pot*.

¹⁰⁶ Fredrich Ratzel (1923), *Politiche Geographie*, as quoted by R.J. Johnston (1979), in *Political, Electoral and Spatial Systems*, Clarendon Press, Oxford.

¹⁰⁷ The so-called *mini* or *micro* States around the world exist only because they are recognised as such by others.

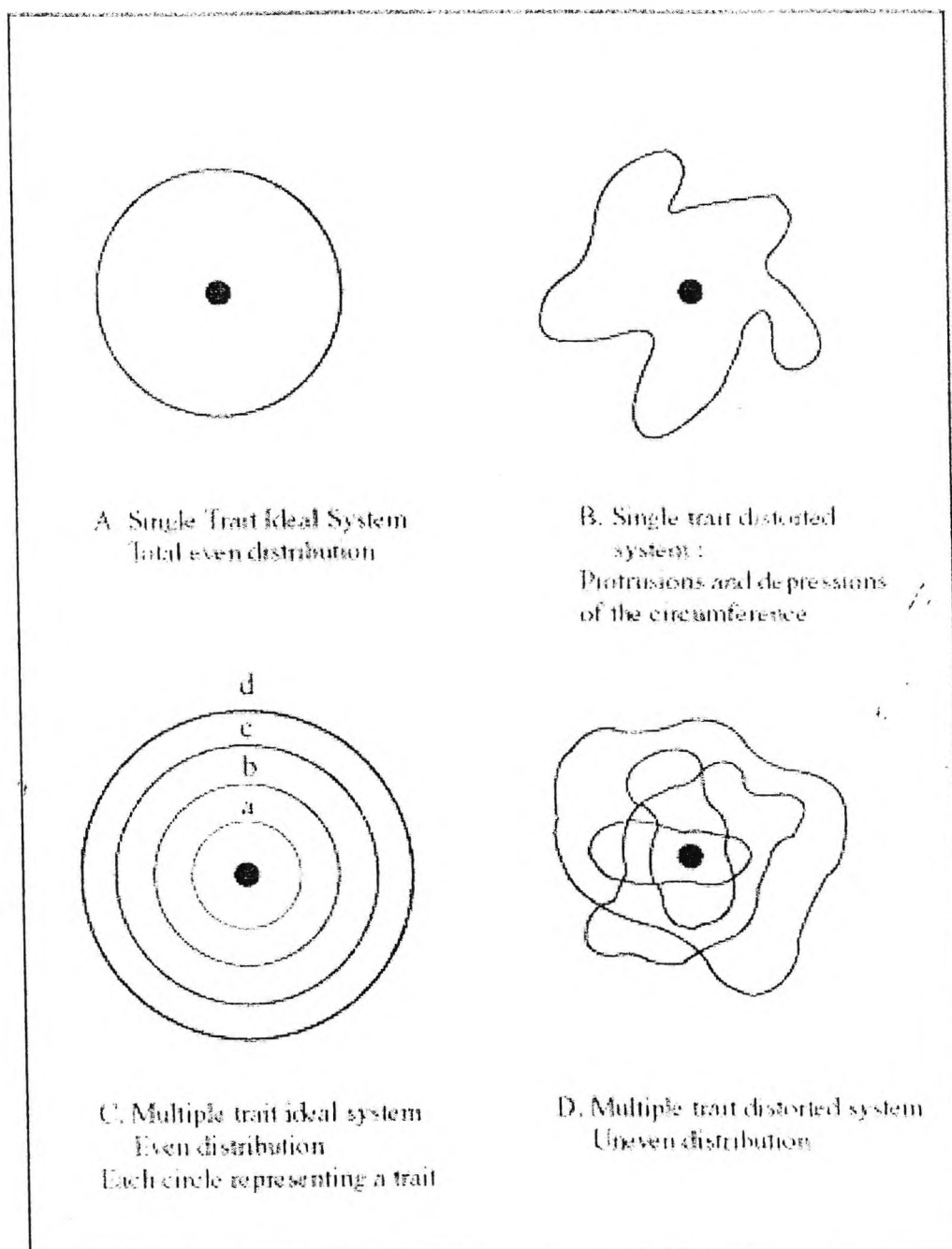


Fig. 3.7: Representation of systemic traits of spatial systems

b. Dynamic equilibrium: homeostasis

In this situation both the centripetal and centrifugal forces are equally strong. Therefore interactions between the components are also high; but the system on the whole attains equilibrium in a state of *homeostasis*.

c. Coercive equilibrium: extraneous compulsions

Here the component units have more discord than accord, but extraneous forces or circumstances compel them to carry on together.

3.9 THE SUPERIMPOSITION OF SPATIAL BOUNDARY

3.9.1. Impact of superimposition

When state boundaries are drawn arbitrarily without any reference of the systemic imperatives we call it **superimposition**.

Superimposition of boundaries usually gives rise to *recalcitrance*. The superimposed boundary puts together divergent elements to form unwieldy conglomerates, confronting each other on different issues.

Such recalcitrance may be either **passive** or **disruptive**, depending on the nature and degree of conflict.

In some cases superimposition may also induce synthesis. This synthesis may again be the result of either **acclimatisation** or **resignation**.

Divergent spatial units, having been forced to stay together, may gradually evolve common identity through mutual interdependence and get acclimatised. This type of development may produce permanent union, comparable to that of a '*chemical compound*', where components lose their individual properties and attain new collective attributes.

In certain cases recalcitrant units may be too weak to react under given circumstances and may find the situation as *fate accompli* and resign to the status quo. Such union through resignation generally remains superficial, something like a '*mechanical mixture*', where components get intermixed without giving up their individual properties.

3.9.2 Distortions of the boundary

As it has been indicated earlier, superimposition distorts the ideal location or shape of the boundary, which may cause partition of a given system into several units or amalgamate several different systems into one. We may have three different situations:

i. The amputation syndrome

In this situation a distinctly homogenous space entity is fragmented into more than one unit or a part of it is amputated and given to another (**Fig. 3.8.A**).

ii. The siamese twin syndrome

In this case two or more distinct bodies are bundled together due to extraneous circumstances or external dictates to the discomfiture of all of them, creating a situation similar to the proverbial 'Siamese twins' coming out from their mother's womb joined to each other, necessitating surgical operations to undo their union for their survival, or removal of the discomfiture (**Fig. 3..8.B**).

iii. Imposed irredentism

In this situation neighbouring systems or other external forces may induce irredentism inside a system, which was otherwise absent or at least subdued, creating destabilisation or discord within the system (**Fig. 3.8.C**).

3.9.3 Global overview of boundary superimposition

Examples of super-imposed state boundaries around the globe are numerous, though the nature of superimposition in all of them is not identical.

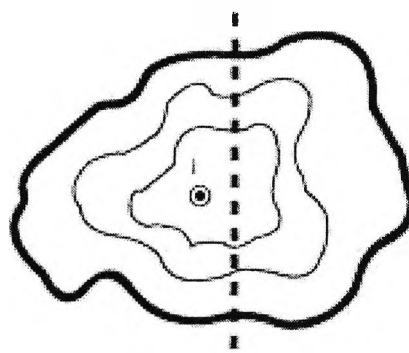
Based on the three different types of super impositions as indicated in **Sec. 3.9.2**, a few examples may be cited:

Type-1: Amputation-

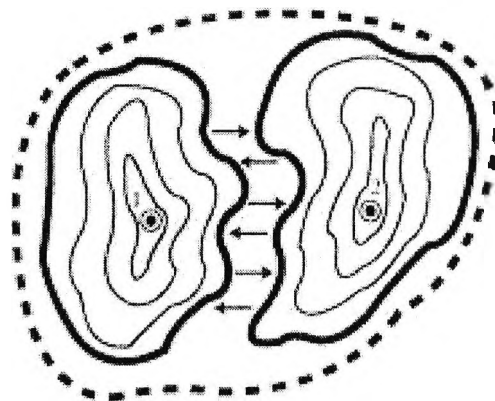
Germany (before reunification), Korea, Yemen, Palestine, Ireland, Cyprus, etc.

Type-2: Siamese twin-

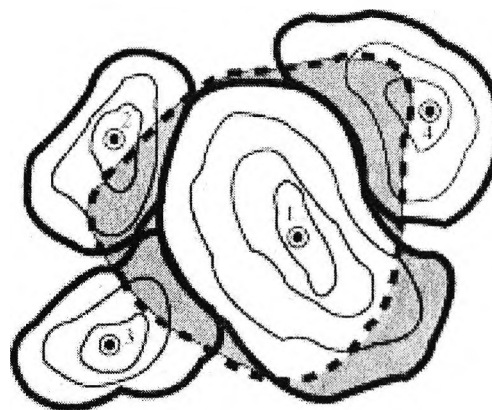
USSR (before the fall of communism), India, Pakistan, Burundi, Sri Lanka, etc.



A. Amputation



B. Siamese Twin



C. Superimposed irredentism

Natural system boundary

Superimposed boundary

Controlling nodes

System traits

Areas of irredentism

Conflict / communication

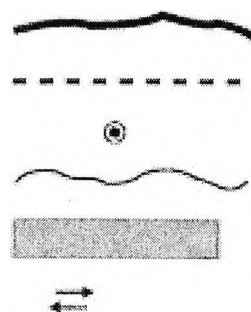


Fig. 3.8 : Types of superimposition

Type-3: Imposed Irredentism-

Most of the present day African States, the Kurds, the Armenians, Cyprus, etc.

This issue will be dealt in more details in **Chapter 7**.

3.10 SUMMARY

In this chapter it has been noted that control and command over territorial space is one of the most fundamental issues that has directed human activities on the earth surface from the beginning. As a result today the earth surface is found to be fragmented into so many units, especially the Nation States, their constituent units and conglomerates.

It has also been noted that spatial systems are complex systems in general, and that human activity systems, like the Nation States, are much more complex.

The concept of 'Systems Geography' has been introduced to look at Geography from the *systems approach/systems thinking*

It has been noted that in order to understand spatial systems we can not employ simple yard-sticks of scientific measurement. We have to look at them holistically, from a multi-disciplinary approach, using an appropriate systems methodology, as discussed in chapter 2 and further developed in later chapters..

In this chapter different attributes and characteristics of spatial units and their boundaries from a systems perspective has been discussed. Different types of relations between spatial systems has also been identified. It has been noted that the boundaries of many present day Nation States have been drawn arbitrarily, causing system distortions of different kinds.

In the next two chapters we shall look into two specific examples of arbitrarily drawn State boundaries that demonstrate two different kinds of boundary *superimposition* and hence two different kinds of distortions, which will be the basis for our discussions in the subsequent chapters.

Chapter -4

BOUNDARY SUPERIMPOSITION : TYPE-I

“CONGLOMERATION” OF SYSTEMS

“India ... is the most easterly part of the inhabited world, ... it contains, .. living creatures, both animal and birds, which are far larger than those to be found in other countries... and ... there is also unlimited quantity of gold there, which is either dug out of the ground, or washed down from the hills by rivers, or taken from the ants, in the way I have described.¹⁰⁸ There are also wild trees which produce a kind of wool which is more attractive and of better quality than sheep's wool, and which is used by Indians for their clothing...

... The Indians live further east in Asia than any one else – further east than any other known people about whom there is reliable information – because beyond them the eastern part of India is sandy and therefore uninhabitable.”

-- Herodotus¹⁰⁹

Introductory notes

In the preceding chapter different types of spatial units and their characteristics and attributes has been discussed. We have discussed different aspects of territorial boundaries and noticed that boundaries of many present day politico-administrative units are *superimposed*, ignoring their systemic imperatives.

Here two broad types of boundary superimposition have been noted:

Type-I: A boundary bundles several distinct spatial systems within a single politico –administrative entity:

Type-II: A singular system fragmented by the arbitrary imposition of boundary.

In this chapter a case study on ‘South Asia’, on the whole, shall be undertaken, looking for the *super-imposition* of the first type.

¹⁰⁸ Herodotus, known as the ‘father of history’, describes a kind of ants ‘bigger than foxes, although they never reach the size of dogs’ found in the deserts of India which brought out gold from beneath while digging their nests underground. He gives a fascinating story of how the Indians went to the desert with their camels to collect that gold and how the ants chased them and there being ‘*no faster creature on earth than these ants.*’ This account, clearly based on hearsay, is not corroborated by facts, but reflects what was the prevailing perception on India in the West in those days.

¹⁰⁹ Herodotus, *The Histories*, Translation: Robin Waterfield (1998), Oxford University Press, London.

The objective here is not to dig deep into the total historical, social, or geographical aspects of South Asia, or its constituents. We shall only try to identify the salient features contributing either to the centripetal or centrifugal tendencies as observed today together with the historical and other relevant factors. We shall not enter into the debates on controversial issues, or into their details. Attempt shall be made only to build a 'data pool' for the study, which, obviously, leaves room for further investigation, improvement and updating¹¹⁰.

4.1 SOUTH ASIA : HISTORICAL BACKGROUND

Archaeological findings from various parts of the sub-continent and observation of ethnic traits indicate that *Homo Sapiens* has occupied this landmass at least since the early Stone Age.

Abundance of flora and fauna, especially in the deltaic and coastal regions, must have facilitated early agricultural settlements in many parts of the sub-continent.

Discoveries at Mahenjodaro and Harappa by the banks of the river Indus (presently in Pakistan) reveal the existence of a highly urbanised civilisation that dates back to as early as 2600BC (Thapar, 2002), which puts it alongside the other earliest civilisations of the world, like those of Egypt and Babylon. These findings indicate that a people with dark complexion and of short stature, who have been named the **Dravids** or the **Dravidians**, abounded the Indus valley in those days (Majumdar, 1943; Ali, 1975).

From ethnological and other studies it is assumed that during the Indus basin civilisation other parts of the sub-continent were mainly inhabited by a people who have been named the **Australoids** or the **Australoids** (Majumdar, 1943).

The present South Asian sub-continent has been known to the West as a distinct spatial entity since antiquity; variously named as 'Indica', 'Hindus', 'Hind', 'India', etc. The name *South Asia*, however, is a recently connoted geographical term, devised to denote all the countries in the region put together, ostensibly to avoid confusion with the present 'Republic of India'.

In the ancient and medieval periods there had been waves of raids by the central Asians into the South Asian soil. The 'Aryans' from central Asia¹¹¹, the Greeks, the Shakas, the Huns, the Mongols, the

¹¹⁰ However, we have depended in this study on standard texts. For the history we have followed mainly Percival Spears (1981 and 1990) and Romila Thapar (2002), both being acclaimed for their depth and unbiased exposition. Eric Hobsbawm, hailing Thapar as 'the most eminent Indian historian', comments on her *Early India* (2002): ... "It is not only the basic history of how India came to be ... but also, not the least, a deconstruction of the myth and inventions....".

¹¹¹ There is an ongoing debate on the very notion of a particular 'Aryan race' entering the sub-continent en-masse and 'civilising' it. It is now considered to be more a myth than reality. Thapar maintains: *Indo-Aryan is in fact a*

Turks, entered the sub-continent at various phases through the mountain passes in the north-west.

On the eastern frontier there is no such recorded history of any large scale invasion. However, there was a steady immigration and gradual incursion by the tribal peoples from north, east and south, mostly of Mongoloid origin. This is manifested in the physical and cultural traits of the present inhabitants of Bangladesh and adjoining regions of India, where a large number of Mongoloid tribes, especially in the eastern flank of the Himalayan range, still retain their original identity.

News and information about India reached modern Europe mostly through the Arabs, who had established trade links with India through the seas routes. Arab sailors used to frequent the western coast of India, the beginning of which can not be dated exactly¹¹². The Arabs conquered Sind in 712 AD and controlled the region for a brief period.

It was the Portuguese navigator Vasco da Gama who was the first European sailor to reach the coast of India. Starting from the Horn of Africa with Arab sailors he reached the western coast of India in the year 1497.¹¹³

The epigraph at the beginning of this chapter tells what was the perception of India in Europe at the time of Herodotus. That conception did not change much even as late as the fifteenth century.

In 1492, Christopher Columbus had sailed westward with an aim to circumnavigate the earth and reach the *eastern coast* of India (South Asia.). This indicates that the geography of Columbus was the same as that of Herodotus, where India (South Asia) meant the entire land mass eastward. The naming of the Caribbean Islands as the 'East Indies' by Columbus, out of the belief that he had really

language label, and is not a racial term. To refer to 'the Aryans' as a race is therefore inaccurate. ... The concept of an Aryan race fell apart. ... Recent genetic studies have invalidated this claim –Romila Thapar (2002), *Early India*, Penguin, London..

¹¹² Arab presence in the western coast and the sea lanes around the peninsula was significant at least during the later part of the first millennium AD. if not earlier. Thaper writes: " ... The Arabs had established themselves as traders on the western coast of India, and some had been integrated into local society in Malabar and Konkan. The Cholas (a Kingdom that flourished in the peninsular India during the 10th to 13th century) would have been aware of the potential Arab competition in the South –East Asian trade, and they tried to strike at the root of this competition by bringing Malabar under their control. At a later date Rajaraja (King of the Cholas, 985-1014) conducted a naval attack on the Maldiv Islands, a stage point in the Arab trade'-- See Romila Thapar (2002) This shows that navigational routes were already well established, and were in a mature stage, reaching up to the South East Asia (and reasonably, -- beyond to China).

¹¹³ Spear writes: They (the Portuguese) arrived by sea with Vasco da Gama in 1497, coming as they said, to seek Christians and spices. The Christians they were seeking were the subjects of the mysterious Prester John and were in reality Abyssinians; the Christians they found were the 'Syrians' of Travancore, probably resident since the fourth century. – Percival Spear (1990), *A History of India*, Vol. II, Penguin, London.

reached the eastern coast of India by circumnavigating the globe, amply corroborates that.

As already mentioned, invaders from outside forayed into this terrain time and again. There were natural migrations as well as armed campaigns. The campaign of Alexander of Macedonia in the third century BC, was the first direct contact and confrontation between Europe and South Asia.

Greek chroniclers who accompanied Alexander have mentioned powerful kingdoms in the Ganges plateau, prevailing at that time, unknown to the West. It is said that Alexander decided not to march forward further east after he was informed of the might of the kingdom of 'Gangariddi' lying ahead. No clear historical record is available about the exact location of this fabled kingdom. However, it is documented that after the mysterious destruction of the Indus valley civilisation, a second wave of urbanisation and state formation started in the sub-continent around the 6th century BC in the Ganges delta with the rise of several regional and local kingdoms including that of Magadha. This was the period which produced Buddha and Mahavira. A society that could produce such great thinkers and social transformers, must have been at a state of high intellectual and material attainment.

The Mouryan empire, which is acclaimed as the first historic empire in the sub-continent was founded in the Ganges plain in 321 BC, only three years after the return or retreat of Alexander. Asoka, the legendary Mauryan King (268 - 231 BC), who is better known for his contribution to the spread of Buddhism, had the entire subcontinent under his control for a brief period.

After the decline of the Mouryan empire again there was a period of local and regional kingdoms. The next dynastic empire which could extend its domain to cover the wider part of the subcontinent was the Gupta dynasty founded in 319 AD which lasted for almost two centuries. After the decline of the Gupta dynasty we again find a period of localisation and regionalisation of political power till the rise of the Pala kingdom in Bengal, which lasted several centuries (770-1120AD) with ups and downs, and at one stage extended its reign over most of the Ganges valley. During this period several powerful kingdoms flourished in the southern peninsular region also, notably the Cholas, in and around the present Tamilnadu.

The advent of the Delhi Sultanate under Qutub-ud-din Aibak (1206 AD) heralded the formal Muslim rule in India, which was consolidated by the founding of the Mughal empire in Delhi (1517AD). During their heyday, the Mughals had their reigns extended to most of the subcontinent.

However, it was the British colonial power, which brought, for the first time, the entire subcontinent under one central authority.

It must be noted that in spite of the imperial or colonial control for a considerable period of time, any unified socio-political structure for the entire subcontinent remained a far cry.¹¹⁴

4.2 SOUTH ASIA : PRESENT STATUS

'South Asia', as it is known today, includes the land mass South of the Himalayas bounded by the Bay of Bengal, the Indian Ocean and the Arabian Sea. The present political structure of South Asia is the product of the formation of several new Nation States comprising the erstwhile British colony and the vassal states in the subcontinent. The "South Asian Association for Regional Co-operation (SAARC)" formed in the eighties includes 7 countries: Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka.¹¹⁵ **Table 4.1** gives the population and area of the SAARC countries. **Fig. 4.1** and **Fig. 4.2** give a picture of the mainland South Asia in 1947 before and after the British withdrawal in 1947. The Maldives, lies further west into the Arabian sea.

The South Asian sub-continent has always been a live stage for the confrontation of the *centripetal* and the *centrifugal* forces and consequently throughout the expanse of history we find here different conglomerations of spatial units, with boundaries of kingdoms or empires changing at every turn of history. On the one hand divergent regions were brought under a single central authority at several stages of history and on the other we find periods when the empires were broken down giving rise to regional, or local powers.

As soon as the imperial powers weakened, forces of diversity showed up quickly and disintegrated the fragile fabric of unification

¹¹⁴ Thapar (2002): India still sustain an extensive range of societies, some even suggesting a stone age condition, this *living history* as it has been called, underlines the continuity of cultural survival.

¹¹⁵ The South Asian Association for Regional Co-operation (SAARC) was formed in 1987 at a summit of the heads of the States of the seven countries of the region held in Dhaka, Bangladesh. However, the process was initiated in 1980 by President Ziaur Rahman of Bangladesh, who mooted the idea of a regional grouping and started a diplomatic campaign to which the initial response was 'mixed'. While all the smaller countries in the region supported the proposal with enthusiasm, the response from India was 'cool'. Ziaur Rahman was assassinated on 30th May, 1981 and the move halted. It was revived again in mid 1980s. (The present writer, being a close associate of President Ziaur Rahman during this period, had the opportunity to witness the trend of events from a close distance).

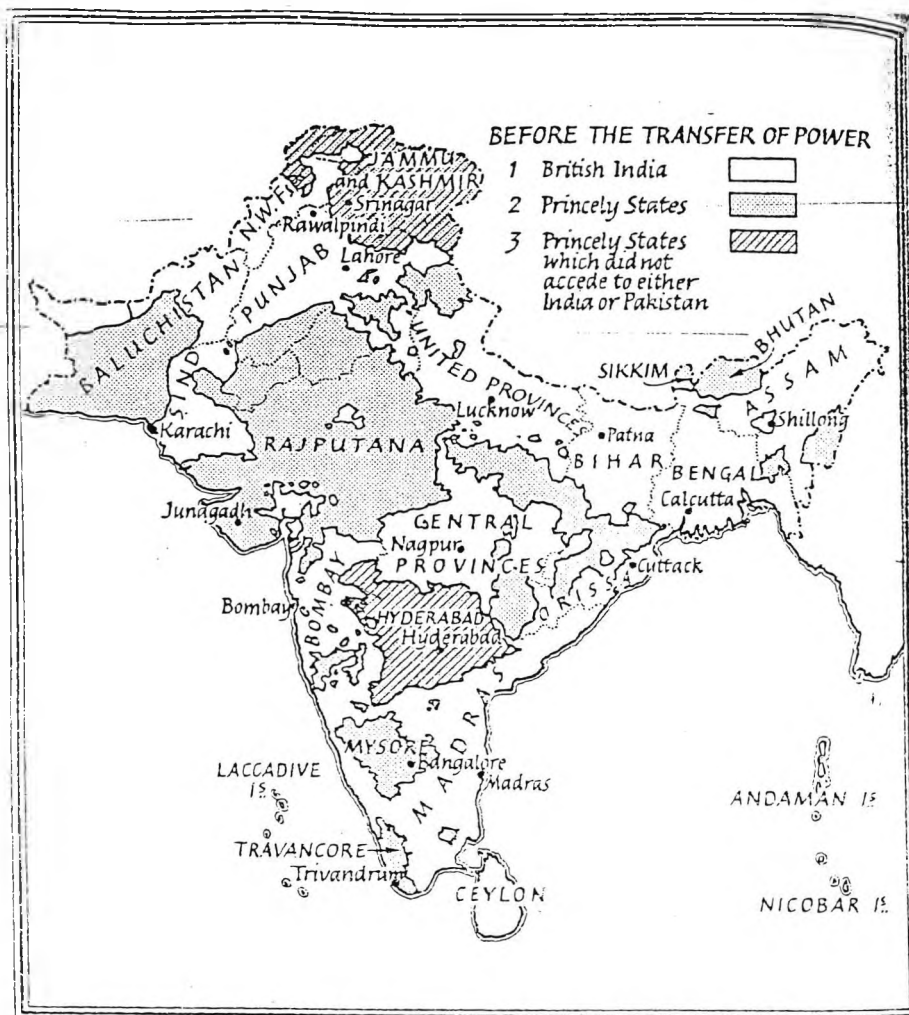


Fig. 4.1 South Asia before partition of 1947

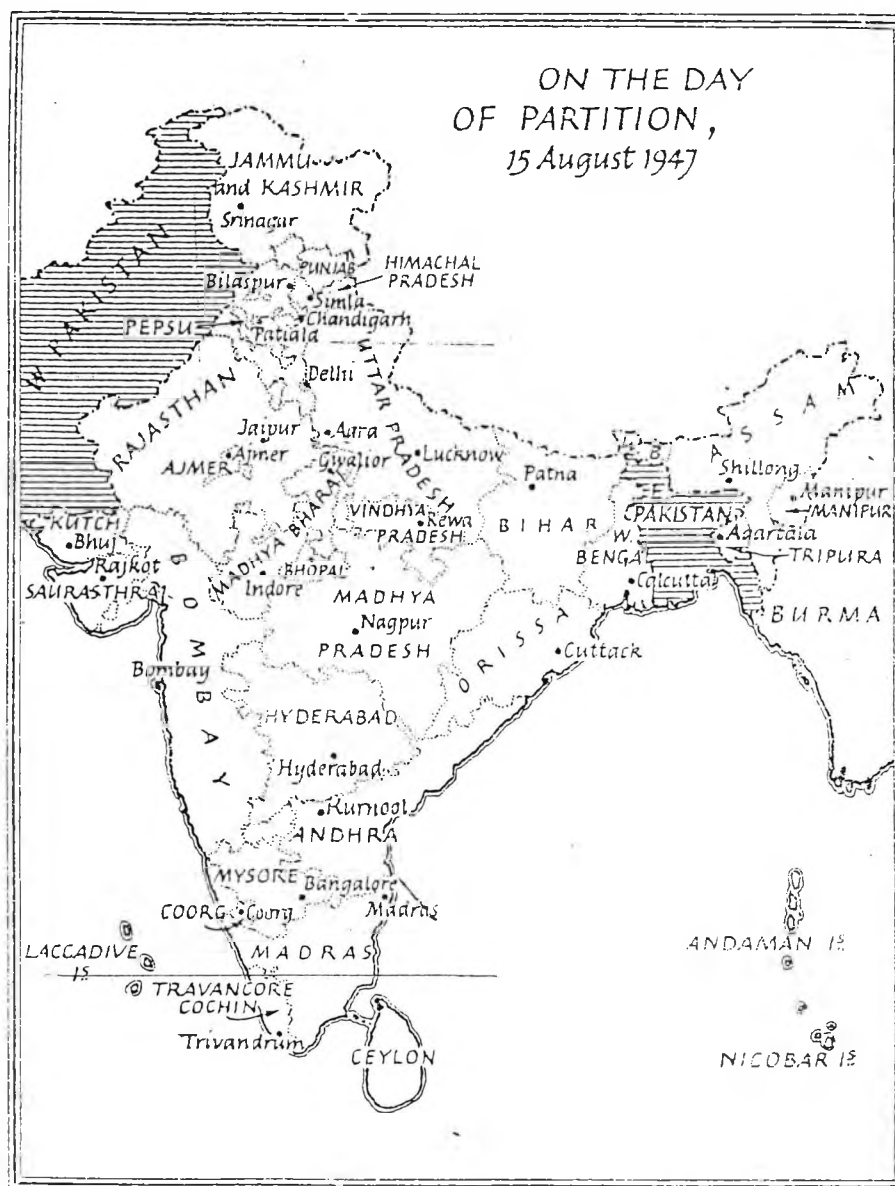


Fig. 4.2 South Asia After partition of 1947

Table 4.1 SAARC Countries : Area and population:

(Source: CIA fact book; est. July 2004)

Country	Land Area (Sq. km.)	Population
1. Bangladesh	144,000	141,340,476
2. Bhutan	47,000	2,185,569
3. India	2,973,190	1,065,070,607
4. Maldives	300	339,330
5. Nepal	136,800	27,070,666
6. Pakistan	778,720	159,196,336
7. Sri Lanka	64,454	19,905,165
Total	4,144,464	1,415,108,148

under the superimposed umbrella. The most notable of such phases was the late first millennium which, in the words of Thaper (2002):

“ (This period) saw a changed situation in the Indian sub-continent. Regional states, earlier seeking recognition , were now taking shape and the imprint of their identities was becoming clearer, dynasties would change but successor kingdoms retained a consistent core area”.

Although Thaper makes this assertion regarding the peninsular India, this is equally applicable to other regions also.

The same phenomenon was seen during the decline of the Mughal empire, when again the regional powers came into ascendance and the erstwhile provinces of the Mughal empire became virtually independent. This speaks of the historical regional identities all around the subcontinent.

During the British colonial rule, particularly during the later part of it, some sort of a common national identity encompassing the entire subcontinent was discernible, which grew mainly out of the resentment against colonial rule, having no clear and unified national character.

At this stage, leadership remained basically 'regional', with a 'confederative' association at the top for the ultimate goal -- 'freedom', which was still largely undefined.

It was only during the thirties and forties of the twentieth century that Hindu-Muslim antagonism overwhelmed the political scenario, leading to a confrontation along religious divide that, inter alia, consolidated the politics of the sub-continent on a *pan-Indian* framework based on religious affiliations, the Hindus mostly rallying behind the Indian National Congress and the Muslims behind the All India Muslim league.¹¹⁶ The regional leaderships were now sub-merged under the 'All India' leadership, leading to the eventual partition of the sub-continent on communal lines into India and Pakistan.

However. "*Akhand Bharat*" or the "Unified India" still remains the cherished desire of many, particularly in the present day India. To them the division of *Mother India* has been nothing but *vivisection*.

Now, what would have been the situation if instead of the partition of 1947 the entire sub-continent, i.e., the present-day India, Pakistan and Bangladesh were made into a single State? And, what would be the consequences if that were to happen today or in any distant future? How efficient will it be as a system? For about two hundred years South Asia *was* administered by the British as a *single* spatial unit. How efficient was that as a *system* during that epoch?

On the other hand, the present day Republic of India comprises most of the sub-continent and retains almost all the manifestations of the unifying and divisive forces playing on the sub-continental theatre.

This is true for Pakistan also, although on a comparatively limited scale, which holds at least five distinct national entities within its fold.

In this chapter, we shall look to these three specific cases of 'conglomerative' boundary superimposition:

i. South Asia, as it was during the British rule, encompassing the entire sub-continent;

ii The Republic of India; and

¹¹⁶ The Indian national Congress was founded as a *secular* forum open to all irrespective of religious affiliation. But, as the days passed on, it gradually turned into an organisation representing the Hindu interest, although its official posture of being secular remained unchanged. Some eminent Muslims, like Moulana Abul Kalam Azad continued to be in its fold. The Muslim league, on the other hand, had no such pretension. It was avowedly a Muslim platform, although on occasions made strategic alliances with other minority communities, like the Sikhs, the Scheduled castes and the Buddhists.

iii. The Islamic Republic of Pakistan, as it is today.

3.3 SOUTH ASIA : AS A SINGLE UNIT

Let us first of all take the South Asian sub-continent in its entirety as a 'single unit' and have a case study to identify the *centripetal* and *centrifugal* forces operating on it.

4.3.1 Unity within South Asia : the *centripetal* forces

As mentioned earlier, South Asia has always been viewed by the outside world as a *single* entity. This notion was strengthened further over the last few hundred years through the political developments that blurred the centrifugal factors, in different degrees, at least temporarily and thereby contributing to the *notional* unity of the sub-continent

In this section we shall try to identify and list such *centripetal* factors that contributed or still contribute to the above notion.

i. Pre-British imperial umbrella.

Mighty imperial powers, notably the Muria empire in the early period and the Mughals in the medieval era, had their control extended over most of the sub-continent, which gave a notional singularity to an otherwise heterogeneous spatial conglomerate. The imperial fame of the Mughal court went far and wide, particularly to Europe, attracting fortune seekers and traders to whom the entire land mass was a composite whole of unknown hostilities, but full of opportunities for those who could endure that.¹¹⁷

These short term visitors went back with their own notion of "India", which was transmitted, to the western intellect, furthering the imprint of the notional singularity of the sub-continent.

ii. Religion and idealism transcending geographical and ethno-linguistic barriers

Traditionally the sub-continental psyche is bent towards mysticism that places religious beliefs and taboos on a higher plane than local, regional or personal identities. This allowed religious movements to transcend geographical or ethno-linguistic barriers.

¹¹⁷ Spices from this part of the world have served the culinary appetite of the aristocracy all over Europe since antiquity. Gold was another fabled attraction. During the Mughal reign cotton fabrics, especially 'Muslin' from Bengal, were lucrative commercial items.

Thus Hinduism, Buddhism, Jainism, Islam and even Christianity created their respective cobwebs of social linkages around the subcontinent, all being "Pan-Indian" in character.

Thus religion, in the sub-continental perspective has played (and still plays) both integrative and divisive roles.

a) **Hinduism:** Unity in diversity.

Hinduism is a religion of the sub-continent, which shows wide variance in its practice in different regions and in different segments of the population. The Gods and Goddesses, rites and rituals, and even beliefs are manifestly different and divergent, region to region. But all of those diversities are accommodated under the common name of *Hinduism*. This wide flexibility and resilience brings a unique 'unity in diversity' that gives common identity to a huge multitude of people of divergent ethnic or linguistic traits all over the sub-continent, who call themselves 'Hindu'¹¹⁸. This is one of the main factors contributing to the notion of unity of the sub-continent on the whole.

b) **Islam:** Bulwark against Casteism.

While Hinduism shows a remarkable strength of *unity in diversity* by allowing variations in religious practices and beliefs, Islam, as a religion, is strictly codified and thereby has little room for variations in fundamental tenets. But the practice of *casteism* that divides the Hindu society into innumerable exclusive segments¹¹⁹, is totally absent in Islam.

Orthodox Hindus belonging to one *caste* can not have social interaction, even cannot eat together, with those of other castes. The four principal castes, the *Brahmins*, the *Kshatrias*, the *Baishwas*, and the *Shudras*, have their positions fixed in heirarchical order—the Brahmins being the most respectable and almost divine, then the Kshatrias, then the Baishwas and at the lowest end of the ladder, the *untouchable* Shudras.

The advent of Islam threw a challenge to casteism and all over the sub-continent new converts to Islam found a way out from the age-old bondage of the caste ridden society. Once a person embraced Islam, from whatever caste he, or she came, was treated as an equal member of their new community. In the process Islam, transcending the barriers of caste or creed, unified the masses, at least within the Muslim community all over the sub-continent. This had its impact on the Hindu society as well. Being threatened by the large-scale recruits to Islam, especially from the subjugated castes, movements grew up

¹¹⁸ In fact many would consider Hinduism not as a religion, but as the identification of being an 'Indian'.

¹¹⁹ There are four principal castes, and a myriad of sub-castes.

within the Hindu community for reformation and accommodation, encouraging the new generations to ignore caste barriers, at least to a certain extent.

c) **Buddhism and other sub-continental religious movements**

Buddhism and other sub-continental religious movements preached by Goutama¹²⁰, Mahavira¹²¹, Nanak¹²², or Chaitannya¹²³ advocated equality of Man and universalism that transcended the barriers of caste, creed and regional identity. Such religious movements, in one way or other, contributed to the centripetal factor on the sub-continental framework.

d) **Christianity:** Linking from the distance

It is claimed that the message of Christianity reached South Asia even during its early days¹²⁴. However, serious preaching of Christianity on the soil of the sub-continent started much later, only around the sixteenth century. This was the time when several 'East India Companies' were vying with each other to exploit the trading opportunities in and around the sub-continent. Christian preachers of different denominations came aboard the merchant ships and landed on the shores all along the sub-continent. Initially they had little success in getting converts, in the face of fierce resistance from the orthodox Hindus and Muslims¹²⁵. But, the painstaking and persevering efforts by several generations of preachers gradually brought fruit, especially in the tribal regions and among the low cast untouchables at the bottom of the Hindu society and the tribals in the remote hills and forest lands.¹²⁶ The company officials and colonial rulers were initially critical of the missions. But gradually they realised the advantages of having the church working in tandem¹²⁷.

Although the rate of conversion was never so great, the impact of Christian teachings on the sub-continental psyche, in general, cannot be underestimated¹²⁸.

¹²⁰ Founder of Buddhism.

¹²¹ Founder of Jainism.

¹²² Founder of Sikhism.

¹²³ Hindu religious reformer from Bengal who established the *Vaishnava* cult.

¹²⁴ It is claimed that one of the direct disciples of Christ came to India to preach. But the earliest Christian presence in the subcontinent is attributed to the Syrian Christians, claimed to have settled in some parts of the western coast in the 4th century AD.

¹²⁵ L. Rushbrook Williams (ed.), (1975), *Introduction to India Pakistan, Bangladesh and Sri Lanka*, London: Quarishi (1987).

¹²⁶ Kanti Prasanna Sengupta (1971), *The Christian Missionaries in Bengal*, Calcutta: Narys Williams (1981), Welsh Mission in Khasi Hills, MA dissertation, School of Oriental and African Studies, London.

¹²⁷ In 1992, Wilberforce introduced a bill in the British parliament in support of the missionaries working in India, which was fiercely opposed by the company directors. See Rev. Austine Jones (1967), in *A Common Perspective for the North –East India*, Panna Lal DasGupta (ed.), Calcutta.

¹²⁸ F. A. Quarishi (1987), *Christianity in the North Eastern Hills of South Asia: Social Impact and Political Implications*, University Press Ltd., Dhaka.

In spite of the fact that there were missions of several denominations, often not so friendly to one another, their presence in the sub-continent has not been divisive. At least on the sub-continental level they acted in unison and in that sense the Christian community of the sub-continent has been 'pan Indian' in nature.

Thus, it may very well be said that all the religious faiths, in their own arena, transcended the regional divides and contributed to the centripetal tendency at the sub-continental level.

e) **Marxism:** The 'religion' against religion.

Marxism, as a political ideology, stands against religious beliefs. But, the political agenda of all Marxist political forces in the sub-continent has always been aimed at a 'revolution' encompassing the entire sub-continent. Their ideal of *universalism* and the slogan of *proletarian unity* worked against all regional and religious divides and thereby contributing to the sub-continental identity.

iii. British rule and the blurring of the regional divide.

a) **The centralised colonial administration:** Foundation for a sub-continental unity

The entire sub-continent came under a common rule, for the first time, during the British colonial administration. Although the Mughals did build a commendable administrative network, the British administration was much more intrusive. Its success in building a strong and effective administrative network with an elaborately codified legal system, backed by a meticulously organised police force and army was commendable.¹²⁹ This gave the sub-continent a real unified look as a spatial system for the first time.

b) **Growth of a communication network.**

The colonial administration obviously aimed at easy exploitation of resources from the colony. To accomplish this an intricate network of communication systems was necessary. The result was the development of a railway network connecting all the major sea ports to the hinterlands. It served two purposes. On the one hand, it facilitated transportation of both exports and imports and on the other, it made possible quick deployment of forces in time of necessity.

Whatever be the motive behind it, this communication network connected almost all the regions of the sub-continent with one

¹²⁹ In land tenure, the British adopted much of the systems introduced by the Mughals. But the criminal procedure code was entirely of the British model, which is in vogue even today, almost unaltered. See Spear (1990).

another, bringing a consolidation with far-reaching consequences¹³⁰.

c) **English as the lingua franca:** *growth of a new elite: a 'Nation above the Nation'.*

Although the sub-continent has so many languages, none of them is used universally all over the sub-continent. This constituted a real hurdle in communication between different segments of its population. Introduction of English as the medium of administration and higher education¹³¹ changed the scenario. English virtually gained the status of *Lingua Franca* at the sub-continental level (like Mandarin in China). This made direct communication between different regions through the English educated new gentry.

A new generation of English-educated elite came to the centre stage of the sub-continental polity. Being under the spell of western culture, the English educated elite formed an upper strata encompassing the regional divides. This was in reality a 'Nation above the Nations'. This was perhaps the most far-reaching consequence of British rule in India.

Obviously this also contributed to the sub-continental unity and acted as an important vehicle to bind the linguistically divided Indian regions together.

d) **The Hindu revivalism and Muslim separatism:** *Two sides of the same coin*

Throughout the British rule rivalry between the Hindu and Muslim elite was visible in different spheres. The Hindu psyche was charged towards a sort of religious *revivalism*. A good number of great reformers mastered tremendous influence over the Hindu community transcending the regional or linguistic barriers.

On the other hand, the decline of the Muslim aristocracy made the Muslims of the subcontinent apathetic to British rule from the beginning. Ascendancy of the Hindu elite during the same period created further discontent in the Muslim psyche. This had a backlash on the Muslim community giving rise to what may be termed as *Muslim separatism*.

¹³⁰ The initiative to build a Railway in India was first taken by Lord Dollhouse in 1853. 25,000 miles of track was laid by 1900. By 1914 another 10,000 miles was added. By the end of the British rule the mileage had reached its maximum of about 43,000 miles. --- Spear (1981)

¹³¹ By a series of enactments, beginning in 1835, Lord Bentinck introduced English as the language of record and legal proceedings replacing Persian. English now became the language of Government business and hence essential for the public career. Bentinck directed all available funds 'in imparting to the native population knowledge of English literature and science through the medium of the English language'. --- Spear (1965, 1981).

Both 'Hindu revivalism' and 'Muslim separatism' were *sub-continental* in expanse. This was another aspect that blurred the regional divides, at least for the given period.

e) Nationalism and Socio-political movements: *Growth of All-India centralism.*

Nationalism is a phenomenon of recent times, which came to the sub-continent with the European invasion. The irony of colonial rule was that it brought with it the seed of its own destruction, the concept of *liberalism*, which profoundly influenced the Sub-continental psyche and produced new generations who were now dreaming of *democracy* and *freedom*.

At this stage also grew up different types of socio-political movements, one after another, and most of them had a 'pan-Indian bias' that contributed to the all-India centralism.

Thus, political parties and platforms like the Indian national Congress, the All-India Muslim League, the Hindu Mahashbha

or the Jamiat-e-Ulamaye Hind, having diverse and often mutually antagonistic agenda, all had their structures built on an 'All-India' perspective.

4.3.2 Diversity within South Asia: *the centrifugal forces*

In the earlier section the forces of integration working on the sub-continental spatial system have been noted. In this section, the divisive or disintegrating factors working on it. shall be looked onto.

Contrary to the notions prevailing in the outside world, the South Asian landmass consists of a number of clearly distinct geographical and cultural regions having widely divergent characteristics. Innumerable ethnic traits, several hundred living languages and dialects and so many distinct historical and socio-cultural entities make South Asia a land full of diversity, true to its synonym - the "*Sub-continent*".

i. The geographical divides

The South Asian Sub-continent is not a homogenous or unified geographical unit. It has at least four clearly discernible broad geographic regions (**Fig. 4.2**):

- a. The Himalayan mountain range and its foothills,**
- b. The Indo-Gangetic plain**

c. The Peninsular highland, and

d. The coastal plains.

The Himalayan mountain range and its foothills in the North stand almost like a wall separating the subcontinent from the rest of Asia. This region comprises three levels of mountainous terrain. The northern outermost rim consists of high peaks including the world's highest Mount Everest. The next is the middle section with medium range peaks and plateau and the third is the inner rim of hills and hillocks. The Himalayan range extends from west to east with downward extensions on both sides.¹³²

The Indo-Gangetic plain covers almost the entire northern and eastern part of the sub-continent flanked by the Himalayan range. It includes the basins of the three great rivers, the Indus, the Ganga and the Brahmaputra. Although it is a vast expanse of plain land from one end to the other, its topographic characteristics are not uniform all over. Its **western** part is dry and arid with vast stretches of sandy deserts, while the **eastern** part is alluvial flood plains. In fact the alluvial plains in the east at the confluence of the rivers the Ganga, the Brahmaputra and the Meghna constitute a distinct and separate region (Ahmad, 1968; Abbas, 1982).

The peninsular highland starts from the Vindya range south of the Ganga delta and extends up to the south tip of the Deccan peninsula flanked by the *eastern ghat* and the *western ghat* ranges. In between the two *ghats* lies the highland terrain consisting of several plateaux.

The coastal plains surrounding the peninsular highland on two sides, along Arabian sea in the west and the Bay of Bengal in the east, may be considered to form a fourth region, having distinct topographic features.

ii. The ethnic divides

The wide diversity of physical features of the inhabitants of the sub-continent provides clear evidence of large-scale interaction between divergent ethnic traits at various stages of history. Risley (1908) tries to identify such racial differentiation in the subcontinent by observing the shape of nose and hair texture. However, the majority of the population of South Asia have darker complexions, albeit in various degrees, with generally medium physical structures. Because of the admixture and cross-migration from one part to another over several millennia it is very difficult to strictly draw any geographical demarcation of ethnic regions in South Asia.

¹³² Spate and Learmouth (1967).

Still, based on the preponderance of particular traits, three broad ethnic regions may be identified:

(a) In the north and north western part of South Asia one can find comparatively fairer complexions of various degrees and taller physical structures, bearing the marks of waves of migrations from central Asia and beyond (Majumdar, 1943).¹³³

(b) In the southern peninsular region darker complexion and shorter statures are predominant, believed to be the result of the gradual retreat of the early Dravidian population from the northern and central region in the face of external invasions (Majumdar, 1943).¹³⁴

(c) In the eastern flank an admixture of Austric, Dravidian, Tibeto-Burman and Mongoloid traits form the base, with traces of central Asian, and Semitic components added later (Majumdar, 1943; Roy, 1949).¹³⁵

In spite of almost two hundred years of European domination, European traits are scanty, except in a few small pockets of the so-called "Anglo Indian" community. In fact there was never any serious attempt by the European colonial powers to build permanent settlements in South Asia in the same manner as was done in North America, Australia and some regions of Africa. The 'colonisation' of the British Indian colony was not pursued beyond the need for economic and political control.

It is interesting to note that during the initial days of British presence in South Asia, trade was given the utmost importance and indulgence in conflict with the locals on social or political grounds was discouraged. The *East India Company* was formed and funded by British investors to make profit out of such trade. Company directors and officials were against the activities of Christian missionaries on the ground that their overzealous activities would antagonise the local Hindus and Muslims and thereby jeopardise the trading interest of the company. Thus in 1792 a bill to introduce a clause in the *East India Company* charter, allowing provisions to assist missionary work in the colonies and dependencies, was seriously opposed and halted by the company directors as well as the parliamentarians in Britain. It was only in 1813 that supporters of missionary activities finally succeeded in their effort to make it

¹³³ This is generally applicable to Punjab (both east and west), Northwest Frontier province, Kashmir, Uttar Pradesh, Himachal Pradesh and Haryana, although, as we move eastward features are more and more admixed and there are darker complexions and shorter statures in parts of Baluchistan and in Sind.

¹³⁴ It is very difficult to identify any common pattern of the distribution of ethnic traits. There are significant deviations all over.

¹³⁵ Being the tri-junction of the three regions, South Asia, the Southeast Asia and China, this region received migration from the other side also, giving it the Tibeto-Burman and Mongolian components.

obligatory on the part of the company to provide necessary assistance to the missions.¹³⁶

Paul Claval looks towards this British reluctance to 'colonise' the sub-continent as a change of strategy : 'annexation' in place of 'colonisation' in the tropical and sub-tropical world and to look for, what he terms, 'exploitation colonies' not 'new settlements'¹³⁷. In any case the result was a smaller number of Europeans opting for permanent residence in the sub-continent.

A general overview of the historical background of different ethnic traits in South Asia is shown in **Table 4.2**.

Table 4.2 Broad overview of Ethnic traits in South Asia

Traits	Period of Preponderance
<i>A. Indigenous traits:</i> a. Austric b. Dravidian	Prior to 1500 BC „
<i>B. Migrated trait</i> a. Early Central Asian, Mongoloid b. Later central Asian, Mongoloid and Semitic c. European and others	1500 BC- 500 AD 800 AD- onwards 1600 AD- onwards

¹³⁶ Quarishi, F. A. (1987). *Christianity in the North Eastern Hills of South Asia: Social implications and Political Impact*, University Press Ltd., Dhaka.

¹³⁷ Claval considers it was a lesson learnt from the American War of Independence that expansion of British settlement in temperate areas 'would ultimately result in a demand for self-government', which resulted in this change of strategy. -- Paul Claval (1994), in *Geography and Empire*, Anne Godlewska and Neil Smith (eds.), Blackwell Publishers, London.

iii. The politico-historic divides

History records the rise and fall of so many powerful kingdoms and dynasties on the soil of South Asia. Most of these Empires grew around the central Gangetic plain. In a few instances powers rising in the periphery, like the Palas from the east (Bengal)¹³⁸ or the Marathas from the southwest (Maharashtra)¹³⁹ acquired sub-continental primacy for short periods. Even such powers, in the height of their glory, shifted their base towards the centre.

Looking to the patterns of the rise and fall of such regimes over the 3500 years of recorded history, one may divide South Asia into four major politico-historic regions.

a) The Indus Valley "Shatterbelt"¹⁴⁰

The north western part of the sub-continent which roughly comprises the territories of present day Pakistan has been the gateway to this sub-continent for all the central Asian expeditions and invasions since the earliest days. Being separated from the rest the western frontier; the "Khybar pass" being by far the most important of them.¹⁴¹

It was through Khybar that hordes of central Asian nomadic tribes made their way into South Asia one after another over several millennia. It was through this pass that Alexander led his invading army to conquer the north-western part of the sub-continent. The Shakas, Huns, Mongols, Tatars and Turks used the same route.¹⁴²

Apart from the mountain passes, the Arabian sea also brought sea-borne settlers or invaders, the most notable being the Muslim conquest of Sindh in the 8th century AD.¹⁴³ Thus the north-eastern region has been all along the *shatterbelt* to face the first onslaught of invasion from the West. Caught between the contending forces of the invaders and the local powers, the area suffered heavily, sometimes to the brink of total destruction or total politico-demographic re-organisation.

The core area of this region is Punjab, which is now divided between India and Pakistan.

This may be called **The Indus Valley "Shatterbelt"**.

¹³⁸ The Pala king Dharmapala extended his kingdom to the northern and central India.

¹³⁹ Maratha power rose to its highest glory annexing most of the central and northern part of the sub-continent after the decline of Mughal Empire.

¹⁴⁰ A *shatterbelt* is the region between two greater regions being at times run over from either side and acting also as the buffer.

¹⁴¹ There are two other passes: The Bolan and Gomal, connecting the sub-continent with Iran, but most of the external invasions came through the Khyber.

¹⁴² Presently Khybar connects Pakistan and Afganistan.

¹⁴³ Mohammed -bin-Qasem conquered Sindh in the year 710 AD. It is said that his astounding success made the Caliph jealous, who called him back and he was killed.

b) The Eastern "Melting Pot"

While the western flank of the sub-continent was subjected to periodic armed invasions from the West, the scenario on the eastern flank was a bit different.

This region, with the Bengal delta including the Brahmaputra valley as its core area, surrounded by Nepal and Bhutan to the north, the north eastern hill states of India to the east and the states of Bihar Jharkhand and Orissa to the west, experienced a slow but continuous and gradual infusion or intrusion of divergent ethnic traits from all sides. This process was rather peaceful, although occasional skirmishes at the fringes are on record.

This assimilation continued over several millennia, producing an ethnic admixture much more kaleidoscopic than the rest of the sub-continent.¹⁴⁴

This may be called **The Eastern "Melting Pot"**.

c) The Central "Heartland"

As described earlier, the central non-littoral Gangetic plain of present day Uttar Pradesh and the regions around it hosted most of the mighty dynasties that flourished in this sub-continent. Being geographically central and having vast tracts of plain lands and being distant from the seacoasts or the peripheral mountain ranges, this area provided defence-in-depth for the traditional armies heavily dependent on infantry and cavalry.

The core of the region consists of Uttar Pradesh, western Bihar and Delhi with the regions around, while Haryana, Rajasthan, Madhya Pradesh, Himachal Pradesh, Uttarkhand, and eastern Bihar forming its periphery. Today these peripheral are fast becoming integrated to the core, becoming part of what is called the 'Hindi-belt'.

This may be called **The Central "Heartland"**.

d) The Peninsular "Retreat"

While the north western part and the central part came under mighty powers of external origin, time and again, the southern peninsular region remained for most of the time conclave to itself

¹⁴⁴ Nihar Ranjan Roy (1949), *Banglaleer Etihash* (History of Bengalee nation), Calcutta: R.C. Majumder (1971), *History of Ancient Bengal*, G. Bharadwaj and Co., Calcutta.

and giving refuge to the displaced indigenous population from the north.

Away from the massive inflow of invading central Asians, the indigenous traits of the sub-continent could retain their identity to a much greater extent in this region.

Thaper (2002), indicating the 'significance of geography to history' in this regard, writes:

'Large unitary kingdoms were easily hosted in the northern Indo Gangetic planes. The southern half of the sub-continent, with the mountains, plateau and river valleys --- (produced) a topography that made functioning of expansive kingdoms more difficult.'

Thus the geographical isolation was, in a way, a boon to this region, where a different strain of cultural trait could flourish under smaller local kingdoms; particularly the Chola kingdom, which dominated the region for a long period and gave it a social cohesion and different identity.

This region may be called **The Peninsular "Retreat"**.

e) Other regions

There are some regions which do not easily fit into any of the above topological divides. The most notable are the States of Maharashtra, Gujrat and Kashmir, Gujrat and Maharashtra, with Mumbai as the common hub, may also be treated as a separate region.

iv. The linguistic divides

The South Asian sub-continent has innumerable languages with so many dialects in each of them. The 1961 census of India enumerated 1652 mother tongues in India alone.¹⁴⁵ (**Table-4.3**).

The constitution of the Indian Republic recognises 15 languages as "National languages". Those are Assamese, Bengali, Gujarati, Hindi, Kannada, Kashmiri, Malayalam, Marathi, Oriya, Punjabi, Sanskrit, Sindhi, Tamil, Telegu and Urdu.¹⁴⁶ Out of these Hindi has been accorded the status of "State language". However, English still retains the position of "official language".

¹⁴⁵ *India 1973*, A government of India Publication.

¹⁴⁶ *India, A Reference Annual, 1973*, Publication Division, Ministry of Information and Broadcasting, Government of India.

In Pakistan "Urdu" has been made the State language although it is the mother tongue of less than 8% of Pakistanis. Major spoken languages in Pakistan are Punjabi, Sindhi, Pushtu and Baluchi.¹⁴⁷

Bengali is almost universally spoken all over Bangladesh with the exception of a very small tribal population. However, the languages spoken by most of these tribes have been infused with Bengali vocabulary and are close to the dialects of adjacent Bengali districts, and most of these tribal people can communicate in Bengali.

The major language in Nepal is Nepalese. Bhutanese is the official language of Bhutan. In Sri Lanka major languages are Sinhala (80%) and Tamil (20%). The Maldives has its own local language, a pidgin of Arabic and South Indian languages.

Some of these languages are spoken in more than one country. Thus Urdu and Punjabi are widely spoken in both India and Pakistan; Bengali is spoken in Bangladesh and India, Tamil in India and Sri-Lanka, Pushtu in Pakistan and Afghanistan and Nepalese in Nepal, India and Bhutan.

Although the number of people with English as the mother tongue is very small, English is widely spoken and understood all over the sub-continent by the educated class.

Looking into the general pattern of linguistic distribution, we may identify three major linguistic regions in South Asia and several smaller sub-regions having their distinct languages. Moreover, there are certain anthropological pockets still retaining primitive underdeveloped languages dating back to antiquity.

The three major linguistic regions are shown in **Fig. 4.3**.

(a) The Hindi- Urdu belt

Hindi and Urdu, although considered to be two separate languages, are very much akin to each other, both having their origin in Central and Northern India. The two languages are hardly distinguishable when spoken by the common man. But in their written form they are quite different. Hindi is written in Devnagri script, while Urdu is written in a form of Persian-Arabic script.

Historically Urdu has evolved out of the local dialects in and around Delhi during the Muslim rule as the language of the court and cantonments. This Muslim connection gave it a religious slant. The Persian-Arabic script and the influence of Persian-Arabic literature, both religious and secular, with heavy infusion of Persian

¹⁴⁷ A movement is now being launched to establish Saraiki, spoken by a large segment of Punjab population, as a separate language, which is officially considered to be a dialect of Punjabi

and Arabic vocabulary, accentuated this tilt further. Urdu literature was enriched through court patronage over several centuries, particularly in the fields of poetry, lyrics and Islamic literature.

With the fall of Muslim rule this patronage was gone, but Urdu still remained the language of the aristocracy, both Muslim and Hindu, in all the metropolitan centres of central and northern India. On the other hand, being based on the local spoken dialect it is more akin to the language of the masses in the region, the *Hindustani*.

The Muslim connection attached to Urdu brought an obvious backlash with the rise of communalism and widening of the Hindu-Muslim divide. Ardent supporters of Hindu revivalism engaged themselves in a crusade to 'purify' the language, discarding its *Muslim* contents, replacing commonly used words of Persian or Arabic origin with words derived or connoted from Sanskrit. Hindi, written in Devnagri, received the Royal patronage during the British rule, replacing Urdu in various fields. The infusion of Sanskrit vocabulary, replacing most commonly used words of Persian-Arabic origin, continues till today.

However, in spite of all these, even today, when an Urdu speaking Muslim and a Hindi speaking Hindu talk to each other, their spoken language is hardly distinguishable, except for a few Sanskrit or Persian-Arabic words sprinkled here and there. *Hindi* films made in India and *Urdu* films made in Pakistan are viewed by people on either side of the border without any difficulty in understanding the language. Especially the songs in both the languages are hardly distinguishable, both still retaining the old Perso-Arabic vocabulary.

Urdu the State language of Pakistan, was never a spoken language there prior to 1947. Being the language of the Muslim elite of Northern and Central India and having its connection with Muslim courts, it was treated as the language of Islam in the sub-continent, and in fact it became the language of instruction in the Muslim religious schools, the *Madrassas*. This prompted the leaders of the Pakistan movement to push it as the State language of Pakistan.

In India, Hindi being declared as the State language, there has been a persistent effort to make it the 'lingua franca' for the entire country. Initially there was fierce resistance to this from regional languages resulting in the reorganisation and creation of states on the basis of language. The move to introduce Hindi in all the states was almost stalled in the early sixties. However, it now appears that over the last three decades the situation has changed considerably and Hindi is perhaps overcoming that resistance gradually, thanks to the Hindi-Urdu film and music industry, which has successfully

penetrated every nook and corner of the country crossing the linguistic barriers.¹⁴⁸

Obviously governmental efforts to promote and popularise Hindi as the lingua franca remain an integral part of the Indian national policy. The *political will* behind this move was clearly demonstrated by the decision of the Indian Census commission in 1961 to include certain regional languages like Hindustani, Rajsthani, Khari-boli, Maithili etc. under the common denomination of *Hindi*, although in earlier census reports (till 1951) those were returned as separate languages.

Thus, from 1961 all these languages are treated as dialects of Hindi, making Hindi the overwhelmingly largest language in India and thereby changing the overall linguistic composition of India drastically.

(b) The Tamil -Telegu, Malayalam - Kannada belt

The four south Indian languages Tamil, Telegu, Malayalam and of the north Indian languages. Almost one-fourth of the total Indian population use these languages.

(c) The Bengali belt

In the eastern flank of the sub-continent Bengali or Bangla is the core language. More than 220 million people in Bangladesh and India speak Bengali, about 130 million in Bangladesh and the rest in India .

Ahomia, spoken in the Brahmaputra valley of Assam is closest to Bengali both in vocabulary and grammar and uses the same script. Oriya, spoken in Orissa and the language of eastern Bihar also show very close affinity. Bengali is the major language in several districts of Assam, Tripura and in the Arakan province of Myanmar. Tribal languages of the region like Santhali , Orao, Munda, Garo, Khasi, Tipra, Chakma etc are either related to old Bangla or have been admixed with a lot of Bengali vocabulary and expressions through gradual assimilation. Incidentally, one of the earliest forms of Bangla, known as the 'Braja-buli', is almost identical to the spoken language in some eastern districts of Bihar.

¹⁴⁸ This to some extent mirrors the situation where the entertainment industry and the internet has encouraged the development the American version of English.

Table : 4.3 Percentage of persons speaking the major languages in India, Pakistan and Bangladesh. Figures in parenthesis showing total population of the country in millions. (Source:CIA fact book 2004)

	India (1.065)	B'desh (141)	Pak. (159)	Nepal (27)	S.Lanka (19.9)	Bhutan (2.2)	Maldives (0.34)	
Hindi	30%	--	-					
Bangla	7.5%	99.2%	-					
Urdu	5.1%	-	8%					
Telegu	7.9%	-	Hindko 2%			Bhote 50%	Maldivian 100%	
Punjabi	2.9%	-	48%					
Tamil	6.9%	-	-		18%			
Marathi		-	Brahui 1%					
Malayalam	3.8%	-	Sindhi					
Gujrati	4.8%		12%					
Kannada	3.8%	-	Saraiki 10%					
Assamese	1.6%	-	Baluchi 3%					
Nepalese	--	-		90%		35%		
Sinhala	--	-			74%			
Others	18.6%	0.8%	8%	10%	10%	15%		

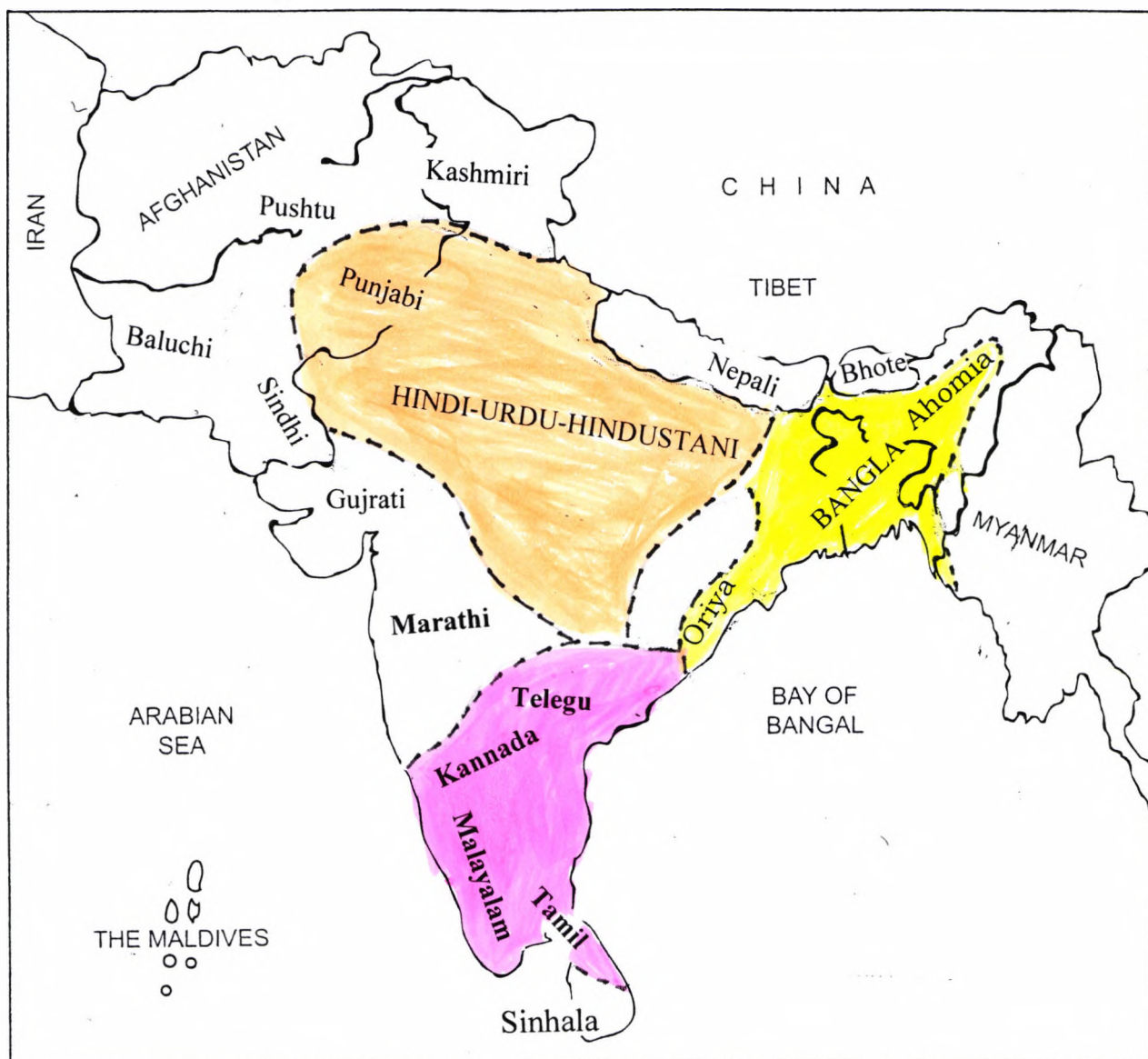


Fig.4.3: Major linguistic divisions of South Asia

iv. Geo-strategic divides

Geo-Strategically South Asia may be divided into four distinctive regional systems: **(Fig. 4.4)**

- * The Arabian Sea littoral system,
- * The Bay of Bengal littoral system,
- * The Central non-seafaring system and
- * The Northern mountain system

(a) The Arabian Sea littoral system

On the western side of the sub-continent, the Arabian Sea has been the conduit for transportation and demographic movements since the early days. There had been regular seafaring over this water between peninsular Arabia and the subcontinent, especially along the coast line around the Arabian sea starting from the Horn of Africa, across the Persian Gulf and the Baluchistan-Sind-Gujrat – Mumbai –Malabar coast, extending up to Sri Lanka and beyond (Gotthold and Gotthold, 1988).¹⁴⁹

We call this maritime system the "**Arabian Sea littoral system**".

In recent days, with the improvement in communication, exchange of people and material across the Arabian Sea has been increasing at a geometric pace. Surplus population from the sub-continental coast finds easy access to the under-populated Gulf States on the other side, while capital from the oil rich Gulf States finds investment opportunities in the sub-continent, particularly in the entertainment industry. A substantial investment in Bombay's film industry comes from the Gulf States, on the other hand audio-video products produced in the so-called *Bollywood*, the film world of Bombay, find a ready market on the other side.¹⁵⁰

The coastal region, from Baluchistan to Sri Lanka, through Gujrat, Maharashtra and Kerala, had been part of this busy maritime system since the early days. Movements of population and trade and commerce linked this region to the ancient civilisations cradled in Babylon, Egypt, Persia and beyond to those of the Mediterranean

¹⁴⁹ Julian J. Gotthold and Donald W. Gotthold (1988) write in their *Indian Ocean Bibliography*: "Navigation in Indian Ocean began about 2500 B.C., probably with the voyage of Egyptians around the horn of Africa to the land of Punt (Somalia). The Persian Gulf was navigated by the Sumerians around 2500 BC. During the Greco-Roman period Indian ocean was called '*Mare Prosodium*', when traders travelled from East Africa to Madagascar, along the shores of Arabian peninsula to Persian gulf and ports of India." Once reaching the western coast of the sub-continent they could sail onward coast to coast all the way around the peninsular India to Bengal and then down to the Malay peninsula.

¹⁵⁰ Due to the close interaction with the Gulf states on the other side, the present day entertainment industry of Bombay produces a lot of products with significant tilt towards the Arabian taste aiming at the thriving market on the other side.

and mainland Europe. As mentioned earlier, regular sea-routes opened up from Europe to the sub-continent and beyond through the Arabian Sea only from the sixteenth century, following the voyage of Vasco da Gama in 1497,¹⁵¹ which expanded the dimensions of this maritime system. Today all sorts of sea-going vessels are shuttling very considerably coast to coast between India, Pakistan, Sri Lanka on the one side and the Gulf States on the other. The Arabian Sea system remains one of the most active maritime systems of the world, influencing immensely the demography, culture and economy of the regions around it.¹⁵²

(b) The Bay of Bengal littoral system:

On the eastern flank around the Bay of Bengal an altogether different maritime system flourished from the earliest days¹⁵³. Coastal trade links starting from Sri Lanka upward to the apex of the Bay and thereafter down to present day Indonesia and beyond were firmly established long before the advent of steam engines. That there had been intense interaction between the Bay of Bengal littoral regions since the days of antiquity is manifested in the marked commonality in the ethnic and cultural traits observed all around the Bay. Most of the people in the entire region have darkish skin colour with striking similarity in physical features. Similarity in culinary habits and dress culture is also striking, all being rice eaters, men folk wearing the "lungi" and womenfolk wearing the 'sari' or 'sarong'. Many social customs and elements of folklore are common all around the Bay.

Several large rivers flow into the Bay of Bengal from all sides linking the littoral areas to the deep inland. In particular the Ganga in Bengal was the gateway to central and northern India for all maritime transportation until the ports of Bombay and Karachi achieved their present status during the last century¹⁵⁴.

During the last few hundred years, due to colonial intervention, traditional trade and commerce between the Bay of Bengal littoral regions suffered heavily and the system literally collapsed. Trade and commerce of the region was now being dictated by the needs of the colonial powers of Europe, who ignored the regional imperatives. While the entire sub-continent, together with Burma and the Malay Peninsula, were under British rule,¹⁵⁵ Indonesia was

¹⁵¹ Traders from either side sailed across the Arabian sea long before the voyage of Vasco da Gama. This is evident from the historical campaigns of the south Indian Chola king Rajaraja against the Arab traders having trading posts in the Maldives and Malabar coast and were conducting spice trade with South-East Asia. See Thaper (2002).

¹⁵² Arabs crossed over to Sind in the 8th century and established their rule in the coastal regions of present Pakistan.

¹⁵³ *The Periplus of the Erythraean Sea*, a travelogue ascribed to an 'Unknown Greek Sailor', scribed sometime in the first century AD, narrates the coastal region of Bangal, which proves that the route was being used even by the Mediterranean traders in those days.

¹⁵⁴ Bombay gained ascendancy after the shifting of the capital from Calcutta to Delhi.

¹⁵⁵ The British annexed Upper Burma in 1885.

a Dutch colony and Indo-China was under French control,¹⁵⁶ These colonial powers were in fierce competition and confrontation amongst themselves and therefore free exchanges between regions under different colonial powers came to a total halt. This caused serious systemic distortion and stopped the natural demographic and cultural interpolation around the Bay.

(c) The central non-seafaring system:

Unlike the two maritime systems on the Western and Eastern flanks, mentioned above, the central and northern parts of the sub-continent have always been manifestly "non-seafaring", constituting an altogether different geo-strategic system.

The region covering the present day Indian states of Uttar Pradesh, Madhya Pradesh, Bihar (western half), Rajasthan, Haryana, Punjab, Kashmir and the Pakistani provinces of Punjab and NWFP has been always linked closely to Central Asia through the mountain passes on the north-west (Davies, 1932).¹⁵⁷ Invading tribes from central Asia established their colony and hegemony over this region time and again.

The central Asian invaders, being basically nomadic, had no tradition of seafaring. It was perhaps from this tradition that the central powers in Delhi, even at the peak of their glory, neglected the navy. Only in Bengal did the regional Mughal *subedars*¹⁵⁸ built a small navy and that, too, only for inland waters.

This "hydrophobia" made the otherwise mighty Indian empires geopolitically introvert, having little presence in the waters around. This allowed European merchant ships a free sail over the high sea all around the sub-continent; a phenomenon which was probably the single most important reason for the eventual fall of the sub-continent to the sea-powers from the West.¹⁵⁹

(d) The Northern Mountain system

The Himalayan mountain range, which divides the subcontinent from the rest of Asia, may be considered as another distinct 'regional system'. With its mountainous terrain inhabited by innumerable tribes, mostly of Mongoloid traits¹⁶⁰, this region remained mostly outside the control of the mainland imperial

¹⁵⁶ "The French had had connections with Indo-China as early as the reign of Luis XIV, but it was not until the nineteenth century that they began to interfere actively. Napoleon III, in his search for glory without undue risk or effort, turned his attention eastwards, using the protection of missionaries as a pretext." - Spear (1981)

¹⁵⁷ See *The Problems of north-west Frontier*, C.C. Davies, London, 1932.

¹⁵⁸ Provincial Governors.

¹⁵⁹ Steam engines and better gun-power gave a clear superiority to the European maritime powers.

¹⁶⁰ This trait is more prominent at the higher mountain slopes and regions nearer to the Chinese mainland.

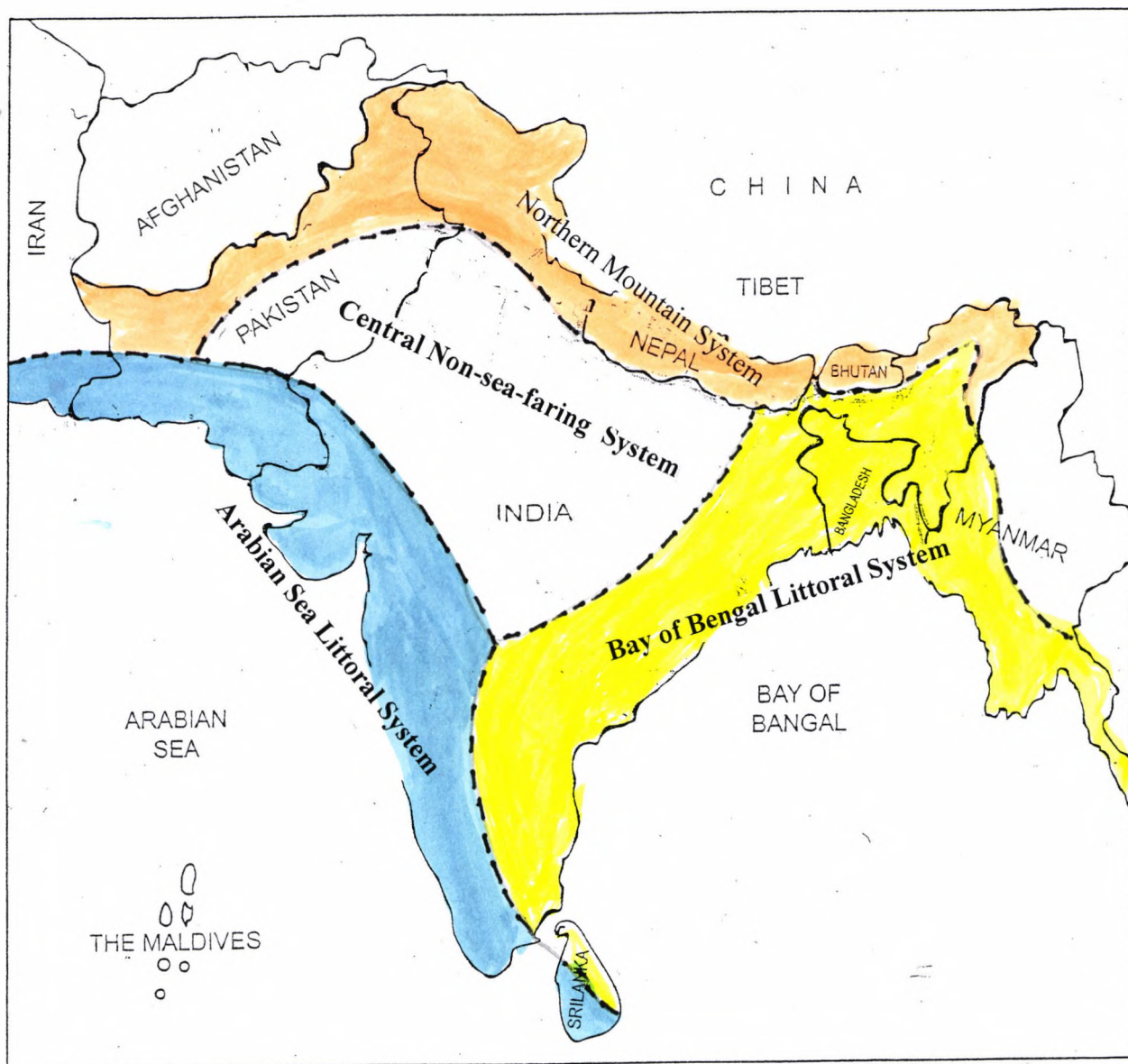


Fig.4.4: Geo-strategic regions of South Asia

powers, allowing the mountain Kingdoms in the region to sustain their separate existence.

The Mughals made several failed attempts to enter the region. The British colonials found it wise to leave the region as a buffer between their Indian possessions and China. The present Indian administration is following the same strategy, more or less. However, the tiny kingdom of Sikkim, lying between India and China and squeezed between Nepal and Bhutan has been

merged into India through a stage managed 'popular' uprising against the king and the holding of a 'National' election that returned a set of 'parliamentarians' who after being declared elected flew en-masse to Delhi to declare their intention to join India.¹⁶¹

The relation between India and Nepal has strains, while the foreign relations of Bhutan is virtually controlled by India. On the other side the vast tract of Tibet plateau is now an integral part of China.

v. Religious divides

The 1.5 billion population of the sub-continent hosts almost all the religious denominations of the world with all their variants. Major religions are Hinduism, Islam, Christianity, Sikhism, Buddhism and Jainism. A good number of the tribal people are animists. (See **Table- 4.4**)

Conflictual situations exist between the Hindus and the Muslims, between the Hindus and the Sikhs, between the tribal and the non-tribal, between the Christians and the Hindus or between the Muslims and the Christians and so on. Conflicts between the various segments of caste ridden Hindu society often attain dimensions greater than inter-religious confrontations. Of late, conflict between Shia and Sunni sects of Islam has been a cause of great unease for Pakistan.

These religious denominations are not evenly distributed. The north-western region (the present Pakistan and Kashmir) and the Eastern region (the present Bangladesh and Part of West Bengal and Assam) are predominantly Muslim. The rest of the Sub-continent is predominantly Hindu. In the North-eastern Hills and in certain plain land tribal belts Christianity is now predominant as a result of the success of Christian Missions engaged in their proselytising crusade over the last two centuries.¹⁶²

¹⁶¹ See B.S.Das (1989), *The Sikkim Saga*, New Delhi

¹⁶² Christian missions working in the remote hills of the north-east have achieved phenomenal success in converting some of the tribes almost entirely to Christianity.

Table 4.4: Population of South Asian Countries by religious denomination (Source: CIA fact book 2004)

Countries (Source)	Hindu (%)	Muslim (%)	Christian (%)	Buddhist (%)	Sikhs (%)	Others (%)
Bangladesh (Census 1991)	12.1%	86.6%	-	-	-	1.3%
Bhutan	25%	-	-	75%	-	-
India	81.3%	12%	2.3%	0.7%	1.9%	1.8%
Maldives	-	100%	-	-	-	-
Nepal	86.2%	3.8%	-	7.8%	-	2.2%
Pakistan	1%	97%	1.4%	-	-	0.6%
Sri Lanka	15%	7%	8%	70%	-	-

vi. Other divides:

Apart from the divisions mentioned above, many other socio-cultural factors also divide the sub-continent into identifiably different regions.

Dress, housing patterns, shapes of utensils, headgear, footwear, and popular motif --may be used as different parameters for the identification of such regions, as Huntington mentions:

"Geographers maintain that boundaries of spatial regions may be drawn based on landforms, water bodies, soil, minerals, climate, vegetation and even on the distribution of animals."¹⁶³

The rice-wheat divide:

A divide based on the two major staple foods, rice and wheat, may be of special significance and consideration for the sub-continental scenario.

The rice growing and wheat growing areas in the sub-continent were clearly distinguishable from earliest days, although in recent times the situation has changed considerably. Development of new agricultural techniques and human engineering in land, water and other agricultural inputs, has made it possible to grow both the crops in areas where they were unknown earlier. Thus today rice is grown in the Indus basin region and wheat has been introduced in some parts of the Bengal delta.

However, this has not changed the 'staple food' pattern of the regions drastically. Predominance of rice and wheat as the staple food still remains a pointer to the age old cultural division. A clear line of demarcation may be drawn dividing the traditional rice growing and wheat growing areas of the sub-continent. This will give us, what we may call, the '*rice-wheat divide*' (**Fig. 4.5**).

In fact, the agricultural technology adopted for these two crops differ significantly, with its impact on the marketing and trading activities as well. Food items prepared from rice and wheat are quite different, so are the techniques developed over ages for the preparation of those food items. All these factors impart characteristic features in agriculture, industry and the way of life of the inhabitants on the two sides of the divide, which may be an interesting area for further study.

¹⁶³ E. Huntington (1951), *Principles of Human Geography*, New York. p654.

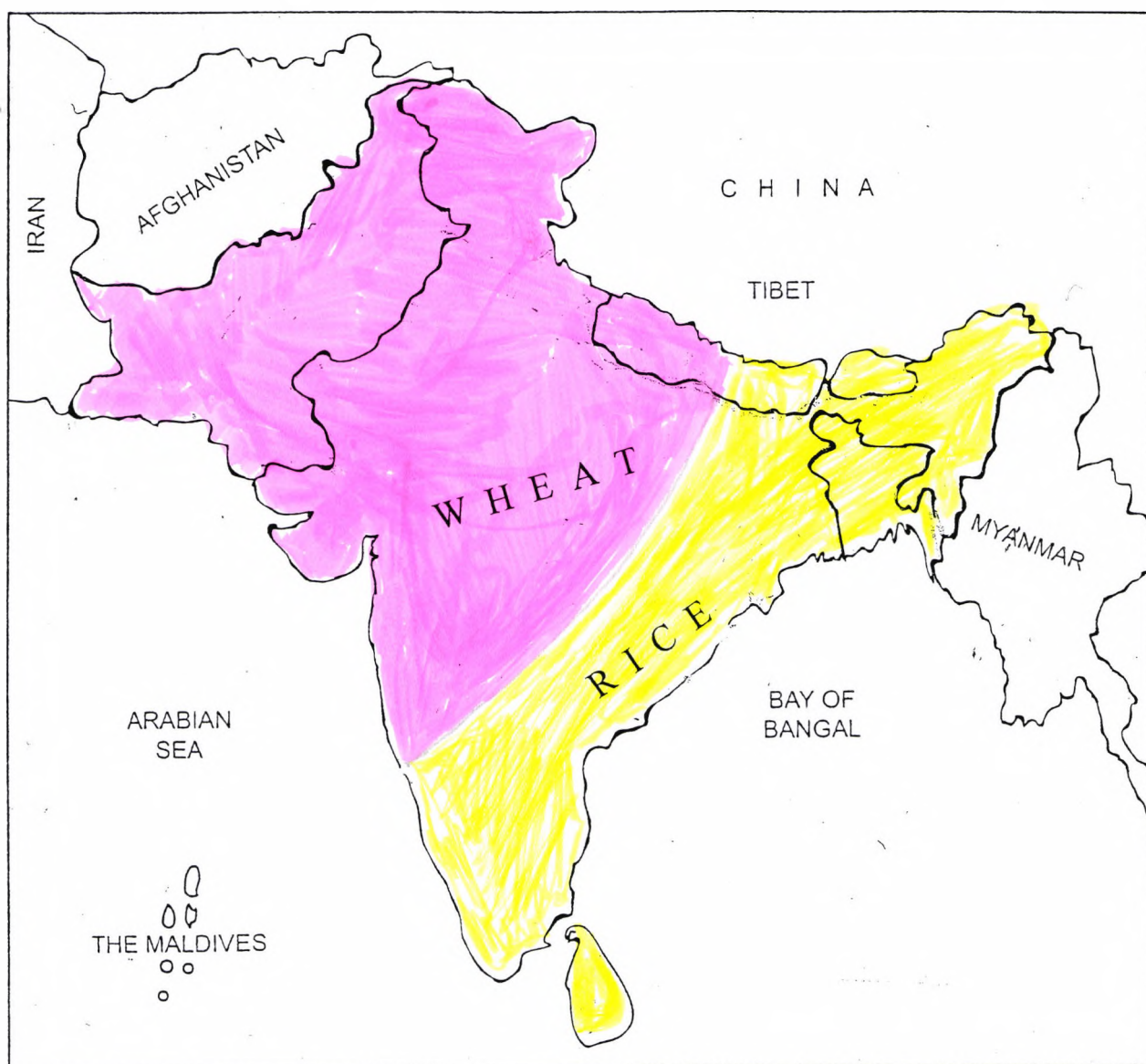


Fig. 4.5: The Rice-Wheat divide

4.4 THE END OF BRITISH RULE: MALADIES IN THE SUCCESSOR STATES

With the end of the British rule and the formation of the successor States, South Asia has entered a new phase of history. However, the long colonial rule has left its mark on almost every aspect of the region. Moreover, the very mechanism of transfer of power and the composition of the successor States has added certain in-built maladies in all the successor States.

From a systems point of view, as mentioned earlier, all spatial systems being *organismic* show the intrinsic tendency of self-preservation against imposed distortions. They tend to recoil against any external interference.

We have earlier argued that formation of the successor States to the British colonial rule has been arbitrary, which was based on the partisan political considerations of the time, ignoring long term systemic imperatives. The breaking of Pakistan in 1971, only 27 years after its tumultuous start, giving birth to Bangladesh, is a glaring example of the shortsightedness of those who decided in favour of the formation of a country with such an unworkable systemic structure. With such inherent systemic incongruity the breaking of Pakistan was, in a way, inevitable.

This is only one example. There are many other incongruities in the present sub-continental politico-administrative framework, manifested through various types of ethnic and regional conflicts and recalcitrance.

All these conflicts and recalcitrance are nothing but systemic backlashes that emanate, to a large extent, from the system distortions perpetrated through the very State formation process. The communal riots, the separatist, or independence movements, the sectarian political conflicts, the regional discontents, the lack of cohesion between the States in the region, their mutual antagonism and distrust, all are products of that systemic backlash.

Now we shall look into some of the glaring incongruities that saps the potential of this otherwise resourceful and promising territorial region with a rich heritage, presently relegated to the status of one of the poorest regions of the world.

i. Fragmentation and dissipation of historic systems.

From all tenets of political science, a good number regional entities in South Asia could be fit candidates for separate Nation State status. But in 1947, the mainland sub-continent was divided¹⁶⁴ into only two units, India and Pakistan. Muslims and Hindus, belonging to the all the linguistic, historic and territorially divergent regions were treated as two 'nations' and the 'cake' was *divided* between them.¹⁶⁵

Thus on the one hand several historic Nations were subsumed within the two supra-national entities, compelling them to accept the hegemonic control of one or the other *core* and thereby relegated to a peripheral existence. On the other, regions like Bengal and Punjab were fragmented into two or more pieces and thrown to the opposite sides of political borders, destroying their age-old singular identities.¹⁶⁶

The sub-continent has been paying price for that from the first day, with no end in view.

ii. The lacunae in the legitimacy

Both India and Pakistan came into being as the 'Successor States' to the British colonial administration and their legitimacy as 'sovereign States' has been derived from the latter. Therefore, none of them are in reality, products of natural development, or 'born out of free will' of their citizens. This certainly left a flaw in their legitimacy.¹⁶⁷

iii. Perpetuation of the communal divide

Although the division was based on religion, there was no region in the sub-continent exclusive to a single religion. The general idea was to give the 'Muslim majority' provinces to Pakistan and the rest to India. But in all the Muslim majority provinces there were substantial number of non-Muslims, living there for generations, those being their ancestral homeland. And also there were substantial numbers of Muslims in all other states with a Hindu

¹⁶⁴ It is better to say 'consolidated' instead of saying 'divided'. In reality, a large number of territorial units were now 'consolidated' into only 'two'.

¹⁶⁵ Although the 'two nation' theory was voiced by the Muslim League, it was finally acquiesced to by both the Indian National Congress and the British Government.

¹⁶⁶ Hugh Tinker (1967), *Experiment with Freedom*, Oxford University Press, London.

¹⁶⁷ Although there was a popular movement demanding independence, the final act of State formation in the sub-continent was completed behind the curtain through private negotiations between the top leaders. There was no referendum and the argument of treating the result of the 1946 general election, as giving mandates to the leaders of the two winning parties to negotiate on behalf of the entire sub-continent is a flawed argument.

majority, which was again their ancestral homeland and where they belonged.¹⁶⁸

It appears that leaders on either side at the top were looking for 'estates' that they could rule unhindered and the departing British administration obliged them, without caring what will happen to these people, the religious minorities in the two countries, who overnight became alien in their homeland.

Then the inevitable happened. While political leaders and their followers, together with the beneficiaries of the new situation were rejoicing their *victory*, millions of people who could never imagine what was going on, suddenly became 'stateless'. They were forced to leave their homesteads, leaving behind all that was near and dear to them. Their houses gutted, belongings looted, womenfolk dishonoured, children thrown into burning flames, they had to run and run to the other side of the arbitrarily decided border, which was yet to be demarcated. How many people had to give their lives in this frenzy will never be exactly known. But the figure must exceed the death tolls due to the bloodiest armed conflicts that have been enacted on the subcontinent over centuries. This is what the great 'statesmanship' of the genre in the late 1940s presented to their bewitched followers.

And the story did not end there. The 'partition' was said to be the only solution that would 'resolve the 'communal divide' once for all. But, in reality it has made the spectre of communal divide rule the sub-continent for all time to come.

iii. Continuation of the colonial administrative structure

The successor States 'inherited' and retained the colonial administrative structure in totality. There has been hardly any change in the administrative framework. The civil and military bureaucracy designed and developed by the colonial power continues to function in the same manner as it was before.

An administrative set-up designed to serve a *colonial rule* is hardly compatible with the needs of any *independent democratic country*.

iv. Incompatible goal

There was also incompatibility of goals. After the British withdrawal the top political leadership changed hands, no doubt, from *white* to *brown*. However, the real power remained in the hands of the civil and military bureaucracy. Being permanent, much more organised

¹⁶⁸ India has now a Muslim population of more than 130 million and Bangladesh has a Hindu population of roughly 15 million.

and much more institutionalised than the ill-managed motley crowds of the political parties, the final say in the policy making inevitably lay with this 'oligarchy'.

The mass transfer of personnel from Pakistan to India and vice-versa, was only a sort of administrative reshuffling. In place of one single structure now there were two, both retaining the characteristics and values of the colonial days. A new set of beneficiaries, comprised of power brokers backed by business and the landholding aristocracy, supported by the bureaucracy, replaced the colonial rulers in all respects.

A new elite class soon emerged out of this nexus, having little or no inhibitions of the cherished goals that the political leadership proclaimed before and during the transfer of power. The altruistic goal of a government 'of the people, for the people, by the people' remains a far cry.

v. The core nation bias.

Formation of successor States replacing the British colonial administration, has also been heavily burdened by the core-nation bias. This was the result of the highly centralised leadership of two leading political parties, the Indian National Congress and the All India Muslim League. In the crucial phase of transfer of power both the parties were under the absolute command of leaders from the *Hindi-Urdu* belt of the central and northern regions of India.¹⁶⁹ These leaders, were in closer touch with the British administration in Delhi and also had the patronage of the powerful business elite and feudal aristocracy of their respective communities. Consequently, the two major successor States, India and Pakistan, were founded with in-built core-nation bias.

In India, the mainly Hindi speaking region, now known as the 'Hindi belt' as mentioned earlier, is the "core-nation". The heart of the core is Uttar Pradesh, the western part of Bihar and Delhi with the regions around it. Haryana, Rajasthan, Madhya Pradesh, Uttarkhand, Himachal Pradesh and eastern part of Bihar form its outer rim. All other provinces outside this conglomerate are distinct peripheries.

In Pakistan, the province of Punjab, with around 60% of the total population of the country, enjoys an almost similar status as the 'Hindi belt' in India.

¹⁶⁹ This trend in the sub-continental leadership developed after the shifting of the capital to Delhi.

4.4.1 The present India as a singular unit

The present Indian Union, being the virtual replacement of the British colonial administration in Delhi, inherits almost all the characteristic features of the sub-continental scenario that we have discussed earlier.

Thus, what has been described of South Asia in general, applies more or less to the present Republic of India. and we need not repeat them here.

India alone commands 70% of the land area of the sub-continent and more than 70% of the population. It has retained the Ganges valley and the peninsular region almost in entirety. It has also taken up most of the *princely states*, those ruled by the semi-independent rulers under British suzerainty. Therefore the direct command area of the present Indian Republic is more than that of the British colonial administration in Delhi prior to 1947. In effect, it hosts more divergence in ethnic, linguistic and religious traits than the British India, with all the trappings of their age-old political, economic and social problematic.

Increased communal violence

Apart from the territorial divides, the Indian population is also highly stratified vertically because of the caste system deeply rooted in the dominant Hindu society. In many regions caste dictates politics. The problem was aggravated after independence, as caste division has taken over the place of Hindu Muslim division, in those areas which have lost their Muslim population due to migration. Thus the Indian central administration faces a grave challenge to its integrity from both horizontal and vertical divides.

Although India is officially a 'federal' State and its provinces have been named 'states', it still essentially remains 'unitary' for all practical purposes. The central government retains control over all major policy decisions.

Initially, the battle cry of independence was strong enough to hide the seams and the fault lines remained submerged. However, with the passage of time and the waning of the initial fervour, fault lines have appeared one after another. Apart from the general conflict between the centre and the peripheral entities, there are serious 'nationalist' upsurges in several regions. As of today, Kashmir, Assam, Nagaland, Manipur, Tripura, Punjab and dozens of similar recalcitrant entities are keeping Delhi constantly on its heels.¹⁷⁰

¹⁷⁰ In most of these regions there is a large presence of army and para-military forces engaged in day to day combat with the rebels.

Although India on the whole has maintained a commendable continuity of regular and periodic elections and a democratic representative governance, its basic national fabric has undergone a total metamorphosis. The Indian National Congress, which pioneered its independence movement and provided a strong ideological linkage to the divergent regions has now been marginalised by regional and Hindu nationalist forces. Political power is found to swing between opposite poles in successive elections, showing the erosion of the stable polity.

4.4.2 Present-day Pakistan as a singular unit

Pakistan was formed in 1947 with its two wings separated from each other by about 1500 miles of Indian Territory.¹⁷¹ From the first day of its inception it was suffering from this territorial incongruity. The new 'Nation State' was founded on the assumption that Muslims of the sub-continent are a 'single nation' and that their common religious faith will keep them bounded together in spite of all linguistic and ethnic divergence.¹⁷² Unfortunately, the initial fervour of religious separatism waned with passage of time and its structural seams became all too obvious.

i. New fault lines

The first major fault line in the body politic of Pakistan surfaced on the question of State language within months of its inception. Pakistan's ruling elite, dominated by the Urdu speaking 'Muhajirs'¹⁷³ from India and the landed aristocracy of Punjab, declared Urdu as the State language of Pakistan, although it was not the spoken language of any region of the country. It was the mother tongue of only three percent of the total population of the then Pakistan.¹⁷⁴ However, the people of Western Pakistan, having none of their local languages developed enough to stake a claim for the status of State language, acquiesced to the move, accepting Urdu as their *lingua franca*.

But, the Bengali speaking East Pakistanis, forming 56% of the total population of Pakistan, staged a fierce agitation against this decision. leading to the killing of a number of student protesters in

¹⁷¹ Since the relations between India and Pakistan were not at all friendly from the beginning, direct movement from one part of Pakistan to another through India was very limited. Movement of commodities between its two wings was entirely by the sea route between Karachi and Chittagong, covering a distance of 2900 miles. Although there was an air link, it was beyond the reach of the common man.

¹⁷² 56% of the population of Pakistan lived in East Pakistan all of whom were Bengali speaking, while major languages spoken in West Pakistan were Punjabi, Sindhi and Pushtu. Muslims who migrated to Pakistan from the northern India spoke Urdu.

¹⁷³ The Muslim immigrants from India, mostly from UP and Bihar, whose mother tongue was Urdu, or Hindustani.

¹⁷⁴ In early 1948, at a public meeting held in Dhaka, Mohammed Ali Jinnah, the President of the newly founded Pakistan, declared that '*Urdu and Urdu only* shall be the State language of Pakistan', which immediately drew protests from the East Pakistanis in general.

Dhaka in police firing on the 21st February, 1952¹⁷⁵, which triggered more discontent and finally compelled the Pakistani rulers to bow down. Bengali was also declared as the State language of Pakistan alongside Urdu. This event had a lasting impact on the course of politics in Pakistan and was indeed the seeding of the separate identity of East Pakistan.

Being separated from the seat of power by more than 1500 miles of foreign territory, East Pakistan was now set to gradually slide away. The capital of Pakistan was set up in Karachi (later in Islamabad) in the western wing and since political and administrative power has a natural tendency to concentrate around the capital city, all major development activities and industrialisation programmes were concentrated in the western part. East Pakistan received only a small fraction of central development expenditure. Moreover, East Pakistan had a negligible share of the army and the central bureaucracy. As days went on this gap widened and the underdog East Pakistanis became more and more restive.¹⁷⁶

The only way to maintain a State machinery of this type was by coercion, and the desperate Pakistani rulers tried that till the last. After a prolonged people's movement in East Pakistan throughout the sixties, a bloody 'civil war' erupted in 1971.¹⁷⁷ The people of the eastern wing waged an armed struggle¹⁷⁸ demanding complete independence from Islamabad. An exile government of the 'Peoples Republic Of Bangladesh' was formed which received diplomatic recognition from several countries and mass support the world over. The *Mukti Bahini* (Freedom Fighters of Bangladesh) waged a massive guerrilla warfare against what they termed the Pakistani occupation forces. This situation resulted in an exodus of almost 10 million East Pakistani civilians to the neighbouring Indian states, precipitating the direct military involvement of India. On 3rd December, 1971, India got involved in a direct war against Pakistan and a Joint Command of Indian Army and the 'Bangladesh Liberation Force' was formed to conduct the war. On 16th December, 1971 Pakistani forces surrendered to the Joint Command and the two wings of Pakistan formally fell apart, giving birth to the independent Bangladesh.

¹⁷⁵ This incident is commemorated in Bangladesh on the 21st February every year as the 'national day of mourning'. Recently it has been given a recognition as the 'International Mother Tongue Day' by the UN..

¹⁷⁶ Taylor (1985)

¹⁷⁷ In the general election held in 1970 east Pakistanis voted overwhelmingly for the Awami League, which was demanding complete autonomy for the province, electing it in 167 out of 169 seats allotted to the province on the basis of population. This gave it an absolute majority in a parliament of 300 members. But the Pakistani central authority in Islamabad, which was overwhelmingly West Pakistani, could not be reconciled to this verdict and the Pakistani military cracked down on the unarmed civilians in East Pakistan on the 25th March of 1971, in an attempt to dissipate the popular movement therein.

¹⁷⁸ Bengali soldiers in the Pakistan army revolted and joined the political agitators in Chittagong and elsewhere. Being unable to withstand the onslaught of the powerful Pakistan Army they retreated to the border and took shelter in the neighbouring India, mostly in the hills and forests adjacent to the border. The Indians, though hesitant initially, finally decided to give them support.

ii. Recalcitrance unabated

It could be expected that with the exclusion of the recalcitrant East Pakistan, Pakistan's political stability would no longer be haunted by inter-regional strains. But as soon as East Pakistan was out of the scene, a four dimensional ethnic conflict between the Punjabis, the Pathans, the Sindhis and the Baluchis, which was so long subdued under the more severe confrontation of the two wings, came to the surface.

Soon a fifth dimension was also visible with the emergence of the so-called "Muhajir Qaum"¹⁷⁹, comprising the Muslims from the Hindi/Urdu speaking part of India, who came over to Pakistan in 1947 and afterwards.

In the beginning the Muhajirs (emigrants) were welcome everywhere in Pakistan. In fact they dominated the national leadership of Pakistan for the first two decades in politics, as well as in administration and business. But this honeymoon did not last long. As days went on the locals in all regions started resenting the "domination by outsiders". The *muhajirs*, who were obviously fewer in numbers, gradually found themselves at odds everywhere. This caused frustration and anguish amongst them.

The situation worsened further after 1971.¹⁸⁰ In the absence of East Pakistan, Punjab now had almost absolute control in the body politic of Pakistan. Accounting for 60% of Pakistan's present population, it overwhelms the other ethnic segments -- the Pathans, the Sindhis and the Baluchis, not to speak of the Muhajirs, in all spheres. As a result now it is the turn of the other smaller regions of Pakistan to voice their frustrations and resentments towards the "big brother" Punjab, ushering in a new multi-dimensional confrontation within Pakistan.¹⁸¹

4.5 SUMMARY

This Chapter has provided a general overview of the territorial and demographic situation in South Asia and highlighted the cohesive and disruptive factors related to this spatial system. It has been shown that on the sub-continental level both the cohesive and disruptive forces, the centripetal and the centrifugal, are strong and

¹⁷⁹ Meaning the 'nation of the immigrants'.

¹⁸⁰ In the month of March 1998, the *Muhajirs*, came out with a demand for an 'Independent Karachi' as their separate spatial unit. Also the *Saraiki* speaking people of southern Punjab are now demanding separate province. The *Saraiki speaking* districts constitute almost 40% of the area of Punjab. *Saraiki* is a language claimed to be different from Punjabi, but officially considered only a variant of the latter.

¹⁸¹ See Tarique Ali (1983), *Can Pakistan Survive?*, Penguin, London.

their manifestations varied over the historical time frame. This may also vary depending on the observer's *worldview*.

Thus, like the mythical confrontation of Cain and Abel, these opposing forces of 'unity' and 'diversity' confront the sub-continental psyche at all levels and in all arenas.

In India, as it has been mentioned above, at one end there are the protagonists of the '*Akhand Bharat*' aspiring to have a single unified Statehood comprising the entire sub-continent, with the absolute and highly centralised dominance of the orthodox Hinduism, even at the cost of '*ethnic cleansing*'. At the other end, the inevitable outcome of such 'chauvinism' widens the societal and regional cleavages, that now overwhelm the centralising forces in almost all of the peripheral regions.¹⁸²

The situation in Pakistan is no different, where the battle cry of Islam has not been able to provide a common denomination for national consolidation.

In the next chapter the situation of the Bengal region, in the eastern part of the sub-continent will be examined, where, in our world view, a singular system has been splintered, causing system distortions of another kind, which has been termed, in the beginning of this chapter, -- *Boundary Superimposition: Type-II*.

¹⁸² In present day India champions of Pan-Indianism like the Indian National Congress or the Bharatiya Janata Party have lost much ground to the regional or sectarian parties.

Chapter – 5

BOUNDARY SUPER-IMPOSITION : TYPE-II

'FRAGMENTATION' OF A SYSTEM

“: Bengal... was a distinct entity of its own. Whether Hindus or Moslems, Bengalis sprang from the same racial stock, they spoke the same language, shared the same culture. They were the descendants of a culture whose roots went back in time to the pre-Christian era when a Buddhist civilization flourished in Bengal”

-- Larry Collins and Dominique Lappiere (1986) ¹⁸³

“Almost the entire area of the old province of Bengal is, ... deltaic. ... probably the largest delta in the world. ...

a common structural history and a very similar way of life based on rice. It would be, therefore, difficult to divide it into more than one region, ...”.

– O.H.K Spate¹⁸⁴

Introductory notes

In the previous chapter a situation with several distinct systems bundled into a singular entity due to the superimposition of boundary has been looked into. In this chapter an opposite scenario will be taken up where a boundary splinters a spatial system into several fragments.

We have selected the “Bengal region” in the eastern part of the South Asian sub-continent for this case study.

Here the word “Bengal” is used to denote the geographical region around the confluence of the three rivers; the Ganga, the Brahmaputra and the Meghna, inhabited by a people who have a common language named ‘Bangla’. The Bangla linguistic region, in the broader perspective, comprises the whole of Bangladesh

¹⁸³ Larry Collins and Dominique Lappiere (1986), *Freedom at Midnight*, Vikas, New Delhi.

¹⁸⁴O. H. K. Spate, *India and Pakistan*, (1965); See Section 4.4.3



Fig.5.1 The Bengal region: General

and the Indian states of West Bengal and Tripura, together with certain districts of other Indian States like Assam, Bihar and Orissa, where Bangla speaking people are in a numerical majority (**Fig. 5.1**).¹⁸⁵

The Census report [1961] comments:

“ ... the Hindi of Purnea (a district in Bihar), as you go eastward, gets more and more tinged with Bengali, till at last you reach a point where there is no Hindi at all traceable in it. ... Bengali begins where Hindi leaves off, somewhere between Purnea and Dinajpur and is bounded on the north by the hills as far as Assam, where it blends into Assamese. ... The western boundary of Bengali is formed by the Rajmahal Hills, and southwards through Bancoorah and Midnapore to Subarnarekha.”¹⁸⁶

As in the previous chapter on South Asia, the aim of this inquiry shall also be to have a general overview of the region, to facilitate identification and listing of the centripetal and centrifugal forces working on the regional system.

Although the present discussion is based on the available standard texts treated as classics in this area, there may remain room for further investigation into the territorial, historical or socio-political aspects of the region. On certain issues our expositions or assertions may not be above controversy, due to the divergence in the ‘world view’ of different observers. This, however, should not affect the basic formulation of our case study, which we intend to, as already mentioned, view only as a data pool for our systemic investigations.

5.1 HISTORICAL OVERVIEW OF BENGAL REGION

5.1.1. Origin of the word “Bengal” or “Bangla”

The word “Bengal” is the English perversion of the word “Bangalah”, the name by which the entire deltaic region came to be known around the fourteenth century. This was the first time in history that entire region was brought under a common rule

¹⁸⁵ The region lies between 27° and 21° latitude and 92.5° and 87° longitudes. Arakan, a province of Myanmar, south of Bangladesh is also a largely Bengali-speaking region. The language of Assam, *Ahomia*, is very close to Bangla and is written in the same script. Oriya, spoken in Orissa, and the language spoken in eastern part of Bihar has a close resemblance to Bangla. In fact, the language of eastern Bihar is akin to ‘Brajabuli’ which is considered to be the original form of modern Bangla. The languages spoken in Meghalaya, the Indian hill state north of Bangladesh, *Garo* and *Khasi*, and the language of the *Tipra* tribals of Tripura have a large vocabulary common to Bangla, to an extent that intercommunication between the locals in the bordering regions is carried out without difficulty.

¹⁸⁶ Census of India, 1961 Vol. 1, part XI, C(i).

by the Muslim rulers of Bengal, known as the 'Sultans' (Majumdar, 1971; Ali, 1975).¹⁸⁷

Apparently the word "Bangalah" appears to have been derived from the word "BANGA," the name of one of the many ancient kingdoms in the region (Ali, 1975).¹⁸⁸

Some historians suggest that the name "Bangalah" was coined from the words "Bong" meaning "Land" and "Ail" meaning earth-built narrow divider between pieces of farmlands, used both as demarcation and pedestrian way, a common sight all over the deltaic plain.

Thus: Bong + Ail (meaning land full of 'Ails') --> Bongal--> Bangalah --> Bengal/Bangla (Ali, 1975).¹⁸⁹

The English word "Bengal" is now being gradually replaced by the local word "Bangla".

5.1.2 Bengal in the early days

Early chronicles and Hindu epics, notably the *Mahabharata* and the *Oitoreyo Aronnyaka* and the Buddhist *Dharmashstras* mention "Banga" or "Vanga" as a sovereign Nation down the stream of the Ganga, lying 'beyond the zone of Aryan culture' (Majumdar, 1971). In the *Mahabharata* and other chronicles we find several episodes depicting confrontations between the 'Aryan' Kingdoms of Northern India and the 'non-Aryan' Kingdoms of Banga, Radha, Bajra or Kirata all from the Bengal region.¹⁹⁰

These chronicles from northern India often indignantly referred to Bengal as the land of "Dasyu" (bandit) or "Pakhshi" (bird).¹⁹¹ This reflects the ethnic and politico-cultural situation of the region at that period, indicating that this region was distinctly separate from that of the northern and central part of the sub-continent. The description of the *Shodasha Janapadas* or the

2. Muslim rule in Bengal started with the Turkish general Ikhtiaruddin Mohammad Bakhtiar Khilji taking over Lakhnawti in the year 1199 AD. The region was consolidated into a powerful sultanate (kingdom) by Sultan Shamsuddin Ilyas Shah (1339-1358).

3. The exact location of ancient *Vanga* is disputed. It appears that different parts of the region were known by that name at different periods, although in general it is assumed that the southern part of the delta was particularly known as such for a longer period.

4. Majumdar (1971) thinks: 'The English name *Bengal* or its Portuguese form *Bengala*, were both derived not from *Vanga*, as generally supposed, but from *vengala* which name the Muslim rulers adopted.

¹⁹⁰ Majumdar [1971] mentions several kingdoms or 'nations' in ancient Bengal: Gauda, Vanga, Samatata, Harikela, Chandradwipa, Vangala, Pundra, Barendra, Dakshin Radha, Uttar Radha, Tamralipta (-lipti) or damalipta. It is not clear whether all of them existed at the same time. In all probability these names were in use at different periods of time.

¹⁹¹ *ibid.*

sixteen nations of the Aryans as found in ancient chronicles does not include Bengal.

Buddhist and Jain literature (circa BC 600) also mention Banga,¹⁹² Radha¹⁹³ and Gauda.¹⁹⁴ Mahabira, the founder of Jainism, while describing his visit to these 'alien lands' to preach his religion, mentions that he was not cordially received there¹⁹⁵. This clearly indicates that at that time the Bengal region was outside hegemony of Northern India, or the so-called 'Aryan' influence.

As mentioned earlier, Alexander's chroniclers (circa 300 BC) mentioned a powerful kingdom named 'Gangariddi' or 'Gangaridoi' beyond the last point reached by his conquering army in Northern India. Historians suggest that Gangariddi comprised of ancient Bengal and eastern part of Bihar. (Majumdar, 1971).

"Periplus of the Erithrean Sea" an account of a sea voyage around the sub-continent by an unknown Greek sailor (circa 1st century AD),¹⁹⁶ mentions the 'Bay of Banga' indicating that the name 'Banga' was already known to the western world at that point of time. Ancient travelogues by Fa Hien, Hiuen Tsang and others also give interesting information covering various periods of Bengal history.¹⁹⁷

5.1.3. Archeological findings

Archaeological findings from Feni and Savar in the present Bangladesh and Birhanpur and Barudi in West Bengal show that this region had human habitation at least from the later stone age. Other ethnological studies show that this region had a settled human habitation long before 1500 BC, the date assigned to the first intrusion of the 'Aryans' into this sub-continent from the northwest.

Limestone hand axes and fossilised wooden tools discovered at Feni, Mainamati, Savar and Sitakunda in Bangladesh have been found to be from early stone age, at least 20,000 years old (Rashid, 1978). Human fossils found at Medinipur, Birhanpur

¹⁹² Southern part of present Bangladesh

¹⁹³ Southern part of present West Bengal province of India

¹⁹⁴ Northern Bengal in general

8. One of the chronicles mentions that Mahavira, who hailed from northern India, had to flee from Radha (southern part of present West Bengal) 'being chased by dogs'. This indicates the extent of hostility between the Bengal region and northern India in those days.

9. *The periplus of the Erithrean sea*, ed. W.B. Huntingford, Hakluyts Society, London, 1980.

¹⁹⁷ "Ptolemy and Theodorus mentioned 'Gangaridoi' in the Ganga delta. This was one of the states of the proto-Bengali people in the pre-Christ period."-- Ashabur Rahman (1987).

and Barudi, in West Bengal have been identified to be from the pre-Hrappan period. Fourteen fossilised human skeletons discovered at the 'Pandu Rajar Dhipi', near the ruins of Gauda, the ancient Bengal capital, have been dated prior to 1500 BC (Ghosh, 1981), the time assigned to the so-called first intrusion of the Aryans into this sub-continent from the North-West.¹⁹⁸

Coins from the Mediterranean Island of Crete dating from 800 BC have also been discovered during archaeological excavations in places such as the "Pandu Rajar Dhipi". This suggests a trade link between the Bengal Delta and the early Mediterranean civilisation.¹⁹⁹

5.2 HISTORICAL DEVELOPMENT OF BENGAL BOUNDARY

5.2.1 The early shaping of the regional entity

It has been mentioned earlier that the Bengal region attained its distinctive identity as a singular political entity during the reign of Muslim Sultans in the thirteenth and fourteenth century. However its boundary was still nebulous which underwent so many changes in the course of next five hundred years. Today the region is divided into several segments, Bangladesh, West Bengal and part of Assam being the three major entities.

5.2.2 Bengal boundary in the pre-British period

The Bengal boundary in the pre-British period was not defined by any clear line of demarcation, as was the case at that period all over the world. Moreover, the political configuration of the region changed frequently with the rise or decline of the ruling dynasties. The Bengal Sultanate around 1325 AD extended over most of the Bengal region. This period ended with annexation of Bengal by the Mughals and making it a *subeh*, or province of the Mughal empire. As the Mughal power declined, the *subeh Bangala*²⁰⁰ became virtually independent, with only a nominal link with Delhi. At this time the *subeh Bangala* Included Bihar and Orissa. Its capital was shifted to Murshidabad from Dhaka. During the time of the battle of Palassey the young Nawab Sirajuddowla was reigning over this entire region and with his defeat to Robert Clives EIC in 1757 AD the foundation of the later 'British India' was laid on this soil.

¹⁹⁸ As mentioned earlier, this notion is now largely discarded.

¹⁹⁹ N.C. Ghosh (1981) writes, 'At Barudi in Singbhum handmade pottery can be traced to around 1100 BC'.

²⁰⁰ 'Subeh' means province. Although the Mughal empire was by this time almost non-existent, the rulers of Bengal used the connection as a source of their legitimacy.

5.2.3 Bengal boundary during the British period

The boundary line between Bengal proper and its peripheral regions was a subject of periodic cartographic exercises conducted by the British colonial rulers. There had been changes at various stages.

The start of the British rule in Bengal by dislodging the *Nawab* is a much discussed episode which need not be detailed here.²⁰¹

The British East India Company (EIC) was founded as a private company based in London to conduct trade in the east and soon it became the major custodian of British interests around the Indian ocean. In the sub-continent the company established its first trading post in the south, but soon its attention was diverted more to Bengal, where the French and the Portuguese companies were already having roaring business. In 1717 AD a *farman* was procured from the Mughal emperor in Delhi allowing the British certain special concessions to conduct trade in Bengal. Spear (1990) writes;

“ The Mughal *farman* of 1717 AD had given the Company virtual free trade for its goods; the network of Bengal waterways gave easy access to the interior and the resources of the area provided rich opportunities. To a flourishing trade in cotton and silk goods and yarn and sugar was added a growing trade in saltpetre for gunpowder in the European wars”.

The Company had already purchased in 1696 the *Zamindari*²⁰² of three small villages including Calcutta to set up its trading outpost, where a fortified factory named ‘Fort William’ was built (completed in 1716 AD) to oversee the companies trading activities and give protection to its merchant fleet. This was the beginning of the city of Calcutta.

The company soon came into conflict with the Nawab of Bengal and after the much discussed battle of Palassey in 1757 AD virtually gained total control of the *Subeh Bangal*. The district of 24-Parganas²⁰³ was ceded to the company by the new Nawab, Mir Zafar Ali Khan, whom the company installed at Murshidabad as the puppet Nawab for a short period after 1757. Soon the districts of Burdwan, Chittagong and Midnapur came under the company.

²⁰¹ For a detailed account see Spear (1990)

²⁰² Zamindar means ‘landlord’

²⁰³ The region south of Calcutta.

In 1765 the company acquired *dewani*²⁰⁴ of three presidencies of Bengal, Bihar and Orissa from the Mughal court in Delhi. This made the EIC the virtual sovereign of the entire eastern region.

After having their total control over Bengal, the richest region of the sub-continent at that period, the EIC was now poised to expand to other regions and over the next few decades most of the Ganges valley came under its control. The 'Presidency of Fort William in Bengal' now covered all the territories north of the Central Provinces, from the mouth of the Ganga and the Brahmaputra to the Himalayas and the Punjab (Molla, 1981).

Such a vast region could not be administered properly as a single administrative unit, which was considered to be 'a curious conglomeration of territories... a sprawling, ill-assorted and populous province. ... not carved out on any rational basis but the outcome of historical accidents and administrative expediency'.

During the initial days, no doubt, the primary concern of the EIC was trade. To quote Spear (1990):

"There is no doubt that the company's servants, while commercially contentious and aggressive, were very unwarlike, nor had they much political sense, nor for the planning of empire'.

However, with the passage of the Act of 1773 a political ingredient was added to it. A governor-general was appointed by the British parliament to oversee the affairs of the company and ensure British interest in all the territories in the subcontinent now under British control. The Governor General with his seat of power in Calcutta was also the Governor of Bengal.

By the middle of the nineteenth century the Bengal presidency (**Fig. 5.2a**) comprised all of the territories except those under the presidency of Madras and Bombay, including the newly occupied Burmese territories. Time and again there were discussions and representations to reduce the size of this vast administration, but any decision on this matter was delayed by the Governor General's office on the plea that it will weaken the central authority (Molla, 1981).

However, in 1853 the administration of Bengal was finally separated from the Governor General's office and a Lt. Governor was appointed for the province, with his jurisdiction extending over Bengal, Bihar, Orissa and Assam (**Fig. 5.2b**). The Burmese territories of Arakan and Teneserim were taken out and put directly under the Governor General. Thus, the province of Bengal came back to its pre-British boundary, comprising the

²⁰⁴ The right of collecting revenue on behalf of the Mughal Emperor in Delhi

Bengali speaking regions with certain other peripheral districts on all sides.

Even after this change the Bengal province was still a vast territory, ' 750 miles from north to south and 800 miles from west to east with an area of 245,786 sq. miles, seven times as large and forty times as populous as all the British West Indian possessions' (Molla, 1981).

As mentioned earlier, the British colonial rule in the subcontinent was established through the dethroning of the Nawab of Bengal, Siraj-ud-dowla in 1757²⁰⁵ and the subsequent acquisition of the 'Dewani' (revenue collection authority) of Bengal-Bihar-Orissa by the East-India Company from the decaying Mughal Court in Delhi²⁰⁶. The Battle of Palassey, which was to change the course of the history of the sub-continent, was in reality a military coup executed at the behest of the East India Company, in connivance with the commander-in-chief of the Nawab's army, Mir Jafar Ali Khan. Mir Jafar, whose name has become a synonym for the word 'traitor', all over the sub-continent, was ditched by the company soon afterwards. This event paved the way for the establishment of the colonial empire in the sub-continent.²⁰⁷

At the time of the battle of Palassey, Bihar and Orissa were also under the Nawab of Bengal, seated at Murshidabad. This was the phase of disintegration of the Mughal Empire. The Nawab of Bengal, although independent for all practical purposes, still owed nominal allegiance to the Mughal court in Delhi.

History shows that it was only after establishing a foothold in Bengal that the British East India Company could consolidate its power and strength to carry out missions and expeditions to other parts of the sub-continent, one after another, until the entire sub-continent came under the British flag.²⁰⁸

In 1857, after the failed upsurge by local recruits of the colonial army and the remnant local powers, attempting restoration of the Mughal emperor in Delhi, the rule of the East India Company was ended and India was proclaimed a crown colony directly under the Queen of England²⁰⁹.

²⁰⁵ For a good account see Spear (1981)

²⁰⁶ An ailing heir to the Mughal throne Farrukh-Shiar, in return for medication by the English emissary for his illness (impotence, as it is said), granted free trade to the company in Bengal, subject to an annual payment of only Rs. 3,000, through an imperial farman Spear mentions it as a 'signal diplomatic success' (Spear, 1981).

²⁰⁷ Spear, 1981; Majumdar, 1971, Ali, 1975.

²⁰⁸ Ibid.

²⁰⁹ Majumdar, R.K. (1957), *The Sepoy Mutiny and Revolt of 1857*, Calcutta.

By the end of the nineteenth century the entire sub-continent came under British colonial rule with Calcutta as its capital. Bengal became the pivot of the British colonial empire in Asia and Calcutta grew up as the principal centre for British trade and commerce outside London.

The Bengal presidency formed the central core of British administration in India.

5.2.4 Formation of 'Eastern Bengal Assam Province': 1905

In 1905 a major reorganisation plan was taken up by the British administration to divide the Bengal province into two parts. The erstwhile province of Bengal, with Calcutta as its capital, retained the western districts of Bengal together with Bihar and Orissa, while a new province of 'Eastern Bengal and Assam' was formed with its capital at Dhaka, comprising the eastern districts of Bengal, together with Assam, including the entire hill region eastward (**Fig.5.2c**).²¹⁰

This decision was taken by the British government at the initiative of Lord Curzon²¹¹ the then viceroy to India, and some of his aides, whose principal concern was presumably to decentralize the oversized province for better administration. But this move soon generated a political turmoil that was not anticipated.

The decision to partition the old Bengal province and the creation of the new province of Eastern Bengal and Assam was violently opposed by the Bengali Hindu elite. It was described as the vivisection of 'mother Bengal' and a deliberate attempt by the British to weaken the nationalist forces of Bengal. It was at this point that the *swadeshi*²¹² movement gained momentum. However, the demography of Bengal was such that its western half was dominated by the Hindus, who were comparatively more affluent and advanced, while the eastern districts were predominantly agrarian and overwhelmingly Muslim.²¹³ A clear Hindu-Muslim divide existed there. Thus the new province gave the Bengali Muslims a clear upper hand, who now found a separate arena, free from the domineering control of the Hindu elite of Calcutta. Thus while the Hindu elite found in the

²¹⁰ Molla (1981).

²¹¹ George Nathaniel Curzon, (1859-1925), Viceroy of India (1898-1905).

²¹² Meaning 'national', or 'home-grown'.

²¹³ The population of the new province was 31 million, of which 18 million were Muslim, 12 million were Hindus and the rest Animists, Christians and Buddhists.

creation of the new province a move to dissipate their power base, it was hailed by the Muslims in general.²¹⁴

However, being more articulate and having stronger financial, political and organisational muscle, the Hindu elite of Bengal could quickly organise a mass movement against this reorganisation move and almost paralysed the day to day business all over the Bengal Presidency²¹⁵. They successfully raised the passion of common Hindus describing this move as 'vivisection' of mother Bengal. Hundreds of youths volunteered to form militant groups and organize attacks on British establishments and government officials²¹⁶.

5.2.5 Impact of the formation of the new province of Eastern Bengal and Assam

The new province of Eastern Bengal and Assam had a far reaching impact on the region.

The capital of the new eastern province was set up at Dhaka in 1905 and the glory of this old capital city was revived²¹⁷. It had a new lease of life.

As already mentioned, the new province offered certain clear advantages to the Muslims of Bengal. Although Muslims were numerically 55% of the total Bengali-speaking people, they were far behind the Hindus in education, trade, commerce and public service in the erstwhile Bengal province. They were mostly poor peasants concentrated in the rural areas of eastern Bengal. They had very little presence in the capital city of Calcutta and therefore had almost no say in the intellectual or policy-making arena²¹⁸. Now the province of Eastern Bengal and Assam, being overwhelmingly Muslim, having its capital at the Muslim-dominated City of Dhaka, had given them a separate runway for their political and economic take-off.²¹⁹

Applying hindsight, one may ponder today whether that exercise could have been a blessing in disguise to the people of the region

²¹⁴ Nawab Salimullah of Dhaka wrote to a British MP visiting Bengal during that period, " We support the partition, because it is, without the least doubt, beneficial to our cause, -- it has united the Mohamedans in one vast body and has, in consequence, brought us to some prominence-- under it, our interests will be more carefully looked after-- it has given us impetus to social and political advancement-- it has created in us a thirst for education, has given us scopes for higher ambitions and above all , has stimulated the rapid local development of the districts separated and placed under a district administration , which failed under the old system to attract the amount of attention to local needs, commensurate with their importance." --Salimullah to Keith Hardie, Dhaka, and 30 October 1907: Judicial and Public department file no. 3476,1907.

²¹⁵ The general practice with the *Swadeshis* was to vow in front of Goddess *Kali* to give their lives to avenge this *vivisection*, which alienated the Muslims towards this movement..

²¹⁶ The *Swadeshis* also initiated a campaign to boycott foreign products to mount pressure on the British authority.

²¹⁷ See Bradley Birt, *Romance of an Eastern Capital*, London, 1905; also Molla (1981).

²¹⁸ Ibid.

²¹⁹ Ibid.

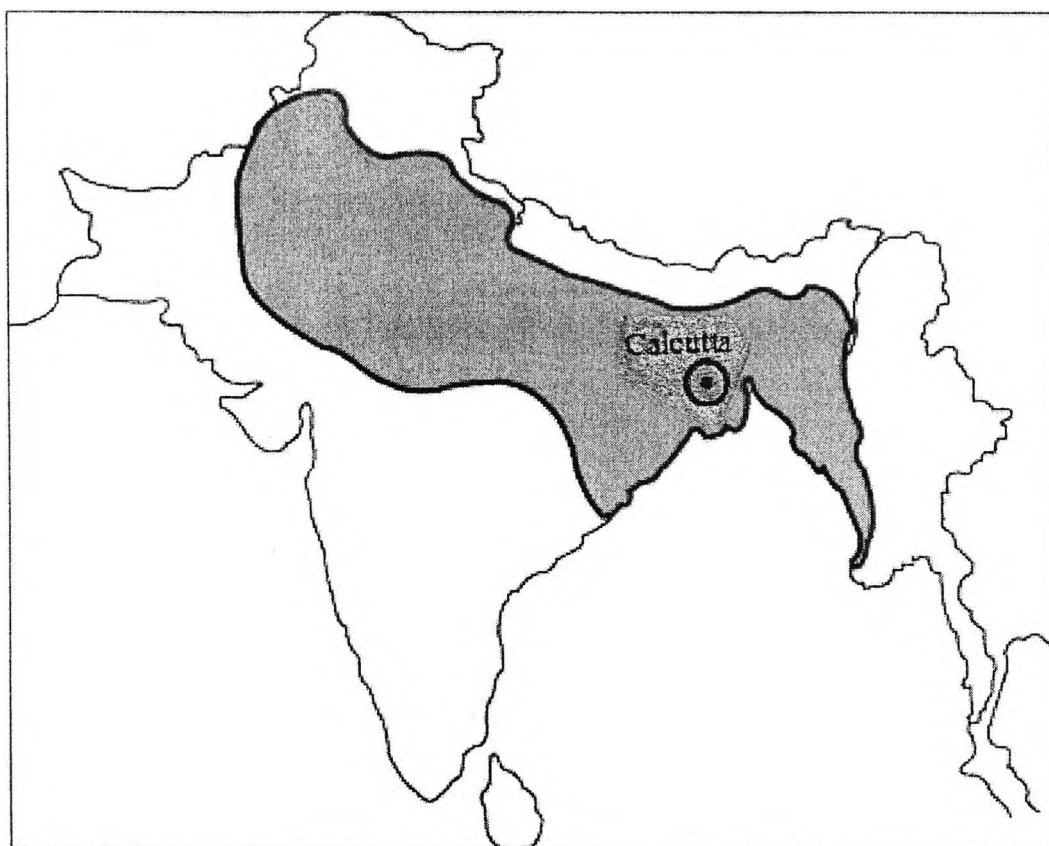


Fig. 5.2.c : Presidency of Fort William circ. 1850.

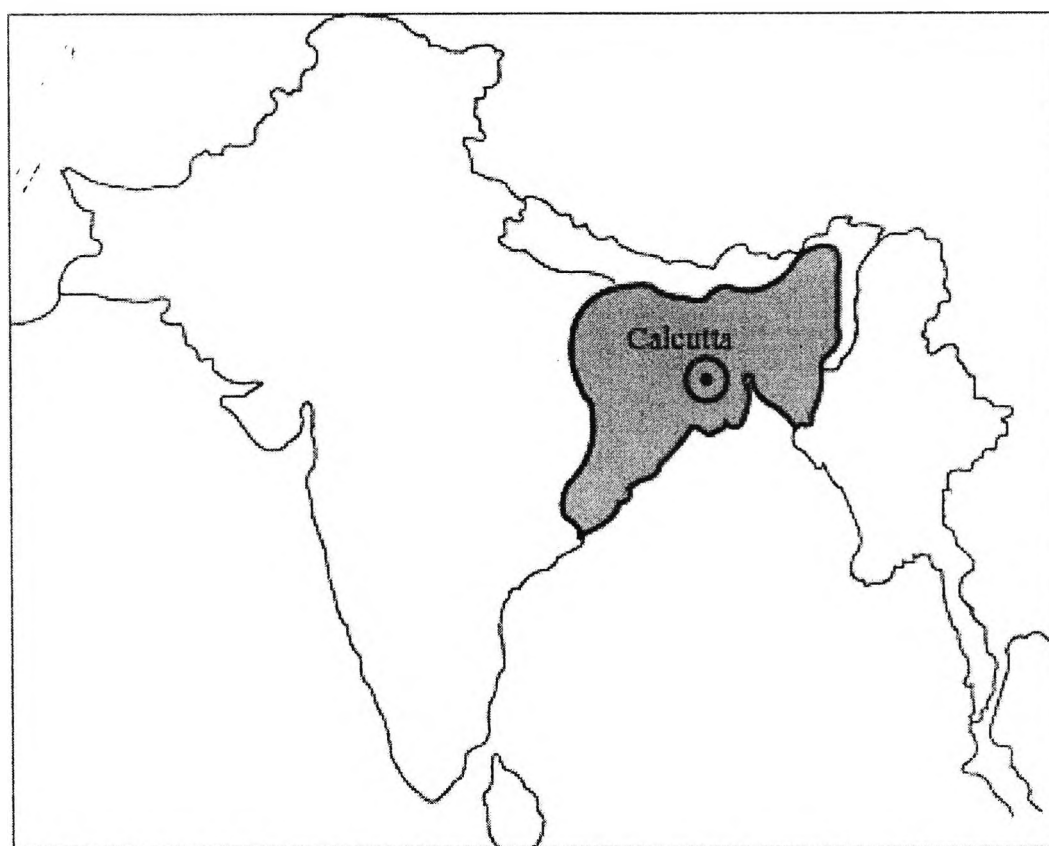


Fig. 5.2.d : Bengal under Lt. governor (1853-1908)

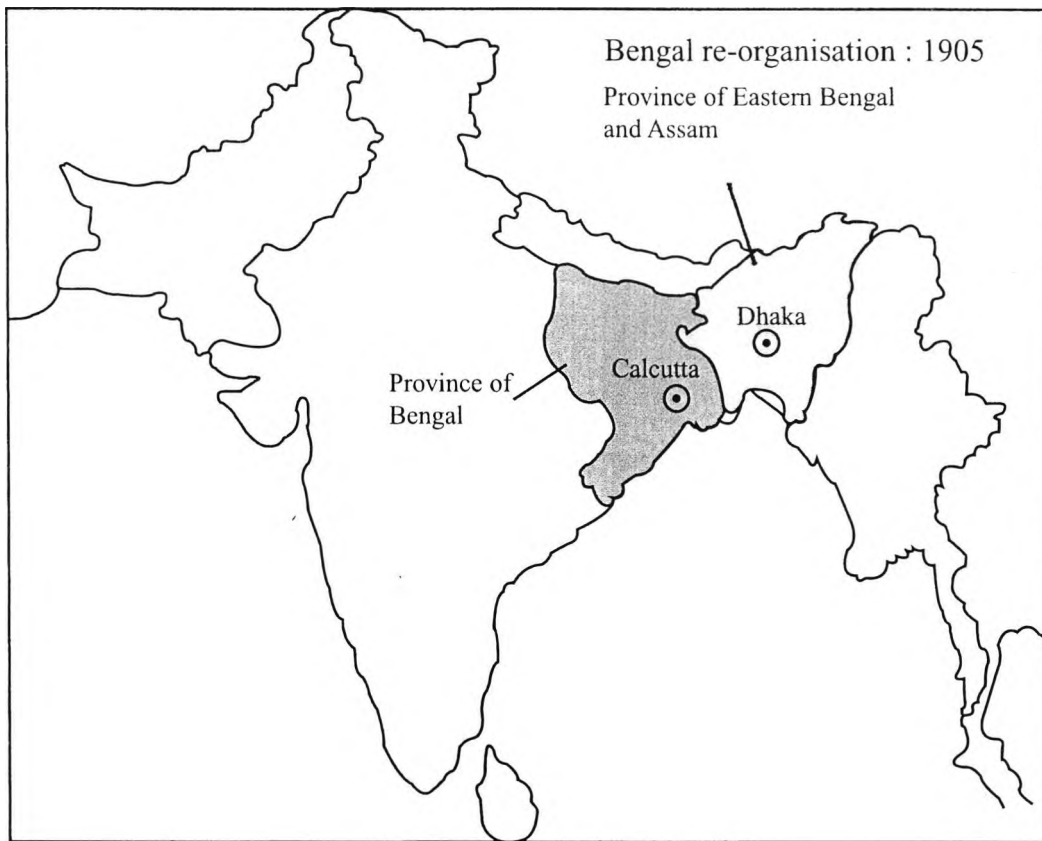


Fig. 5.2.c Bengal after 1905 reorganisation

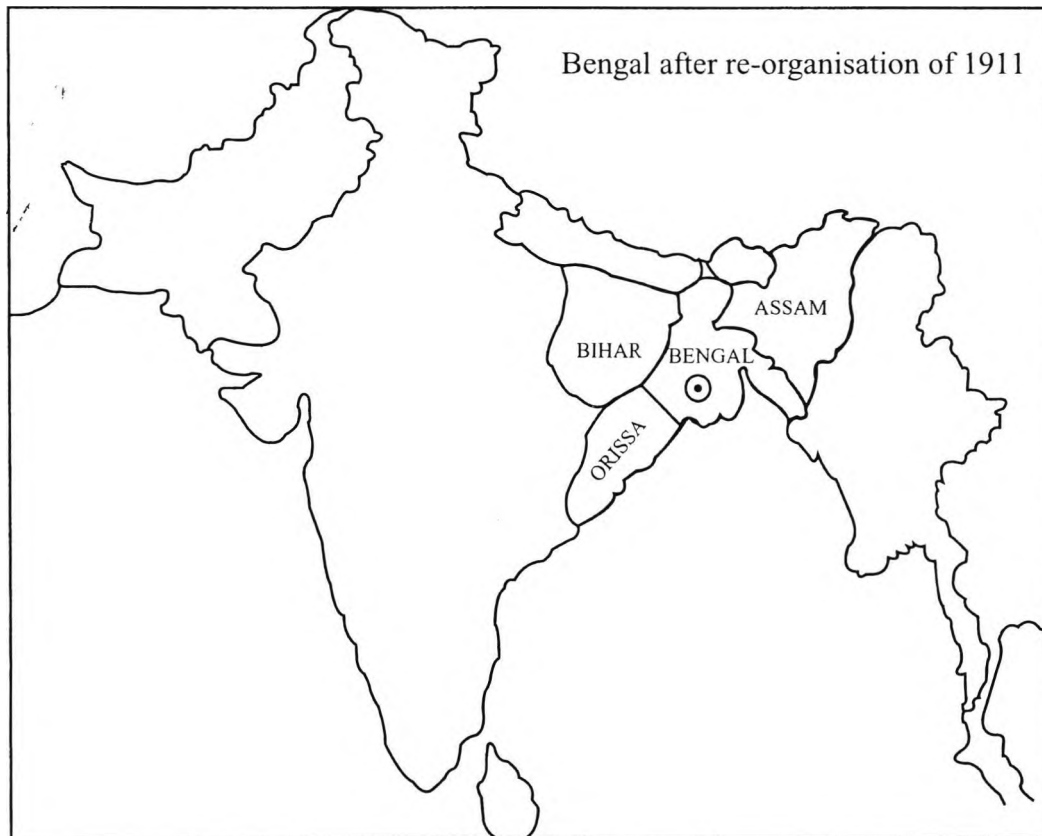


Fig. 5.2.d Bengal after 1911 reorganisation

on the whole, both Hindus and Muslims and also the tribal population in and around. Although the two new provinces gav

the two communities their separate spheres of dominance, the demarcation was not on any strict religious line. It was not the creation of *two countries*, only two administrative units, instead of one, and there was no bar to the free movement between the two provinces.

In fact, administration and not religion was the consideration behind this reorganisation, as Molla [1981] describes the decision making process in this regard in detail citing contemporary documents.

This bifurcation could be beneficial in the long term for the adjustment between the two communities. It would have extended the boundaries of the Bengal region westward and eastward allowing wider "lebensraum" and harnessed better exchange and understanding with the adjoining regions.

5.2.6 The Restructuring of 1911: The 'sizing' of Bengal

However, as mentioned earlier, the elite of Calcutta was in no mood to give up their unhindered and total control over the entire region. In the end the British Government was forced to retract and go for a drastic reorganisation of the region in 1911. The province of Eastern Bengal and Assam was abolished and East Bengal was again placed under Calcutta.

But the province of Bengal was not to be restored to its earlier position. Orissa and Bihar were separated from Bengal and made new provinces. Assam was also made a separate province. Thus, the new Bengal province was trimmed to a size that was only one-fourth of the combined area of the two earlier Bengal provinces (**Fig, 5.2d**). In fact, it was now much smaller, since a number of Bengali speaking districts were also trimmed and placed with adjoining provinces.²²⁰

5.2.7 Partition of Bengal : 1947

British colonial rule in South Asia ended somewhat abruptly in the wake of World War II. Continuation of the coercive control over the rebellious colonies around the world was a burden unbearable to the war weary British administration.²²¹ The condition in South Asia reached an explosive stage by the end of the war and the British parliament decided to quit without

²²⁰ The districts of Dhanbad and Santhal pargana of Bihar, Goalpara, Karimganj and Cachar of Assam and Baleswar and Keonjhar of Orissa are Bengali speaking districts.--Shankar Gangopaddaya in the daily Shatyajug, Calcutta, (December 20, 1986).

²²¹ "The cost of their victory, however, had almost vanquished the British ..." : Larry Collins and Dominique Lapierre, (1986).

delay.²²² It was one of the greatest events of political and administrative retreat in modern history by any colonial power. The task of handing over independence to a vast and turbulent colony and at the same time protecting the interest, present and future, of the withdrawing colonial power, was indeed a difficult one.

However the task was made a bit easier by the fact that although the passion for independence was high, at that particular phase of history the animosity against the colonial rulers was buried under the bitter squabbling amongst the sub-continental leadership, particularly of the two major political platforms, the Indian National Congress and the All India Muslim League. The former enjoyed the support of the Hindus in general and the latter claimed exclusive authority on behalf of the Muslims. When it became certain that power was really going to be transferred both Congress and Muslim League engaged themselves in outplaying each other, leaving the British colonial administration in the comfortable position of an arbitrator, virtually commanding the decisions.²²³

Eventually mainland South Asia was divided into two major successor states: India and Pakistan, keeping Sri Lanka, Burma, Nepal, Bhutan and Sikkim (subsequently annexed to India) out of the bargaining table. **Fig. 5.3** shows South Asia before and after the 1947 'partition'.

Pakistan was carved out from the areas where Muslims were in the numerical majority, as demanded by the Muslim League.²²⁴

Ironically Muslims of the sub-continent were in majority in the north western and the eastern regions, situated almost a thousand miles apart. In the two larger provinces, Bengal in the east, and Punjab in the northwest, tensions mounted as both the Congress and the League geared up their campaign and in an atmosphere of serious religious confrontation the two provinces were partitioned.

²²² Initially the decision was to leave India by June 1948, It happened a year earlier.

²²³ In the early minutes of 15 August 1947, the British standard was lowered at Delhi and the standard of the new republic of India was hoisted up. Ironically, both the rituals were performed by the same person, Lord Lewis Mountbatten, the British viceroy, who *delivered the* independence to India on one hand on behalf of the British Crown and also *received the* same by the other hand on behalf of the newborn Nation State of India, as its first Governor General! On the other side of the scenario, although Pakistan did not agree to have Mountbatten as the Governor General, it, nevertheless, retained an Englishman as the commander-in-chief of its army.

²²⁴ After prolonged conflict between the elite of the two communities over several decades the Muslims raised the demand for a 'separate homeland', first in the mid-thirties, which was formulated into a political move by a resolution (better known as the *Pakistan resolution*) adopted at the annual conference of the All India Muslim League held at Lahore on the 23 March, 1940.

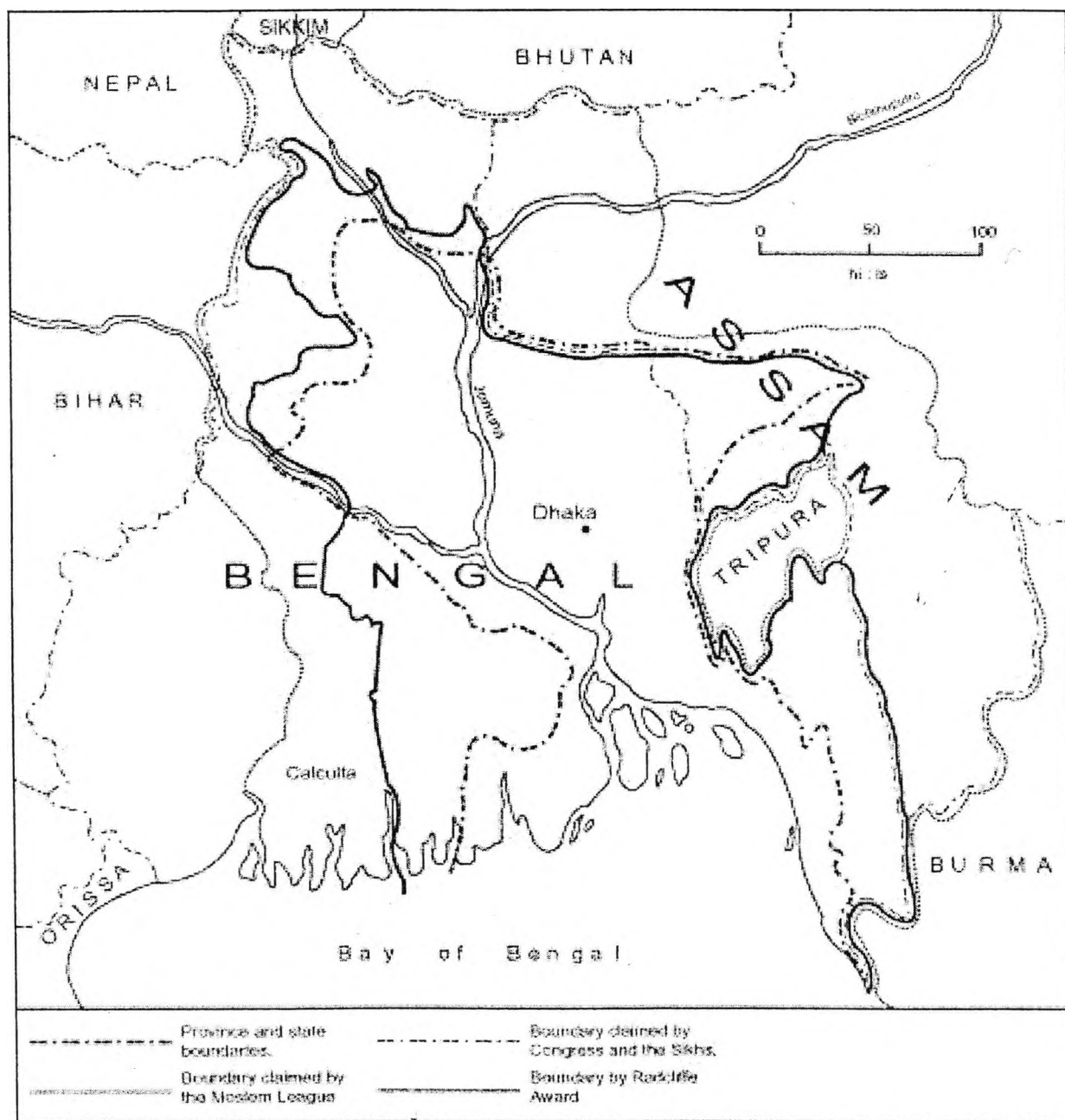


Fig. 5.3: The Partition of Bengal and Assam in 1947
 From: Spate, *The Geographical Re-view*, xxxviii (Jan. 1948)

Sir Cyril Radcliffe, a British lawyer, was entrusted with the task of drawing the lines of partition in Bengal and Punjab. This was certainly a stupendous task and the time allowed for that exercise was also too short. Radcliffe was a lawyer by profession and this was his first trip to India. Almost single handedly he decided the destiny of the vast sub-continental landmass by drawing arbitrary lines over the map sitting in his office room, never visiting any part of the boundary he was tracing. As Larry Collins and Dominique Lapierre (1975, 1986) write:

“ Sequestered in a green-shuttered, stucco bungalow on the edge of Delhi's viceregal estate, sweltering in the oppressive summer heat, Sir Cyril Radcliffe began to trace out boundary lines on a Royal Engineers' map. The remorseless demand of all concerned for speed had given him no alternative but to perform his vivisection in the solitude of the bungalow. Cut off from any human contact with the great entities he was dividing, he was forced to visualise the impact of his work on areas that seethed with life, with only maps, population tables, statistics to guide him... Never would he walk in a rice paddy or study the jute field his pencil was going to mutilate.... His boundary, however, was just a pencil line drawn on a map with all the heartbreak that implied.”

The partition triggered communal frenzy on both sides. Bloody riots erupted all over, claiming a million lives, leaving millions homeless and causing the greatest ever-human migration in history.

5.3 BENGAL AS A SINGULAR UNIT

Let us now look to the Bengal region as a single systemic unit in order to identify its systemic traits.

5.3.1 Ethnic identity: A melting pot

The people living in this region, presently numbering more than 200 million, show remarkable similarity in physical features sprinkled with a varied intermix of divergent traits in skin colour, height and built, facial structure, nasal and cephalic characteristics etc. This indicates a common ancestry with lateral infusion of other traits.²²⁵ Being easily accessible from all sides, this fertile deltaic flatland, watered by hundreds of rivers and rivulets providing a perennial source of fresh water,

²²⁵ Mohar Ali (1975) writes: There are unmistakable indications of a rather widespread race movement in the area in pre-historic times. On the one hand the people of Bengal exhibit a wide variety of skin colours and physical features. These suggest a conglomeration of various racial stocks.

attracted people from far and near throughout the ages, making it a demographic melting pot (Ali, 1975).

5.3.2 Common language

The region has a common language Bengali (or Bangla) which ranks seventh amongst the most widely spoken languages of the world. The total number of people speaking this language in the sub-continent (together with those living in other countries) is presently estimated to be above 220 million.

Bengalis are fondly attached to their language, which was manifested in the fierce resistance in the early 1950s by the East Pakistanis to an attempt by the Pakistani regime to introduce Urdu as the official language of the then Pakistan.

Today Bengali speaking people are divided between Bangladesh and India, but language keeps them bounded in a fraternal link. In fact there are many who are inclined to bury the past and unite the two parts of Bengal, which they call *Epar Bangla* and the *Opar Bangla* (meaning, *Bengal-this side* and *Bengal- the other side*).

5.3.3 Territorial homogeneity

The Bengal terrain generally consists of alluvial plains mostly formed through siltation from the mighty rivers, the Ganga, the Brahmaputra and the Meghna. Except for the hilly terrain on the eastern flank, the Rajmahal hills in the present West Bengal and a few patches of red soil here and there, the whole terrain shows striking homogeneity in soil texture, agricultural pattern and its flora and fauna (Ahmed, 1968; Spate and Learmonth, 1967)).

Spate considers the 'geographical treatment' of the Bengal region as more than one region to be 'difficult'. In his words:

"Almost the entire area of the old province of Bengal²²⁶ is, in a popular sense, deltaic. – If we take in all the areas of generally deltaic aspect, including the Surma valley, it is probably the largest delta in the world. ... The whole of Bengal (apart from the extreme north, south west and south east) has, however, a common structural history and a very similar way of life based on rice; it had for some centuries possessed a historic entity, and except for the brief interlude of Carzon's partition (1905-11), it was until 1947 a linguistic and cultural unit focussed on Calcutta. It would be, therefore, difficult to divide it into more than one region, on the scale on which that term has to be used in a book treating of a sub-continent."²²⁷

²²⁶ The province of Bengal as it was during British rule.

²²⁷ Spate, O.H.K., India and Pakistan, p-523.

5.3.4 Socio-Cultural Harmony

Cultural traits, such as staple food, lifestyle, homestead pattern, dress etc. are remarkably common all over the region. Changes occur gradually from one end to the other within the region, without showing any sudden change at any given point. Even at the boundary language and cultural traits do not change abruptly. It gradually fades away. (Refer to the comments in the 'Census of India Report, 1961', as quoted in the introductory notes of this chapter).

However, in spite of such broad ethnic and socio-cultural homogeneity, the two main religious communities, the Muslims and the Hindus, have certain striking dissimilarities in their cultural outfits, including food, dress and even certain vocabulary. On the other hand, though the Bengalee people inhabit the entire region, there are still a few small kin groups of aborigines or tribal people who have managed to retain their age-old lifestyle.

5.3.5 Unified economy

Situated at the mouths of the great rivers, the Ganga, the Brahmaputra and the Meghna, the Bengal region has been the entry port to the entire sub-continent for all foreign vessels since the early days. The ancient seaports of Bengal served both inward and outward traffic, as its perennial rivers supported round the year navigation (Abbas, 1982; Ahmed, 1968).

Being served by an intricate network of rivers, centres of trade and commerce flourished at different nodal points throughout the region, generally along the riverbanks. The self contained villages and hamlets spread all over the region were linked to these centres.

Thus the region had a unified and integrated economy from the early days, even when the region was not politically united.

5.3.6 Unified polity

It has been mentioned earlier that Vedic literature and early Hindu, Buddhist and Jain chronicles indicate that this region was a distinct entity outside the so-called 'Aryan'²²⁸ polity of northern India. Although it is difficult to draw any definite boundary of the ancient Kingdoms in the region based on these accounts, other circumstantial evidence, nevertheless, give

²²⁸ Aryans were described as a nomadic cattle raising people and fierce horse-riding warriors who could easily defeat the agricultural communities of Ganges basin and take over their cities and land. However, the theory of such large scale intrusion of a so-called 'Aryan' race is now seriously disputed by historiographers, who discard the idea of any specific 'Aryan' race entering the sub-continent en-masse. The prevailing view now is that of an 'Indo-Aryan language group' that gradually extended into the sub-continent.

rough outlines of the politico-historic development in the ancient Bengal region.

It is said that Aryan tribes from central Asia invaded the northern part of the sub-continent around 1500 BC and through the next centuries extended their domination eastward downstream of Ganga. In the process indigenous settlements were destroyed one after another.²²⁹ Most of the original sons of the soil, the Dravids and the Austriacs, were driven towards the south and the east by the invaders,²³⁰ while part of them, subjugated by brute force, were condemned to a sub-human existence at the bottom of a caste-ridden social stratification.²³¹

It has been suggested that circa 1200 BC the Aryan domain in the northern India extended up to Bideha, the western part of the present Bihar province of India. Both the northeastern and the southeastern parts of Bihar, the Anga and the Magadha respectively, were still outside the Aryan domain, with Bengal remaining further away.

It has been mentioned in *Mahabharata* and other chronicles that there were sixteen Mahajanapadas or 'nations' within the 'Aryan' domain. Although the exact time of the legends of *Mahabharata* is debated, this historical statement appears to refer to the situation before Alexander's invasion of South Asia and may be ascribed to a period circa 600 BC. These so called 'sixteen Aryan nations' were Kamboj, Gandhar, Kuru, Shursen, Matsya, Chedi, Koshal, Panchal, Malla, Bajji, Batsya, Asmak, Abanti, Anga and Magadha.

It is curious to note that Anga and Magadha (eastern and southern Bihar) were by that time turned into Aryan lands, but 'Banga' or Bengal is not included in the list.

A part of Bengal went under external domination for the first time in the 3rd century BC under the Mourya Kings²³². King Chandragupta Mourya established a mighty empire in northern India in the wake of Alexander's invasion. His descendent Asoka, who championed Buddhism in the later days of his reign, extended control over almost the entire sub-continent. The largest expanse of his empire, circa 250 BC, included the south western fringe of Bengal region, the mainland Bengal still retaining separate identity. Mourya empire crumbled immediately after Asoka.

²³⁰ It appears that in general the Dravids retreated to the south and the Austriacs to the east.

²³¹ The Hindu society, which links itself to the Aryan heritage, has four socially stratified classes or *castes*, the Brahmins, the Kshatriyas, the Baishyas and the Shudras, the last one being the untouchables.

²³² Chandragupta Mourya extended his empire, over Gauda and Radha, but the eastern part of Bengal region remained outside his reign.

Bengal was under north Indian occupation again under the Guptas during 5th century AD, when Chandragupta II annexed the western part of Bengal region.

After the Guptas several local Kings ruled different parts of Bengal. In the sixth century AD King Shashanka of Bengal extended his domain over most of the Gangetic plain and present day Orissa.²³³

More notable was the eighth century Pala dynasty of Bengal, which had a more lasting impact on the sub-continental scenario. Apart from extending their domain over most of the Gangetic plain.²³⁴ Pala Kings are remembered for their patronisation of Buddhism. It was during this period that Buddhism flourished to its highest glory and expanded to the South East Asia, the Far East, Tibet and China.²³⁵

It should be noted that from the ancient period till the middle ages the Bengal region was not a compact political unit. It was divided into several segments, each having different ruling dynasty at different periods of time. As noted earlier, it became a single political or administrative unit, in the modern sense of the term, for the first time after the rise of the independent Muslim Sultans in the 13th century. However, it was the culmination of a process of interaction among the smaller kingdoms and settlements of the region over the preceding millennium, through trade, commerce, religion and literature.

The perpetual conflict between the North Indian powers and the rulers of the Bengal region should have helped this consolidation to a great extent. Even the Bengal Sultans, although they were of outside origin, engaged themselves in constant clashes with the powerhouses of central India. This helped the shaping of a separate and consolidated socio-political entity of the region, which was indeed the seeding of the modern "Bengali nationalism". During the reign of the Sultans, which lasted for more than three hundred years (1199 AD to 1532 AD), the Bengali language and literature received generous royal patronage and attained its distinctive shape as the 'Lingua franca' of the region²³⁶.

The rise of the Mughals in Delhi was a set-back to this nation building process. The Bengal Sultanate gradually eclipsed, being

²³³ Chowdhury, A.M. (1967). *Dynastic History of Bengal*, Asiatic Society, Dhaka

²³⁴ Majumder, R.C. (1943)

²³⁵ Remnants of massive Buddhist *viharas* Dynastic History of Bengal, Asiatic Society, Dhaka

²³⁵ Remnants of massive Buddhist *viharas* at Mainamati, Mahasthan, Paharpur and other places in present Bangladesh and in the eastern districts of Bihar province of India adjacent to Bengal region stand witness to the golden days of Buddhism that lasted about one thousand years after Lord Buddha.

²³⁶ Muslim rulers of Bengal patronised the Bengali language and literature. During this period Bengali writing attained its distinctive shape. (Chatterjee, 1975).

overpowered by the mightier Moghal power through a series of armed confrontations and the region was finally converted into a province of the Mughal empire²³⁷.

However, even during the Mughal reign the Bengal was ruled by Mughal *Subedars (governors)* as an autonomous unit.

Bengal became the principal seat of sub-continental polity with the advent of British rule in the sub-continent. As described earlier, it was Bengal where the British colonial power gained its first imperial foothold on the sub-continent and Calcutta, a remote village in the western part of Bengal, was made the capital of British Indian colony which quickly grew into a vibrant metropolis. It became the principal centre of British trade, commerce and industry in Asia and outside the British Isles. Calcutta remained the capital of 'British India' till 1912, till Delhi was made the new capital²³⁸.

Both under the Mughals and the British, the province of Bengal included Bihar, Assam and Orissa for considerable periods. This increased the centrality and nodal primacy of the region that helped its socio-political and economic growth.

5.4 IMPACT OF PARTITION OF BENGAL: 1947

Partition of Bengal and its division between India and Pakistan in 1947, had both short and long term effects on both sides of the imposed boundary, causing serious system distortions.

5.4.1 A Nation divided

It will be evident from earlier discussions that through a process of evolution over several millennia the people of the Bengal region acquired a common language and a cultural heritage that gave them a distinct national identity irrespective of religious denominations.

When the Bengal presidency was divided into two provinces in 1905, creating the new province of "Eastern Bengal and Assam" and the province of Bengal, it was fiercely resisted by the Bengal elite, particularly the Hindu middle class, on the plea that it was a ploy to vivisect the unified entity of the Bengali nation.²³⁹

²³⁷ After several unsuccessful attempts the Mughals finally conquered Bengal in 1532 AD with the Mughal general Islam Khan setting up his capital in Dhaka.

²³⁸ King George V held the 'Delhi Darbar' in 1911 where he declared several important decisions. First, Bengal, which was till then directly under the Governor General, was made a separate Governor's province. The second was nullification of the division of Bengal and the third was the transfer of the capital from Calcutta to Delhi.

²³⁹ Molla [1981].

But, when the question of partitioning Bengal arose again in 1947, the Hindu elite of Bengal took up a totally opposite stand. This time it was the majority of the Hindu elite who rather demanded partition of Bengal on the basis of religion²⁴⁰. The reason was that in an independent unified Bengal, Muslims, had a slight majority and that with that numerical majority they might be in a dominating position.

It may be noted here that during the colonial rule politics in the sub-continent was confined to the small educated and affluent class. There was very little participation of the common mass, except when religious frenzy was aroused. Clever politicians meticulously cultivated communalism in order to recruit support from their respective communities. Thus the conflict between the Hindus and Muslims in Bengal was in reality the product of a sectarian conflict of interest between the elite of the two communities.

Obviously, the Hindu-Muslim dichotomy was sharper at the apex. The situation at the grass-roots was quite different, where the two communities lived side by side in an interwoven social fabric for ages, notwithstanding occasional minor friction.

Starting from the thirties right through the forties, the politics of the sub-continent polarised more and more towards communal lines. Congress and Muslim League, the two major political parties, played their respective cards, only to widen the gap.

Now that Pakistan was for the Muslims and India was for the Hindus, Muslims on the Indian side of Bengal and Hindus on its Pakistan side, suddenly found themselves to be "persona- non - grata" in their own ancestral hearth and home. The fabric of social co-existence of the two communities in the Bengal villages and towns for centuries was suddenly torn apart. The age-old amity was evaporated and there was enmity and bitterness that soon engulfed the masses on both sides.

This caused large-scale migration from both sides,²⁴¹ escalated by the periodic communal frenzy unleashed and nourished by the prevailing political chaos. Endless streams of migrants crossed the newly drawn borders, only to face utter disillusion and frustration in the new 'adopted' homeland.

However, although on the western front a mass exchange of population occurred, albeit at a very high cost, in the eastern region, the actual migration was not to that same extent. Estimates show that around 10-15% of the Hindus of East

²⁴⁰ *The Hindu Mahashava*, organised rallies demanding partition and most of the Hindu leadership, including that of the Bengal Congress, acquiesced to the same.

²⁴¹ Vakil (1951), Hodson (1969)

Pakistan moved to the other side, immediately after partition. Others clung to the soil facing all the odds. Same was the case of the Muslims in the West Bengal..

This created a new problem, the problem of "divided families" Immediate kin becoming citizens of two different countries.

5.4.2 Changing the demographic composition

Partition of Bengal caused drastic changes in the demographic composition of different parts of the Bengal region due to migration of Hindus and Muslims from one part to another. Thus East Pakistan lost almost 4 million Hindus to west Bengal, Assam and Tripura, and gained almost an equal number of Muslims from the rest of India. This obviously raised the percentage of Muslims in the already Muslim majority areas of East Pakistan, lowering the percentage of Hindus further. The reverse happened in West Bengal, Assam and Tripura.

In the process there was an influx of more than two million non-Bengali (Urdu or Hindustani speaking) Muslims into East Pakistan. This disturbed the linguistic homogeneity of the region, which was hitherto inhabited only by Bengali speaking people. However, since Urdu received the patronage of the ruling elite of Pakistan, the Urdu/Hindustani speaking population settled in East Pakistan retained their separate linguistic and cultural identity till the last days of Pakistan. They did not assimilate themselves into the local Bengalee cosiety. Remaining loyal to Islamabad, they stood against the independence movement of the Bengalee people in 1971.

Even today, after 32 years from the breaking of Pakistan, there are about 500,000 Urdu speaking people in Bangladesh, who live in shanty refugee camps awaiting repatriation to Pakistan.

Air Marshal Asgar Khan, a military leader turned politician of Pakistan, writes about the *Biharis* in Bangladesh:

"Unfortunately Biharis, who suffered from linguistic and ethnic chauvinism and a superiority complex, made no attempt to assimilate themselves in Bengali society... their blind support to the military in action against the Bengalis, therefore, increased the latter's wrath." ²⁴²

On the other side of the newly demarcated border, the Bengali Hindu migrants from East Pakistan burdened West Bengal. In Tripura the influx of Bengali Hindus from East Pakistan changed the demography of this tribal state completely. The tribal population was marginalised to the extent that today Tripuri, or

²⁴² Air Marshal Asgar Khan (1983) *Generals in Politics*, UPL, Dhaka.

Tipra tribes constitute only 25% of the population of that state²⁴³.

Assam had a mixed population before 1947, with the Ahomias, Bengali speaking Muslims, Bengali speaking Hindus, and Tribals forming four distinct segments of its population, none commanding absolute majority. In the partition award one of its biggest districts, Sylhet, with mostly Muslim population, went to Pakistan. On the other hand, a large number of Hindus from East Pakistan took refuge in this state, turning it into a clear Hindu majority province. This brought a significant re-orientation in the demographic composition of Assam. The migrant Bengalee Hindus from East Pakistan, being mostly educated middle class people, settled in the urban areas and got themselves quickly absorbed in white collar jobs, trade and commerce. Over a period of time this fuelled a severe anti-Bengali sentiment, which culminated in the so-called 'Bangal Khedao' (drive the Bengalees) agitation during the seventies.

5.4.3 Restructuring of the nodes and linkages

From the systems point of view the partition of Bengal caused an abrupt nodal restructuring in the region. Calcutta, the second largest city of the erstwhile British Empire, was now reduced to a peripheral city, losing most of its hinterland to East Pakistan.²⁴⁴

This partition altered the geo-political scenario of the eastern part of the sub-continent drastically. It isolated Assam and the northeastern hill region from the rest of the sub-continent. Earlier, although Bengal and Assam were separate provinces, communication and transit was unhindered between the two provinces. Assam could use the Chittagong port directly or send goods to the Calcutta port through East Bengal districts. Now East Bengal being part of a foreign country and the relation between the two countries being unfriendly, Assam and the eastern hill region became virtually landlocked. Their only connection with the rest of India was now through the narrow corridor at the north of Bangladesh.

The hill tribal areas (presently the hill states of Arunachal, Nagaland, Manipur, Mizoram, Tripura and Meghalaya), and the Surma valley of Assam, are now experiencing great odds. Earlier

²⁴³ Census of India Report, 1991.

²⁴⁴ "Radcliffe hesitated for a long time over Calcutta's fate. There was, he thought, much logic in Jinnah's claim to it so there might be a unitary flow of jute from the field to mill to port."-- Larry Collins and Dominique Lapierre (1986).

they were using the Chittatgong port (which is now in Bangladesh) and had an easy access to other parts of the subcontinent. Now they have to cover an additional distance of several hundred miles, circumventing Bangladesh, to reach the nearest Indian Port in Calcutta.

However, on the positive side, the new politico-administrative structure diffused the over-centralisation around Calcutta helping the emergence of new growth centres in the Eastern Pakistan (now Bangladesh). Dhaka, which was once a capital city for almost 200 years under the Mughals, was relegated to a rural township during the British rule. Now it was again a capital city, which quickly re-emerged as one of the biggest cities of the region. New sea ports and industrial centres also grew up to cater for the needs of the new situation.

On the Indian side also, in the geographically isolated regions of Assam and the hill states several new growth centres have emerged. The Indian central government, out of its security needs, has to pay special attention towards the infra-structural development in the region.

5.4.4 Perpetuation and deepening of the communal divide

A common language and a shared economy gave the Hindus and Muslims of Bengal a common socio-cultural identity, which was gaining in strength with the passage of time. The partition of 1947 reversed the process and widened the gap between the two communities both in terms of territorial segregation and group alienation.

As already mentioned, immediately after 1947 there was a migration of a large number of Hindus from East Pakistan to India. A similar migration of Muslims from West Bengal, Bihar, UP, Assam and Tripura to East Pakistan, changed the religious composition of the region increasing the percentage of Muslims further in East Pakistan. On the other side West Bengal, Assam and Tripura, experienced a reverse process, where the influx Hindu migrants from eastern Bengal increased the number of Hindus.

The process being irreversible, political expediency on both sides has been largely directed towards exploiting the rivalry situation between the two communities and the two parts of erstwhile Bengal drifted further apart.

5.4.5 Introduction of newer dimensions of social conflict

i. Burden of refugee

The influx of millions of refugees on both sides over a short span of time created serious administrative and managerial problems for the respective governments. Temporary shelters were built to accommodate the refugees. In many cases such 'temporary' shelters became near permanent and existed for decades. Along with accommodation, food, health care, sanitation, schooling for children and arrangement of necessary supplies put stupendous pressure on governments on either side. Finding jobs for the new citizens also became a long-term problem. Larry Collins and Dominique Lapierre (1986) termed it 'the greatest migration in history'. In their words:

“ For both the Indian and Pakistan Governments, the deluge of homeless, wandering millions pouring across the border posed problems such as few nations had been called on to face. Those suffering multitude expected miracles. They had won the panacea of freedom and they believed that somehow it would give their leaders the power to efface their ills.”

With the waning of the initial euphoria of independence, refugee problem turned into a major irritant on both sides. Local inhabitants started feeling sour at the generous support and advantages offered by their governments to the 'outsiders'. Clashes, both psychological and material, between the locals and non-locals became inevitable.²⁴⁵

ii. Ethnic conflict inducted into East Pakistan

The induction of a large number of non-Bengalee (Hindi/Urdu speaking) population into East Pakistan created a new non-Bengalee segment in its population, which was not there before. This brought a new element of social conflict. When the Bengalees rose to fight for an independent Bangladesh, these Urdu speaking non-Bengalees stood against and acted as the civilian arm of the Pakistan army.²⁴⁶ It is alleged that some of them, armed by the Pakistani army, engaged themselves in loot,

²⁴⁵ Vakil [1950] writes: “While the number of refugees from West Pakistan moving into East Punjab has been more than offset by the number of outgoing refugees from East Punjab and adjoining states, Government of India carried out plans to disperse West Pakistani refugees to other parts of India.... But the migration of 4 million non-Muslims from East Bengal was only partially offset. Over 90% of them migrated to West Bengal and again the majority of them settled in greater Calcutta, causing a serious strain on the already overcrowded city.”

The contention that there was less migration into East Bengal is debated. It has been found that there was large scale unaccounted migration of Muslims into East Bengal in the bordering districts, where both sides of the border were Muslim districts, such as between Karimganj-Sylhet, Murshidabad-Rajshahi, Maldaha-Chapainawabganj etc. Unlike the Hindu migrants, who were mostly professionals, these Muslim migrants were mostly cultivators. Having kith and kin on the other side, they just moved a few miles and migration made little social dislocation to them. Their migration remained largely un-recorded. -Author

²⁴⁶ Op cit., Asgar Khan [1983]

arson and mass killing of unarmed Bengalee civilians during the nine months of confrontation in 1971.

iii. Unequal transfer of wealth

Partition dislocated the landed aristocracy and the business community on both sides. Muslim landlords and businessmen felt insecure in India and Hindu landlords and businessmen felt insecure in Pakistan. Consequently a large number of them changed sides causing flight of capital from both sides. However, this capital flight was not equal on both sides (Vakil, 1950).

Calcutta was the economic hub of the British Indian colony and the East Pakistan region was its hinterland without any industry or major urban centre. Even the small business establishments that could be found there were mostly owned by the Hindus. The landlords all over the East Pakistan region were also Hindus (almost 90%), thanks to the permanent settlement initiated by Lord Bentinck in the early eighteenth century.

Thus, with the partition of Bengal, a large section of the Hindu elite of East Pakistan region, who had already their establishments in Calcutta, now severed all connections with rural Bengal. In the process there was a huge capital flight away from East Pakistan to India. On the other hand, Muslim refugees from India settling in East Pakistan were mostly poor peasants, landless labourers, or factory workers. They had hardly anything to bring with them. Whatever capital came to Pakistan, went to West Pakistan, which was the seat of power and also culturally closer to the Muslim elite of Central and Northern India. Thus East Pakistan (the present Bangladesh) was the victim of an unequal transfer of wealth through the cross-migration in the aftermath of partition.

iv. Divided families and 'enemy property'

Partition created a huge number of divided families on both sides. Generally the affluent and educated members of a family migrated to the other side at the first instance, expecting better prospects, while others clung to their ancestral home, as they had either no means to migrate, or the necessary education, skill, and capital to resettle themselves in the alien land. This created a large number of divided families. Such divided families faced a whole lot of problems as the bitter relations between India and Pakistan made inter-State communication difficult.

In certain cases properties belonging to the migrants were vested in the State as 'enemy property'.²⁴⁷

v. Splintering of an integrated economy and the eco-system

The greatest effect of the Partition of Bengal was the breaking of the integrated eco-system of the region

An excellent river communication system, extended inward deep into other parts of the subcontinent and outward to the sea-lanes across the Bay of Bengal had made the Bengal region the *entry-port* to the sub-continent since antiquity.²⁴⁸ In the process, over several millennia, this region gradually developed into an integrated economy. Partition splintered and shattered this system.

vi. The case of water

The most glaring aspect of this breaking of ecosystem is the case of water. As mentioned earlier, the Bengal region is the product of the three river systems the Ganga, the Brahmaputra and the Meghna. The three mighty rivers enter the region from three directions and converge into one before falling into the Bay of Bengal. Thus the water table of the region maintains a delicate balance supported by the three inter-linked river systems.

All these three river basins and about fifty-four rivers, large and small have been cut by the boundary set around present Bangladesh (**Fig.5.4**).

An intricate network of rivers and rivulets criss-crosses the whole region making an integrated eco-system sustained by the perennial flow of sweet water and the heavy rainfall during the monsoons. The new political boundary splintered this unique eco-system into several segments, seriously jeopardising the natural ecological balance.

In fact the water issue has been the main area of conflict between India and Bangladesh. Bangladesh accuses India of withdrawing and diverting a huge quantity of water upstream from the three rivers by erecting dams, barrages or groins. India has built a massive barrage on the river Ganga at Farakka, only a few miles away from the point where it enters Bangladesh. This has caused severe problems downstream inside

²⁴⁷ In Bangladesh today, one of the main complaints of the minority Hindu community relates to this so-called 'enemy property'.

²⁴⁸ Waterways in the region were the main conduit of transportation till the laying of the railways. While Lord Hardinge, the Governor General of India, was advocating vigorously for the building railways in the middle of the 19th century, Sir Arthur Cotton, the retired British colonel-turned-water expert, suggested that "water transport will be more profitable in India than expanding the railways."-- Quoted by Khurshida Begum (1987) and K.L. Rao (1976).

Fig. 5.4 : Splintering of the water basins

Bangladesh. In the lean period, withdrawal of waters at Farakka makes the river Padma (the name of Ganga inside Bangladesh) is almost dead. Water table in the area goes down, saline water makes deep inroad through estuaries increasing salinity in the water of the coastal region, severely harming the flora and fauna. During lean period the situation is so acute that to run boilers in the industrial city of Khulna, water has to be carried by barges from miles upstream.

Due to the lowering of the water table a desertification effect and acute drought situation is observed in the Rajshahi division of Bangladesh on the upper bank of Padma.

Withdrawal of water upstream also slows down the flow of water downstream causing greater rate of siltation and consequent rise of the riverbed. This in turn increases the extent of the monsoon flood year by year. Almost identical complaints are there for other rivers also, particularly, the Teesta, Brahmaputra, Surma, Barak, Monu, Khoai, Gomti, Feni, and Muhuri all along the border (Abbas, 1982); Khurshida Begum, 1987).

The Indian government has on many occasions expressed its determination to divert the water flows from the Brahmaputra to the Ganges and therefrom to the southern peninsular region by implementing a project envisioned in its 'National Water Grid' scheme prepared in the early seventies. If implemented, this will drastically change the water regime of the three river basins, causing serious systemic distortions affecting the entire region.

vii. The case of Jute

A very interesting phenomenon of the effect of superimposed boundary is observed in the case of Jute, the main cash crop of the region.²⁴⁹ Prior to 1947 Bengal alone accounted for 80% of the world jute production and almost all of that came from her eastern part, which became East Pakistan. On the other hand almost all the jute mills were located in and around Calcutta, which fell to India. Thus the jute fields and the jute mills of Bengal, which once flourished in symbiosis, were now on the opposite sides of a hostile political boundary.

²⁴⁹ "The jute industry was originally a handicraft of Bengal with a small export market. Its value was first realised in 1838 when export started to Dundee in Scotland.... The Crimean war of 1854 proved a turning point by cutting off the supply of Russian raw flax and hemp. ... The first jute spinning machine was set up near Serampore in 1855 and the first power loom in 1859. ... By 1908 Indian output exceeded that of Dundee. ... Jute made Calcutta, as cotton made Bombay, Madras, and Ahmedabad industrial cities." -- Spear (1981).

It was a total mess and as the relation between the two countries worsened in the early years of their independence, both sides came out with their own rescue plan. Pakistan hurriedly set up a large number of new jute mills in Dhaka, Chittagong and Khulna. On the other side India, desperate to meet the demands of raw jute to keep her jute mills running, took up a crash programme to cultivate jute on the paddy fields of West Bengal and Assam, with the help of the Hindu immigrant cultivators from East Bengal.

This created a new jute belt on the Indian soil girdling East Pakistan. A look at the grotesque geographical shape of the locations of these new jute fields of India (**Fig. 5.5**) provides a glaring example of the distorting monstrosity of an imposed political boundary.

viii...Effect on flora and fauna

Partition severely affected the flora and fauna of the region, as the two sides had different approaches to their development and management. The fish population dwindled both in size and diversity. The *Sunderban* mangrove forests in the south of Bengal region, considered to be the largest mangrove forests in the world and the abode of the famous Royal Bengal Tigers and many other exotic specie of flora and fauna, have also been divided between Bangladesh and West Bengal, making their conservation and maintenance difficult.

The Bangladesh part of it has been seriously affected by the withdrawal of water upstream, as described earlier. Bengal tiger and other exotic animals, once abundant in these forests, are now on the verge of extinction.

ix. Effect on internal trade and commerce

Another serious consequence of the partition of Bengal has been the impediment to internal trade and commerce as the age-old communication and transaction routes were splintered and throttled at different points, specially in the bordering districts.

Having been part of an integrated economy for ages these districts were interdependent for the supply of their daily necessities and marketable commodities. Now being separated by a closely guarded border, many of the traditional business centres of the bordering districts on either side, being cut off from their natural supply lines and losing a substantial part of

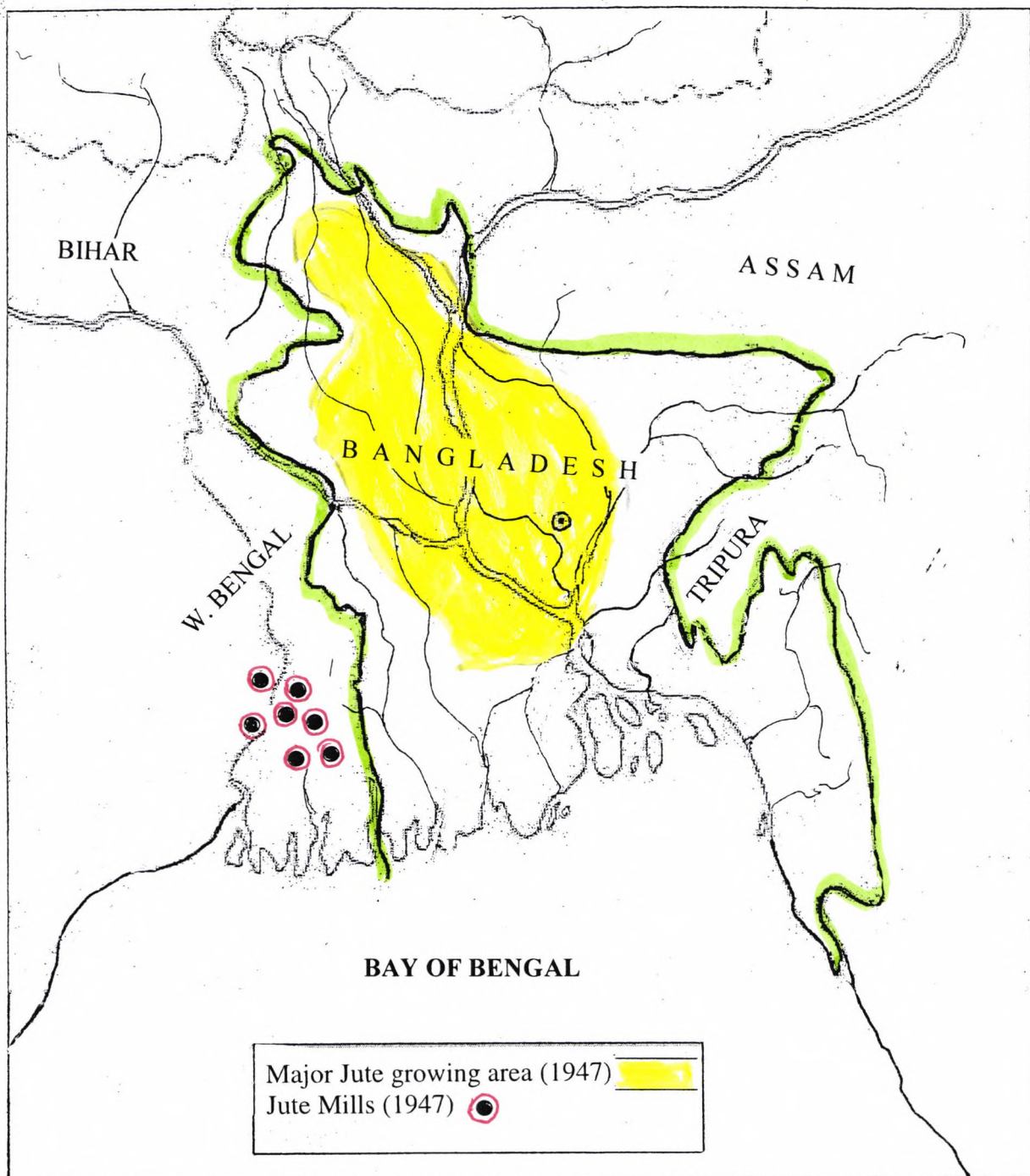


Fig. 5.5 Jute and partition: All the jute growing areas falling in East Pakistan., now Bangladesh and all the Jute Mills in India / 1947

their operational area, starved to virtual closure. Many of them have now turned into mere smuggling dens.

x. Impact on neighbouring regions

Alongside such internal system distortions within the main Bengali-speaking zone, the partition of Bengal had a serious impact on the adjoining areas also. As discussed earlier, the Indian states of Assam, Tripura, Meghalaya, Nagaland, Manipur, Mizoram and Arunachal became more distanced and isolated from the rest of the world because East Pakistan (now Bangladesh) stands as a barrier. They lost direct access to the sea through the port of Chittagong, which was catering for their needs before 1947.

In the similar way Nepal and Bhutan now has to cross two other countries to reach the sea.

The Indian states of Bihar and Orissa depended much on the thriving economy of the Bengal province, especially that of Calcutta. With the decline of Calcutta they had to look for new linkages.

Partition of Bengal region seriously affected trade and communication along the Bay of Bengal littoral system, particularly along the Bengal coastline. The new geo-political situation splintered the system and brought about almost a total reorganisation of the trading patterns of the region.

xi. Shift in sub-continental power structure:

One of the most far-reaching impacts of the partition of Bengal was the strengthening of the centre at the cost of the periphery within the overall geopolitical system of the sub-continent. Bengal as the largest province of the British India was always the countervailing super-weight that prevented over-centralisation in Delhi and thus gave an umbrella to other smaller and peripheral provinces. (This is true of Punjab also). With that counterweight dissipated, the powerhouse of Delhi, dominated by a Hindi speaking 'core-nation', has now attained absolute primacy on the entire subcontinent, to the detriment of regional entities.

xii. Dissipation of the 'strategic wealth'

The Bengal region is the "tri-junction" of three major regions of the world, South Asia, China and the South East Asia. Cohen's demarcation of the geo-strategic regions on the earth surface shows the Bengal region to fall into both the south Asian and the south East Asian regions (see **Fig.9.3 and 9.4**). The second

silk route of the ancient days connecting China with the rest of the world passed through this region. A direct land route between this region and southern China through upper Burma had existed since the earliest days.

It also enjoyed the advantage of being the apex region of the Bay of Bengal. With its river routes extending deep inside, it was the entry point of all maritime commerce to the entire northern region of the sub-continent.

This nodal location of the Bengal delta gave it a unique geopolitical advantage. Partition of 1947 dissipated this "strategic wealth" altogether. Bengal's age-old link towards Tibet in the north was severed and her direct access to South East Asia was seriously affected. Her primacy as the apex of the Bay of Bengal sharply declined.

5.5 SUMMARY

The tumultuous event of 1947 in the subcontinent is generally termed as '*partition of India*'. In reality it was '*partition of the Bengal and Punjab*' regions only. For the rest of the sub-continent it was rather a sort of 'consolidation'. A large number of regions having separate 'national' or regional identities for centuries prior to the colonial rule, were now brought under *two* centralised administrative set ups²⁵⁰ within the frameworks of India and Pakistan.

In this chapter, the Bengal region has been closely focused. From the discussions it will be apparent that this region is a distinct spatial entity historically, territorially and demographically. It has been shown how this region has been splintered, based on the transient socio-political considerations of the late forties, ignoring the system imperatives.

Systemic traits of the region, both centripetal and centrifugal, have been discussed. The impacts of the *superimposed boundary* on the spatial system have also been discussed. It may be inferred that in general terms partition of Bengal region has been a gross system distortion. As O.H.K. Spate comments:

²⁵⁰ Certain regions in the northwest and east went to Pakistan, the rest of the entire sub-continent together with most of the princely states came under the Delhi administration. The princely states accounted for about 37% of the total area of the sub-continent and taking this into consideration, Delhi now reigns over an area that is much bigger than the area that was directly under the British colonial administration.

"...by and large it seems impossible to avoid the conclusion that on every logical and rational criterion the partition of Bengal was a profound mistake."²⁵¹

As in the case of the previous chapter, this chapter is also intended to serve as the data pool for our subsequent discussions from systems perspectives on the issue of systemic distortions caused by superimposed boundaries. In next two chapters will be discussed certain methods and methodologies that may be applied to evaluate efficiency of spatial systems and thereby ascertain the systemic distortions in State formation.

²⁵¹ Spate, O.H.K. *India and Pakistan*, p- 552.

Chapter 6

UNDERSTANDING SPATIAL SYSTEMS: DISMANTLING THE COMPLEXITY

"Science and technology have been changing the way people live and nations operate. It is important that systems persons who understand the mechanisms causing the changes help the decision makers at the national level who are having to accommodate to these and other changes'.

---Harold Chestnut²⁵²

'It is easier to discover another such New World as Columbus did, than go within one fold of this which we appear to know so well."

-- Henry Thoreau, as quoted in Ward (1981).

Introductory notes

Various traits and characteristics of spatial entities have been discussed in Chapter 2, where all spatial entities have been considered as 'systems'. In real life situations all spatial systems are found to be overwhelmingly complex, being constituted of so many components of divergent nature and variable functions.

Therefore to facilitate evaluation of spatial systems one has to, first of all, dismantle their complexities in order to understand their structures and functional characteristics.

In this chapter, with that end in view, complexity of spatial systems in general and that of the Nation State systems in particular shall be looked into and attempts will be made to identify the elemental building blocks of such systems and to understand their structural and functional attributes.

²⁵² Harold Chestnut (1982), 'Nations as large scale systems' in *Large Scale Systems*, Y.Y. Haimes (ed.), North-Holland, Oxford.

6.1 UNDERSTANDING A SPATIAL SYSTEM

6.1.1 What is a spatial system?

Spatial systems are territorial units bounded by some sort of demarcation, real or imaginary, which is called its *boundary*. This 'boundary' is the watershed between a system and its environment.

A spatial system is also characterised by its shape, size, configuration and structural-functional attributes.

a) The shape of a spatial unit

It is known that on a two-dimensional plane a circle encircles maximum space with a minimum length of boundary (the circumference). Therefore, a spatial system having its boundary as a neat circle with the controlling node (say, the Capital of a Nation State) at its centre may appear to be convenient from the management point of view.

With a circular boundary, a territory of one square mile area will have 3.55 miles of border. The more irregular is the shape of the territory the greater will be the length of its boundary. It is obvious that the length and shape of the boundary of a spatial unit affects its efficiency as a system. A country which has to manage a longer and irregular boundary need a higher input of energy for national security and border management. It has to maintain a higher number of military garrisons all along its border; and, in order to attain some sort of *natural* security, some countries promote and support farm settlements on poor lands along the border, draining huge amount of national resources. Israel, among many others, may be taken as examples. The proposed Palestinian State can not fare better in this regard, for the same reasons.²⁵³

b) The size of a spatial unit

The size of a spatial unit increases its complexity.

“ Everywhere nature works true to scale, and everything has its proper size accordingly. Men and trees, birds and fishes, stars and

²⁵³ However, length and shape of the boundary is not necessarily the only factor that makes boundary management difficult. A well planned internal network of communication with secondary nodes of control at remote points may offset the difficulties of an irregular boundary to a large extent. But, that again involves additional input for the infra-structure. For a comprehensive discussion on 'boundary' :- J.R.V.Prescott (1987). *Political Frontiers and Boundaries*, Unwin Hyman, London.

star-systems, have their appropriate dimensions, and their more or less narrow range of absolute magnitudes." – (Thompson, 1942)²⁵⁴.

While discussing organisations Starr (1976) maintains that three major variables in any organisation are related to its size: i) its productivity, ii) environmental uncertainty and iii) its administrative complexity. With size rises the cost of uncertainty. There is 'more margin to work with, but not necessarily more profit'. He then raises the pertinent question:

" It is easy to accept that organisms evolve to an optimum size. It is reasonable to expect that buildings and bridges are designed to an optimum structural size. Is it less apparent that there is an optimal size for any organisation?"²⁵⁵

The same question may be repeated otherwise: 'Is it not true for spatial systems also?'

Empires break down not just because of decline in military prowess, but more because of the unwieldy demand from the increase in conflicts invited by the widening boundary. Here by boundary we mean not only the territorial limits, but, also the frontiers of other interactive domains of its structures and activities.

Starr points out that in biological systems, gravity acts on a biological organism generally proportional to the cube of its length, giving:

$$W = kL^3$$

where W is the weight of the organism, L is its length and k is a constant characteristics of the species.

Similarly, Thompson has shown that climate (such as the environmental temperature) acts proportionately to the area of the outer surface of the body of an organism. According to him, since the 'volume' (V) to 'surface area' (A) ratio of a sphere is $V/A = R/3$ (where R is the radius), 'the larger ratio of *surface to mass* in smaller animals would lead to excessive transpiration if the skin was porous, which accounts for the hardened or thickened skins of insects and many other small terrestrial animals'.²⁵⁶

Although territorial space is generally taken as two dimensional, we find that with the advent of air communication, especially

²⁵⁴ D' Archy Thompson (1917/1942), *On Growth and Form*, Cambridge University Press, Cambridge. as quoted by Starr (1976).

²⁵⁵ Martin K. Starr (1976), 'The Logistics of Size' in *World Modeling : A Dialogue*, Churchman and Mason (eds.), North-Holland, Oxford.

²⁵⁶ D' Archy Thompson, as quoted by Starr, *ibid*.

satellite communication, it is now virtually 'three dimensional' (See section 3.7.2). Therefore, one can extend Thompson's arguments to spatial systems also. Here, the *internal complexity* of a spatial system, being directly related to its size, may be compared to the *weight* in the case of biological organisms. And the *environment* of the system is what is *climate* to the organism.

A Nation State, if it is too small, may experience the problems of the smaller animals as mentioned earlier, while oversized territories are also bound to bring many hazards to themselves. With size. The complexity is bound to increase and the number and intensity of conflicts or constraints may also increase exponentially. In this regard Dal and Tufte [1973] comment:

'... Relationship exists between the size of the nation and the propensity of individuals to organise in groups, the capacity of minorities to defend themselves, the freedom of the citizen, and the efficiency of the State'.

Here examples of the mighty empires of the past, including the Roman and the British empire may be recalled. The erstwhile Soviet Union is another handy example.

c) The configuration of spatial units

Day to day human experience shows that when the number of interacting elements is only two, a very simple one-to-one interaction is observed, which is the simplest type of interaction in nature. In this situation the relation between the two elements is that of total engagement along a one dimensional border line (**Fig. 6.1.a**). In the absence of any third element such a one-to-one relation has the danger of being unpredictable and thereby unstable.

On a two-dimensional plane the maximum number of circles of *equal radius* that can touch each other is '3'. A small fourth circle may also be squeezed between them (**Fig.6.1.b**). In one way this gives us the strongest possible spatial conglomerate where each of the elements interacts directly with all others. In the figure we have pressed a 'small circle' in the middle, which, again, touches all the three circles and may represent the 'common platform' of the combination, enhancing its stability.

If four equal circles are placed on a plane the combination takes an altogether different pattern. Here, all the circles are not immediate neighbours and as such there may be several alternative combinations between them. Inviting possible group conflicts within the combination (**Fig. 6.1.c**).

In another situation, we may have one big circle surrounded by several smaller circles. In this case the bigger entity obviously dominates the combination. This may outwardly appear to be a very stable combination, since the smaller members may have

little individual leverage to challenge the overall system dominated or dictated by the single bigger partner. But in this situation the periphery continuously fights the core and the system may be in a constant turmoil (**Fig. 6.1.d**)

It is found that when circles of equal radius are arranged close to each other on a plane, none of them can have more than six "neighbours". Thus we have combinations of 6+1 equal circles in each cluster, 1 circle being surrounded by 6 others (**Fig. 6.1.e**). In space management this appears to be the most ideal combination. However, since circles placed in such cluster leave unclaimed space between them we can think of hexagons, like Crystaller's locational hexagons, in drawing such ideal spatial units on the earth surface (**Fig 6.1.f**), which gives a compact cluster leaving no void between them.

Bunge (1988) has indicated that if circles of equal radius are drawn on a sphere and their radii is increased gradually, at one stage the entire space on the sphere will be covered by 12 or 13 of them. And if one goes on increasing the radius further, there will be lesser and lesser number of circles, till at another stage, with radii greater than that of a hemisphere, there can be only one circle accommodated on the surface of a sphere.²⁵⁷

Bunge also indicates that while increasing the radius gradually, the time gap between the decrease from two circles to one is longer than others, such as the time gap between supporting three circles and two.²⁵⁸

One may be tempted to apply this phenomenon to support a contention that: a bipolar world, divided equally, with the two sides locked in a cold war thaw, should give a better stability to the global system.

However, looking from the opposite direction it may also be argued that in such an equally divided bipolar world, represented by two circles of equal radius (i.e., the radius of a hemisphere), each side will be totally surrounded by the other, the circumference of the two circles meeting each other on all points and thereby increasing the probability of confrontation along the entire boundary causing greater chances of conflicts and destabilisation.

²⁵⁷ W. Bunge (1988), *The Nuclear War Atlas*, Basil Blackwell, Oxford.

²⁵⁸ *ibid.*

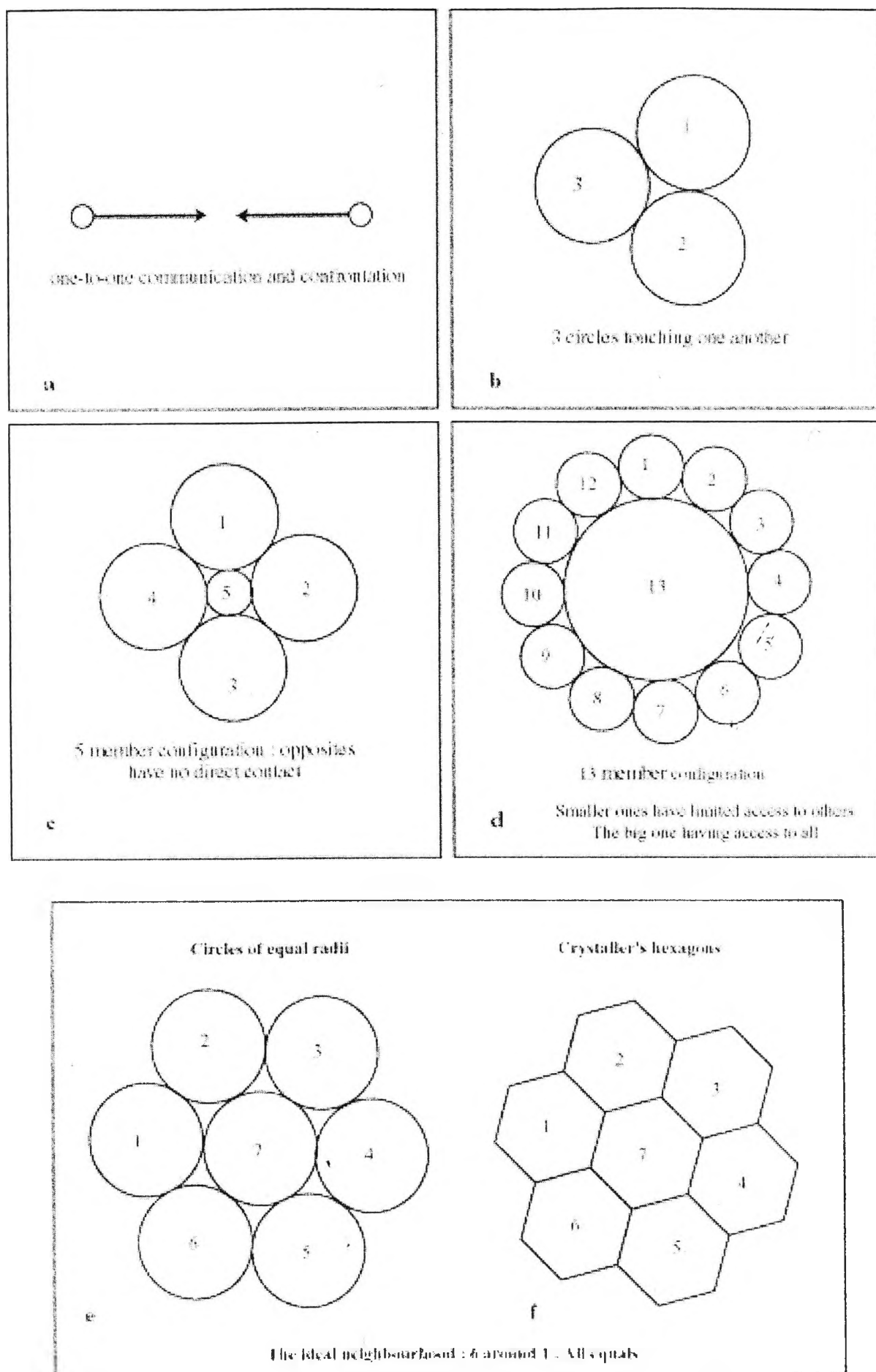


Fig. 6.1: Spatial configurations on a two-dimensional plane

In a real world situation, there are too many spatial units on the earth surface having all the odd shapes and sizes. If one could imagine a situation where the entire spherical earth surface is perfectly uniform and it is to be divided into circular territorial units of equal radius, than according to Bunge, as described above, the optimum number of such units will be 12 or 13. Bertrand Russell, in one of his essays first published in the 1930s,²⁵⁹ contemplated 10 regional political blocks around the globe for a harmonious global order. The number of regional groupings around the world today is not far away from that assumption.

Cohen (1972,1982) outlined the geo-strategic regions of the world order and their sub-divisions to the tune of 10 (see Fig.8.4).²⁶⁰

From the day to day human experience it may be noted that the ideal number of persons for optimum group interaction is 5 to 7. Smaller numbers give poor interaction and bigger numbers create managerial problems. This is supported by the earlier observation that a circle can have only six 'equal' neighbours, giving us '7' as the *magic* number in a block for proper interaction. This statement may appear tautological. However, it is nevertheless supported by Miller's celebrated paper in cognitive psychology suggesting that the human brain may have a capacity to cope with only 7 ± 2 concepts simultaneously.²⁶¹

We know that the most ideal shape in three dimensions is a sphere. That our planet earth and all other planets are spherical, is by itself a pointer to the fact that *the ultimate thrust of Nature is towards the attainment of the ideal*.²⁶² This is one of the major premises on which this study is being conducted.

d) The structure (vertical and horizontal) of spatial systems

In present day space management two types of administrative structures may be noticed: the **vertical** type and the **horizontal** type.

In the vertical type the upper hierarchy regulates the lower, the base of the latter being systematically sacrificed to serve the

²⁵⁹ Bertrand Russel,(1938/1956), *Sceptical essays*,

²⁶⁰ Cohen in his *Geography and politics in a world divided* (1973) offers a hierarchical and regional world model, where he contends that there is not a strategic unity of the space but rather there are separate arenas in a fundamentally divided world. A hierarchy of two types of regions is identified depending on whether they are global or regional in scope. *Geostrategic regions* are functionally defined and express the interrelations of a large part of the world. *Geopolitical regions* are subdivisions of the above and they tend to be relatively homogenous in terms of one or more of culture, economics and politics.---Taylor (1985). See chapter 8.

²⁶¹ Miller, G.A.(1968). *The Psychology of communication*, Allen Lane, Penguin Press, London.

²⁶² Rescher suggests that 'the success of the systematizing endeavor that is science in predicting and controlling the real world, must mean that the world itself is orderly. – As quoted by Jackson (1991)

interest of the former. However, in such a society extreme social inequality, however undesirable, creates a situation where people's needs are controlled and limited by the dictates of the 'sovereign'. Therefore, in spite of the sovereign's personal extravaganza the total drain on nature is kept at a low level. As Patrick O' Sullivan remarks in his *Geopolitics*:

" Thus (because of the interference of the sovereign) the deterioration of our natural heritage remained very limited. To the extent to which the soil was cared for and enriched by waste matter, the cycle was more or less closed and man's life was assured for a very long time." ²⁶³

A horizontal society is one where dominant societal interaction is between the 'equals' on a horizontal plane, which considerably multiplies the total need of the society by allowing the masses access to the myriad of consumables so far restricted to only the upper hierarchy. Which means our capacity to consume and destroy increases dramatically with the democratisation of the society. Therefore, quoting O' Sullivan again,

" (in such a situation) technical and social progress converge in taking out higher and higher mortgages on our capital...(A)pplication of the same principle (inequality of the social classes) awakens the poor countries on enormous mass needs that disquiets the well off countries in the same way as the awakening of the workers worried the ruling classes." ²⁶⁴

The ever increasing democratic aspirations of the common man and also of all the nations, large or small, have created in the present day world a situation where the traditional vertical structures are being relinquished in favour of the horizontal, at least theoretically.

6.1.2 Characteristics of spatial systems

Systems may be viewed from different perspectives to be : simple or complex, small or large, hard or soft, uni-level or hierarchic.

Some of the basic characteristics of spatial systems may now be looked into

i. Spatial systems are complex systems

Since spatial systems are territorially demarcated and defined they have 'physical' existence. Therefore, they are systems with quantifiably 'structural' attributes as long as no agent of change acts on them. In the real world situation there is no such spatial unit on the earth surface which is free from extraneous

²⁶³ Patrick O'Sullivan, *Geopolitics* (1981.a)

²⁶⁴ Patrick O' Sullivan (1981 b), *Geographical Economics*, Penguin, London.

interference to avoid such change. Apart from the natural agents of change, as soon as human habitation is added, its propensity for change increases manifold and the structure of the spatial units now acts in a behaviouristic pattern, not to be assumed '*a priori*'. Its complexity is therefore inherent.

As time goes on, human activities over the earth surface increase exponentially. More and more complexity is being added to the economic, political or social systems and there is a progressive decrease in yield, where the word 'yield' is employed in a mechanical sense indicating the relationship between the output and the input of energy. O' Sullivan [1981] comments:

" Our society becomes more complex everyday, because of the multiplicity of factors at work and the goals we have set ourselves. Its power is continually on the increase, but its losses keep pace, or increase even faster, in absolute value. When the harvest was gathered manually, the technology was rudimentary, but the yield was very high. By stretching out his hand, man picked the fruit in an almost perfect fashion, given the state of his technology and the wastage was minimal"

According to O'Sullivan, this is not the case when machine enters the scene. As a more and more complicated system of machines operated and maintained by men is employed to perform the same function, there is a substantial loss in yield.

ii. Spatial systems are Large Scale Systems

All spatial systems are 'large scale systems'. In a large scale system unknown variables are too numerous and it does not permit easy exploration to a scientific rigour. Here comments from Haimes (1982) mentioned earlier may be recalled:

'Large scale systems encompass a variety of aspects, components, resources, decisions, constraints and exogenous variables intertwined in a complex input-output causal relationship, and they reflect multiple goals and objectives, often conflicting and non-commensurable, in response to a hierarchy of constituencies and decision makers'.

Exploration of the complexity of a large scale system requires dismantling it into hierarchies , both vertically and horizontally.

*iii. Spatial systems are hierarchical : **The Tree Schema***

Like all other systems spatial systems are 'hierarchical'.

Simon describes hierarchy as ' a set of Chinese boxes where a box encloses a second box , which, in turn, encloses a third ---

the recursion continuing as long as the patience of the craftsman holds out'.²⁶⁵

However, in spatial systems the type of hierarchy we observe is a bit different from the analogy of Chinese boxes. Here within a box, instead of another one box only, we may find several and thus the better analogy is that of a 'tree', which Arthur Koestler elaborates in his classic presentation : *'The Tree and the Candle'*²⁶⁶.

Koestler combines the two fundamental characteristics of living nature 'hierarchical organisation' and the 'characteristics of open systems'²⁶⁷ into one: the 'open hierarchic system', or the O.H.S. He maintains:

'The correct reference (of hierarchy)... is but to a tree – a system branching into subsystems, which branch into sub-systems of a lower order, and so on.'

Fig. 6.2 gives a tree schema of a hierarchical system as described by Koestler. In our study of spatial systems we find this schema of hierarchy, is better applicable.²⁶⁸

Van Gigch(1974) gives a more structured description of 'a decomposition system tree', where the total system ST(Level-0) is decomposed in several hierarchical levels of sub-systems-- SS, SS₁(Level-1), SS₁₂(Level-2), SS₁₂₁(Level-3), SS₁₂₁₁(Level-4) etc and finally reaching SE, the element. **Fig. 6.3** is self explanatory.

iv. 'Hierarchies of spatial systems show 'holon' properties, (except at the lowest and the highest strata)

In studying hierarchies Koestler forwarded the idea of *holon*, which he describes in the following words:

"The organism is to be regarded as a multi-leveled hierarchy of semi-autonomous sub-wholes, branching into sub-wholes of lower order, and so. on. Sub-wholes on any level of the hierarchy are referred to as *holons*.²⁶⁹

²⁶⁵ H. A. Simon, in *Hierarchy Theory* (1973), H.H. Patte (ed.).George Braziller, New York.

²⁶⁶ Arthur Koestler, 'The Tree and the Candle' in *Unity Through Diversity* (1973), part-I, Gordon and Breach, New York.

²⁶⁷ "Hierarchical organisation on the one hand, and the characteristics of open systems on the other, are fundamental principles of living nature,." – von Bertalanffy(1952), *The problem of life*, Wiley, New York

²⁶⁸ van Gigch(1974) comments: " Hierarchy is more than a concept. Hierarchy implies a framework that permits complex systems to be built from simpler ones. In turn, the existence of a hierarchy allows complex systems to be broken up into their component parts and sub-systems.... Hierarchy helps us to organize, to understand, and to learn about complexity...."

²⁶⁹ Koestler, *op cit*.

Tree Schema

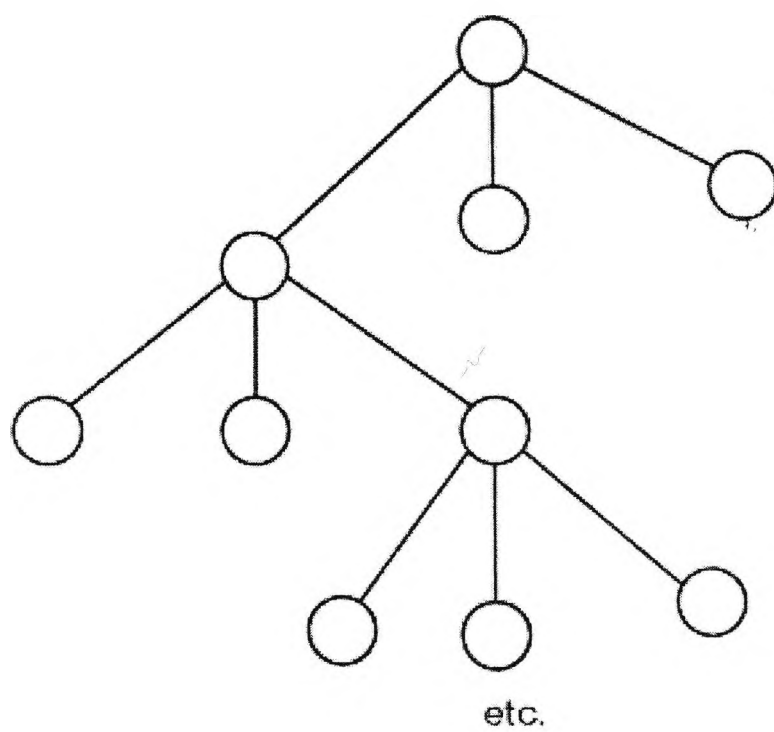


Fig. 6.2 : Koestler's 'Tree Schema'

A Decomposition System Tree

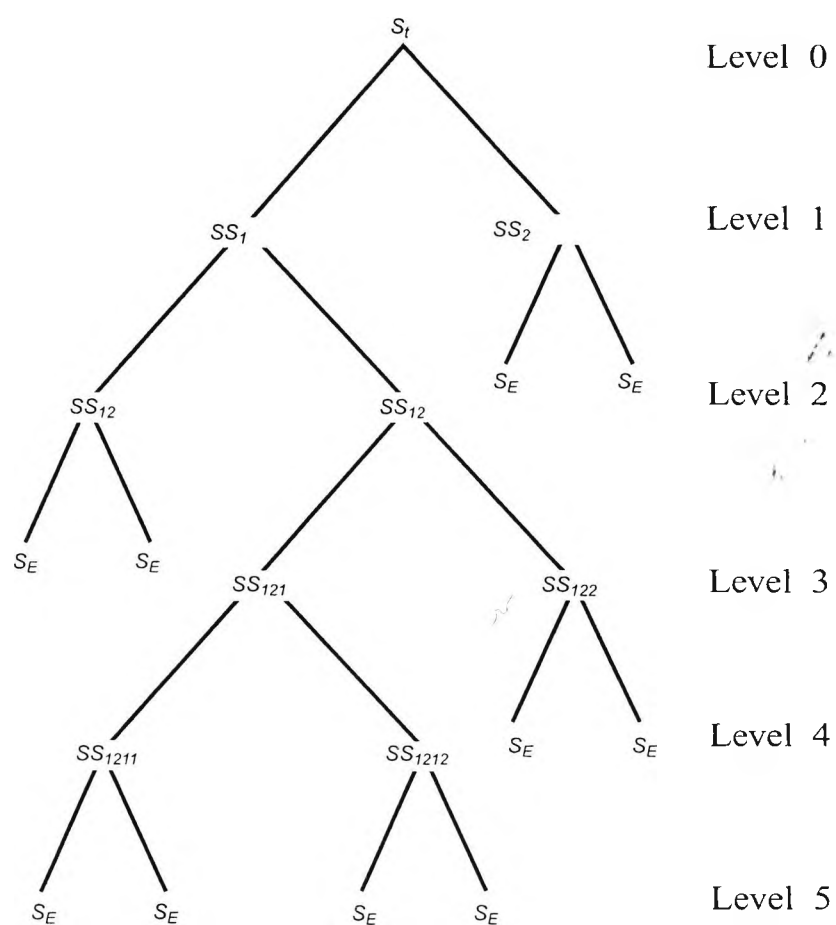


Fig. 6.3 Decomposition System Tree.
From Van Gigch (1974)

Koestler further maintains:

“ A hierarchically organised whole can not be *reduced* to its elementary parts; but it can be *dissected* into its component holons representing the nodes of the tree, and the lines connecting them, the channels of communication, control or transportation, as the case may be.”²⁷⁰

These concepts may rightly be applied to spatial systems, specially the human organisational systems, which Koestler terms the ‘social holons’.

Here, special importance may be given to the concepts of hierarchies and ‘holons’ since these concepts confirm a basic premise of the present study. Here what has been mentioned in the introductory notes may be repeated. Just as a living organism can not be taken as a random purposeless aggregate of physico-chemical components, a spatial unit functioning as a *human organisational system* at any hierarchical level of politico-spatial administration, can not be taken as an isolated structure to be arbitrarily superimposed. *It must be a holon*, acting at the given level of the hierarchy, with defined purpose and attributes and with a *Janus* like two way functional capability, both upwards and downwards.

an organ can not be implanted in a living organism arbitrarily, if one tries to do so, the body rejects it. There can not be an organ in a living body which is not *holonic*.

The same is the case with spatial systems.

v. Spatial systems may have different parameters acting simultaneously

Again, spatial units may be identified by several different parameters such as territory, culture, language, economy, transportation network, etc. The system under observation may be investigated from all such parameters separately and collectively, or for some of them, ignoring others, depending on the task undertaken.

Different system boundaries may be drawn based on all such parameters and if such boundaries *coincide with each other or are found to be very close*, a very stable configuration is achieved. This will obviously indicate very high efficiency.

²⁷⁰ Koestler, op.cit.

However, in the real world situation very few of the existing spatial systems may be close to such an ideal and therefore, in order to get workable system boundaries, one has to look for approximation, optimisation and trade off. Which means that one has to go for the best possible compromise.

6.2 UNDERSTANDING A 'NATION STATE' SYSTEM

Among the spatial systems, as discussed earlier, the Nation State systems, as human activity systems are found to be the most pivotal, both in structural positioning and functional attributes. Being essentially large scale-open-hierarchic systems and being the custodian of 'sovereignty' as envisaged by the UN charter, its functional attributes are multiplied geometrically with its size (territorial and demographic) and the level of technological attainment.

6.2.1 Nation States as the pivot of space administration

A 'Nation State' may be defined as a politico-administrative unit comprised of a given area and population with controlling powers exercised through the authority established with that end in view. There are at present 193 such independent and 'sovereign' States.²⁷¹ In this list there are the tiny *micro-States* at one end and the giant *super powers* at the other, all having *equal (!)* status, as per the United Nations' charter.

Any analysis of the global geographical space today, therefore, must be conducted accepting these Nation States as the principal actors and pivotal entities. **Fig 6.4** gives the inter-relation between the spatial systems at various hierarchical levels, keeping the "Nation State" at the pivotal position. Sing and Tilti (1979) observe:

'The idea of looking at a nation as a system, which interacts with other nations as part of a world system, and interacts with various (sub) systems within the nation that makes it up, holds special promise of providing insights not previously available. the benefits to be gained from looking at nations can be very rewarding.'²⁷²

²⁷¹ UN Yearbook (2000)

²⁷² M.G.Sing and A. Tilti (1979), *Handbook of Large Scale systems Engineering Applications*, Amsterdam, North-Holland.

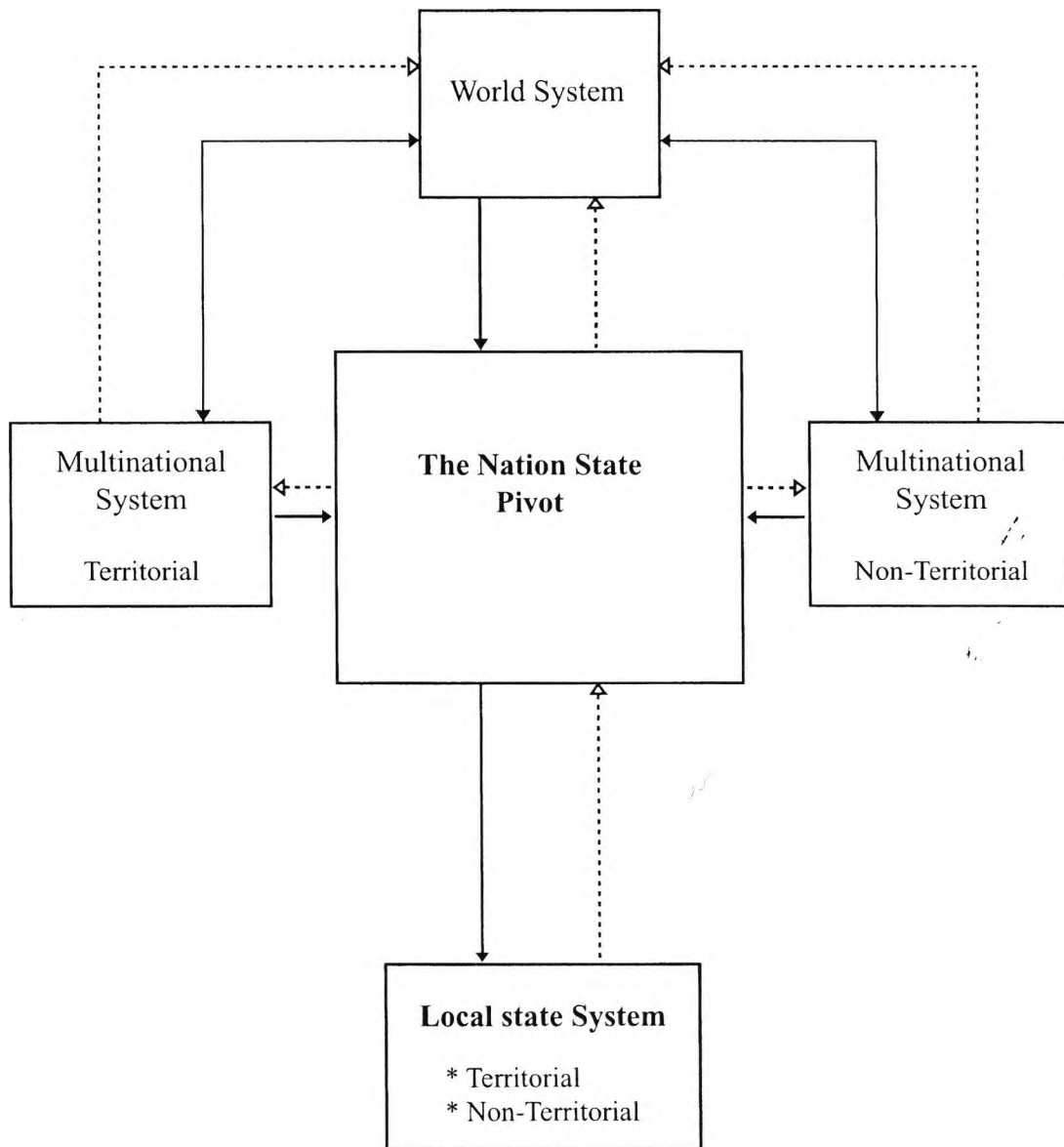


Fig. 6.4. Nation State as the Pivotal System

Once the pivotal position of Nation States is accepted, delimitation of the boundaries of such States acquires prime importance. Today State machinery exerts almost total control on their respective territories and population, their functions increasing with the passage of time, covering almost every aspect of the life of their citizens. As spatial entities, these States exert a profound impact on the *environment* also.

States are founded on space. Human society, from its earliest phases, has been witness to a myriad of combats and confrontations for the sheer control of space. Starting from tribal conflicts up to imperial expeditions, the principal arena of such confrontations has been the *frontiers*,²⁷³ where contending parties confronted each other to retain or extend their territorial control. One significant tendency of each and every State is to try to stretch its control outwards as far as possible, as Bertrand Russell (1938) pointed out:

"Every state which is sufficiently powerful aims at foreign conquest. The broad rule is that a State conquers what it can, and stops only when it reaches a frontier at which some other State or States can exert a pressure as strong as its own,"

In the process almost every square centimetre of earth surface has already been claimed by one or the other Nation State. Space is now the scarcest *commodity* on our planet earth.

A Nation State system , itself being a large scale system as indicated earlier, is also played upon by a large number of other large scale systems, multiplying its complexity further.

6.2.2 Foundations of a Nation State system

It has been mentioned earlier that many of the present day Nation States have come into existence through a set of historio-political developments not always in consonance with the geopolitical reality of the *region* concerned. From this viewpoint boundaries of almost all States of our present day world are essentially "superimposed" in varied degrees. Such superimposition has its obvious impact on the intra-regional, as well as, the inter-regional interactions, altering the natural courses of developments that would have otherwise been followed.

Pounds(1954) forwarded the concept of 'natural boundary' and 'artificial boundary', where 'natural ' boundary is the one with clear geographical traits. Lapradelle suggested an *objective* as opposed to *subjective* conception of boundary making. He also considers

²⁷³ Prescott (1987) : " *Boundary* refers to a line, frontier refers to a *zone* ".

that in areas where population is thin physical features may determine the boundary, but in populated areas only a plebiscite may decide the boundary giving the required legal basis.²⁷⁴

However, from systems thinking a 'natural boundary' may be considered to be the one that would have evolved in the absence of any *external interference*. Here demographic, economic and political factors would interact freely over the concerned space to evolve a *structure* of its own. This makes the boundary of politico-administrative units both subjective and objective.

Again all State boundaries have their own history of development.²⁷⁵ Contending domains have throughout exercised their control from given seats of power and such control diminished gradually as one proceeded outwards from the centre. Finally, it reached a zone, as mentioned earlier, where contending authorities overlapped and neutralised each other creating what was known as the 'frontier'. As modern state machinery grew from strength to strength, both in extensive and intensive terms, this nebulous entity of *frontier* shrunk progressively. Today it has narrowed down to the hairy lines of demarcation known as the "State boundary".

i. Historical foundation and political legacy

The structural cohesion and cultural development in a State system has direct linkage to its historical foundation. Characteristic of a regime that has ruled a polity for an appreciable period of time leave their lasting impressions on the cultural pattern of the society. Thus the historical foundation and cultural inheritance of a Nation State are two important elements in determining the behaviour and reflex of a Nation State towards the issues it confronts today or may have to confront tomorrow. In this regard there are two distinct types of States: those *born by obligation* and those *born by enthusiasm* (**Fig. 6.5**). As Pounds [1964] observed:

'Among the ... sovereign states ... it is perhaps legitimate to distinguish two broad categories. Those which have been created arbitrarily to fill some preconceived geographical frame, and those which have grown slowly and over a long period of time from some nuclear, germinal, or core area.'²⁷⁶

²⁷⁴ As quoted by Ladis K.D. Kirstof (1967) in 'The Nature of Frontiers and Boundaries' in Harm J. de Blij (ed), *Systematic Political Geography*, New York.

²⁷⁵ Jones (1945) suggests four stages in the evolution of a boundary: allocation, delimitation, demarcation and administration. – S.B. Jones (1945), *Boundary Making, a Handbook for Statesmen*, Carnegie Endowment, Washington.

²⁷⁶ Norman J.G. Pounds and Sue Simons Ball, 'Core -Areas and the Development of European States System' in *Annals of the Association of American Geographers*, Vol. 54 (March, 1964) p-24-40.

It is obvious that the 'behaviour ' of these two types of states shall differ substantially.

ii. Common identity and cultural inheritance of the population

A Nation State system has a stronger footing if its entire population, at least a significant major segment of it, inherits a common identity, ethnic, or that of a long and peaceful co-existence, or even a common religious, or strongly rooted ideological mooring.

'Ethnocentrism', however obnoxious it may appear to a 'universalist', is certainly a necessary tool for nation building, which may not necessarily indicate a common *racial* identity. It may grow out of common linguistic and cultural heritage, economic interdependence, or even being goaded by common fear. We shall discuss this point again later.

iii. Possession of territory and ground control

A State must have a well defined territory in its possession and have effective control over that territory. Without the effective ground control over the territory State machinery can not function properly. While the possession of the territory gives it the required legitimacy, ground control gives it the necessary strength to act of its own and survive.²⁷⁷

iv. Myths, beliefs, symbols and icons

A Nation State or nations are found to cultivate myths, beliefs, symbols and icons, which play an overwhelming role in unifying a system and giving it the required cohesion as integrative forces. These beliefs, symbols and icons differentiate the 'in-groups' from the 'out-groups',²⁷⁸ as described by the sociologists, thereby creating the foundation of a social entity. These traits are carefully nurtured and cultured by the ruling elite or the sovereign.

Sumner (1906) mentions 23 attributes and behaviour that separates an 'in-group' from an -out- group'.²⁷⁹

²⁷⁷ Palestinians live in parts of Palestine but have neither any real 'possession' or 'ground control'. Israel is found to intrude into their area any time and dispossess them of both.

Indonesia 'possessed' East Timor, but lost its ground control' to the rebels and finally the possession.

²⁷⁸ Robert A. LeVine and Donald T. Campbell (1972), *Ethnocentrism: Theories and Conflict, Ethnic Attitudes and Group Behavior*, Wiley, New York.

²⁷⁹ W.G. Sumner (1906), *Folkways*, Ginn, New York.

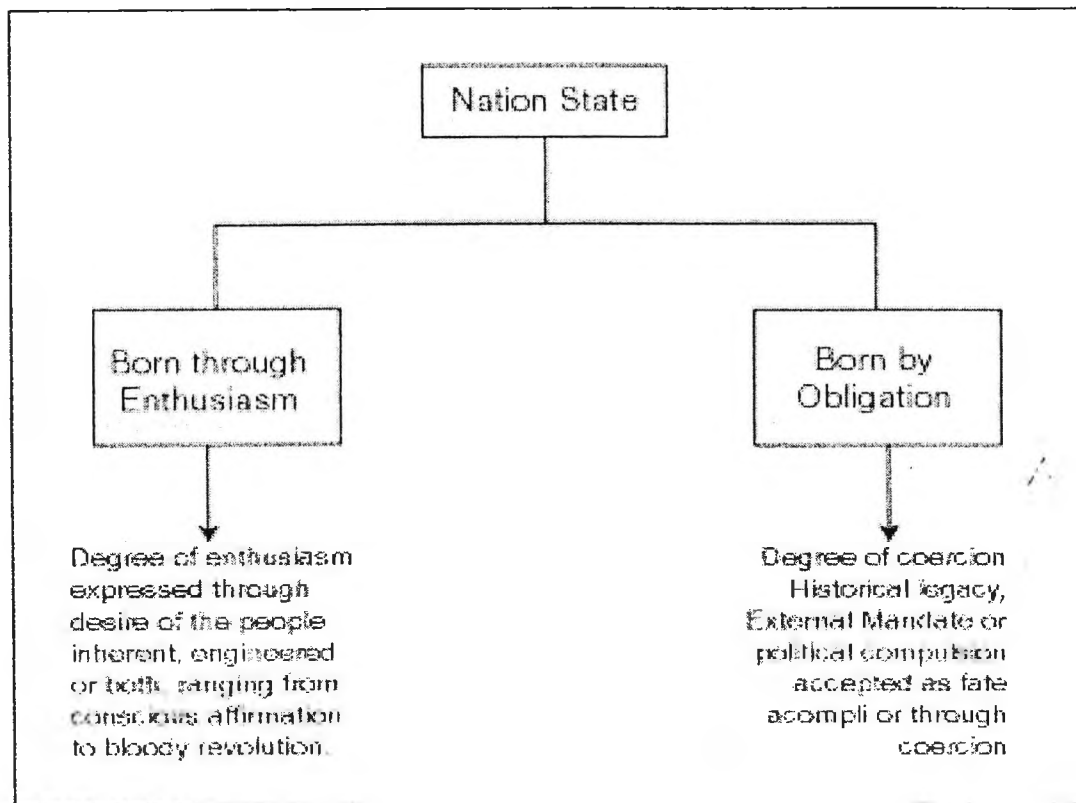


Fig. 6.5 Historical Foundation of a Nation State

6.2.3 Aim of the State

A state has a meaning to its existence when it is "goal seeking" i.e. when it has definite aims. The goal or aim of a given State is expressed through the *political culture* and *task*. According to Chestnut (1982):

'Nations should have as their objective the successful realisation of the needs of their people. Since many people make up a country with differing needs, a nation has many stakeholders for whom the nation must be concerned.'²⁸⁰

i. Political culture and ideological mooring

A State system is a reservoir of values and social institutions, which together constitute its *political culture*. The institution of *family* gives the foundation to the human society, where *allegiance to the superior* is cultivated as an essential 'value'. In the next phase *allegiance to political authority* is cultivated with similar value criteria in a broader framework. This allegiance culminates in *obligations* to the State or society, which is the expression of *political culture*.²⁸¹ In a civil society obligation is voluntary, exercised and expressed through political institutions and is reciprocated by the State or society by providing protective justice and allowing participation of the citizens, directly or indirectly, in the formulation and implementation of State policies.

On the other hand in Marxist or totalitarian systems this obligation is made mandatory, leaving no room for dissent. However, even in certain civil societies clientelist control of "captive votes"²⁸² may pervert the political culture, degenerating it into *oligarchy* or *plutocracy*, not very far away from totalitarian autocracy.

Thus political culture is time variable. In reality the 'society secretes the *dominant ideology*', the kingpin for social cohesion, which is again time variable. Therefore, political culture of a State emanates from the foundation on which it is built and it changes its course according to the direction of the forces that decide its course of action.

²⁸⁰ Harold Chestnut(1982), 'Nations as a large scale system' in *Large Scale Systems*, Yacob Y. Haimen (ed.), North-Holland , Oxford.

²⁸¹ Chester Barnard (1938) observes that 'authority is always granted from below in the hierarchy, and unless it is so granted, it is very insecure'.

²⁸² In most of the third world democracies electoral outcome is decided, to a great extent, by the group or block voting by members of specific religious , ethnic or linguistic segments. In certain situations powerful individuals control such blocks , to be traded to the highest bidder.

ii. Task

The primary 'task' of a State system is dictated generally by its source of power. There may be secondary tasks in the course of execution of the primary tasks. The nature of the tasks assigned and the success or failure in their implementation affects the efficiency of the system. A State may be designated with different types of tasks; such as,

- (a) Maintenance of *Status quo*, exploitation of the resources for the benefit of the rulers,
- (b) Exploitation of a territory to, serve a particular group interest,
- (c) Territorial expansion and hegimonic ambition from imperial desires, etc.,
- (d) Attainment of the development potential for the betterment and emancipation of the masses.

6.2.4 The structure of a Nation State system

Keneth Boulding [1987] considers that 'political systems consist of those forms of social organisation that depend primarily on *legitimised threat*', while he considered the economic system to be guided primarily by the *legitimised exchange*. However, Boulding himself is of the opinion that "the line between what is legitimate and illegitimate is not wholly clear, and also that the dichotomy of *threat* and *exchange* is also not always maintainable. Our Nation-State systems may be considered as the products of both. That means a State system consists of 'threat' and 'exchange', both 'legitimate' and 'illegitimate'.

Chester Bernard [1938], postulating his *organisational theory*, observed that authority is always granted from below in the hierarchy. In his opinion unless it is granted from below, it is very insecure. He mentions three foundations of authority:

- (a) Threat,
- (b) Integrative relationship, and
- (c) Hidden economic factors.

All these factors are relevant to the authority of a State as well as its structure. Now we shall look into some of the factors that condition the structure of a State system.

i. Contiguity of the territory:

A State system must have a territory. The size, shape quality and contiguity of the territory directly contribute to the efficiency of the State system.

ii. Institutional framework

Agents of political manipulation such as political parties, institutions of bureaucracy, army, media, judiciary etc. and different social groups constantly influence and shape the political psyche of the population at large.

However, these institutions are not quite the same in all societies structurally or functionally. For example political parties in a totalitarian set up and political parties in a multi-party democracy are hardly comparable. They perform different functions and as Jean-Pierre Cot and Jean-Pierre Mounier (1984) observed:

“To compare structures with different functions has no meaning.... To know the name of the chief of State, whether Eisenhower or Segni, does not test the same degree of political participation.”²⁸³

A ‘party’ in Mexico, or Bangladesh or China, does not give the same functional equivalence as a party in UK or Germany. Therefore, functional equivalence must be identified before any such comparison is to be made and during such comparisons necessary adjustments are needed using appropriate corrective coefficients.

iii. Functional attributes

The structure of any system is very much conditioned by the functions performed by its constituent sub-systems and elements demonstrated by their interactions. In fact, functions are often more important as the determinant factors for the overall structure of a system than the material objects in its fold, since without functions the material objects have little meanings.

Thus a State system is an integrated whole. Its internal order and overall system characteristics depend on the interaction of its attributes. Too much of concentration of functions may produce a chain reaction de-stabilising the system.

²⁸³ Jean-Pierre Cot and Jean Pierre Mounier, *How to compare Nations* (1984)

6.2.5 Environment of a Nation State system

A system is identified as an entity by its environment and it is the environment which gives distinctive status to a Nation State through its international recognition. Without international recognition spatial entities are mere stretches of territories.

Again interaction with the environment is the sine-qua-non for the existence of any state system. Today no state system can survive without interacting with its environment.

Thus, for any Nation its foreign policy administration is given maximum attention. The strength and weakness of a spatial system is indicated by its exchanges and interactions with the environment. Stable relations and a favourable (at least equitable) exchange with the environment are essential for the very existence and continuation of a State system

In the real world situation, a few powerful States, with their overwhelming size of economy or military strength, are found to exercise disproportionately greater control over the earth surface and in this context the notional sovereignty of smaller and weaker states often appears to be meaningless. In fact many of these smaller states exist only as mere clients of bigger powers. Sovereignty of such client States resides within the umbrella of their respective 'patron' or 'patrons', exercised through dictation, if not by clear proxy.

6.2.6 The boundary of a Nation State

A boundary is always drawn on the basis of a given purpose or objective. If the purpose is only to gain territorial control in order to satisfy colonial or hegimonic objectives, such boundaries will be based more on a cost-benefit analysis from the militaristic and commercial interest of the controlling sovereign. On the other hand, if the purpose is to maximise the efficiency in space administration and the objective is to ensure maximum benefit to the people concerned, boundaries shall have to be drawn on the basis of system imperatives. The perspective is now completely different, which produces totally different shapes and structures of the spatial units.

Thus the boundary of a State system is directly related to its *aim or task* and the *source of power* that determines such aim or task.

This is why proper delimitation of the boundary of a system is all the more important. If the boundary of a spatial system does not ensure an optimum level of homogeneity and symmetry to the

space bounded, or, if it has an unusual shape it will invite greater complexity. The number of functions it will have to attend to will be higher, which in turn will decrease the efficiency of the system.

(These aspects of boundaries have been dealt in more detail in Chapter 3).

6.3 UNDERSTANDING THE COMPLEXITY OF A NATION STATE SYSTEM

6.3.1 On complexity

There has been some discussion on complexity in earlier Chapters. Here we shall add a few words to that.

To understand the complexity of a system the definition of a *system* forwarded by Flood and Carson (1988) may be referred to:

" . Systems are situations as perceived by people... in addition to this ... we need to include the ideas of (1) the number of parts, (2) the number of relationships between parts, and (3) notions/perceptions."²⁸⁴

6.3.2 Complexity and spatial system

A geographical territory acquires added complexity and significance as a *system* when it has an active population of significant size. Thus the complexity of such spatial systems, being the function of all of its territorial and demographic components is bound to increase geometrically as the size of the concerned system, both in territory and population, increases. With increase either in territory or in population the scale of interaction or relationships is raised, thereby increasing the complexity.

Again, each individual in a population may be treated as a separate element, however great be his affinity to his or her group identity. The probability of interaction between all individuals on a society is directly correlated to their absolute number. However, in any society, there may be certain individuals (such as, a baby or a person completely dependent on and subservient to some one else) who do not play any appreciable role as members of the society. In such cases we may introduce a concept of *effective population* whereby in counting the population such dormant members of the

²⁸⁴ Flood and Carson, *Dealing with Complexity*, Plenum Press, New York, 1988.

society may be excluded. Moreover, when a society is better organised and well managed it achieves greater internal harmony and conflictual interactions between its individual members tend to diminish. This necessitates a corrective function to take account of the "social state" of the polity.

The real world situation shows different degrees of complexity at different levels. Intensity or degree of complexity at different hierarchical levels may not be quantifiably comparable. One may find intensive human interaction at the family or household level, the lowest level of spatial units, which may be called the "molecular state" or the "*biological molecule of the society*". In certain cases complexity within a family may far exceed the complexity of group interactions within a local state. Again such complexity may widely vary from one system to another even at the same hierarchical level.

Here one has to remember that systemic investigation of this nature is obviously 'relational' as opposed to 'traditional experimental investigations' (Flood and Carson, 1988,p-31), and thereby not easily quantifiable.

Birkhoff (1933) postulated "aesthetic measures" to indicate the level of complexity of a soft system due to 'many auditory and visual perceptions that are accompanied by a certain feeling of value'.²⁸⁵

6.3.3 Complexity of a 'Nation State system'

Weaver (1948) identified three ranges of complexity²⁸⁶:

- (a) Organised simplicity,
- (b) Organised complexity and
- (c) Disorganised complexity.

A modern Nation State system goes somewhat beyond this classification as it shows certain additional characteristics, such as, 'emergence' and may be comprised of sub-systems belonging to different ranges of complexity. Moreover, in trying to understand a State system the observer is bound to be influenced by his own perceptions, notions or beliefs, which may or may not be subscribed to by others. From this line of argument a State system may be classified into a different category of complexity. We may call it, after Clemson,²⁸⁷ '**relativistic organised complexity**', since any assessment of the problematic of the Nation State systems is inevitably tinted by the observer's perception.

²⁸⁵ ibid

²⁸⁶ As quoted by Flood and Carson (1988)

²⁸⁷ ibid, p-32.

As the functions of a State system increase, it requires higher and higher input and its efficiency decreases—pointing towards a direction that systems with lesser complexity and smaller area of governance are more efficient (Ward, 1981; *Schumacher, 1973; **Thurrow, 1996).²⁸⁸

6.4 ANATOMY OF A SPATIAL SYSTEM

6.4.1 Dissecting the structure

Harold Leavitt's organizational model (1964) gives a useful tool to reveal the inner dynamics of a system (**Fig. 6.6A**).²⁸⁹

With certain modifications one can apply this to Nation-State systems (**Fig. 6.6B**)

Here, 'Technology' may be substituted by 'Institution', the latter subsuming the former. 'Structure' has been conjoined with

'Territory', since a Nation State is essentially an interactive system of *territory* and *population*, which is its 'structure'. This interaction takes place through the institutions and the institutions use the technology or tools to perform defined tasks.

6.4.2 Identification of basic factors

Chestnut (1982) has listed so many 'large scale systems' operating on a Nation State simultaneously. The most important of those are :

a) Energy

For any Nation State today 'energy' is perhaps the most important input required to keep it going and to take it forward. With the gradual depletion of fossil fuels and the ever-increasing demand for more and more energy to cater to the needs of industrialisation and automation, each and every sector of the national life is getting more and more concerned to the availability of energy.

²⁸⁸ Paul Von Ward (1981) *Dismantling of the Pyramid*, Delphi Press, Washington. He argues in favour of a smaller federal apex and more functions at state level.

*E.F.Schumacher (1973), *Small is Beautiful: Economics as if People Mattered*, Harper and Row, New York. His monumental work has shown why and how smaller units operate better. The fact that in today's 'globalisation' smaller units can not compete with the multinational giants is another story, unrelated to efficiency.

** "Everyone now understands that one does not have to be big economy with a big internal market to succeed. It used to be that everyone thought that breaking a country into smaller pieces meant a lower standard of living; today everyone knows that it is not true."-- Lester C. Thurrow, *The Future of Capitalism*, 1996, Penguin Books.N.Y.

²⁸⁹ Harold J.. Leavitt (1972), *Managerial Psychology*, The university of Chicago Press, Chicago.

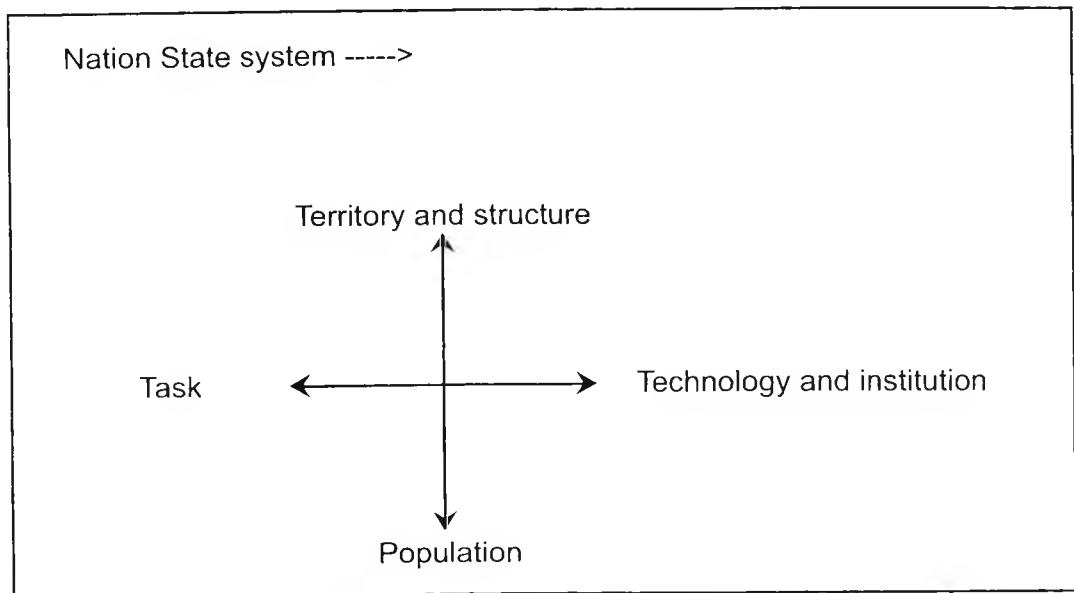


Fig. 6.6A Leavitt's organisational model (1964)

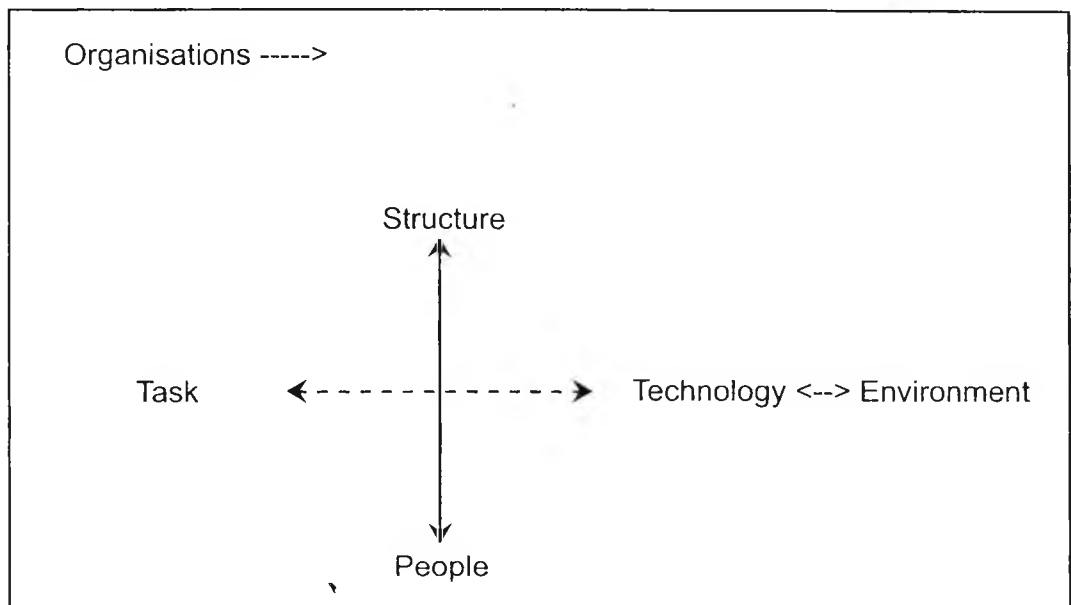


Fig. 6.6B Organisational model of a Nation State based on Leavitt model

b) Communication

As the world is shrinking, as it is said, communication, through all means including the electronic data transmission, has become the most important activity in modern society. Thus, for the very survival of any Nation State its capability to communicate, both within and without, and in a fast and effective mode has become indispensable for its very survival.

c) Transportation

Transportation is another area that has attained added significance because of the greater and greater interdependence of the different segments of the 'global village'.

d) Multinational companies

With the current trend of 'globalisation', one likes it or not, global trade, industry and finance s now being increasingly controlled by the multinational companies and no country today can avoid their influence.

e) International organisations

The same applies to the many international organisations, that have sprung up over the last half a century or more, with the ostensible aim of co-ordinating and managing the international order. Some of these organisations, such the WTO, have indeed turned into super-governments dictating the Nation States, especially the smaller ones.

f) Regional organisations

Although, right at the moment, the global scenario appears to be more uni-polar than multi-polar, nations around the world are found to be increasingly looking or regional co-operation in their respective regional settings. Many regional bodies have been founded to increase the bargaining power at the highly competitive global level.

g) UN and its different agencies

The Un was founded after the WWII to play the role of the global apex to mediate between the States all around the world and to strive for the overall advancement of the humanity at large. With all its limitations and failures, it still remains the last hope, especially the weaker and smaller national entities, in a super-power dominated world.

h) Big powers with global agenda

Big powers with global agenda have always dictated the global scenario and all nations have to reckon this reality, they like it or not.

i) Media

With the ever-faster modes of communication, the media, both the print media and the electronic media, wields power on the conduct of global, national and local events and even over the personal lives of individuals. No nation today can exist without adequate development of its media sector.

j) Religious and political movements

Religious and political movements have always shaped and re-shaped the global scenario. In today's world a resurgence of religion oriented actions, both constructive and destructive, appears to be on the increase and no nation can remain outside this ideological rampage.

k) Prevailing academic and intellectual discourses

Academic and intellectual discourses do shape the trends of thoughts that guide and direct human actions and therefore, in order to achieve advancement and progress all nations must participate in the prevailing academic and intellectual discourses, in order to be on the right trek.

l) Cultural interactions

In today's world, through the omnipresent media and the ever-powerful communication system cultural interactions tend to merge the different cultures diffusing the age-old diversity. Only the strong and the alert may withstand this deluge, in different degrees. All nations, therefore, must participate in the game with due caution, if it aspires to avoid total cultural extinction.

m) Sports and entertainment

With affluence the leisure industry enjoys expansion. Today, sports and entertainment are sold and purchased like any other market commodity. The State, therefore, can not but pay great attention to this ever-widening industrial sector of great public interest..

n) Technological developments

Technological development is the catchword of the modern time. All nations must look for new innovations, inventions and

creating some technological specialities of its own which will allow it to survive the fierce competition at international level and also to cater to the needs of its own people.

o) Consumer preferences.

Consumer preferences are important today as one of the prime obligation of any national government today is to satisfy such preferences of its own internal consumers and to satisfy the consumers at other places if it has to get any niche of the global export market.

p) Economic trends

Economic trends today is ever-changing and a nation must be careful not to be out of trend in order to be an effective and meaningful player.

q) International trade regimes

International trade regimes today, thanks to the 'globalisation' at all fronts, do control the trade and commerce, and as such no country can keep itself out of those.

r) International and regional security regimes and so on.

International and regional security regimes are increasingly controlling and influencing the regional scenario all over the world and perhaps no nation, small or big, keeps itself isolated or aloof from them.

This list is not perhaps exhaustive and individual researchers may create alternative lists from different perspectives. For any nation we may draw a system for each of the above and such systems shall not necessarily coincide. This necessitates adjustments, optimisation/sub-optimisation and trade-off. The system designer shall have to optimise the overall system functions according to weighted objectives (which will be discussed in the next chapter), in order to achieve the maximum compatibility of the parts and functions of the system.

Applying the insight from such organisational models elements contributing to the total efficiency of a system may be identified in a systematic and step by step procedure.

At this stage the 'Tree schema' of Koestler (1973) and the 'Decomposition tree' of van Gigch as described in Chapter 2, section 2.1.1 and Chapter 6, section 6.1.2 and as depicted in Fig.6.2 and Fig. 6.3, may be recalled.

Since the number of elements contributing to or affecting the efficiency of a spatial system is too many and also varies from system to system, it will be unmanageable to treat them individually and directly. Therefore, identification of the hierarchical levels that describe the system best must be undertaken with rigour.

In the first step a tree schema is drawn with four basic factors (F), which are then branched into *sets/subsets*.

The four factors of a Nation State system, as identified to cover all its structural and functional attributes, as already mentioned in Chapter 2, are:

- i) **The Territorial factor (T)**
- ii) **The Interactive factor (I)**
- iii) **The Demographic factor (D)**
- iv) **The Environmental factor (E)**

The scopes of all these factors are clear from their nomenclature and shall be clear from the table prepared by dissecting them into sets/subsets and elements (**Table- 6.1**).

6.4.3 Sets/sub-sets and elements

Once the factors are identified, we can go downwards along the branches of the 'tree' to identify the next lower hierarchy and then the next, and so on, till the 'elements', the elemental building blocks of the system are reached. Strictly speaking there can not be a fixed end to this exercise, since there may be other systems within what is considered to be 'elemental'. However, for the spatial systems an end can be set, based on the purpose of investigation.

There may be a number of hierarchies, between the 'factors' and the 'elements'. However, for simplification, here only one intermediate hierarchy has been considered.

6.5 DIS-ASSEMBLY OF A SPATIAL SYSTEM FOR EVALUATION: *THE BRANCHING of THE 'TREE'*.

After dismantling the complexity of the State system (Fig. 5.6) and keeping its fundamental attributes in mind, the different elements that affect or determine the efficiency of a given State system may be identified.

As already mentioned the list of the elements constituting a State system may be exhaustive. It may also differ in its details

based on the methodology applied for investigation and also on the perception of the viewer. Approached from different angles, there may be difference in fixing priorities or 'weights' to different factors, sets, sub-sets or elements and in their evaluation.

This study does not aim at any conclusive listing or evaluation as it requires much more intensive and extensive investigation and should be taken up as independent socio-political projects at appropriate levels. Here models and equations shall be built only to set the investigation in motion.

Table 6.1 Dis-assembly of a Nation State system

**Factors, Sets/ sub-sets and elements within a State system:
A general schema.**

1. Territorial Factor (T)

Sets/Sub- sets	Elements
T₁ TERRAIN:	1.Size, 2.Shape, 3.Quality, 4.Contiguity, 5.Integrity, 6.Uniformity, etc.
T₂ BOUNDARY:	1.Length, 2.Quality 3.Permeability, 4. Manageability, etc.
T₃ RESOURCES:	1.Flora and fauna, 2. Cultivable land, 3.Quality of soil, 4.Availability of water, 5.Sunshine, 6.Minerals, 7.Food autarchy, etc.

T₄ 1. ECOLOGY	1. Environment, 2. Water regime, 3. Weather, 4. Tectonic vulnerability, etc.
T₅ GEOGRAPHY -- -- -- -- T_{n1}	1. Location, 2. Nodality, 3. Natural defence potential, 4. Access to sea, etc.

2. Interactive Factor (I)

I₁ PAST LEGACY	1. Common/shared historical legacy, 2. Common folk culture 3. Common myths, beliefs and icons, etc.
I₂ SOCIETAL SETTING	1. Convergence of interest and aspirations, 2. Cultural integration, 3. Common language, 4. Common literature, 5. Intellectual integration, 6. Elite integration etc.
I₃ GOVERNANCE	1. Administrative integration, 2. Political institutions, 3. Social institutions, etc.
I₄ COMMUNICATION	1. Internal communication network, 2. Media, etc.

I₅ FISCAL ECONOMY	1. Market integrity, 2. Capital availability, 3. Internal saving rate, 4. Fiscal management, etc.
I₆ INDUSTRY	1. Level of industrialisation. 2. Industrial entrepreneurs, 3. Technological attainment, 4. Industrial growth rate, 5. Labour, etc.
I₇ AGRICULTURE	1. Size of Cultivable land, 2. Technological level, 3. Labour, etc.
I₈ TRADE AND COMMERCE	1. Export 2. Import 3. Institutional frame 4. Internal trade
--	6. Tariffs
--	7. Incentives
--	etc.
I_{n2}	

3. Demographic Factor (D)

D₁ Population	1. Size and density, 2. Growth rate, 3. Quality of manpower, etc.

D₂ Regional identity	1. Number of districts/ regions, 2. Level of harmony between different regions etc.
D₃ Ethnic divergence	1. Number of distinct ethnic segments, 2. Level of harmony between different ethnic segments and etc.
D₄ Religious segments D₅ Other group cleavages -- -- -- D_{n3}	1. Number of religious segments, 2. level of harmony between different religious segments, etc. 1. Number of other group cleavages, 2. Level of harmony between these groups, etc.

4. Environmental and other non-physical Factors (E)

E₁ EXTERNAL PERCEPTION	1. Geographical, 2. Cultural, 3. Political, 4. etc.

E_2 EXTERNAL LINKAGE	1. Cultural, 2. Political, 3. Military, 4. Communication, etc.
E_3 THREAT PERCEPTION	1. External, 2. Internal, etc.
E_4 ACTUAL THREAT	1. External, 2. Internal. etc.
E_5 GEOSTRATEGIC STATUS -- -- -- -- E_{n4}	1. Military, 2. Political, 3. Cultural, 4. Economic, etc.

6.6 PRECAUTIONS AND PITFALLS

The danger of 'elementalism'

The approach taken in this chapter has been essentially analytic. Attempt has been made to analyse the structure of a system and dis-assemble it into sub-ordinate units. The approach carries the

danger of leading to 'elementalism' and one may lose the forest behind the tree, unless one is cautious.

In order to avoid this danger, at every step of our evaluation and recursion, one has to be very careful to look to the 'whole', time and again, and not to forget the systems' dictum : *the whole is bigger than the sum of its parts*. In certain cases, however, the *whole* may be *smaller*, if the resultant *gestalt* gives a negative output.

On the other hand, looking to the whole only, ignoring the details, may also be deceptive. Both ends of the 'holon' must be tied up properly.

6.7 SUMMARY

In this chapter effort has been made to dismantle the complexities of a system looking into it from various angles to identify its components and also the interactive relations between those components. In this regard the hierarchical approach and the tree schema propounded by Koestler, Van Gigh and Simon has been adopted and systems have been looked as composites made of several hierarchical levels of sub-systems and also being part of other supra-systems forming their respective environment.

Basing on this methodological approach four *basic* factors of a system has been identified : (1) the **territorial factor (T)**, the **interactive factor (I)**, the **demographic factor (D)**, and the **environmental factor (E)**.

In the next step '**sets/subsets**' within each of these factors have been identified.

Finally the **elements**, the basic blocks of sets/sub-sets are identified and listed.

Here, according to the task and the world view of the observer/researcher, the 'branching of the tree' and identification of the sets/subsets or elements may not be identical.

Since a system may be described in so many ways, it may be looked upon from different angles for different objectives. Therefore, present exercise is only one of the many possible alternative approaches.

It may be noted that 'environment' has been listed as one of the *factors* of a system, although theoretically it is 'outside' the system. It has been done because 'environment' plays a very important and

'active' role on all spatial systems and no spatial system can run isolated from its environment.

It has been acknowledged that spatial systems highly complex systems and such complexities can not be fully grasped by the hard systems approach alone.

Therefore, in the following two chapters special attention shall be given to the more complex issues and the uncertainties that invariably go with spatial systems.

Basing on the *analytical* findings of this chapter, we shall now look to the more detailed structures of spatial systems, in the next two chapters and build a 'hard-soft symbiotic' method to evaluate spatial systems, especially the Nation States.

QUANTIFICATION OF EFFICIENCY OF SPATIAL SYSTEMS

“I find as impossible to know the parts without knowing the whole, as to know the whole without specifically knowing the parts” ---Blaise Pascal (1623-1662)²⁹⁰

‘Large scale systems encompass a variety of aspects, components, resources, decisions, constraints and exogenous variables intertwined in a complex input-output causal relationship, and they reflect multiple goals and objectives, often conflicting and non-commensurable, in response to a hierarchy of constituencies and decision makers’.— Y.Y.Haimes²⁹¹

Introductory notes

In this chapter a systems approach/systems thinking will be applied to understand how the boundary, or to be more precise, the *configuration* and *organisation* of a spatial system bounded by a given boundary, affects its systemic *efficiency*. Attempt will thereafter be made to evaluate or quantify the *efficiency* of a spatial system using the methodology described in Chapters 2 and 6.

It is acknowledged that adoption of scientific methods of measurement for social systems is associated with difficulties. Since we know the social world ‘only through our personal experiences and the sharing of them’, it has been suggested that the investigator himself becomes part of the activities of interest and develops the concepts and theories through his, or her own experience by going around as an observer and by sharing the same with other observers.²⁹² This has been termed as the ‘experiential approach’.

Now, in the social category of systems, spatial systems, the human activity systems managing defined territories and populations, are much more complex than others. In dealing

²⁹⁰Blaise Pascal (1623-1662), *Pensees*, Chapter-I: As quoted by John P. van Gigh in *Applied General Systems Theory* [1974], Harper and Row, New York.

²⁹¹ Y.Y. Hhaimes (ed.), (1982), *Large Scale Systems*, North-Holland, Oxford.

²⁹² Flood and Carson (1988): “This does not preclude investigation but does strongly suggest an alternative subjective approach”.

with other types of social systems such as an organisation, a community, or a particular type of societal activity (say, economy) one can draw certain limits and go for some sort of clear mensuration treating the concerned system as a *closed* system. But in the case of a spatial system, say a Nation State, the scope being much wider and the system being *open*, it is extremely difficult draw clear limits. One has to look to the 'whole' from so many different perspectives, some of those being highly subjective.

However, in spite of such limitations, here the first attempt will be to for an evaluation of the efficiency of spatial systems through a 'hard systems approach'. This will give a first hand knowledge of the systemic nature and viability of the observed spatial system. Through this process one may have the opportunity to know what factors enhance or hinder the efficiency of the spatial system. This will provide useful tools to identify *alternative configurations* for the system concerned. Examining and evaluating such alternatives and ordering them based on their observed levels of systemic efficiency we may identify (and thereby suggest) better alternatives to existing spatial configurations around us.

7.1 DEFINING THE *EFFICIENCY* OF SPATIAL SYSTEMS

The word *efficiency* has been introduced in chapters 1 and 2. This term is being used in this study to denote the inherent potential of a spatial system exhibited by the extent of the positive and negative factors encountered in its administration.

This may be put mathematically as the net difference between *outputs* and *inputs* from and to the given system.

Thus:

Efficiency = output - input

where output is the total 'energy' produced by the system and input is the total energy expended to produce the same, which is, in other words, the aggregate contribution of various factors to the total system efficiency, either positive or negative.

Thus again,

$$\text{Efficiency } e = f(o)_{1 \dots n_1} - f(i)_{1 \dots n_2} \quad (7.1)$$

where $f(o)$ is the output function or the positive factor and $f(i)$ is the input function or the negative factor, n_1 and n_2 being the numbers of output functions and input functions respectively.

This equation shows that in order to maximise the efficiency of a spatial system (say, a 'Nation State', a county, or a district) its boundary is to be delimited in such a way and the functional

attributes of all its systemic traits are to be manipulated in such a manner as to get the best possible conglomeration, where the $f(o)$ function gives the maximum possible value, and $f(i)$ function gives the minimum.

7.1.1 The corrective function: $f(t)$

In a real life situation the $f(o)$ and $f(i)$ functions are most likely to have floating values, due to time-variant disturbances from within, or from the environment. To account for this a corrective function $f(t)$ may be needed to make adjustments reflecting the actual state of the functions at the given situation and time of reference.

This will give us:

$$e = f(o)^{1-n_1} \cdot f(t)^{1-n_1} - f(i)^{1-n_2} \cdot f(t)^{1-n_2} \quad \dots (7.2)$$

where $f(t)$ is the *state* of the functions at the given time.

Taking for simplification $n_1 = n_2 = n$

$$e = \sum \{f(o) - f(i)\} \cdot f(t) \quad \dots (7.3)$$

Since the corrective function $f(t)$ accounts for the 'state' of the system at a given time, it is an aggregate of the variations in all variable entities taken together. Attributes like the *stage of development* attained by the system concerned, the *level of technology* available to it, the *quality of its resources* at the *time of analysis* and so on, may be addressed through $f(t)$.

7.2 MEASURING EFFICIENCY OF SPATIAL SYSTEMS: THE HARD SYSTEMS APPROACH

7.2.1 Identification of the systems

Spatial units may be identified by several different parameters such as territory, culture, language, economy, transportation network, etc. The system under observation may be investigated from all such parameters separately and collectively, or for some of them, ignoring others, depending on the task undertaken.

We may draw different system boundaries based on all such parameters and if such boundaries *coincide with each other*, or are found to be *very close*, we get a very stable configuration. Which will obviously indicate very high efficiency (See Fig. 2.5c).

However, in the real world situation very few of the existing spatial systems may be close to such an ideal and therefore, in order to get workable system boundaries, we have to look for approximation and trade off. This means we have to go for the best possible compromise.

7.2.2 Dis-aggregating the system entities

We have seen earlier that a spatial system has a myriad of elements with multiple functional attributes. The number of such elements and functional attributes shall depend on the complexity of the system. In general, the number of systemic elements and the frequency/intensity of their functions in a given politico-administrative spatial system depend on the responsibility assigned to it. Normally more and more systemic elements and functions are expected as we move from the lower to the higher hierarchical levels in space administration. Of course, this may not be true everywhere.

In the present day situation, as we have mentioned earlier, the *Nation State* hierarchy is found to be the pivot, or the 'King Pin', being the most important hierarchy with the highest concentration of functional attributes and exercising the highest level of control on the sub-ordinate levels, therefore, exhibiting higher complexity.

However, our work in handling a spatial system is made easier by the fact that spatial systems are found to be hierarchically organised. Thus, in order to *dismantle* the complexity of a Nation State system we adopt the hierarchical approach (Koestler, 1973; Simon, 1973), as described earlier (section 5.1.2 and Fig.5.2) and dissect its territorial and demographic whole into identified building blocks. In chapter 5 we have discussed this aspect and suggested a method to achieve this end.

In this process we find it convenient to first adopt a TOP-DOWN approach, starting at the apex and then looking for the lower hierarchical levels. We first identify the broad categories or areas constituting the first layer of sub-systems within the total system. We have named the sub-systems at this level –the '*factors*' and identified four basic 'factors' of Nation State systems. We then proceed downwards through structuring and branching, identifying the next hierarchical layers, what we call the *sets/subsets*, and finally reach the elemental building blocks of the system, the individual '*elements*'.

Once all the factors, sets/subsets and elements are identified, their contribution to the system efficiency, either positive or negative, may be worked out systematically. In table 5.1 we have noted only one hierarchical level below the factors. In the real world situation

there may be several hierarchical levels between the *elements* and the *factors*.

After the identification of the elements the evaluation process starts. This time we start from the bottom, the elements. We now move upwards, layer by layer, reaching the level of 'factors', the level immediately below the total system apex. This is the most important level in our evaluation scheme, since it is from this level that we look to the *whole*, to find the *emergence* and other gestalt features of the total system.

It may be mentioned that although we have given special attention to look for the gestalt features of the total system, in reality there may be gestalt emergence also at every hierarchical level.

7.2.3 Identification of cohesive and divisive factors in a spatial system

In evaluating a system we have to evaluate each of the elements and the sub-systems indicating their 'values'. In the end we expect to have two sets of values, one positive and another negative. Positive values, $f(o)$, shall indicate the cohesive or centripetal forces and the negative values, $f(i)$, shall indicate the disruptive, divisive or centrifugal forces. Interestingly, the same element may have both $f(o)$ and $f(i)$ values.

We need to decide on an appropriate methodology to arrive at these values. Several methods are in use for the evaluation of complex and probabilistic entities in other disciplines. We shall have to choose a method suitable for our purpose to assign values to the different attributes of a system. Computing and aggregating those values in hierarchical order, taking care of the 'gestalt emergence' and time variance, where applicable, we can arrive at the efficiency of the total system, as per eqn. 7.3.

Now, assigning values to the elements indicating their contribution to the efficiency of the system (or sub-system) concerned is bound to be a complicated and tiring process, with uncertainty and pitfalls everywhere and at every stage.

Thus, this 'evaluation' will be essentially a repetitive process, involving iteration, observation, empirical testing and experience.

7.2.4. Evaluation of the components, sub-sets/sets and factors:

As per the methodology suggested for this in chapter 5, to *dismantle* the complexity of a given spatial system we have to

initially identify the four factors, T, I, D and E. Each of these factors represents a different set of elements and different kind of attributes, which are incommensurable and need to be addressed differently. We have to sort out those elements which are relevant to the proposed study and leave out the 'unnecessary' entities.²⁹³

The 'Black Box'

Since, at this stage we are adopting a 'hard systems approach' we may treat all the entities under evaluation as 'black boxes'.²⁹⁴

Thus, going step by step from the bottom towards the top, we may first of all evaluate all the elements within a subset together with their *interacting relations* and structural configuration and get a wider 'black box' for the sub-set.

Next we move upwards to the next level in hierarchy, identifying the groups of 'sub-sets' that show systemic properties, and qualify to be treated as a sub-system at the next higher hierarchical level. In fact these are all 'holons', being parts (sub-systems) of a bigger system and at the same time being systems at their respective hierarchy.²⁹⁵

However, we have to make provision to account for the *gestalt emergence* and other variable properties through the 'Factor X' and the $f(t)$ function for time-variances (section 6.2.8), that will make necessary adjustments/modifications and corrections to improve the quality of our evaluation, at every stage.

At this point we can draw an important inference on the hierarchical stratification of spatial systems. It clearly shows that hierarchical levels of spatial systems can not be chosen arbitrarily. Any assortment of elements or entities can not be taken into account. We have to look for the 'holonic' properties, or emergence of the conglomeration and consider only those assortments which will qualify as *holons*, showing appreciable *emergence*.

That means in space management even the internal divisions of a Nation State, or any conglomeration of Nation States, should conform to this principle. We are to look for their emergent and holonic properties. In fact identification of the proper hierarchical levels to be allowed the status of 'administrative units' is a crucial part of space administration. Any politico-administrative boundary, if not properly drawn, based on such a principle, shall be inefficient and unworkable in the end.

²⁹³ Here, again, which one is necessary and which one is unnecessary, may be an intriguing question..

²⁹⁴ In systems inquiry when a system, or any part of it is, having certain *measurable* input and output functions and acts as a 'closed system', it is called 'black box', a term probably borrowed from the 'black boxes' installed in airplanes to record flight details.

²⁹⁵ See section 5.1.2 and also Koestler (1973). op.cit.

7.2.5 Scales of measurement

For any measurement a measuring stick is a must and this must also be *scaled* properly. Now, in measuring or evaluating the efficiency of a spatial system or its attributes, what sort of scale can we use?

The problems are many. Firstly, there are attributes which may not be at all mensurable in any '*interval*' scale, which we normally use in quantitative measurement. Next, the scale of measurement suitable for one type of attribute may not be applicable to another type of attribute. In that case how do we consolidate the total outcome? Again, we have the problem of placing the different attributes in juxtaposition, which may not be comparable and using the same yardstick for measurement may be totally meaningless.

Here, perhaps one has to remain satisfied with an '*ordinal*' scale, giving us a comparative picture of the efficiency of different systems and their alternative configurations. Since the attempt is only to identify the better alternative/s, this should be adequate to serve the given purpose.

That means one can decide on a certain standard pattern of evaluation to finally arrive at '*ordinal*' values for the efficiency of the spatial systems under our observation. This allows us to use different yardsticks and scales for different entities. Thus in measuring the physical aspects of a spatial system we can readily use available scientific measurement, while for softer entities we may go for '*ordinal*' scales. In some cases even the '*nominal*' scale may be the only option, and we have to use that in the course of '*assessment and judgement*'. In evaluating the spatial systems, one may need to evaluate the attitudes of the people towards certain aspects of governance, or the societal trends. Here, Likert scale may be useful.

Then there is also the problem of validation of these measurements. We have to look for their **content validity** (face validity and sampling validity), **empirical validity**, **construct validity** and so on. For softer system traits empirical validity may not be attainable at all. Here, one may look for group opinion convergence.

Flood and Carson(1988) and van Gigh (1974) raise these aspects of scale and measurement in systems thinking and indicate several standard methods for handling such problems.

7.2.6 Method to be applied for the evaluation, or measurement

Researchers in social sciences are found to use different modes of evaluation based on the particular situation and the nature of the task. Some of the well tried and widely used methods are:

a) Data collection and compilation,

'Data are required for modelling of the system as well as forecasting future environments. Efficient information gathering requires clear thinking , an ability to communicate, and a grasp of the statistical techniques (to look for significance)'.²⁹⁶

b) Collection of informed opinions through questionnaires

When clear and specific answers to certain issues are not available one widely used method is to collect informed opinions by circulating questioners to persons who are considered by the observer to be well informed on the given issue/s. The observer then is in a better position to judge the situation consolidating all such opinions and coming to his own conclusion.

c) Looking for consensus through group discussions.

Another useful exercise may be to organise group discussions and try to evolve general consensus on the problem situation. This may be done by holding seminars, workshops and even through private discussion meetings.

d) Individual interview of informed persons.

Here the individual researcher may discuss the issue/s with 'informed' persons through personal meetings and compute his findings for an wider evaluation

e) Sample survey on specific issues.

This is a standard method used to find out the general opinion convergence on specific issues. Respondents selected at random may be asked to reply to certain questions , which when compiled gives a collective reaction to given issues.

f) Opinion polling for mass response.

²⁹⁶ Flood and Carson (1988), p-112

Opinion polling is done to ascertain public opinion at large on specific national or social issues on a wider scale.

g) 'Delphi' rounds with resource persons from various fields.

This has been discussed in details in Chapters 2 and 6.

One or more of these methods may be used as and when found suitable to evaluate the different attributes of spatial systems.

7.2.7 Addressing the soft issues

Looking at the different traits of spatial systems as indicated in Table-5.1, it will be found that many of them are essentially 'hard' system entities and may be very well addressed by scientific measurement. However, there are many traits that can not be put to scientific measurement. Those are the 'soft' issues and need soft systems approach for probabilistic appraisal.

In such cases, after collecting the necessary data and information the researcher has to go for :

- a. Assessment,
- b. Assumptions, and
- c. Validation.

This he or she will be doing from two perspectives:

- a. being a part of the situation, and
- b. looking from a totally disinterested perception.

There is every likelihood that in this process the *world view* of the researcher will creep into the end products, in spite of all precautions. This is unavoidable. And since this exercise is essentially meant for 'decision making', to improve a problem situation in spatial administration, the researcher will be either an individual, or group of individuals, at the leadership level. In that case personal assessments and reflections may be rewarding also. A well informed and capable decision maker, involved in the process itself, should be able to better assess, assume and validate the findings and the results obtained through the empirical and investigative processes and arrive at a better conclusion.

7.2.8 Using the 'Delphi Method' for opinion convergence

In the process of evaluation many such soft entities are encountered that are absolutely *value related* and therefore difficult to evaluate even through the techniques applied for probabilistic or stochastic issues. Individual or group reactions to certain events, cultural/societal norms and behaviours shall come under this category. Here one has to look for what psychologists term as the 'sub-conscious', or the 'individual unconscious' (This has been discussed further in Chapter 8, section 2.3).

To evaluate such entities 'Delphi Method' for opinion convergence may be applied to find out the most acceptable answers to questions raised, using collective wisdom.

What is Delphi ?

As mentioned earlier in Chapter 2, the Delphi process is a technique used to obtain consensus of opinion of a group of experts. It is an inquiring process to 'discover the truth'. Van Gigch (1974) has mentioned three different types of Delphi:

- a) The Lockean Delphi,
- b) The Kantean Delphi, and
- c) The Hegelian Delphi.

The very naming suggest their origin from thoughts of the three great philosophers, John Locke, Emmanuel Kant and Friedrich Hegel.

The Lockean Delphi is known as 'consensual', seeking consensus among the experts, The Kantean Delphi looks for eliciting truth through 'eliciting alternatives', while the Hegelian Delphi looks for a synthesis through a conflict of diametrically opposite views. Van Gigch terms such inquiring processes as the '*software*' to deal with the 'soft' systems in applied GST.

The Lockean, or consensual Delphi, appears to be the more suitable for the present study. Incidentally this is the best known of the three types of Delphi and has a wider use. However, based on the specific problem situation one may have to devise one's own pattern of inquiry and may have to compromise on certain aspects of the method for practical reasons.²⁹⁷

²⁹⁷ The present writer had an opportunity to participate in a Delphi opinion convergence exercise organised by the US State Department during their mid-term election of 1982. Twenty four persons from different countries were invited to participate in the month-long exercise conducted by a Delphi Research organisation engaged for the purpose of evaluating certain aspects of the US electoral system. Here the method was a bit different, as anonymity could not be preserved. However the invitees were not previously known to each other and had little chance to be mutually influenced over the short period of the study. It started with a meeting in Washington and the issues were

Regarding the operational method of the Lockean Delphi, Juri Pill explains:

" The Delphi Method relies on an iterative procedure by which a panel of experts is requested to provide several rounds of answers to a series of questions. The model has three distinct features: (1). anonymity, (2) controlled feedback, and (3) statistical group response."²⁹⁸

Today computers may be used to collect and aggregate responses from a group of carefully selected 'experts', who are well known for their competence in the given field, and by virtue of their reputation may be expected to give unbiased responses to questions asked. This will also require questionnaires to be properly developed, covering specific issues and placed in such a manner that the respondents have little room to evade or give ambiguous answers. One practical way is to have an even number of response category, so that the respondent is rather forced to give a decision. This exercise gives an additional benefit as the questionnaire may be so designed that the respondents are asked to indicate the 'weights' they will assign, say, to the different attributes in assessing the efficiency of a spatial system. This will resolve the dilemma, on the part of the researcher in deciding the 'weightage' for his/her final evaluation and judgement.

The responses from the panel of experts may be computed either (a) by identifying the maximum convergence, or (b) by identifying the ordinal preferences.

As mentioned above the researcher/coordinator has to be very careful in selecting the respondents, since different sets of respondents may come up with altogether different types of responses. Therefore, in order to get the wider coverage of the opinion spectrum, respondents should be selected from different categories of experts with divergent orientations. For example, while inquiring into national issues, the researcher should, first of all, categorise the probable opinion divergence and then see that all such categories are adequately represented. However, there can not

discussed. One of the issues was to see how people reacted to voting through machines. At the time voting through 'punch cards' was being introduced in some of the states. (The electronic system of voting was not yet developed). Another issue was to evaluate the public perception of the electoral system, on the whole. Twenty four observers were divided into 12 groups of two and taken to different states, each group to cover at least 4 states. The final round was a winding up meeting in San Francisco, where all the participants met again to exchange their notes. In between there were several smaller group meetings in various cities. Participants had to attend election rallies, meet officials and different citizen groups, visit political party offices, trade union centres and newspaper offices to form their views. The Delphi Research Group, a Washington based research organisation co-ordinated and monitored the exercise all through and prepared a final report. Opinions expressed by the participants were mixed and the final outcome of the exercise was not passed on to the participants.

²⁹⁸ Juri Pill, "The Delphi Method: Substance, Context, A Critique and an Annotated Bibliography", in *Socio-economic Planning Sciences*, 5, No.1 (Feb. 1971).

be any thumb rule in this exercise and much depends on the observers own expertise, perception and capability.

In the Delphi process of inquiry the respondents thus selected from different segments and strata of the society, shall be asked to respond on the given issues. They will not know who are the other respondents. This will eliminate the chance of 'lateral influencing' and 'bandwagon effect' that vitiates group discussions. It also eliminates the embarrassment on the part of the respondent to express views that may be in contradiction to popular notions or to the views expressed by superiors whom one would hesitate to contradict face to face.

The responses may be obtained through direct computer communication simultaneously,²⁹⁹ or over a period of time, whichever is convenient and feasible.

After collecting the first responses, those will be computed and sent to the respondents for their perusal and second opinion, if any. The process may be repeated several times which will lead to greater convergence.

7.2.9 Addressing the 'Phantom factor : X' and other uncertainties

While evaluating any system, it has to be kept in mind that uncertainty prevails with almost everything related to a system.

i. Unanticipated and accidental events

A mechanical system is considered to have no interaction with its environment, which means its boundary is *closed*. In the strictest sense, of course, even a mechanical system is not *totally* closed, since it may dissipate some heat in the process. However, in the limited sense, it may be deemed to be closed.

A politico-administrative spatial system can not be taken to be 'closed'. It is an *open* system with a *permeable* or *porous* boundary (Chap. 3). Here interaction with the environment can never be avoided and such interactions remain beyond the control of the system itself.³⁰⁰

Although, the TIDE analysis takes note of an 'environmental factor', that may not cover many of the uncertainties that emanate from the environmental impacts.

²⁹⁹ "The disadvantages of long delays between iterations and the difficulty in accelerating the interactions of the participants, without resorting to face to face confrontation is now easily eliminated using computer". – Murry Turroff, "A synopsis of innovation by the Delphi Method", Paper presented to the Operation Research Society of America, Oct., 1970.

³⁰⁰ Such as the Gulf War increasing the oil price, which increases the price of finished goods in the West, which increases import expenditure of a Third World country.

In the management of a State system certain other factors, such as, a sudden outburst of communal frenzy,³⁰¹ stray incidents inciting group conflict or war³⁰² and even accidents like natural calamity³⁰³ may influence a system significantly and in an unpredictable manner. Even a stray political assassination may cause an abrupt change in the situation. In the evaluation of the efficiency of a spatial system these factors must be taken into account.

ii. The 'gestalt' or 'emergence'

As it has been mentioned earlier, a system is not just the sum of its parts. It is a *system* only when it shows *emergence* that is when the *whole is more than the sum of the parts*. This makes a system non-decomposable or at least only *partially* decomposable. This *gestalt* behaviour of a system is one of its prime characteristics. In evaluating the efficiency of any system this factor must also be carefully evaluated.

iii. The surge

Certain elements may assume or acquire unusual importance at a given time distorting the whole evaluation disproportionately. As Bird observes;

'... systems may suddenly veer from one state to another quite different state as a result of a nevertheless steady change of inputs which causes the system to be moved across some critical threshold'.³⁰⁴

This *surge factor* must also be looked into and adequate correctives need to be introduced to improve the results of evaluation.

In order to account for such unanticipated, accidental or time variant inputs into the system, it will be convenient to introduce another factor alongside factors T, D E and I and which may be termed as the '**Factor X**', or the **Phantom factor**.

³⁰¹ The Hindu-Muslim riot in Calcutta during August 1946, sealing the fate of an 'United Bengal' and accelerating partition based on the religious divide.

³⁰² Arab-Israel war affecting Lebanon or Turkey.

³⁰³ Mishandling of the rehabilitation works after November 1970 cyclone in East Pakistan (now Bangladesh) by the Pakistani administration having a profound impact on the East Pakistani psyche, that accentuated the dismemberment of Pakistan.

³⁰⁴ James Bird (1993), *The Changing Worlds of Geography*, Oxford University Press. London

Since 'Factor X' may have several dimensions or elements, as described above, it may be represented by the equation:

$$X = x_1 + x_2 + x_3 + \dots + x_n$$

Where, $x_1, x_2, \dots$ are the evaluated values of the different components of X as described above.

Since 'Factor X' contains so many dimensions it is obvious that its value will be in a state of continuous flux and therefore hardly reproducible. One has to calculate it time and again with the change of time and situation.

7.2.10 Accounting for the time-variance

Spatial systems, being interactive products of so many variables, are bound to be time variant. As such, during evaluation, at all stages, the 'state' of the system at the given time must be observed carefully.

In the same way *time variance* of the elements, sub-sets and factors, if any, must also be noted and reflected properly in the equations, matrices or models.

This time variation factor may be dealt separately, as $f(t)$, which may have several components.

It may also be integrated into factor X, as:

$$X + f(t) = X_t.$$

7.2.11 Assigning 'weightage' to the entities

While evaluating the entities of a system it may be observed that the factors, sets/subsets or elements under observation may not carry the same weight and meaning in all circumstances. For example spatial systems in the West and those in the East may have different value orientation and as such the actual incidence of certain factors, sets/sub-sets or elements on the overall efficiency of the systems may not be identical. This may call for what we term 'weightage'.

In assigning values to the entities the observer has to carefully assess the situation and make his or her own decision as to how the entities are to be ordered based on their role in shaping the system concerned. This approach is not new and has been found to

be used in several real and theoretical exercises. Chestnut (1982) observes:

“... this idea of identifying a number of categories and weighting them and their sub-categories with appropriate weights does represent a way in which nations can be compared and in which optimisation can be used in terms of what do certain choices mean to the people of all the world, as contrasted with trying to sub-optimize for what is good for each country by itself without any regard to the remainder of the world.”

The EPRI Journal³⁰⁵, in its much acclaimed *Quality of Life* assessment has applied this approach by assigning weights to the different social factors under observation. Here Nations have been judged by their achievements and performances in various sectors categorised into five broad areas:

1. Social,
2. Economic,
3. Health and education,
4. Environment, and
5. National vitality and security.

In assessing the measure of performance of a Nation in each of these area ‘appropriate’ ‘weightages’ have been assigned to the categories (**Table-7.1**).

Here, both ‘categorisation’ and ‘assignment of weights’ has been based on the appreciation of the situation by the observer/s, in this case, the researchers at the EPRI. In the evaluation and measurement of social indices this has to be taken as a necessary and important step.

Chestnut (1982) comments on this EPRI report:

‘Although this ranking (of the countries) may be a self-fulfilling prophecy-type of process because of the criteria chosen, nevertheless the procedure seems to be one that has merit and can be used with them and their sub-categories with appropriate weights does represent a way in which nations can be compared’.

Table-7.1 *Quality-of-life model : weighted categories of variables*

³⁰⁵ EPRI Journal, April. 1980.

Social : weightage- 24.0

Satisfaction of basic human needs: standard of living
Informed citizenry with modern conveniences
Welfare and independent status.

Economy: weightage-20.0

Individual economic well-being: flow and stock measures
economics, structure, and productivity

Health and education; weightage-22.0

Individual health status
Community health conditions
Educational attainments

Environment: weightage- 15.0

Natural environment and utilisation
Manmade environmental problems

National vitality and security: weightage- 19.0

National carrying capacity
International security and independence

Van Gigch (1974) has dealt with the 'Problems of Measurement in the Social Sciences', in some detail.³⁰⁶ He has cited several examples of evaluation of complex situations applying weightage to the factors measured and discussed various methods of applying weights to observed values.

³⁰⁶ John P. van Gigch (1974), *Applied General Systems Theory*, Harper and Row, New York.

A hypothetical application of 'Weightage'

If the total weight of all the factors together in a given system is assumed to be 100, one may distribute it amongst the four factors depending on their observed importance related to the given system at the given time of observation.

Table 7.2 gives a hypothetical distribution of factor weightage for a hypothetical Nation State (say) 'Q' :

Table 7.2 A hypothetical distribution of weightage between the different factors of a Nation State system

Factor		Assigned weightage (W)
Territorial factor	(T)	25
Interactive factor	(I)	25
Demographic factor	(D)	30
Environmental factor	(E)	20

Total		100

Now, all the elements within each factor, T,I,D and E, may be listed, valued, corrected and computed to work out the input-output functions of the different sub-sets/sets and finally the factors constituting the system may be evaluated.

For the hypothetical spatial system 'Q', described above, let it be assumed that factor values computed in the manner suggested above are as follows:

Table 7.3 Factor values of a hypothetical system before applying weightage

Factors		Output $f(o)$	Input $f(i)$
T		25	20
I		30	20
D		25	15
E		15	15
Total		(+)95	(-)80

Now, to apply the 'weightage' to the factors as per Table 7.2 , one can proceed as follows:

If 'W' is the total weight of the system, and W_t , W_i , W_d and W_e are the weights of the factors T,I,D and E respectively, the factor values (say factor T), changed after application of the weights, shall be indicated by:

$$Tw = (T \times W_t / 100) \times N$$

where,

Tw is the changed value of factor T after application of 'weightage',

T is the observed factor value, and

N is the number of factors taken into account (here it is 4).

Applying this conversion formula to all other factors also, and according to the 'weightage' values indicated in **Table 7.2** we get the 'weghted' factor values as shown in **Table: 7.4**.

Table 7.4 Factor values of a hypothetical system after applying weightage

Factors	Weightage assigned to the factors (W)	Weighted output $f(o)$	Weighted input $f(i)$
T	25	25	20
I	25	25	20
D	30	30	18
E	20	12	12
Total	1.00	(+)97	(-)70

Now, the efficiency level of the Nation State Q will be given by:

$$e \approx \{ f(o) - f(i) \} = \{ 97 - 70 \} = (+)27 \quad \dots(7.4)$$

Putting the same in a proportional rating :

$$e \approx f(o) / f(I) = 97/70 = 1.386 > 1 \quad \dots(7.5)$$

This indicates that the system efficiency of this hypothetical Nation State Q is greater than 1, i.e., 'positive'.

7.2.12 Assessment and judgement

At several points in the investigation and evaluation of a soft system, the observer or the 'assessor' has to give a 'decision' by him or herself, when no other course is available, or workable.

According to Van Gigch, when a decision maker assigns 'weightage', it should meet four basic requirements:

1. The assessment should not violate postulates of coherence.
2. The assessments should agree with the decision maker's judgement.
3. The assessments should agree with reality.
4. Some measures of consensus among decision makers should be achieved.

An assessor's capability and success is to be judged by his/her ability to fulfil these conditions.³⁰⁷

³⁰⁷ *ibid.*

However, in evaluating social phenomena one can not rely 'exclusively on analysis and deduction, one needs to synthesise and be deductive'.³⁰⁸

Here informal reasoning processes such as *judgement* and *intuition* must be given to play an important role. Van Gigch contends that such reliance on 'judgement' and 'intuition' is common in Architecture, Medicine, Economics and Psychology also.³⁰⁹

Churchman characterised judgement as a 'group opinion', where even a *same individual at different points in his reflective life*, that is at different points in the time span, may be treated as a 'group'. According to him, for all practical purposes, such a 'group' may be taken to have been comprised of "different members".³¹⁰

Intuition belongs to the same type of reasoning process as judgement.

While assigning values to different entities one has to remember that they may carry different meanings at different structural or functional positions and their impact on the efficiency of the system may vary with the *state* of the system and also with time. Therefore, before carrying out any evaluation we have to decide the relative weightage of the elements or factors based on such diverse situations. For example, in certain cases, where a small country is overwhelmingly dependent on a neighbouring large country, the environmental factor, 'E', may dominate. On the other hand, for a technologically advanced country with intense economic activity, the interactive factor, 'I', may contribute more to its efficiency.

In certain cases the same elements may not represent identical functions in different societal settings. In such cases functional equivalence needs to be ascertained, without which comparison or comparative evaluation may become meaningless (Jean-Pierre Cot and Jean-Pierre Mounier, 1984).³¹¹

Thus in the case of a Nation State, if the *quality of public representation* is considered as an indicator for *quality of good governance*, one must look to the electoral system and its management in that given polity. How far the voter exercises his or her vote 'freely' and without being induced directly or indirectly

³⁰⁸ *ibid.*

³⁰⁹ Helmer and Rescher, as quoted by van Gigch, *ibid.*

³¹⁰ Churchman, as quoted by van Gigch, *ibid.*

³¹¹ As quoted in Flood and Carson (1988)

shall obviously reflect the quality of representation, which may be crucial in determining the state of the management of the system

Socio-political *engineering* is another distorting factor beyond the control of a system. Such engineering may be both from within or from outside.

There may be another unusual situation where a particular element is found to have disproportionate influence on the system *at a given point of time*. Identification of such 'time bound' elements and their unusual impact on the system must also be taken into account.

7.2.13 Ordering the systems according to their relative efficiency

For a system to be efficient, the value of the centripetal factors, or *output*, must exceed that of the centrifugal, or *input*

That means :

$$\frac{O}{i} > 1 \quad \text{.. (7.6)}$$

where

O = centripetal factor, or 'output', and

i = centrifugal factor, or 'input'.

On the basis of this equation one can make the ordering of different systems as per their observed levels of efficiency.

As mentioned earlier, an 'ordinal' value may be sufficient to meet our purpose, to indicate which system is relatively *more efficient*. There is no need for an absolute valuation. As Van Gigch (1974) observes:

"Mere classification implies the use of the weakest of all scales (the nominal scale). If events and/or their attributes can be ranked, we can advance to the ordinal scale. Progress beyond the ordinal scale is dependent on imposing further restrictions on the degree of freedom of the variables involved."

Clearly purpose of the present study will not be served by the nominal scale and on the other hand looking beyond the ordinal scale will not suit the soft systems. A Likert scale may be more

useful, where the notional values may be listed in incremental order in order to obtain the best possible answer.

Here, based on the values obtained through the evaluation process as described, one may compare the relative efficiency of Nation States and classify their efficiency level in different categories, such as :

- (a) Very high,
- (b) High,
- (c) Moderate,
- (d) Low, and
- (e) Very low.

7.2.14 Evaluating hypothetical spatial systems

The final target being the identification of better alternatives to presently distorted spatial systems a number of alternative hypothetical systems are conceptualised to see whether a more efficient system may be found out or 'designed'. Although these systems do not exist in reality, they are evaluated using the same methodology.

In doing that one may overlook the present boundaries of Nation States and draw hypothetical boundaries based on *desired* systemic parameters. This will allow investigation into the present system distortions as well as their impacts on the system/s concerned.

7.3 TOWARDS DRAWING THE SYSTEMIC EFFICIENCY MATRIX (SEM).

After the evaluation of individual factors, sets/sub-sets and elements, the overall status of the efficiency of the system under investigation may be projected graphically. This has been termed the **Systemic Efficiency Matrix, or SEM** (see Chapter 2)..

7.3.1 The seven steps to SEM

In Chapter 2, section 3.1, the seven steps to draw the SEM has been elaborated. Here the inputs for the matrix are prepared step by step to finally draw the SEM, which depicts the efficiency of a given system, showing both the positive and negative values for the different factors. This matrix shows the relative weights given to the factors and also the correctives for the X factor and the time variance function $f(t)$. (A 'Typical SEM analysis' has been shown later in section 7.5)

As mentioned, once the SEM is drawn, a series of iterations, repeating all the seven steps, for re-evaluation and cross-checking, is to be undertaken to refine the matrix.

7.3.2 Evaluating the TIDE

It has been shown in Chapter 6 that in order to calculate the value of the factor inputs and outputs one has to single out the factors **T** (Territorial), **I** (Interactive), **D** (Demographic) and **E** (Environmental) -- one by one. Now to evaluate the factors, starting from the apex and going downwards, one has to identify the component sets and sub-sets in hierarchical order and then proceed further to identify the discrete elements.

The equations for the values of the factors now take shape as follows:

$$f(T_o) = f(T_{1o}) + f(T_{2o}) + \dots + f(T_{n1o}) \quad \dots (7.7)$$

$$f(T_i) = f(T_{1i}) + f(T_{2i}) + \dots + f(T_{n1i}) \quad \dots (7.8)$$

where $T = T_1 + T_2 + T_3 + T_4 + \dots + T_{n1}$

$T_1, T_2, T_3, \dots, T_{n1}$ being the set constituting the factor.

One can similarly frame the equations for $f(I_o)$, $f(I_i)$, $f(D_o)$, $f(D_i)$, and $f(E_o)$, $f(E_i)$.

7.3.3 Focusing on the SUB-SETS and ELEMENTS

In the same manner equations for each of the *sub-sets* may be framed, wherein all the individual elements are to be identified and valued.

As mentioned earlier, for the dis-aggregation of a system initially a *top-down* approach may be adopted to dismantle the complexities of the system into hierarchies. However at the evaluation stage, an opposite approach, starting from the elements at the bottom and then proceeding upwards step by step, has been suggested.

As the exercise has to be essentially a trial and error game and requires recursion at every stage, deciphering the structure of the system with a top-down approach and thereafter going for a *bottom to top* exercise through discrete analysis, block by block, will be more rewarding.

7.3.4 Listing the system entities

In Chapter 6, Table 6.1, a long list of system entities has been drawn, dividing them under different Factor heads. Here only those entities have been considered which appear to be relevant to the functioning of a spatial system and contribute to its efficiency. However, it must be pointed out that it is only a proposition based on the observer's own world view. There may be so many variations depending on the situation and the emphasis decided by the observer.³¹²

Even the basic assumptions in this regard may differ. Thus in assessing the performance of Nation State systems Terleckyj (1970) suggests a list of *National Goals* to draw "input-output" tables showing the relationships between activities and goals at the national level (**Table- 7.5**).

Similar exercises have been done by others also. Harry P. Hatry and John F. Cotton in their *Program Planning for State, County, and City* identified eight areas to satisfy the citizen's needs and wants:

- i. Personal safety,
- ii. Health,
- iii. Intellectual Development and Personal Enrichment,
- iv. Satisfactory Home/Community Environment,
- v. Economic satisfaction and Satisfactory Work opportunities for the Individual,
- vi. Leisure-Time Opportunities,
- vii. Transportation-Communication-Location and viii. General Support³¹³.

Therefore researchers /decision makers may come up with their own lists according to their line of argument.

In the present exercise, once the basic structure of a system is deciphered, a preliminary list of elements to start with may be prepared. As more and more detailed investigation is taken up, newer elements may be identified and listed and the evaluation may gradually improved through iteration.

³¹² " Any system has a number of objectives and the balance between them may differ widely from system to system. The designer may seek to optimise the overall system functioning according to weighted objectives..." -- H. Chestnut (1965), *Systems Engineering Tools*, Wiley, New York.

³¹³ Harry P Hatry and John F. Cotton (1967), *Program Planning for State, County and City*, George Washington University, Washington.

Table 7.5 A summary list of areas of national goals concern and the corresponding principal indicators of goal output.

Area of goals concern	Principal indicators of output
1. Freedom, justice and harmony	Not yet defined
ii. Health and safety	
Health	Mean life expectancy at birth
Public safety	Number of disabled persons
	Violent crime rate
iii. Education , skills and income	
Basic schooling	Index of average achievement
Advanced learning	Percentage completing college
Skills	Average earnings
Adequacy and continuity of income	Number below poverty level
iv. Human habitat	
Homes	Proportion having adequate housing
Neighbourhoods	Proportion living in satisfactory housing
Access	Index of travel cost
Quality of environment	Percent exposed to pollution
Recreation	Percent having regular recreation
v. Finer things	
Beauty of nature	No. preserved areas
Sciences	No. of active scientists
Art	No. of active artists
Leisure	Average time free from work
vi. Economic base	GNP

-----Nessor
E. Terlekyl, " Measuring Progress towards social goals: Some possibilities at National and local Levels," Management Science 16, No. 12, 1970 , as quoted by Van Gigch (1974)

7.3.5 Drawing the SEM

To draw the SEM for a spatial system points are assigned to the four factors (T,I,D and E) based on their observed values. Here maximum attainable points for both positive and negative values have been fixed to be 100.

A projection through bar columns has been preferred. The positive and negative values have projected horizontally on the two sides of a vertical axis; positive values to the right and negative values to the left. Using this projection a visual comparison of the positive and negative aspects of the efficiency level of a spatial system is available for comparison. Here the following aspects are to be noted:

- i. The *lengths* of the columns to be proportional to the values obtained.
- ii. The *width* of the columns to be proportional to the *weightage* given to each of the factors.
- iii. The 'X' factor and the time-variance of the entities to be reflected by a proportionate extension of the columns on either side based on the impact-values worked out for 'X' and 'f(t)'.

The total areas covered by the rightward and leftward projections from the median on the graph reflect the overall positive and negative aspects of the system, respectively. The difference between the projections on the two sides reflects the *efficiency* of the system.

It may be questioned that if the difference of $f(o)$ and $f(i)$ indicates the efficiency, then why should we project them separately? Instead, why not calculate their difference and plot the *difference* on the graph?

The reason for projecting both $f(o)$ and $f(i)$ values separately is that it shows the actual state of the system, showing the relative dominance of its factors.. Where both $f(o)$ and $f(i)$ are equally high it indicates a state of serious discord within the system. Lower values of $f(o)$ and $f(i)$ indicate a more stable system. If only the differences between $f(o)$ and $f(i)$ is projected, this vivid picture will not be available.

7.4 UTILITY OF SEM

A model attains worth only when it has some real world application. Here we shall mention the probable utilities of SEM.

a) Identification of efficient and inefficient systems

Looking at the projection of the positive and negative aspects of a system one is in a position to have an overall impression of the efficiency of a system.

Through SEM analysis alternative hypothetical systems may be studied. Comparing the SEM's of the alternatives with that of the presently existing system, one may identify whether there could be a better systemic conglomeration.

b) Projection of hypothetical alternative systems and their efficiency.

SEM gives a tool to project conceptual models of hypothetical systems, whereby one can build better alternative configuration of the prevailing systems.

c) Identification of specific system distortions

SEM projection will reveal the distortion in a system and help the policy makers to locate the probable areas for intervention.

d) Comparison of Nations and spatial systems

SEM analysis gives a convenient and handy tool to compare Nation States and other spatial systems, including the multi-national, or regional groupings, as well as, internal administrative units, or political regions within a State..

e) Identification of different system traits

SEM analysis projects different system traits separately, thereby giving an indication of the overall balance/imbalance in the system. Negative values in one area may be balanced by positive values in others.

f) Indication of the tolerance of a system

Any system has some intrinsic strength to cope with distortion to a certain extent based on its *homeostatic* capability. However, there must be a limit to this tolerance beyond which the system may give

way. SEM analysis may give an insight into the state of the system in this regard, by cautioning and pointing towards such limits.

Now, there must be a tolerable limit of distortion beyond which a spatial system shall tend to tear away. (**Fig. 7.1**).

It should be noted that the minimum efficiency level necessary for the proper functioning of a spatial system may not be the same at all hierarchical levels. This is because tasks and functions required to be attended to by a system are different at different levels. For instance, a Nation State has to act as the pivot of the system and the custodian of its sovereignty, whereas a 'local state' normally performs only minor administrative and developmental functions. Again, the nature of the functions attended by sub-ordinate systems differs widely from State to State.

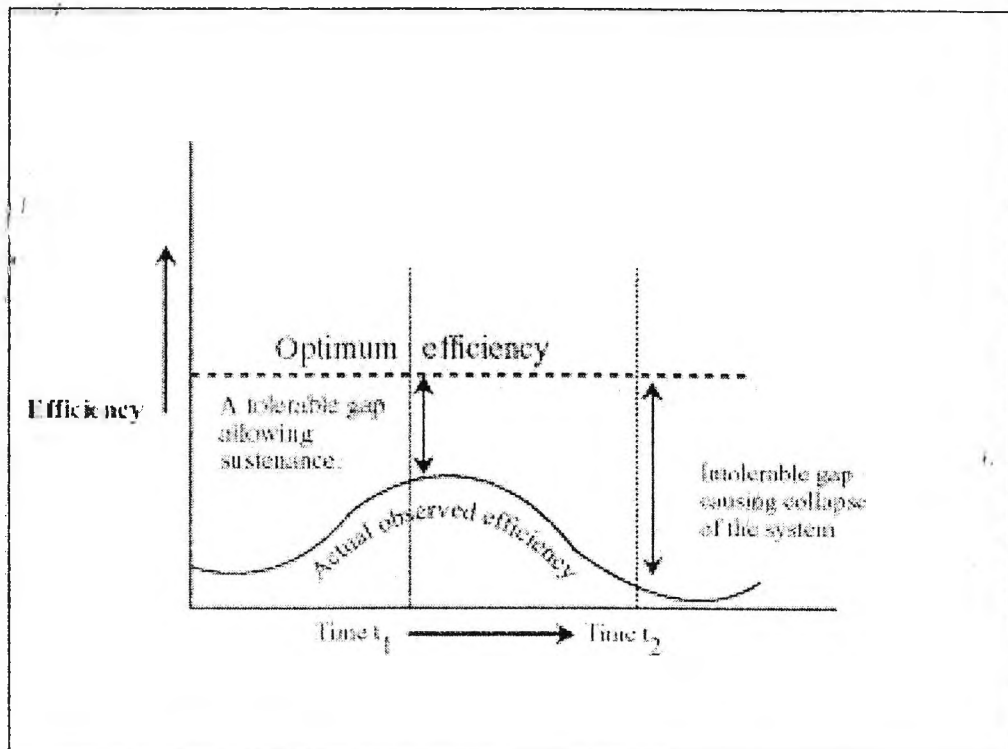
Table 7.6 gives a general view of the situation, which is, of course, only notional, based on current global trends, showing our expectation of the efficiency of spatial systems at different hierarchical levels. However, in this table the 'notional' values are based on the perception of the researcher.

In general, a family, is expected to be a well knit unit headed by an elder member. But a family may break down for various reasons and there may be irreparable tensions among the members. Therefor its efficiency has been taken to be 'moderate'.

Table 7.6
 Expected efficiency at different hierarchical level
 A notional view based on observer's own perception

Hierarchy	Unit	Level of efficiency as per eqn. 6.5
I	Family	Moderate (-)20 to (+)20
ii	Local State	Very high (+) 60 to (+) 100
iii	Nation State	High: (+) 20 to (+) 60
iv.	Multinational Block.	Low: (-) 60 to (-) 20
v	World System	Moderate: (-20) to (+) 20

Fig. 7.1. Tolerance of a system



A 'local state' or a locality shows intense social and other interactions within its bounds and composition of membership may change with time the local community interests do not change much. Because of their mutual interest community members are more likely to act together. Therefore, efficiency of the 'local state' has been considered to be very high.

In a similar notional inquiry efficiency of Nation States, Multinational blocks and the World at large has been mentioned as 'high', 'low' and 'moderate' respectively.

g) Identification of the points of depression and guidance to socio-political engineering

It is found that "economic development tends to be concentrated in the areas where most has already taken place", providing a mosaic of regions at different levels of economic prosperity, which in fact substantiates Myrdal's "Cumulative causation mechanism" through "back-wash effects" (Myrdal, 1957). A multi-regional polity with over-centralised political administration controlled by a dominant region or social group can hardly do justice to the sub-ordinate peripheral regions or groups. This is true for other domains also, such as media, political leadership or bureaucracy. Even in the intellectual arena it is found that the intellectual conceptions of the major "intellectual powers" dominate the international thought process in general and thereby dictate the "terms of discourse" in favour of the advantaged to the detriment of the dis-advantaged, in the same way as 'terms of trade' adversely affect the underdogs in the economic sphere.

As in the case of regional economic disparities within a State, the same "cumulative causation mechanism" may very well be applied to the interactions between the economies of different Nation-States. In the case of regional disparity within a State the 'back wash' effect is expected to be compensated by 'spread' at a higher stage of growth, when the State machinery intervenes in favour of the backward areas (Myrdal, 1957). However, this is not expected in inter-State economic exchange, where the stronger has no obligation or responsibility to the weaker.

SEM may help in the identification of points of depression both within a State and amongst the States and may contribute in policy planning in this field.

SEM may be profitably used as a guide to socio-political engineering, in resolving both inter-systemic and intra-systemic issues. Through the SEM analysis we can identify the element or elements responsible for the states of efficiency or in-efficiency of a

system. Once such elements are properly identified, planners may discover the shortest path to any desired change by concentrating on those elements as highlighted by SEM.

By observing the SEM of neighbouring entities it may be easier to identify the root causes of the conflicts between them, which may help resolution of such conflicts.

h) Predicting the state of homeostasis and synergy for a system

SEM analysis helps us to predict the alternative, or ideal configuration of a system, which would give a state of homeostasis or produce synergy.

An efficient system is expected to produce 'synergy'. However, too much synergy from a given system may cause unbearable impact on its environment. This may result in unmanageable 'positive feedback' causing harmfully excessive growth.

7.5 TYPICAL 'SEM' ANALYSIS : BANGLADESH

In the preceding sections of this chapter and also in Chapter 6 the problematic of evaluating the efficiency of spatial systems has been discussed and methods have been suggested to handle this delicate issue.

In Chapter 6 it has been shown how a complex spatial system may be systematically and systemically di-aggregated. In this chapter concentration has been primarily on hard systems methodology, although certain steps have been suggested to cover the soft issues also. In this regard application of the Delphi Method of opinion convergence has been suggested to have a better decision through collective wisdom.

However, in this exercise it has not been possible to go for a conclusive exercise. That will obviously require an independent project with adequate logistics, involving time, manpower and resources, which is beyond the scope of this study. There is only one positive aspect in it. Here the observer is part of the systems under the two case studies. As such, this study and the evaluations therein reflect at least a particular 'world view' on the systems concerned

In any case, this can not be taken as any studied judgement and should be treated only as a methodological example.

7.5.1 TIDE evaluation for Bangladesh

One may now try a TIDE analysis (evaluation of the Territorial, Interactive, Demographic and Environmental factors as described in chapter 6) for the Bangladesh system. Following the method described in chapters 2 and 6 and in this chapter above evaluation of the elements, subsets and sets, on the basis of the available information from our case study in chapter 5 may be done.

The four basic factors, T, I, D, and E, may be taken up one by one:

(a) 'T': The Territorial Factor

Subset T1 - *Terrain*

Elements- *Size and Shape, Integrity (Contiguity and Homogeneity), Geological characteristics etc.*

The territory of Bangladesh is relatively small, comprising only around 56,000 square miles. It is alluvial flatland all over, except for the patch of hilly terrain in the eastern flank. It is compact, contiguous and spread up almost equally on all sides from the central nodal region.

Let this subset be valued as:

T1 → (+) 70 and (-) 20.

As per section 6.3.5. maximum points for both positive and negative values could be 100. This same scale of evaluation will be followed all along.

Subset T₂ - *Geo-political setting*

Elements- *Location, Nodality, Natural defence potential, Access to the sea, Interacting hinterland, etc.*

The geographical location of the country is at the apex of the Bay of Bengal. It has good access to the sea, but the potential for natural harbouring is poor. Nodality in relation to other parts of the world is not high at the present pattern of interaction. Being surrounded by India on three sides, its *natural* defence potential is very poor. Although it is the central part of the eastern flank of south Asia and is situated at the tri-junction of South Asia, South East Asia and China, the present situation with closed borders with India and poor transaction with Myanmar means that it has almost no *hinterland* or area

of influence around it. It is a virtual *island* in a hostile geopolitical setting.

Let this subset be valued as:

T2 → (+) 20 and (-) 75.

Subset T₃ - *Boundary*

Elements- *Length, Shape, Quality, Permeability, Manageability, etc.*

The shape of the border of Bangladesh is highly irregular and as such its length -area ratio is high. There is no clear-cut natural demarcating feature along its land border with India. The border is permeable at almost all points. People of the same stock thickly populate both sides of the border. The line of demarcation is totally artificial, so much so that it cuts across villages and even dwelling houses. As such cross border movement of people or goods goes on unabated, in spite of the armed patrolling by the border guards on both sides.

We give a gross notional value:

T3 → (+) 25 and (-) 70.

Subset T₄- *Natural Resources*

Elements- *Flora and Fauna, Cultivable land, Soil quality, water, Sunshine, Minerals, Staple food, etc.*

Being alluvial flatland and having plenty of rainfall Bangladesh is rich in flora and fauna. Most of its lands are cultivable and provide two or three crops annually. Soil quality is also good with a deep layer of alluvial topsoil. Water is plentiful, although a barrage built by India upstream creates problems for some of the western districts.

It is poor in mineral resources, except for some quantity of natural gas and small quantities of coal and hard rock. The country presently produces almost 90% of its food requirement in normal years, when there is no natural calamity. However, devastating floods occur in some years destroying crops and on the average food import still constitutes a large part of its import bill.

Let this sub-set be valued as:

T4 → (+) 65 and (-) 45.

Subset T₅ - *Ecological setting*

Elements- *Water regime, Weather, Tectonic vulnerability, Environmental hazards, etc.*

The water regime of Bangladesh is part of a bigger regime encompassing adjoining regions in India. Its river system comprises the lower parts of the basins of Ganga, Brahmaputra and Meghna and as such is entirely dependent on the flow of water *allowed* by India. Weather is good for some months during winter, but uncomfortably hot and humid during summer. Incessant rain during monsoons disrupts normal life. Severe floods, storms, cyclones and tidal bores in the coastal regions cause serious damage to life and property every year. Although no serious earthquake has happened in the recent past, the country lies in an earthquake zone and experiences mild tremors.

Let this sub-set be valued as:

T5 → (+) 20 and (-) 55

It should be noted that many of the 'elements' (in fact almost all of them), as noted above, may be taken as separate subsets and subjected to further intensive investigation.

Now, values for all the subsets are to be consolidated.

T1- (+) 70, (-) 20

T2- (+) 20, (-) 75

T3 (+) 25, (-) 70

T4 (+) 65, (-) 45

T5 (+) 50, (-) 20

Consolidating the above five subsets:

T → T1+T2+T3+T4+T5 → (+) 230, (-) 230

For the sake of simplicity we put equal emphasis on all the sunsets, not considering any weightage on them at this stage. The value may therefore be reduced by 1/5th to keep it within the limit of maximum 100 points for the sake of convenience, giving:

T → (+) 46, (-) 46

(b) 'T': The Interactive Factor

Proceeding in the same manner we evaluate factor **I** as follows based on the discussions in chapter 4.

Subset I₁- *Past legacy*

Elements- *Common and shared historical legacy, Common folk culture, Common myths and icons, etc.*

All the regions of the country have gone through a common political development over several hundred years if not more. Folk culture is almost universal over the entire country; myths and icons are also generally common. However the religious cleavage between the Hindus (12%) and Muslims (87%) destroys this overall pattern in several aspects. Hindus and Muslims do not always share the common political history, nor do they subscribe to all icons in common.

:

We value this subset:

I₁ → (+) 70, (-) 25.

Subset I₂ - *Societal setting*

Elements- *Convergence of interest and aspirations, Cultural integration, Linguistic harmony, Common literature, Intellectual integration, Elite integration, etc.*

Convergence of interest is fairly high and aspirations of common men are also identical. Cultural integrity is high. Linguistic harmony is very high. Literature is common. Intellectual integration being based on divergent external linkages is fragmented and there is no strong national consensus. The elite of the country is divided on political ideological lines and common ground for their meeting is narrow.

Let this sub-set be valued as:

I₂ → (+) 75, (-) 65.

Subset I₃ - *Governance*

Elements- *Administrative integration, Political institutions, Law and order, Social institutions, etc.*

From the administrative point of view the country is well integrated. However, political institutions are weak. Law and order is deplorable. Social institutions are strong, but guided more by religious sanctions.

Let it be valued as:

I₃ → (+) 45, (-) 60.

Subset I₄ - *Communication*

Elements- *Internal communication network, Media, etc.*

The internal communication network is excellent linking almost all the villages directly to the Capital City and local townships by roads or river-ways.

The media cover the entire country fairly well. There are a large number of newspapers covering the entire country. TV coverage is increasing very fast. Telephone connections (both land based and mobile) are increasing fast. However, infra-structures in all these sectors are still weak and poor in quality.

Let it be valued as:

I₄ → (+) 60, (-) 40.

Subset I₅ - *Economic setting*

Elements- *Economic integration, Market integrity, Corporate linkages and network, Capital and saving, etc.*

Internally economy of the country is fairly integrated; its market is compact except along the border belt. Corporate linkages and networks are weak but connects the entire country,

We value this subset:

I₅ → (+) 60, (-) 40.

Subset I₆ - *Industrial activities*

Elements- *Productivity, Management, Infrastructure, Quality, Autarky, Export capability, etc.*

The country was a hinterland to the industrial hub of Calcutta till 1947. Therefore, except for the traditional weaving, Jute bailing units, there was hardly any industrial set up in the country before 1947. However, beginning from the 1950s there has been a slow and steady growth of modern industrial plants in different sectors. Of late, this trend has been adversely affected by the tide of globalisation and free market economy. The country now is being flooded with imported consumer goods from all over the world, seriously hampering local industrial growth. Its main Industry, Jute, is now dying. the Tea industry is surviving somehow. Leather is faltering. Although, over last two decades it has developed a good garments manufacturing industry, but, because of its total dependence on imported raw materials and machinery, surplus export earning from this sector is not encouraging.

Let it be valued as:

I₆ → (+) 20, (-) 65.

Subset I₇- *Agricultural activities*

Elements- *Agricultural production, Management, Quality, Autarky, Export capability, etc.*

The country is primarily agricultural, but the mode of agriculture is still largely traditional. It has exportable cash crops, but often faces acute shortages of staple food grains, rice and wheat, especially when crops fail due to natural calamity.

Let it be valued as:

I₇ → (+) 55, (-) 45.

Subset I₈- *Trade and commerce*

Elements- *Internal trade, foreign trade, infrastructure, Quality, National control, etc.*

The trade and commerce of the country is not well organised, control mechanisms are weak, manipulation is frequent in internal trade. Foreign trade is dictated by interested quarters.

Let it be valued as:

I₈ → (+) 25, (-) 65.

In this case also many of the 'elements' could be taken as subsets and studied separately. Values ascribed by us are also highly arbitrary.

However based on the seven subsets described above and proceeding in the same way as we did for factor **T**, we get the overall value for the factor '**T**' as:

I → (+) 410, (-) 405;

which comes to (/8)

I → (+) 51, (-) 50.5 on the average.

(c) 'D': The Demographic Factor

Subset D₁ - *Population*

Elements- *Size and density, Growth rate, quality of manpower, etc.*

Bangladesh has a large population of 140 million, the 8th largest in the world, living on a small patch of only 54000 square miles. Consequently the density of population is very high, except in the south-eastern hilly districts. The population growth rate is also high compared to other developed nations.

Manpower is of medium physical stature, literacy is low, and there is a dearth of skilled and trained manpower in almost every field.

Let it be valued as:

D₁ → (+) 50, (-) 50.

Subset D₂ - Regional identity

Elements- Number of distinct sub-regions, Level of harmony between sub-regions, etc

Several cultural sub-regions may be identified within Bangladesh with distinct dialects of speech. However, the societal harmony between these sub-regions is high, except in the south-eastern hill districts, where the local tribal population, though numerically less than 1% of the total national population, frequently show signs of recalcitrance.

Let it be valued as;

D₂ → (+) 85, (-) 20.

Subset D₃ - Ethnic divergence

Elements- Number of distinct ethnic segments, level of harmony between the ethnic segments, etc.

Ethnically Bangladesh is homogenous in general, although the bulk of the population is of mixed origin. However there are small pockets of tribal population, some of them being recalcitrant to some extent. For example a large segment of the Chakma tribe in the Chittagong hills took arms to press for their separate identity over the last several decades and have been successful in forcing a deal with the Bangladesh government, which guaranteed them certain special rights and privileges.

Let it be valued as;

D₃ → (+)70, (-) 20

Subset D₄- Religious segments

Elements- Number of religious segments, level of harmony between the religious segments, etc.

Most of the people of Bangladesh are Muslims. Hindus, numbering about 12%, are the second largest community. There are some Christians and Buddhists also. All citizens can practise their respective religious pursuits freely. However, the social relation between Muslims and Hindus is not always

cordial. The presence of the predominantly Hindu India around the country gives the Hindus a certain leverage.

Let it be valued as;

D₄ → (+) 50, (-) 50.

Subset D₅ - *Other group cleavages*

Elements - *Number of other group cleavages, Level of harmony between these groups, etc.*

Apart from the religious cleavage, the population of Bangladesh is highly segmented on certain ideological lines. Although the vast majority of the population (almost 90%) supported the liberation war of 1971, which dismembered Pakistan and gave birth to Bangladesh, a section of its population is now highly critical of India for various reasons.

On the political front the population is presently divided sharply between two major political parties, with wide divergence in their attitude and stands on political, social and international issues.

Let it be valued as:

D₅ → (+) 40, (-) 60.

Consolidating all the five subsets, as done for T and I factors, we get:

D → (+) 59, (-) 40.

(d) 'E': The Environmental Factor

Subset E₁ - *External perception*

Elements - *Geographical perception, Cultural perception, Political perception, etc.*

It is very difficult for people outside to differentiate Bangladesh from the rest of the region. Consequently, the external perception for Bangladesh as a separate region is very poor, particularly from geographical and cultural perspectives. Politically, however, the country gained a separate perception through the global publicity of its bloody 'liberation' war aimed at seceding from Pakistan.³¹⁴ However, that too appears to have been short lived.

³¹⁴ There are about 10,000 restaurants owned and run by Bangladeshis, which serve mainly Bangladeshi food preparations. Ironically, those are known as *Indian* restaurants and the food is known as *Indian* food.

Let it be valued as:

E₁ → (+) 25, (-) 50.

Subset E₂ - *External linkages*

Elements- *Cultural, Political, Military, Communication, etc.*

External linkage in the cultural arena is very strong. It has a strong Western influence in the intellectual field due to long colonial exposure, while strong religious sentiment creates another kind of outward linkage, Muslims looking towards the Muslim stronghold of the Middle East, Hindus towards India and Christians towards the Western Christendom. In the absence of a common national identity surpassing such divergence, this external linkage can not be taken as being conducive to its national polity.

The country has direct communication with the world at large through air, sea and land routes. Local media are connected with the international media and the international media have a strong presence there.

Let it be valued as:

E₂ → (+) 30, (-) 60.

Subset E₃ - *Threat perception*

Elements- *External, internal, etc.*

The country being surrounded by India, virtually on all sides and the latter being a bigger power and the relation between the two countries being strained for several reasons, its population perceives a constant external threat. Such threat perception is often good for internal consolidation. The country also suffers from a perception of internal threat due to religious divides in general and the insurgency by some tribes of the south eastern districts, who want a separate homeland for themselves.

Let it be valued as:

E₃ → (+) 30, (-) 60.

Subset E₄- *Actual threat*

Elements- *Military, Political, Cultural, Economic, etc.*

The actual threat to the existence of the country as a separate sovereign country depends on the attitude of its big neighbour. The armed uprisings in the north-eastern region of India have spill-over effect on Bangladesh. As the insurgency escalates,

Bangladesh is caught between the two opposing positions. The rebel groups of the Northeast often use Bangladesh for their transit to other countries. For this Bangladesh is under constant pressure from India to take stern measures against any such rebel connection. However, the geographical location of the country and sympathy of its population towards the rebels makes it difficult to prevent that altogether. This keeps Bangladesh vulnerable to retaliation from both India and the rebels.

Let it be valued as:

E₄ → (+) 20, (-) 30.

Subset E₅ – *Geo-strategic status*

Elements - Locational advantage, Accumulation of Power, Geo-strategic attainment, etc.

As mentioned earlier Bangladesh is virtually isolated from the rest of the world by India. Although it is situated at the meeting point of the three great land masses, South Asia, Southeast Asia and China, it is virtually surrounded by India. Its geo-strategic potential, therefore, has been reduced drastically. However, as the different nations and regions of North East India are demanding their separate identity and as the confrontation between the central authority of India and the rebels intensifies, Bangladesh being the corridor for both India and the rebels, its strategic importance increases accordingly.

The proposed Asian highway passing through Bangladesh will also enhance its geo-strategic importance as the gateway between Bangladesh and the south east Asia.

Let it be valued as:

E₅ → (+) 40, (-) 20.

Consolidating all five subsets together, as the earlier factors :

E → (+) 29, (-) 42

7.5.2 The phantom factor 'X' and the 'time variance'

Apart from the above physical and interactive factors, it is needed to take care of the unperceived and accidental events thrust on the system, such as regional or global war beyond the control of the system under investigation, natural catastrophe, sudden outburst of group conflict, etc. This has been termed as the 'X' factor, or, the *phantom* factor.

Several subsets may also be identified within the set of factor X as follows:

Subset X1- Unperceived external imposition

Subset X2- Unperceived internal events

Subset X3- Accidents, and so on.

A systematic evaluation of all these entities may be done and the results aggregated, as it has been done above.

At the same time the time-variance $f(t)$, must also be taken into account, which may be incorporated in the 'X' factor, giving: 'Xt'.

Now, 'Xt' for different factors may not be the same. One has to work it out separately for all the four factors.

Let the following situations be considered for Bangladesh in this regard, for the year (2001):

T →: There has been no severe flood, or cyclone; but, there had been occasional skirmishes at the borders;

I → There has been a bumper crop, but law and order has deteriorated;

D → Population growth rate has come down, but the group cleavages between the two dominating political parties widened;

E → No perceptible positive value, but foreign trade deficit has risen.

(N.B. These are only exemplary observations, not based on any real evaluation.)

Now, for projecting Xt in the SEM it has been suggested to extend the lengths of the columns proportionate to the incidence on respective factors. Therefore, it may be expedient to express the values in percentages, so that the bar columns may be extended accordingly. The rationale for this is that here *impacts on the factors* due to Xt, are considered, not any absolute value is being assigned.

Let impacts calculated as above give the following percentage variations:

Xt for T(o) → 5%

Xt for T(i) → 10%

Xt for I(o) → 10%

Xt fir I(i) → 20 %

Xt for D(o) → 10%,

Xt for D(i) → 10%

Xt for E(o) → 0%

Xt for E(i) → 10%

To reflect them in the SEM the bar columns on either side are to be extended accordingly.

7.5.3 Drawing the 'SEM' FOR BANGLADESH

One may now proceed step by step to draw the SEM for Bangladesh on the basis of the above TIDE analysis.

(a) Fixing the 'weightage'

Before drawing the SEM the relative 'weightage' of the factors that constitute the system of Bangladesh need to be decided.

Based on the above SEM analysis on Bangladesh and the rich picture of it as described in Chapter 5, weightage to its factors be notionally decided as follows:

Table 7.7 Assumed weightage to factors comprising Bangladesh

Factors	Weightage
Territorial Factor-T	25
Interactive Factor-I	30
Demographic Factor-D	25
Environmental Factor-E	20

Total W = 100

b) How to apply the weightage on SEM?

There may be two ways of reflecting the 'weightage' on SEM. One may change the value of the factors applying 'weightage' on them as it has been mentioned earlier in section 7.2.9.

Again, if SEM is to be projected through bar columns, the width of the factor bars may be apportioned according to the weightage given to them. This second method will have the advantage that it will clearly show the weightage assigned to the factors. In this exercise this method has been adopted.

In **Fig.7.2** a graph with 20 vertical cells and 40 horizontal cells has been taken. A vertical line through the middle of the page has been drawn dividing it in two parts, each having 20 vertical and 20 horizontal cells.

The vertical line in the middle will be the *base line* and positive and negative factor values are projected on its two sides horizontally, the left side projecting the negative values and the right side the positive.

Here, according to the weights assigned the width of the factor bars are : (each cell representing $100/20=5$ points)

T= 5 cells

I= 6 cells

D= 5 cells

E= 4 cells

Now, if this bars with the assigned width reflect the comparative weightage of the factors...

c) Addressing the X factor and the Time variance

This has been discussed this in section 6.2.8.

d) Aggregation of the factor values

Now aggregating the factor values as assigned in section 6.5.1, we get total factor values for the system under consideration, as shown in. **Table: 7.8.**

Table 7.8 Aggregate value of the factors

Factors	$f(o)$	$f(i)$
T	46	46
I	25	65
D	59	40
E	29	20

d) Graphical projection of the values

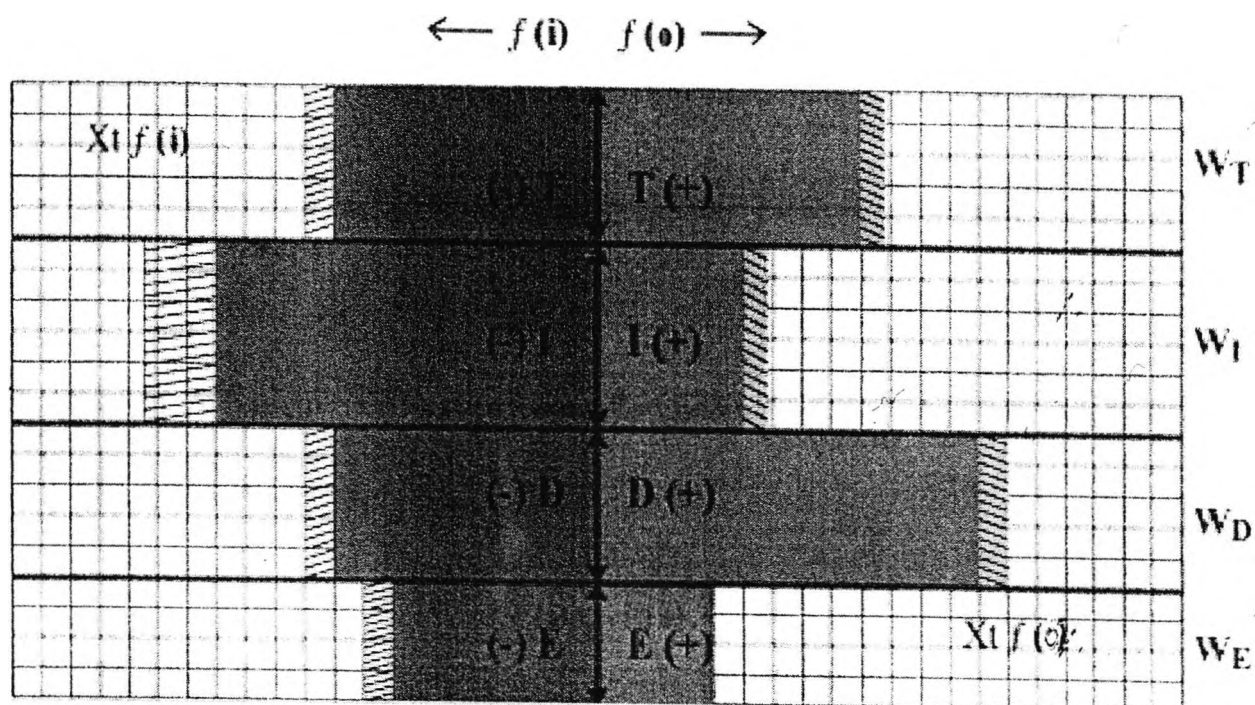
Now the notional SEM for the Bangladesh spatial system may be projected graphically, by allotting the specific number of cells for the factor values. **Fig 7.2** gives us a hypothetical SEM for Bangladesh *at this point of time* (2001) and as conceptualised by the present *observer*.

The positive values to the right are in green and the negative values to the left are in red.

The X_t incidence is to be added to the lengths of the bar on either side in a different colour.

As already stated, the above is a notional evaluation, only to set an example as to how we can proceed with the exercise of drawing SEM for a spatial system.

In an actual evaluation we have to go as per the methodology described in this chapter and chapter 5. This evaluation is to be iterated over several rounds, which will include the Delphi opinion convergence on softer issues and application of 'judgement' by the assessor for the still softer issues in the final round.



- $f(i)$: Input factor values as per Table 7.8 : each horizontal cell = 5 points
- $f(o)$: Output factor values as per Table 7.8 : each vertical cell = 5 points
- W : Weighted width of factor columns as per table 7.7 : each cell = 5 points
- $X1 f(i)$: 'X' factor as per 7.5.2 : bars extended by % variation
- $X1 f(o)$: 'X' factor as per 7.5.2 : bars extended by % variation

Fig.7.2 A typical SEM projection

7.6 LIMITATION AND CONSTRAINTS OF 'HARD SYSTEMS THINKING' FOR SPATIAL SYSTEMS

The 'hard systems approach adopted in this chapter to measure the efficiency of spatial systems has its obvious limitations as cautioned earlier.

A spatial system has many attributes that can not be fully appreciated through hard system analysis. Moreover the approach being basically 'analytical' there is the danger of being trapped in elementalism at various stages and we may 'lose the forest behind the tree'.

Considering the 'living ' entities as 'black boxes' also leaves room for a wide margin of error.

In order to avoid this danger, at every step of our evaluation and recursion, we have to be very careful to look to the 'whole', time and again, and not to forget the systems' dictum : *the whole is greater than the sum of its parts*. (In certain cases, however, the *whole* may be *smaller*, if the resultant *gestalt* gives a negative output, but still it is not *equal* to the sum of the parts.).

7.7 'SOFT SYSTEMS METHODOLOGY - SSM' : SOME REFLECTIONS

Systems practitioners in different fields are very often confronted with complex and messy systems which cannot be handled through the available *scientific* approaches. This has led to the distinction between 'hard' and 'soft' systems and the emergence of 'soft systems thinking'.³¹⁵ Again, there are a number of soft system approaches, as already mentioned, and there are serious and often acrimonious debates regarding the efficacy of these methodologies.

There is no scope here to go into those debates. To look into soft systems Checkland's *soft systems methodology*, has been chosen as indicated earlier, considering its comparatively wider application in different problem situations at this point of time.

³¹⁵ Hard systems are physical systems with well defined goals, well defined boundaries, clearly established procedures, quantifiable performance, and clearly structured. While soft systems are human activity systems with poorly defined objectives and boundaries, vague decision-taking procedure, poorly structured and difficult to quantify. -J. Bird (1993), *The Changing World of Geography*, Oxford University Press, Oxford.

7.7.1 What is 'soft systems methodology' ? History of its development

Checkland, the proponent of 'Soft Systems methodology', describes the initiation of this approach in the following words:

"SSM was developed in the 1970s. It grew out of the failure of established methods of 'systems engineering' (SE) when faced with messy complex problem situations. SE is concerned with creating systems to meet defined objectives, and it works well in those situations in which there is such general agreement on the objectives to be achieved that the problem can be thought of simply as the selection of efficacious and efficient means to achieve them..... and SSM was developed expressly to cope with the ... situation in which people in a problem situation perceive and interpret the world in their own ways and make judgements about it using standards and values which may not be shared by others."³¹⁶

Mingers (2002) recalling the development of SSM traces three distinct stages in its development. The first stage was its initiation in the 1970s as stated above. At this stage the 7-stage method (**Fig. 7.3**) of SSM was developed to overcome the difficulties in applying the conventional hard systems engineering to unstructured problem situations and develop an appropriate tool 'to deal with the humanness of human beings' and highlighting the 'importance of irrationality, creativity and values'.

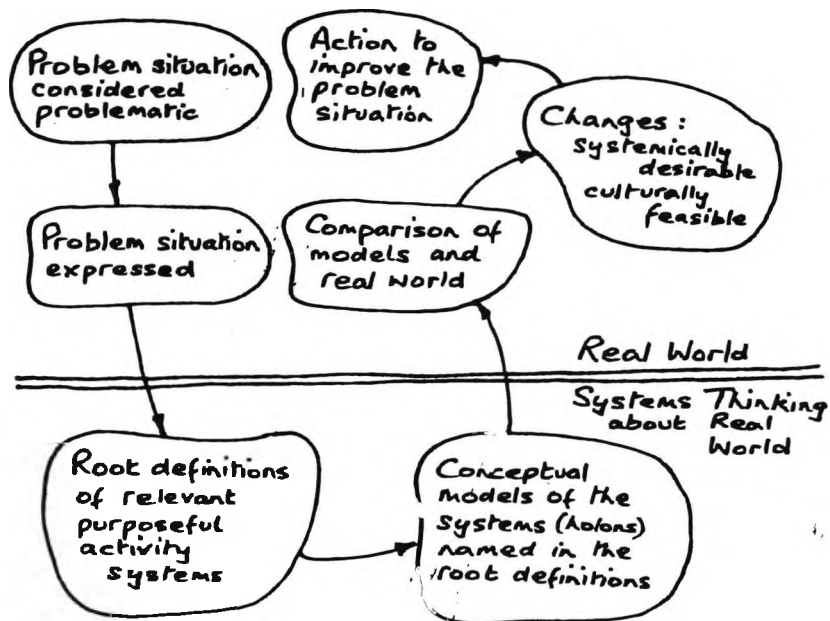
The second phase was its 'maturation' in the 1980s, when the concept was refined, the 7-stage approach of the earlier decade was discarded for a more elaborate 'Two-stream approach' (**Fig. 7.4**), documented elaborately in Checkland and Scholes (1990). New concepts like 'monitoring and 'control' for 'effectiveness', 'efficacy' and 'efficiency', of the system³¹⁷ were introduced/developed, making the methodology more 'generalised and flexible'. and therefore more adaptive to 'purposeful human activity systems', where human intentions play the dominant role.

The 'third stage' in the development of SSM as mentioned by Mingers is the developments in the 1990s, which according to him is 'essentially one of dissemination and diffusion' of the concept and ideas centering on SSM and its spread 'both geographically and by disciplines' with 'certain quite significant re-interpretations' (Mingers, 2002).

Mingers has listed quite a large number of projects and application areas where SSM has been used during this period, either directly, or in combination with other methods.

³¹⁶ Peter Checkland (1991), *Soft Systems Methodology in Action*, John Wiley and Sons, New york.

³¹⁷ Mingers, *op cit*.



The conventional seven-stage model of SSM

Fig. 7.3: The 7-stage SSM, as per Checkland (1981)

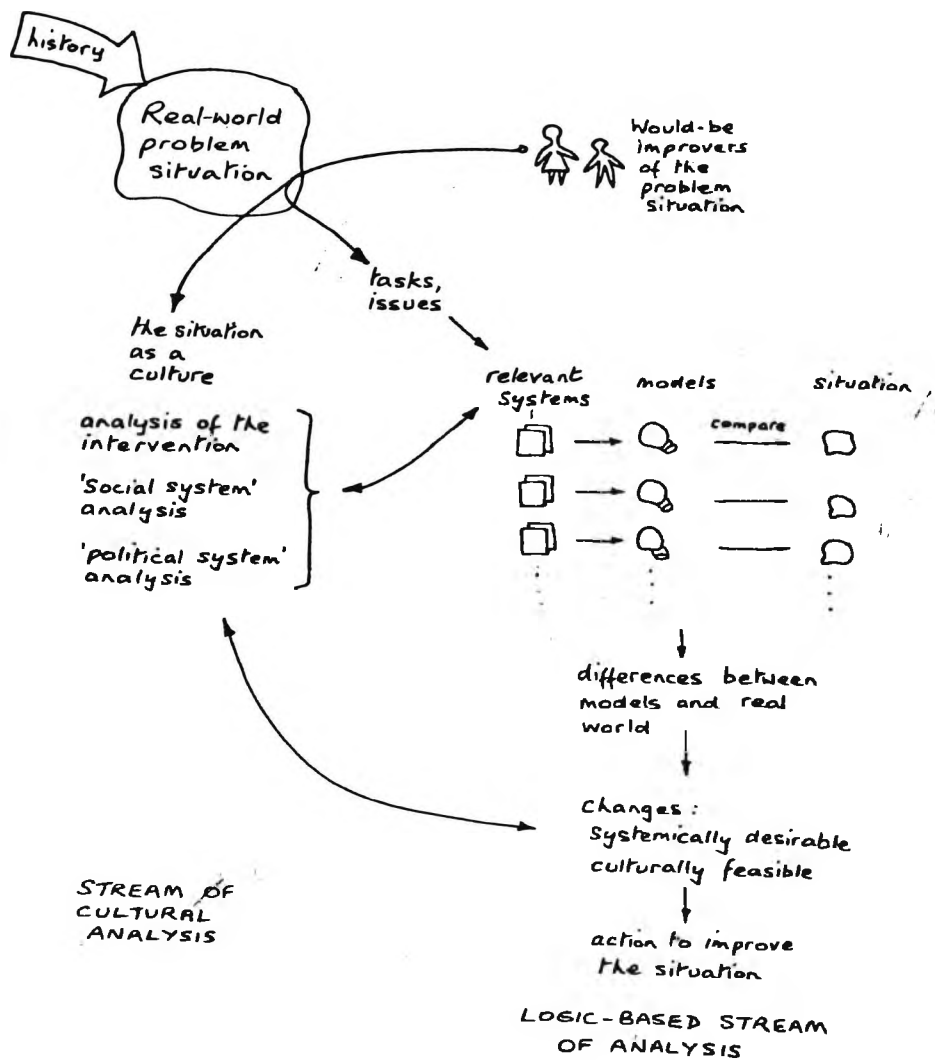


Fig. 7.4: The 'two stream' SSM, as per Checkland and Scholes (1991)

7.7.2 Description of the 'methodology'

The original version of 'soft systems methodology (SSM)' was described in Checkland (1972). A modified version of the same was placed in Checkland (1981). The whole concept has been changed significantly in Checkland and Scholes (1990).

In 'Soft Systems Methodology in Action' (Checkland and Scholes, 1990) SSM has been described as 'The Enquiring Process'. The earlier version of 7-stage process (**Fig. 7.3**) was modified to what has now been termed as the 'Two Stream Approach' (**Fig. 7.4**), which is claimed to be more generalised and flexible. This new approach includes the following steps:

i. Looking for the history and identifying the real world problem situation, building the 'rich picture'.

This is a two step process. One is the formulation of what has been termed as the 'root definition' on the basis of the 'rich picture'. The other is the framing of the mnemonic CATWOE. A 'root definition' is a description of the problem situation pointing towards the relevant and important aspects of it. Checkland and Scholes (1990) explains it with the following words:

'The simplest version of a root definition would be – " a system to do X by Y in order to achieve Z." where X is a particular transformation process, Y is the means and Z is the final outcome (**Fig.7.5**).

The CATWOE mnemonic has been developed to support the formulation of the root definition in an ordered manner, where 'C' stands for 'customer' (the victim, or the beneficiary of the action), 'A' stands for 'actor' (those who will perform the action), 'T' stands for 'transformation process' (the conversion of the input into output), 'W' for 'weltanschauung' (the world view which calls for this transformation), 'O' for 'owner (those who could stop T) and 'E' to denote the 'environmental constraints' (elements outside the system which are taken as given). **Fig.7.6** is a typical CATWOE mnemonic.

ii. SSM is now to be realised in two streams of inquiry.

The first stream identifies the primary tasks and issues, from where the relevant systems are constructed and modelled conceptually. These conceptual models are then compared with the real world situations to find out the differences between the models and the real world situation.

Present Nation State systems of South Asia
being systemically inefficient due to
superimposed boundaries
causing system distortions

to be improved through removal of
system distortions and
restoration of natural systems (X)

through SDC (Y)

to achieve a more harmonious and
systemically efficient spatial configuration(Z).

Fig. 7.5 : The root definition for SSM analysis of South Asia:
From Checkland and Scholes (1991)

C =	'Customers'	—	People of South Asia
A =	'Actors'	—	A segment of the people of South Asia desiring change
T =	'Transformation Process'	—	Present inefficient Systems to be changed into more efficient Systems
W =	'Weltanschauung'	—	People expecting a situation similar to present EU
O =	'Owners'	—	Present State Systems and their beneficiaries
E =	'Environmental Constraints'	—	Global powers interested in status quo Religious divide

Fig. 7.6 : The CATWOE : From Checkland and Scholes (1991)

iii. Analysis of intervention

In the second stream of inquiry the problem situation is analysed from the cultural context which has been termed as the 'Analysis of Intervention'. This has two components: the '*social system analysis*' and the '*political system analysis*'.

The 'social system analysis' shall look into the societal aspects, the societal setting on which the system is founded. In case of a Nation State we may look into the various sectarian currents and cross currents within the system, based on ethnic, religious, ideological and other demographic, or territorial divides. In the case of an organisation it is the 'organisational culture' that has to be analysed.

The 'political system analysis' shall look into the power structure and the control mechanism that maintains or influences the system. In the case of a Nation State we have to identify the political structure of the statehood and the way it is run. In the case of other organisations the internal power sharing by the key managers and the various segments determines the 'politics' within the organisation.

iv. Finding the intervention

In the next step these two streams of analysis are combined to find out which *intervention* will be 'systemically desirable and culturally feasible'.

Here the two streams of inquiry necessarily interact and it is hoped that desirable and feasible changes will emerge through a process of comparison and reflection.

There was another later development in the usage of SSM. Keeping the traditional 7-stage model (mode-1) for use in external organisations, where the user is a consultant or a student inquiring into an organisation, it has been suggested (mode-2) that in certain situations the user 'is not someone external to the organisation, but is already engaged in the situation and is using SSM to make sense of the particular context and activities, or it could be the problem-solvers reflecting about their own intervention activities using SSM at a meta-level'.³¹⁸

³¹⁸ Mingers (2002)

7.7.3 From 'two streams' to 'three streams' ?

Looking at 'two-stream inquiry' of SSM one may wonder : does it reflect in any way what psychologists suggest as the 'duality in Man'? Paul Bakan puts it succinctly:

"... it is argued that man has not one brain, but two, a right and a left brain, then is it (not) reasonable to speak of two streams of consciousness rather than one?"³¹⁹

The two streams of analysis in SSM fit into this categorisation to a large extent, if not fully. It provides a sounder footing to the rationale and philosophical arguments behind the 'two stream' approach, the first stream representing the 'conscious' and the second representing the 'subconscious' reflections of man towards the issues confronted.

Durkheim³²⁰ coined the word 'collective consciousness' to refer to the ways of thinking evolved through the interaction of the members of a social group. In his words:

"By aggregating together... .. individuals give birth to a being, ... one which constitutes a psychical individuality of a new kind." And so, he argued "we can and must speak of a collective consciousness distinct from individual consciousness."

Anthony Stevens describes C. G. Jung's theory of the three levels of human consciousness: a) the 'ego', or the 'consciousness', b) the 'personal unconscious', and the 'collective unconscious'. This has been represented by the three concentric circles surrounding the 'self' in **Fig. 7.7a**. According to Jung 'ego', or the 'consciousness' is like a surface upon a vast area of 'unconscious', or unknown³²¹.

This analysis of human psyche may be extended to the 'societal psyche' of a population, where three levels of group-psychological expressions/reactions may be defined in the same manner:

- (a) *Conscious social behaviour* of a group, equivalent to the 'ego' of an individual, which may be termed the '*societal ego*',
- (b) the sub-conscious behaviour of a group, equivalent to what Jung terms 'personal unconscious', which may be termed the '*individual unconscious*' and

³¹⁹ Paul Bakan (1978), 'Two Streams of Consciousness: A Typological Approach' in *The Streams of Consciousness*, Kenneth S. Pope and Jerome L. Singer (eds.), Plenum Press, New York.

³²⁰ Emile Durkheim (1964), *The Rules of the Sociological Method*, Free Press, New York.,

³²¹ Anthony Stevens (1990), *On Jung*, Routledge, London.

(c) the '*Collective unconscious*' that surrounds the 'societal psyche' in the same way as it surrounds the 'self' in Jung's stratification.

The action-reaction arising out of these three levels of consciousness must be of three different kinds, requiring different treatments. Therefore, when one goes to deal with a societal group, say the ruling elite of a Nation State, or the masses in general, one has to take into consideration all the three levels and take appropriate approaches to tackle them.

In SSM while the first stream of analysis reflects the real world (conscious) reflections, the analysis of 'social system' and 'political system' reflects the prevailing societal norms and thought process that guides the individual, or group behaviour, which falls in the category of 'subconscious' or 'personal unconscious'.

In dealing with complex group behaviours in human activity systems, often one has to deal with more subtle issues of myths, beliefs and icons, that reside deeper inside the societal psyche, the arena of 'collective unconscious'.

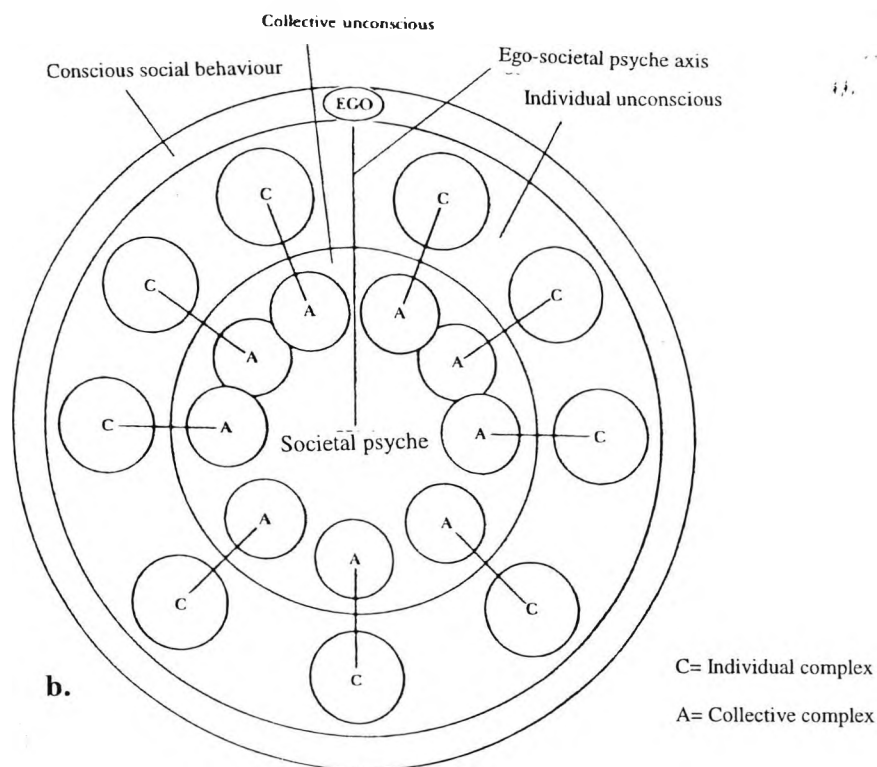
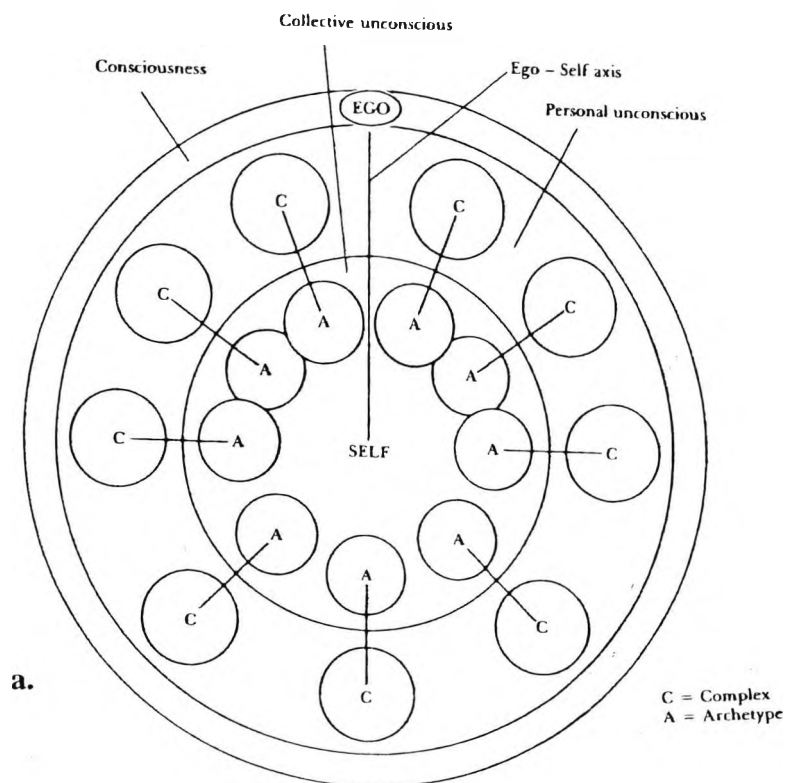
Therefore, a '*third stream of inquiry*' is suggested to be applied on top of the process of SSM to cover this aspect also. This does not violate the basic premises of Checkland, as he has allowed variations and additions in his methodology to suit specific needs. In his words:

This does not imply, however, that there is any such thing as an unchanging SSM which can be applied time after time like using a template. The account of the development form of SSM .. as well as the accounts of it in action ... should have made it clear that SSM not only develops and changes but also gets used in different ways by different users in different circumstances.³²²

However, this is a proposition for inquiry only for those who would like to give attention to what has been described as the 'collective unconscious' of the societal psyche, especially in dealing with Nation States.

Some myths and beliefs may be so much ingrained in a particular societal psyche that the members of that society can not shed them easily. For any 'emancipatory' effort, addressing of this 'collective unconscious' should also be given due consideration, in order to increase the degree of fit of the findings and intervention.

³²²Peter Checkland and Jim Scholes (1991), *Soft Systems Methodology in Action*, John Wiley & Sons, New York.



a. Jung's model of the *individual psyche*
- as described by Anthony Stevens (1990)
b. *Societal psyche* model based on Jung

Fig.7.7: The 'Three streams consciousness'

7.7.4 Application in real world situation

Over the last few decades soft systems thinking in general has attracted practitioners in various fields. While SSM was applied and practised by Checkland and his associates in a variety of projects, as mentioned earlier, several other methodologies have also been used in different situations. In this context Churchman's 'Social Change Design', Mason and Mitroff's 'Strategic Assumptions Surfacing and Testing –SAST' and Ackoff's 'Social Systems Science (S3)' are worth mentioning. Although Checkland considers all other variants of soft systems methodologies as extensions of hard systems methodology, others are in favour of a more integrative approach for the 'complementary and informed use' of different methodologies according to the situations (Jackson, 1991).

However, as one can see from the long list given by Mingers of successful application of SSM,³²² it appears that Checkland and his associates concentrated in the organisational arena of corporate bodies and there has not been any attempt to apply the thinking to broad political issues related to Nations and global politics, although it has been claimed that the methodology is fit to address such issues and should be tested:

'Certainly at the microsocial level Checkland's action research has proven to be most effective. Quite how the basic tenets of the interpretive paradigm can methodologically be incorporated at a macrosocial level is a question which, on the one hand suggests that a potentially explosive area has yet to be investigated, while on the other hand warns of a difficult, as yet unpenetrated, front which demands our attention' (Flood and Carson, 1988).

Systems concepts has been profitably used in International Relations (IR). Morton Kaplan and McClelland have used it in their enquiry on spatial systems taking Nation States as the pivots in an inter-national scenario. Here we get a direct application of systems thinking to the Nation State systems, which is in a way similar our present effort. However, both Kaplan and McClelland have restricted their studies within the domain of inter-State relations and interactions only, showing no interest in the State itself.

It is against this backdrop that we undertake to inquire into the problem situations related to spatial systems, especially Nation State systems, applying a systems approach.

³²² Mingers(2002), *op. cit.*

7.8 AN APPROACH TOWARDS THE PROBLEM SITUATIONS OF SPATIAL SYSTEMS : A 'HARD-SOFT SYMBIOSIS'

There has been criticism of Checkland's assertion that SSM is entirely 'noetic' i.e., a 'mental activity' or an intellectual construct, nothing to do with anything *a priori*. Others contest this view suggesting that by asserting this Checkland has taken SSM and in that context systems thinking in general, away from the mainstream. As Mingers, after prolonged deliberation on the momentous contributions of Checkland in the field of systems thinking ³²³, laments³²⁴:

'.. another aspect I believe is mistaken and has had unfortunate consequences for systems thinking as a whole. That is Checkland's argument that the concept 'system' should be seen as epistemological, i.e., a mode of conceptualising; rather than ontological, i.e., existing in the world'.

In this context he mentions the following assertion of Checkland:

' [We] need to remind ourselves that we have no access to what the world *is*, to ontology, only to descriptions of the world,... that is to say, to epistemology, a particular way of describing the world. It does not tell us what the world *is*, Hence, strictly speaking, we should never say of something in the world "it is a system", only: "It may be described as a system"... The important feature of paradigm II (soft system) is that *it transfers systemicity from the world to the process of enquiry into the world.*' ³²⁵

Mingers maintains that with this assertion 'With a single cut Checkland emasculates the force of systems thinking'. He thinks attempts by systems thinkers over last several decades to explain and address the 'puzzling features of the world' in the face of the failure of reductionist thinking to explain them, which led to the ideas of holism and emergence, were 'more than mere epistemological devices to organise our thinking'. In his words, 'they were genuinely explanatory concepts in that the existence of such systemic processes in the world was *necessary* to explain the phenomena that were observed'; and, 'To deny reality to systems concepts is to reduce them to an essentially arbitrary language game'.³²⁶

This study takes a moderate view as expressed by Mingers, Jackson³²⁷ and others³²⁸. An approach has been taken to apply

³²³ Mingers, *op. cit.*

³²⁴ *ibid.*

³²⁵ Peter Checkland (1983), "OR and the sytems movement —mapping and conflicts", *Journal of the Operational Research Society*, 34, 661-675 as quoted by Mingers (2002)

³²⁶ Mingers, *op. cit.*

³²⁷ Jackson (1991)

hard systems thinking to find, within its scope, the *reality of the real world* and then to look holistically applying SSM. It reflects Mingers' approach of cultivating '*the clear possibilities of front-ending SSM on the harder approaches*'. This is not totally out of line with Checkland also, as he has been quoted by Mingers to have expressed the view that "*occasionally it is fruitful and not harmful to choose a particular bit of the world as 'a system' and use HST.*"³²⁹

Checkland considers 'operating with soft systems thinking (SST) subsumes hard systems thinking (HST), with the latter being a conscious choice.'³³⁰ One need not go into the debate of 'choice' and 'necessity'. SSM has been used here as it is found to be appropriate for the purpose.

Soft systems practitioners are all inclined to the idea of improvement through systems thinking and for 'intervention'.³³¹ Now, for any intervention, one has to identify the step or steps to '*improve the problem situations*'. One has to make a conscious 'choice', choice from amongst the 'observed' alternatives. This obviously takes to the 'real world' where one has to deal with entities defined by concrete objectives. From the tower of subjective conceptualisation one has to come down to the rough soil, at least temporarily, to make this 'choice' and act accordingly.

When Checkland says that 'hard systems are subsumed within the soft' it is meaningful only if we take it in the sequence:

Hard -- Soft -- Hard -- Soft --

Putting it otherwise, soft systems analysis must indicate certain hard systems solutions within 'tolerable' limits. Otherwise, the whole exercise is meaningless. In fact, soft systems thinking starts on a 'hard' foundation and after its application to a problem situation, the moment any specific remedial prescription is presented, the soft systems practitioner re-enters the hard systems arena, whether he, or she intends it or not.

In other words, if soft systems methodology is taken as a process of conceptualisation of the 'systemically desirable and culturally feasible' changes in a system to improve its efficiency, we must also realise that practical implementation of the conceptual prescription brings us back to a hard system. Once a systems

³²⁸ Burrow observes; "These (the soft system methodologies) are conceived as holistic and ideal type of certain aspects of the problem situation rather than as accounts of it. It is taken as given that no objective and complete account of a problem situation can be produced."- I.von Burrow (1989), "The bounding of a problem situation and the concept of a systemic boundary in soft systems methodology", *Journal of Applied Systems Analysis*, 16, 35-41.

³²⁹ Mingers, *op. cit.*

³³⁰ Peter Checkland (2002), 'Thirty Years of Systems Movement', in *Systemist*, 24.2.

³³¹ Jackson and others presenting the 'Critical Systems Thinking (CST)' are more vocal in this regard.

conceptualisation is complete and implementation starts, with the system attributes redefined and re-designed as prescribed , it is no more a soft thinking. At least it is no more on the softer side of the hard-soft spectrum. It is clearly towards the hard end.

Therefore, the appropriate 'methodology', if we are allowed to use the word,³³² to look at spatial systems, should be a *hard-soft symbiosis* with the following steps acted in order:

Stage-1: Investigation through SEM (HST)

Stage-2: Application of SSM

Stage-3: Identification of system incongruities through SSM (SST)

Stage-4: Identification of the systemically desirable and culturally feasible alternatives and making a choice-OEM

Stage-5: Identification of the probable obstacles in implementation of the choice and appropriate measures to overcome them.

Stage-6: Implementation of the choice through HST

Stage-7: Back to Stage-1.

This process is depicted in **Fig 7.8** (The hard-soft symbiosis.)

The strategy behind our attempt is to create a broad guideline for action in order to measure the level of efficiency of a spatial system in relation to its purpose and sustainability. For this we have to go for a methodology that not only gives a guide to the understanding, but also hints at techniques to analyse and identify the specific parts of the problem to produce understandable results.

This can not be achieved by a typical *means-end* approach. Our approach should be open ended, as Flood and Carson (1988) stipulate:

' ... intervention in problematic situation with the aim of reducing dis-ease, ... since soft problems can not be formulated as a search for an efficient means of achieving a definite end: a problem in which ends, goals, purposes are themselves problematic'.

³³² Checkland thinks that the word 'methodology' is having an 'astonishingly widespread misuse'. – Peter Checkland, *op. cit.*

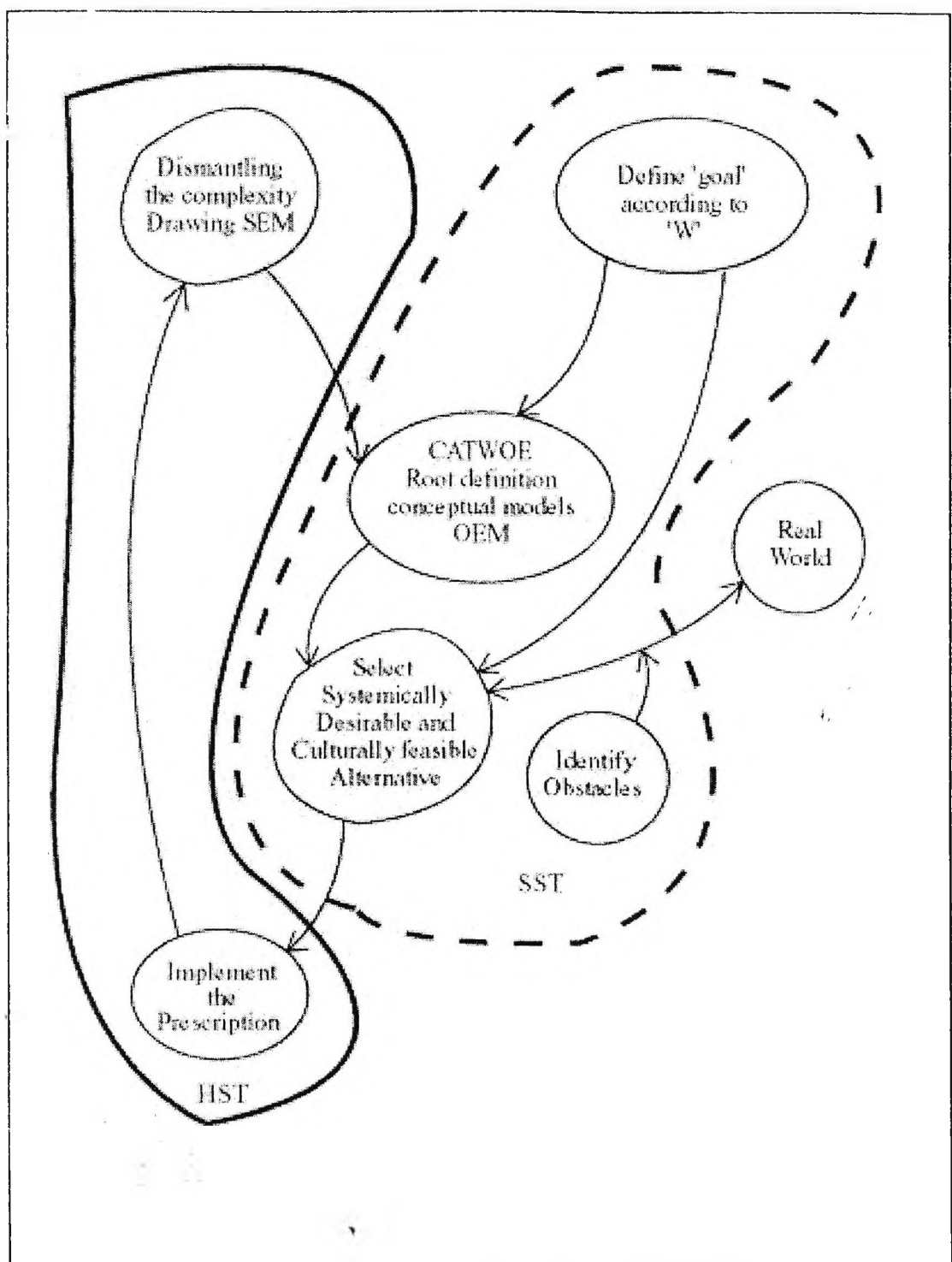


Fig. 7.8 The 'hard soft symbiosis'

In this regard we refer to what Flagle and Roy (1960) had spoken of operation research and systems engineering:

“Operation research is more likely to be connected with operation *in being*, rather than with operations *in prospect*... (whereas) systems engineering is more likely to be engaged in the design of systems *yet to be*, rather than in the operation of systems *in being*.³³³

Ours is an attempt that falls in both the categories. Here we have to be concerned with the State systems *in being*, as well as, *in prospect*. which means we have to deal with the present as well as suggest alternatives that hold brighter prospect.

7.8.1 The process of evaluation in the ‘hard-soft symbiosis’

Evaluation of efficiency in general terms has been discussed in chapter 6, where steps have been suggested to arrive at an ordinal measure of efficiency of spatial systems mainly through a hard systems approach.

With the proposed ‘hard-soft symbiosis’ one can now arrive at a better result by incorporating the soft systems methodology as a refining process on the hard system analysis. However, here again, it is needed to develop a method for the evaluation comprising the ‘hard’ and ‘soft’ analyses in tandem.

The 3Ds

To accomplish this one can proceed in three steps, which we call the 3Ds:

- D-1: Data management,
- D-2: Delphi congruence, and
- D-3: Decision through judgement

It is known that the attributes to be evaluated are of a different nature and are non-commensurable. Therefore, one has to employ different techniques to address them and also to decide on the appropriate scales of measurement for each of them. However, this will not create any problem in the final aggregation

³³³ Flagle and Roy (1960) (eds.), *Operation Research and System Engineering*, Johns Hopkins Press. Baltimore.

Through an ordinal scale. Since, only comparative efficiency is to be ascertained, not the absolute value. There is a wide range of accommodation through approximation and trade-off. The problem of non-commensurability of different attributes of the system is thus overcome.

i. D-1: Data Management

In dealing with complexity of a Nation State it is found that there are some attributes such as the area, natural resources, population size and the general characteristics of population, economic indices, etc., which may be dealt with through data collection and processing. Situations on these aspects in different States or spatial systems may be compared through statistical, probabilistic, or stochastic mensuration, using standard methods already in use in other fields.

ii D-2: 'Delphi convergence' for evaluation

Next there are the soft issues such as the quality of manpower, the level of societal advancement and other value related issues. At this level these issues may be taken under the category of 'subconscious', or 'individual unconscious', as mentioned in sub-section 7.2.3. The 'Delphi Convergence Method' as described in section 6.2.6, will be found most suitable as the method of investigation, since such entities can not be measured through strict scientific measurement.

Here the target will be to find out what solution will be *acceptable to society at large*. The 'experts' in different fields selected by the observer shall participate in the Delphi exercise.

A satisfactory opinion convergence may be arrived using computers for correspondence with a wide and divergent set of experts. In the process one may arrive at much better conclusions in analysing the social and political systems, which is an essential component of the of the SSM inquiring process.

The 'Delphi Method' shall also be applied to ascertain the 'weights' of the different attributes in assessing the efficiency of the spatial system under consideration. This will resolve the dilemma in deciding the 'weightage'.

This exercise will be repeated several times to arrive at a greater convergence, as mentioned in section 6.2.6.

iii. D-3: Decision through 'judgement'

Having completed the 'Delphi' on the softer issues, the researcher, or decision maker shall confront issues still finer, the issues related to the deep-rooted societal psyche, the 'collective unconscious', where intuition and judgement may be the only recourse to decision.

At this stage a second round of SSM analysis (the 'third stream' as mentioned in section 7.7.3) may be useful.. Based on this analysis the researcher/decision maker will apply his, or her intuition and judgement to evaluate yet unresolved issues.

Since, SSM is not meant for any actual measurement, but for assessment and anticipation, its application to step D-2 will be immensely rewarding and also for step D-3.

7.9 SUMMARY

In this chapter the complexities of spatial systems have been examined and a method to project the efficiency of a system through graphical representation has been developed. This has been named the 'Systemic Efficiency Matrix (SEM)'.

The utility of SEM and also its limitations has been indicated.. This may be regarded as a 'proto-scientific working hypothesis' to be tested for applicability and refined to higher levels of accuracy³³⁴.

It has been mentioned that this hard system analysis is designed only to provide a general indication of the strength and weakness of a system in order to compare different alternative spatial configurations. Spatial systems being 'soft' systems, a soft systems approach is unavoidable to improve the evaluation further. For this purpose the 'Soft Systems Methodology' propounded by Checkland has been proposed as an effective mode of inquiry. A process of 'hard-soft symbiosis' has been put forward to look into the problematic of complex systems, especially the Spatial systems such as the nation states.

The next chapter will be an attempt towards the intervention in order to improve situations as understood and deciphered by such analyses.

³³⁴ Ervin Lazlo made this admission for his hypothesis on the information flow design for self stabilising self-organising systems.. – Ervin Laszlo (1969), *System, Structure, and Experience*, Gordon and Breach . New York.

Chapter 8

THE QUEST FOR AN ORGANISMIC EQUILIBRIUM OF SPATIAL SYSTEMS : THE 'OEM' AND THE 'SDC'.

"The task is not so much to see what no one has seen yet, but to think what nobody has thought yet about that which everybody sees."

--Schopenhauer

"There is no expert in the systems approach."

—Churchman

"Methods and rules are good only as long as we can do without them." --- C.G.Jung³³⁵

Introductory notes

In the preceding chapters the concept of a *Systemic Efficiency Matrix (SEM)* has been introduced as a tool for the evaluation and projection of the level of efficiency of a given spatial system applying a 'hard systems approach' with certain precautions and corrective measures. In this chapter we shall apply the 'soft systems approach' in looking at spatial systems, particularly Nation State systems, from a holistic perspective.

Here situations where superimposed boundaries have caused systemic distortions to spatial systems shall be looked into. In this regard special references shall be made to the two case studies (Chapters 4 and 5) on the South Asian sub-continent taken as a singular unit and the Bengal region in its eastern flank, both being, in our opinion, glaring examples of boundary superimposition that has harmed the overall growth and progress in the region.

Here a methodological approach has been suggested using the hard and soft systems thinking in a symbiotic conjunction. The 'Soft Systems Methodology- SSM' as developed by Checkland has been chosen as a tool to investigate and indicate system distortions as well as looking for the remedial measures, or probable interventions, if found possible and feasible.

³³⁵ Carl Gustav Jung, *Collected Works*.10, as quoted by Andrew Samuels (1985) in *Jung and Post-Jungians*, Routledge and Kegan Paul, London.

It is understood that SSM is a continuous process working in a cycle of formulation-prescription-reflection-reformulation, to improve 'problem situations' in a dynamic fashion. This approach has been considered appropriate for the South Asian situation since the precondition for any revolutionary change in this region appears to be remote. An approach of transformation through consensus building ensuring a win-win outcome for all the stake-holders appears to be the only 'culturally feasible' option.

The general overview of the situation in South Asia and the Bengal region as described in chapters 4 and 5 shall serve as the *information pool*, to base the formulations. However, it must be made clear at the outset that this is a model building exercise to develop a line of approach towards problem solution, not to give any final verdict.

8.1 THE ORGANISMIC EQUILIBRIUM

The general tendency of any living organism is to maintain an equilibrium within itself by self regulation in its internal composition, withstanding perturbations, internal, or external. As Laszlo comments:

" Ordered wholes, i.e., systems with calculable fixed forces, tend to return to stationary states following perturbations introduced in their surroundings."³³⁶

For an organism to survive, it has to control certain variables within its life process. Thus we have to maintain our body temperature within limits. If there is any abnormal change, the body will try to correct the deviations by its own in-built mechanism, through what is termed *feed-back*. In certain situations the correctives may come from external sources, when it is termed *feed-forward*. In both the cases, the body gets back to its original status.

It is said that organisms '*born, grow and die*'. All human activity systems are also *formed* (born), *developed* (grow) and at some point of time *dissolved* (die).³³⁷

The case of Nations or Nation States is also the same.

³³⁶ Ervin Laszlo (1972), *Introduction to Systems Philosophy*, Gordon and Breach, New York.

³³⁷ Ibn Khaldun, the fourteenth century Arab historiographer, is considered to be the pioneer in looking at the nations (or, the *dynasties* in his time) behaving like organisms. See, *Al- Muqaddimah,; An Introduction to History*, Translation from Arabic by Franz Rosenthal (1958), Bollinger Foundation, New York.

Spatial systems must acquire this homeostatic capability to be 'organismic' and to stay 'alive' must maintain the inner equilibrium, just as any other organism.

8.1.1 Looking for the 'ideal'.

An observer can look at anything as a system based on his/her own perception. As such, any space bounded by any boundary, however arbitrary it may appear to us, may very well be considered to be a *system* by some observer. This depends on what is the expectation of the observer, or what traits he or she is looking for. However, as soon as there is some defined expectation, there arises the question how far that expectation is being fulfilled.

Since spatial systems are considered to have organismic characteristics, an 'ideal' spatial configuration may be judged by its higher level of such organismic behaviour.

Thus, one may define the *ideal system configuration* for spatial units as one, which ensures: a) maximisation of the efficiency of the system and/or, b) ensures a *dynamic stability* to the system, either in the form of homeostasis or by ensuring harmonious growth.

A system which satisfies such expectations to a larger extent is *more efficient*. Projection of SEM (as described in the earlier chapter) gives us the overall view of the positive and negative aspects of all entities constituting a system, the factors, the sets/subsets and the elements in the hierarchical order. We may now look for hypothetical rearrangement and alterations to these elements, sets/sub-sets and factors to find out the *ideal* system configuration.

In the case of 'human activity systems' i.e., configurations of spatial units designed for human exploitation, we would certainly like to have a territory delineated in such a manner that gives maximum '*possible and feasible*' cohesion, both territorially and demographically. This cohesion reflects the organismic level of the spatial entity.

As one moves from a lower level in the hierarchy to the higher levels, one may find certain configurations showing greater cohesion and thereby indicating a higher level of organismic identity. Moving from the bottom to the apex one may encounter several such levels of high density interaction and these are the levels where, theoretically, the boundaries of administrative units should be drawn.

Now a stable boundary must be having a sort of equilibrium in exchanges across it, otherwise it will be under serious stress and

strain. In other words, in order to have a stable and 'efficient' boundary, we have to search out a proper hierarchical level where such equilibrium already exists.

Therefore, our search begins for the *equilibrium*.

8.1.2 Building the 'Organismic Equilibrium Model – OEM'

Any spatial system, if properly organised and administrated, is a dynamic entity, akin to a living organism. As such it must also behave accordingly.

In the words of Laszlo:

'If an organism is to stay alive, certain variables involved in its life process may be kept within more or less definite limits. Thus, the body temperature of a warm blooded animal must be kept within a certain range of a few degrees. Concentration of salts, sugar and other substances in the body fluids, the rate of heart-beat, rate of hormone secretion, and so on, must be kept within prescribed limits. Some of the homeostasis effects are consequences of corrective changes produced by the deviations themselves. But some of those effects depend on 'triggered' reactions, leading to interventions by some sub-systems in activities of others.'³³⁸

Modern Nation States clearly show the above organismic characteristics. Their survival depends on their capability to maintain internal harmony and stable external relations. This applies also to any conglomeration of Nation States, which must also be a composite of such 'living organisms' linked to each other *organically or organismically*, rather than being a mere mechanical mixture or heap of disjointed entities. An empire built on mere physical coercion shows few organismic characteristics and is bound to collapse at some stage.

Therefore, the ultimate goal of space delimitation should be the facilitation of the organismic equilibrium of all the interrelated and interacted entities, both territorial and non-territorial, acting on a given space to build a composite whole. Such a composite whole shall inevitably show homeostasis and/or emergence.

One may build a model projecting the states of the inherent and interactive properties of the different component entities of a conglomerate spatial system. Once we have this model we can have an overall view of the system and by enacting hypothetical changes in the conglomeration and making adjustments in the

³³⁸ E. Lazlo (1972), *Introduction to Systems Philosophy*, Gordon and Breach, London.

functional values of the component entities we may arrive at an ideal configuration giving the optimum possible efficiency.

Fig. 8.1 depicts a system encircled by a boundary. This simple projection shows three major functions that determine the state of the system at any given time.

i) The 'input'- 'output' function

A system where the difference between the input and output 'zero', is obviously a stable system. However, with marginal difference between input and output values, the feed back loop shown in **Fig. 8.1a** shall transmit the message back to the system and if the system has organismic capability it will go for corrective measures to offset the imbalance, either negative or, positive, to maintain the equilibrium.

ii) The conflict within

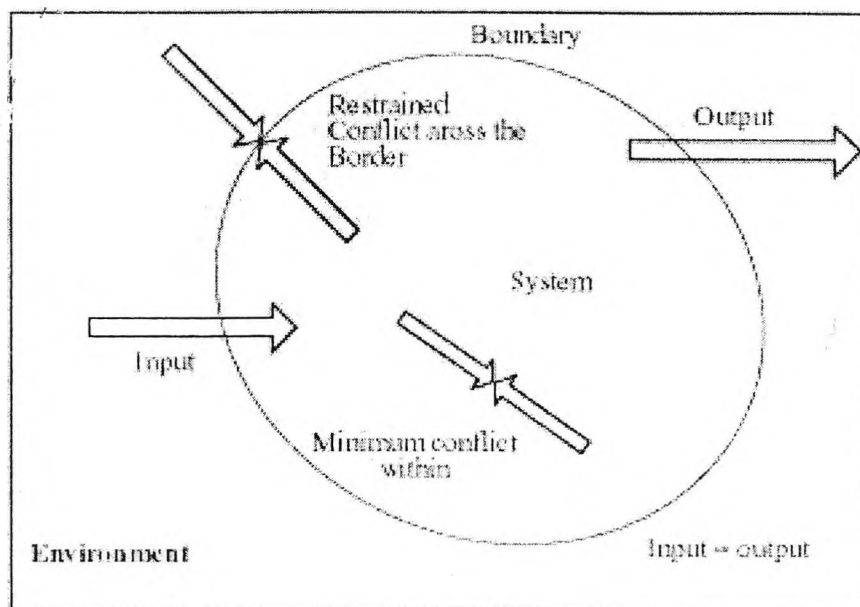
Any Spatial system, especially a Nation State, has so many sub-systems within itself with their complex interactions that determine the internal state of the whole system. Many of these sub-systems may be in conflict with one another. For the smooth running of the system and its healthy existence such conflicts must be kept to a minimum, if not removed altogether.

iii) The conflict across the boundary.

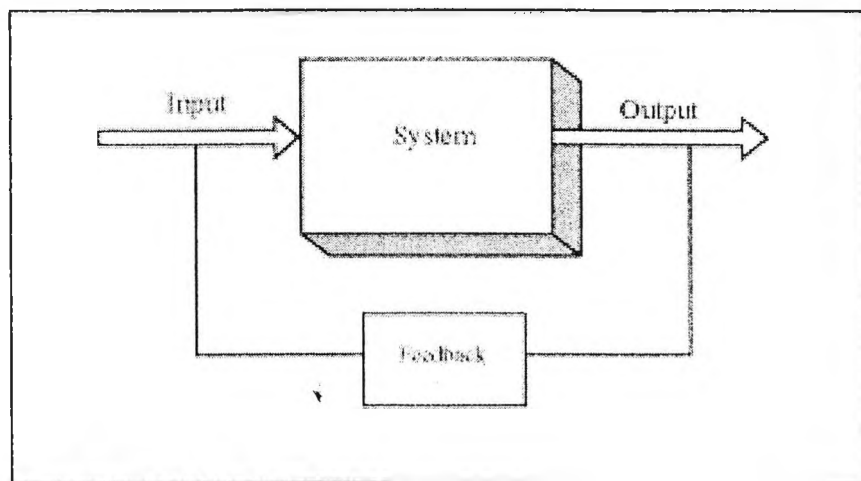
No system can remain isolated from its environment. In the case of spatial units, particularly modern nation States, environmental (i.e. international) relations play vital role towards its sustenance. Because of the competition among the States around the world over the limited resources on the earth surface, conflicts all along the boundary is inevitable. A successful Nation State has to create situations where such conflicts are restrained and kept within tolerable limits.

For a successful Nation State, **Output** should be greater than the **input** generating **emergence**. Modest emergence will take care of the demand for progress and development with time. However, too much emergence may be counter productive, since it may develop jingoism and create imbalance in the regional or global setting.

This model has been termed as --**The Organismic Equilibrium Model** or the **OEM**.



A



B

Fig. 8.1. The OEM

8.1.3 Rationale for building OEM

Now is it at all worthwhile to build a model to depict the efficiency of a spatial system or its boundary, or to indicate their systemic equilibrium? One may rightly say that the whole exercise is full of uncertainties and many of the elements may prove to be too elusive to be quantified and the list of such elements may also be too long to be properly comprehended. By trying to build such models we may be introducing explanations which are irreducible to quantifiable reality. As Haggett and Chorley(1967) cautioning on the *pitfalls in model building* comment:

The characteristics of a model imply the existence of many dangers to which the model builder may fall prey. Simplification might lead to 'throwing the baby out with the bath water'; structuring to spurious correction; suggestiveness to improper prediction; approximation to unreality; and analogy to unjustifiable leaps into different domains'.³³⁹

These allegations have valid grounds and indicate the limitations of our attempt. Similar attempts at model building in other disciplines (e.g. economics, political geography) have also been criticised. However, in spite of limitations such model building has been considered useful and rewarding.³⁴⁰

It is expected that this attempt to identify different facets of the complexity surrounding given spatial systems and to assign values to the constituent entities therein, may provide valuable insight into the internal dynamics of the spatial systems and thereby contribute to our understanding of the overall system.

³³⁹ Haggett and Chorley (1967), 'Models, Paradigms and the New Geography', in *Socio-Economic Models in Geography*, Richard J. Chorley and Peter Haggett, eds. Methuen, London.

³⁴⁰ For example Cairncross criticises Rostow's model for the economic "stages of growth" of Nation States claiming that "any attempt to explain economic growth in terms of one or two all-embracing variables is impossible, since growth patterns vary too greatly between different countries". However, others refute such criticism by pointing out that search for regularities is a very necessary task, and that even if Rostow's models ignore some complexities of reality, what really matters is whether they are congruent with reality-- which makes them useful for analysis. Thus R.E.Pahl (1967) comments on Rostow's model : "Whatever the final verdict on the model, it must be admitted that it (Rostow's model) has stimulated an enormous amount of research into regularities in economic growth, ranging from empirical testing to the construction of mathematical models based explicitly on Rostow's ideas." ---R.E. Pahl, 'Sociological Models in Geography' (1967), in *Socio-economic Models in Geography*, Richard J. Chorley and Peter Haggett eds., Methuen & Co., London.

Churchman (1976) gives us the moral impetus in this regard:

“...perhaps our ‘first approximation’, based on very inadequate data, will guide us in making better approximations, to better models, to better approximations.”³⁴¹

The current attempt in this study deserves to be treated in the same way. However complex the situation may appear at first sight, evaluation of the efficiency of a politico-spatial system and construction of an appropriate model to depict the best possible configuration of the same, is a challenge that needs to be confronted squarely. Once a proper model is built, details may be elaborated and re-quantified through iteration. Projects undertaken with proper institutional support using modern computer technology with wider data matrix are expected to increase the “degree of fit” of the results so obtained.

Economists have long been content with their formulations of the aspects of economic growth in terms of non-spatial variations within national units. In the course of time, spatial variations in development have also been recognised and today variation within countries is also given importance, something which was entirely ignored earlier. This new development is nothing but an admittance of the reality that in many of the Nation States the development pattern is not uniform. Such a lack of uniformity is indicative of the presence of *systemic variance* within the same State framework.

In systems where growth has been accentuated and supported by the exploitation of resources from outside the system, the manifested efficiency of the systems may be all too deceptive. In such situations our model may reveal the real situation by projecting the intrinsic efficiency level of the spatial system under review. This exercise may be used for both intra- State and inter-State situations.

8.1.4 Critique of the equilibrium approach

There is a criticism of the very notion of *equilibrium* in the case of natural systems. As Laszlo comments:

‘Equilibrium system is a dead system—more “dead even” than atoms and molecules’. Although a machine may go to equilibrium as its preferred state, natural systems go to increasingly organised non- equilibrium states’³⁴².

³⁴¹ C. West Churchman (1976), ‘The niggling and the Grand’ in *World Modeling : a Dialogue*, Churchman and Mason (eds.), North-Holland, Oxford. Churchman makes this comment in reply to the criticisms to the efforts to build world models.

³⁴² E. Laszlo (1972), *Introduction to systems Philosophy*, Gordon and Breach, London..

The answer to this observation is that in natural or social systems we look for a dynamic equilibrium, the *homeostasis*, which is different from the mechanical equilibrium of a machine. Moreover, the concept of equilibrium in a closed system and that in an open system is to be viewed differently. In an open system the environment acts as the reservoir to offset the limitation of the internal system, as the system concerned acts also as a sub-system of another bigger system. In fact while looking at the equilibrium of the spatial systems, our attention must be towards the ultimate equilibrium at the global level. At the global level, for most of our material considerations, we deal with a closed system, and as such Laszlo's apprehensions are eliminated at that level.

8.2 ELIMINATION OF SYSTEM DISTORTIONS

Is it desired?

Once the systemic distortions or incongruities are identified through OEM analysis, the question arises as to whether the 'owner' of the system desires any change in order to eliminate such incongruities or distortions.

Here the 'goal' and 'purpose' of the system has to be specifically defined and elaborated before intervention is to be attempted.

8.2.1 The hard option

If the answer to the above question is in affirmative, which means change is 'desired', the straight cut solution is to go for redrawing of the boundary of the system conforming to ideal configuration suggested by OEM analysis. This we call the 'hard' option.

However, as already mentioned, Nation States, even those formed through coercion, gradually develop internal organismic characteristics through the passage of time, and become 'self-perpetuating' creatures. The inherent tendency is then to retain the status quo. Therefore, any proposition to change the existing State boundaries, however irrational it turns out through our analysis, shall be resisted fiercely by the forces of the status quo and no country may be expected to give up any part of its territory, unless compelled to do so³⁴³.

Of course there are a few examples of Nation States being born through secession or partition. Bangladesh is one such example.

³⁴³ It took as long as 20 years for India to decide to allow Bangladesh a narrow corridor (measuring a few hundred sq. metres) to one of her enclaves, the tiny village of Angorpota-Dahagram at the northern border, situated a few yards inside India, separated by a small patch of Indian land.

The division of Czechoslovakia into the Czech Republic and Slovakia is a recent example.

However, similar campaigns in many parts of the world, including the sub-continent, failed time and again. In the sub-continent violent campaigns by the Kashmiris, the Sikhs, the Nagas, or the Ahoms in India and the Tamils in Srilanka – are glaring examples.

In contemporary Europe there are other examples where hard option attempts, particularly in the Balkans after the fall of communist monolith, brought grave human catastrophic situations.

In other parts of the world also we have so many instances where hard options proved too costly, or even counterproductive. We have the examples of Biafra (Nigeria)—failure, Eritria (Ethiopia) and East Timur (Indonesia)—success after prolonged strife and high casualty on both sides, Kurdistan (Iraq-Turkey-Iran-Syria)—ongoing, Chechnia (Russia)—failure/ongoing, Arakan and Karen (Myanmar) failure/ongoing and so on.

However, a comprehensive study of the global boundary conflicts will require a much broader framework, which is beyond our scope.

8.2.2 The soft option

Thus it is apparent that any proposition to make sweeping changes in State boundaries is bound to produce convulsions all around. In reality Nation States, once founded, develop various types of intricate institutional linkages, both within and without. Therefore, even those historical events termed as 'accidents' can not just be turned around as soon as the follies are detected. A host of new problems may emerge if an existing structure is altered abruptly.

An alternative approach is to bring about institutional changes without actually redrawing the boundaries. We call it the '**soft**' option.

The 'soft option' is to be conducted through consensus building for which it is necessary to identify the system distortions and decide on the appropriate 'interventions'. There are several methodologies suggested by systems thinkers, such as, 'Social Systems Science-S³' (Ackoff), 'Critical Heuristics' (Ulrich), 'Strategic Assumptions Surfacing and Testing-SAST' (Mason and Mitroff), 'Liberating Systems Theory' (Flood), 'Critical Systems Thinking –CST' (Jackson), 'Social Change Design' (Churchman) and 'Soft Systems Methodology-SSM' (Checkland), among others.³⁴⁴

³⁴⁴ Michael C. Jackson (1991), *Systems methodology for the Management Sciences*, Plenum Press, new York.

Of late there has been much highlighting on the need of the 'social awareness in selecting system methodology' and for the 'critical awareness to achieve for all individuals the maximum development of their potential' through what is being termed as the '*emancipatory*' intervention in problem situations. However, these approaches, although attractive and challenging in the present day socio-political problematic, are yet to be tested through practical application on a wider and general scale.

In this backdrop we have chosen the SSM as the tool for our inquiry into the problem situations of superimposed boundaries of present day Nation States, since this methodology has already been used in practical problem solving in certain human activity systems, although of much smaller dimension than the Nation State systems we are looking at. Moreover, we find that before looking for the 'emancipation of the individuals', it is perhaps more urgent to look for the 'emancipation' of the Nations, or Nation States that represent and serve the individuals.

8.3 THE CONCEPT OF 'SIMULTANEOUS DEVOLUTION AND CONSOLIDATION (SDC): OPERATION 'JANUS'

If Nation States are *goal seeking* and their aim is to ensure the best possible utilisation of their resources, to the best possible advantage of mankind on the whole, it will be unjust to stick to the superimposed boundaries of present day Nation States around the world, which are found to be grossly in-efficient in many cases. In other words, to ensure the maximum attainable systemic efficiency, redrawing of some of the Nation State boundaries may be deemed necessary.

Now, who is going to do that and how? As it has been mentioned earlier, Nation States, once established, show a tendency to retain the *status quo* and any suggestion of change is most likely to be resisted by the existing entity.

Here one has two options to proceed with any idea of intervention. We have the hard option – to go for a 'revolution', or a mass upheaval. This is something which depends on the circumstances and the political process, never following any pre-determined road-map and generally, requires a very high input of energy, with a high degree of risk, and may not be always 'cost effective' in the end.

To overcome this hurdle we propose a 'soft' option—the **SDC** (*Simultaneous Devolution and Consolidation*) as a course of action – 'systemically desirable' and 'culturally feasible' – ascertained through systems enquiry.

8.3.1 'Operation Janus'

We conceive the above operation in two steps:

- i. Assessment and judgement,
- ii. Intervention.

(i) Assessment:

The 'hard-soft symbiotic' approach, as described in earlier sections, shall be applied for:

- (a) Identification and recognition of the distinctive spatial entities who qualify to be treated as 'Nations', but currently submerged within a larger multi-national State,
- (b) Assessment of the nature and extent of system distortions caused to such units due to superimposed boundaries, and
- (c) Determination of the 'systemically desirable' and 'culturally feasible' interventions to improve the problem situations

(ii) Intervention

The concept of SDC proposes an intervention in the following manner to resolve the problem situations in those regions where superimposed territorial boundaries have caused marked distortions:

(a) Devolution : Salvaging the submerged entities

Multinational States shall proceed towards proper federalism through the devolution of sovereignty and authority to all the 'national entities' identified by step i(a) above, delegating them necessary constitutional powers and functions *to conduct economic and cultural exchanges with neighbouring regions and Nation States, directly*. This means, granting them complete autonomy in such matters.

(b) Consolidation-1 : Mending the disruptions : restoration of sub-regional systems

Economic and cultural systems disrupted by superimposed boundaries shall be restored to their natural settings, through the formation of economic and cultural blocks at the sub-

regional levels, leaving the present political boundaries unaltered.

(c) **Consolidation-2:** Moving towards regional unions:

Nation States that constitute systemic and geopolitical regions shall stride forward to increase economic, cultural and political exchanges between them and draw a road-map for gradual restructuring of the systemic configuration of the region based on an agreed *organismic equilibrium model* (OEM), aiming at a 'Regional Union' .

We call this intervention the '**Simultaneous Devolution and consolidation**' – '**SDC**', since the devolution of sovereignty to the deserving sub-ordinate systems of the multi-national States and the increase in permeability of boundaries of the States in the region to accomplish consolidation (the action systemically desirable) *must* be accomplished *simultaneously* to make it 'culturally feasible'. We have named it 'Operation Janus' to highlight this simultaneous upward and downward movement.

In **Fig. 8.2** four Nation States **A**, **B**, **C** and **D** are contiguous, but their boundaries do not conform to system imperatives. All of them belonged partly or wholly to the Wider Natural Regional System (WNRS) which has been disrupted.

In the physical setting, **B** is situated at one end having a common border with **A** only, while **C** and **D** are situated on the other side and have also common borders with **A**.

Now the common borders between **A** and **B** and between **A** and **B,C** have in reality fragmented a common system. The distancing generated by the superimposed boundary has been shown by the dotted area, a 'notional' indicator of the 'political and administrative distance between the sovereign states, although in reality the boundaries are only fine lines.

It is obvious that the space on either sides of these superimposed borders being part of the common Wider Natural Regional System (WNRS),as indicated shall have common features (cultural, linguistic, economic, historic, religious, ethnic etc.) and natural interdependence in various fields. As such the two States **B** and **C** and some of the component units of **A** and **D** (a1, a2, a3 and d1) are completely within the WNRS, while others (a4, a5 and d2) come partly. This situation leads to a common urge on either side of these borders to have more direct interactions between them.

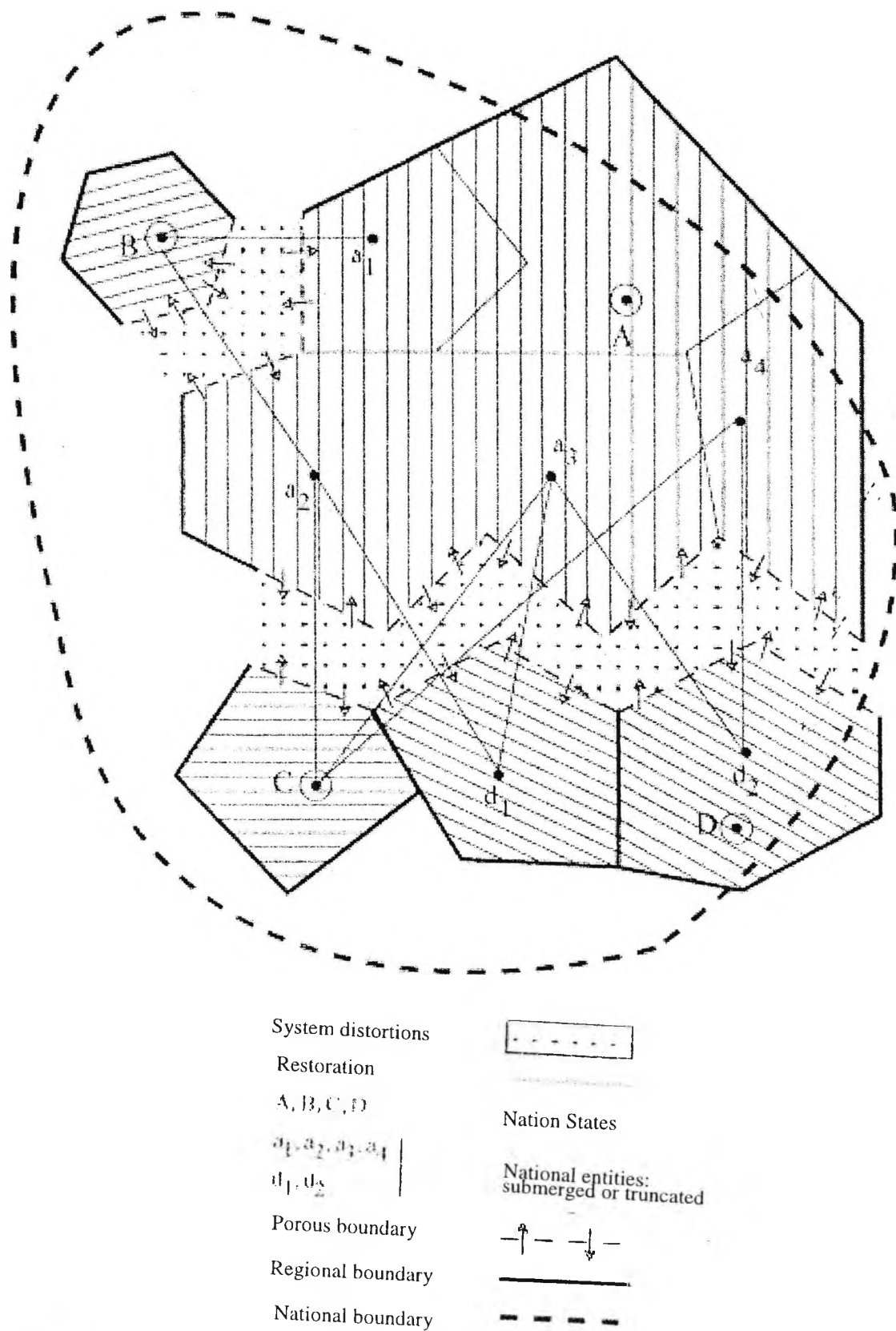


Fig. 8.2: The Simultaneous devolution and Consolidation (SDC)

However, the politico-administrative reality does not allow such interaction unless special measures are taken to overcome the hindrances. SDC is a means to overcome such hindrances without disturbing the existing State boundaries.

The notion is to go for two 'simultaneous' moves. First, to cultivate mutual trust among the four States to create a congenial atmosphere based on enlightened self-interest, develop a common platform. The second, to make the common borders 'porous', allowing wider co-operation and easier communication.

Here the emphasis is on the two moves being 'simultaneous'.

The primary requirement for any attempt in the above direction shall be the cultivation of *Enlightened Regionalism (ER)*. This will mean proper and meaningful recognition of the peripheral identities by the 'core nations' on one hand, and on the other the understanding by the peripheral entities of:

- a) the inescapable systemic requirement of a collective and interactive collaboration on a wider regional framework, for a *sustained and optimum growth* at all levels, and
- b) the necessity to shield themselves by a 'regional umbrella' from the onslaught of the exploitative processes of 'globalisation'.

8.3.2 Rationale of SDC

Bertalanffy identified a fundamental nature of systems functioning which he expressed in the following words:

" (In the systems world) progressive integration goes hand in hand with progressive differentiation."³⁴⁵

Bertalanffy based his thoughts mostly around the problems of living organisms, from where he tried to derive certain universal laws. Although the progress in the direction of finding that 'universal' theory of *General Systems* appears to have been halted after his demise,³⁴⁶ his postulates on systems behaviour remain, none the less, the basic premises to all our approaches to systems. Here, in our effort to look at the problematic of space management,

³⁴⁵ L. von Bertalanffy, *Problems of Life, op. cit.*

³⁴⁶ Checkland comments: "The original project was the development of a meta-level theory of systems (GST). which would promote inter-discipline synergy. This project has failed ... " – Checkland (2002)., p-102.

particularly that of Nation States, the above assertion of Bertalanffy extremely illuminating and rewarding. It gives an irrefutable scientific rationale to SDC.

SDC is essentially a proposition for 'progressive integration' and 'progressive differentiation', and conforms to the dictum of nature.

8.3.3 Why 'simultaneous'?

In the process of SDC, we have proposed 'integration' and 'differentiation' to be conducted simultaneously. The reason is strategic and is an important constituent of the process itself. Unless these two steps are taken simultaneously, the social and political processes may not respond favourably, jeopardising the whole effort.

8.4 REAL WORLD APPLICATION OF SDC: THE SOUTH ASIAN SCENERIO

Richard O. Mason exposes the present day world scenario to having a 'Medusan quality', recalling the ancient myth of Medusa, the wicked woman, cursed with 'staring eyes, protruding fangs for teeth and writhing snakes for hair'. To him today's pressing world problems are much the same, 'staring at us, challenging us to face them. But, they are every bit as entangled, ensnarled, complex and as wicked as Medusa, -- difficult to formulate, dangerous to embrace, paralysing to confront.'³⁴⁷

This was said of the global scenario. However, within this 'Medusan world' of our time, the territory of South Asia stands out as a very special case, at the darker extremity of the spectrum with all the problems of management and all the complexities of socio-political chaos. Indeed, South Asia to day is undoubtedly 'doubly Medusan', a territorial space only about the size of the continental Europe, where live one-fifth of the teeming millions of the world, impoverished, engulfed in blind faith and superstitions, filled with communal hatred, ill nourished and hungry, ill administered, immersed in regional/national conflicts, bearing a heavy burden of a badly handled historical past and ill managed present. Chapters 4 and 5 give details of the incongruities that engulf the sub-continental polity, which will be again dealt in the following section from a systems perspective.

³⁴⁷ Richard O Mason (1976), 'The search for a World Model', in *World Modeling: A Dialogue*, C. West Chuchman and Richard O Mason (eds.), North-Holland, Oxford

To seek redress from this a bold and 'heroic'³⁴⁸ approach is needed, an approach that can confront the badly handled past and the ill managed present squarely; and equally. However, the prevailing political culture of 'somehow-to-survive' strategy adopted by the political leaders and the intellectual pundits alike, falls far short of that.

Churchman puts this dilemma in our inquirers, their in-capability to act as 'heroes' in a classic statement:

" The 'hero' has no 'a priori' assurance of success – if he had he wouldn't be a hero. ... many inquirers don't want to see themselves as heroes, because, among other things, if they do, they give up their right to be qualified as experts with *technically sound* methods..."³⁴⁹

Application of the concept of SDC in the present world context will require real 'heroes' who will dare to commit themselves to the cause of reconstructing the edifices of distorted systems around them.

8.4.1 South Asia from a systems perspective

Looking at the two case studies on the South Asian scenario it will be clear that the formation of the present Nation States in South Asia was dictated by a unique historical process of power struggle between the competing forces during the late forties. On the one hand, the emerging 'national' elite was impatient to step into the shoes of their erstwhile rulers. On the other, the two major segments of the population of the sub-continent, the Hindus and the Muslims, aroused to a hysteric passion of communal frenzy, were fiercely confronting each other, vying for the best bargain, by fair means or foul.

It was against this backdrop that the departing British administration decided to divide the cake into two pieces, one each for the two major contending parties, the 'All India Muslim League' and the 'Indian National Congress', the former claiming to represent the entire Muslim community of the sub-continent and the later, although officially stood for secularism with its membership open to all, was overwhelmingly dominated by Hindu interest.

³⁴⁸ " A systems designer has to pursue his or her profession in a 'heroic' manner."--C.W. Churchman (1976), 'The niggling and the Grand', in *World Modeling : A Dialogue*, *op. cit.*

³⁴⁹ *ibid.*

Thus, the new map of the sub-continent, drawn under given constraints, both external and internal, was far away from what the systemic imperatives would have demanded.³⁵⁰

a) The core-nation bias

In a multi-national or multi-regional state it is generally found that one so-called *core-nation* controls the show assuming to itself the major responsibility of maintaining 'unity' and 'integrity' of the whole body politic. This phenomenon is clearly discernible in the South Asian situation. the 'core-nation bias' was there in the colonial 'British India' and it is there now in the successor States, especially India and Pakistan, which inevitably brings a core-periphery dichotomy, that in turn leads to serious inter-regional conflicts calling for colossal input of energy for the mere maintenance and continuation of the very superstructure.

Such structural imbalance causes loss of efficiency to the regional and local systems manifested through different symptoms. To list some of them:

b). Excessive energy input through remote control

Remote control from the distant "heartland" over the peripheral regions develops recalcitrance in the latter. To counteract this recalcitrance the centre has to take recourse to various measures, such as application of coercive force to silence or dissipate the dissenting voice, cultivation of supra-national ideologies to offset regional affiliation, creating *loyalist* camps to counterbalance the recalcitrance and even encouraging conflictual situations within the peripheral regions at the micro-level to perpetuate what is called the *divide and rule*. However, for all these exercises the centre has to bear extra cost and burdens often leading to unbearable stress and being counterproductive as well.

c) Loss of energy due to centre periphery dichotomy

Distrust and resentment towards the centre dampens the *esprit de corps* in the peripheral regions causing loss of efficiency to local systems. Such centre-periphery dichotomy often vitiates the politics and administration at all levels at a heavy cost to the efficiency of the entire system.

d) Systemic inadequacy of the heartland

The systemic inadequacy of the "heartland" or "core-nation" theory necessitates over-centralisation and creation of an overblown image

³⁵⁰ At this point we can look back to Fig. 1.1 with a mental remake: Lord Radcliffe/Lord Mountbatten slicing the global melon, Nehru and Jinnah waiting eagerly (slurping!)

of the pivot. It is obvious that such *Coercive centralism* would lead to higher and higher input of resources to maintain the status quo. This has led South Asia to the foolhardy participation in the so-called arms race, causing a heavy drain on the resource base of the system.

Often it invites direct military engagement with the immediate neighbours to divert the attention of the nation from internal problems. Thus all the major wars and minor skirmishes between India and Pakistan are found to be finely timed in relation to one or other internal political crisis. As MacCrane points:

“ If we could imagine a state of affairs in which such a (situation) did not exist, it would become *necessary to invent one...* “ ³⁵¹

Against the backdrop of the dismal resource-constraint prevailing in the sub-continent, this additional burden of the ‘mini arms race’ hampers the overall economic growth and socio-political advancement. Both India and Pakistan frequently use their armies to maintain internal security. In India secessionist movements and insurgency in various states, especially Kashmir, and the seven states at the north-east, notably, Assam, Nagaland, Manipur and Tripura, Army is required to be deployed in those troubled regions almost permanently. Because of its wide involvement in such internal security duties the Indian Army has been termed the ‘largest counter insurgency force in the world’.³⁵²

In Pakistan the Army has been playing a pivotal role in politics since its very inception. It remains engaged in combating sectarian feuds, both religious (*Sunni* versus *Shia*, *Locals* versus *non-locals*) and regional (*Sindhis* and *Pushtoons*). In recent past it got itself involved in the Afgan conflict and still being haunted by that. The country has become hotbed of the regional terror groups. We see similar situations in Srilanka and Nepal also. Even Bangladesh engages a large chunk of its army to combat the small tribal insurgent group in the Chittagong Hills.

e) The Siamese twin and the amputation syndrome

In the wake of the second world war, the prolonged confrontation between the sub-continental elite and the British colonial administration came to a rather sudden end. The war-weary British government, supposedly under pressure from its powerful allies,

³⁵¹ I.D. MacCrane (1937/1965), *Race Attitudes in South Africa*, Oxford University Press, London,

³⁵² Jane’s information group report, 1997.

decided to quit as soon as possible and events moved at a breathtaking pace³⁵³.

Eventually mainland South Asia was divided into two principal successor states; India and Pakistan, leaving peripheral entities like, Burma, Sri Lanka, Nepal, Bhutan and even the tiny Maldives Islands for separate schemes. The game was presided over by Lord Mountbatten, the last Viceroy to India, who has been highly acclaimed for his success in handling such a massive operation in such a short period of time. The task of delimitation of the boundary between India and Pakistan was left to a British lawyer, Cyril Radcliffe, who had never set foot on the soil of the sub-continent before being entrusted with this task.³⁵⁴

While the directly administered regions were divided between the two new-born successor States, more than 300 princely states, covering around 37% of the sub-continent's land mass were left to themselves to decide which of the two they would like to join. However, after the removal of British umbrella these so-called princely states had very little bargaining power left to decide for themselves. In reality their fate was sealed by their respective geographical location. Thus princely states within the Pakistan zone were integrated to Pakistan and the rest to India. Attempts by the 'sovereigns' of some larger estates to remain independent failed miserably. They were not even given any proper hearing from either side. Although religious composition was the basis of partition, the overwhelmingly Muslim majority Kashmir was ceded to India on the plea that its Hindu Maharaja³⁵⁵ opted for India. However, the same did not happen in the cases of Hyderabad or Junagarh, where Muslim rulers of Hindu majority princely states wanted to join Pakistan or else remain independent.³⁵⁶

In the north-eastern region the division was made on a district by district basis³⁵⁷. Tribes, who were neither Hindu nor Muslim, were placed within the Indian domain³⁵⁸. A referendum was conducted

³⁵³ Only on the 18th February 1947, Prime Minister Clement Attlee gave the first categorical announcement in the House of Commons regarding the transfer of power. 'His Majesty's Government wishes to make it clear,' he declared, 'that it is their definite intention to take the necessary steps to effect the transference of power into responsible Indian hands by a date not later than June 1948'. Although the time limit given was June 1948, events moved faster and the end of British Raj came almost a year earlier. However, there had been other compulsions for the British government, especially pressure from the USA to withdraw from the sub-continent as quickly as possible.

³⁵⁴ Larry Collins and Dominique Lapierre (1975), *Freedom at Midnight*, Vikas, New Delhi.

³⁵⁵ Maharaja Hari Sing

³⁵⁶ The *Nizam* of Hyderabad, ruler of the southern princely state, comprising most of present Andhra Pradesh, desired to remain independent. But his domain was a landlocked country surrounded on all sides by India and most of his subjects were Hindus, while he was a Muslim. India could not allow that and once the transfer of power was over, the Indian army marched into Hyderabad. It was also the case with Junagarh, another princely state near the Rann of Kutch.

³⁵⁷ However some districts with clear a Muslim majority, like Murshidabad and Maldaha in Western Bengal and Goalpara in Assam were made exceptions.

³⁵⁸ Most of the inhabitants of the tribal regions in the north-east were neither Hindu, nor Muslim.

in some areas so as to carve out corridors to link certain regions to the rest of India.³⁵⁹

The net outcome of this exercise was the 'Siamese twin syndrome' and the 'amputation syndrome' appearing side by side.

The creation of two successor states to take over the reign of the sub-continent after British withdrawal has been generally termed as the *partition* of India. To use the word 'partition' in this regard presupposes that the sub-continent was a unitary and integrated political entity, which has now been divided. This fundamental assumption is not supported by the territorial or demographic reality, as has been discussed earlier. We have noted that, in fact, it was the British colonial rule that for the first time brought the entire subcontinent under one flag.

Therefore, on the sub-continental frame, the creation of two entities out of so many divergent regions and nations was indeed an act of '*consolidation*', not partition.³⁶⁰ This created the Siamese twin syndrome in the successor States by different degrees, putting divergent nations within the same State boundary.

On the other hand, there has been actual 'partition' also, and that was carried out at the regional level, where distinctive national identities like Bengal and Punjab were splintered and fragmented, giving rise to a clear amputation syndrome.

There are many who would argue that such a division of the sub-continent on the basis of religion was detrimental to the interest of masses and the sub-continent as a whole. To them this '*partition of Mother India*' was engineered only to serve and safeguard the vested interest of the departing colonial power and their henchmen. There are people who still dream of a unified India, covering the entire subcontinent, as one single Nation State.

How far this expectation is realistic at the present moment, or whether a single super-State covering the entire subcontinent would have been at all viable, or whether there was a better solution, needs to be probed from a systems approach. It may be well argued that a united sub-continent could be as unrealistic as a united Ireland for similar sectarian reasons.

³⁵⁹ Although the district of Sylhet from Assam, being clearly Muslim majority, was given to Pakistan, a part of it, the "sub-division" or the sub-district" of Karimganj, was left to India. The ostensible reason for this was to have a corridor to connect Tripura with Assam. A referendum was called in Karimganj to decide its fate, which was not allowed to any other sub-division.

³⁶⁰ Lebon (1970) comments: "If one is inclined to stigmatise the political rupture of the Indian Sub-continent as declension from unity achieved in the Indian Empire, it should be noted that the present Indian federal constitution provides a more coherent framework for modern government than the fragmentation left by the demise of the Mughal Empire, so sedulously preserved by the British rule".

We can apply a hard-soft symbiotic approach, as described in section 7.4.1, to investigate this situation, -- first 'assessment' and then 'intervention'.

8.4.2 The Hard Systems analysis

First we shall go for a hard systems approach as developed in chapters 6 and 7 to get an overall view of the concerned problem situation. This will require:

- (a) TIDE³⁶¹ and Xt³⁶² analysis of all the South Asian States,
- (b) TIDE and Xt analysis of hypothetical regional configurations in South Asia, and
- (c) TIDE and Xt analysis of south Asia as an integrated whole.

Based on the results from the above investigations, we may draw the '*systemic efficiency matrix*' (SEM) for the different spatial units, real or hypothetical. We may thereby identify a number of alternative hypothetical configurations comprising the various spatial units within the sub-continent, ignoring the present real world situation [at least temporarily, for the sake of investigation].

Comparing the relative efficiency of all these models (real and hypothetical), we may then suggest the best possible configuration from a systems perspective, the '*organismic equilibrium model OEM*' for the South Asian System.

However, the hard systems approach, as mentioned earlier, being heavily dependent on the objective analysis of the situation, overlooks many of the human elements involved in the process of nation building and the running of the national and international polity. This brings in limitations which can not be totally eliminated even if we take the corrective measures as suggested, such as the inclusion of the factor X, or the $f[t]$ function in our TIDE-Xt analysis.

To improve the assessment a soft systems approach on top of this hard system analysis is necessary, as discussed in section 7.3.

³⁶¹ The Territorial, Interactive, Demographic and Environmental factors as described in chapter 5.

³⁶² The combined effect of Unforeseen and time-variant attributes. See chapter 6.

8.4.3 Application of the 'Soft Systems Methodology -SSM' on the hard systems findings

Equipped with the findings through the hard systems approach, as described above, our next attempt shall be to identify the 'systemically desirable' and 'culturally feasible' alternatives that may be close to the 'ideal', yielding better *efficiency* to the system or systems concerned

For this the 'Soft Systems Methodology (SSM)' described earlier may be applied. First one should go for an 'inquiring process' to analyse the problem situation in South Asia, build one's own conceptual models based on that analysis and thereafter try to identify the culturally feasible and systemically desirable alternative/s that would improve the problem situation (in our view).

i) Drawing the rich picture

The first step in SSM may be the drawing of a rich picture of the South Asian problem situation. Here the two case studies in chapters 4 and 5 give the required 'rich picture'.

This 'rich picture' depicts a number of problem situations; to mention some:

- a) An overall problem situation where India the overwhelmingly large and powerful country in the region does not have smooth relation with any of her neighbours, a situation of perpetual mistrust.
- b) A perpetual problem situation of the confrontation between India and Pakistan in almost all fronts: territorial, political, ideological (religious), economic, etc., which often leads to armed engagement,
- c) A problem situation where India has to constantly fight some of its regional units, who want either to have total independence or substantial autonomy,
- d) A problem situation which is inherent in the very structures of the Nation States formed through an arbitrary partition of the regional systems, especially in the eastern flank, splintering an otherwise integrated politico-economic system into several fragments,
- e) A problem situation where the Hindus and Muslims, the two major religious communities of the sub-continent have developed a relation of mutual antagonism, that pervades almost

all spheres of social and political arena of the sub-continent, which is fanned by interested quarters,

f) A host of other similar problem situations that may be identified and listed from the case studies, to be included in the rich picture.

This being only a model building exercise, we mention only some of the problems as examples.

ii) Fixing the 'task'

Looking at the overall situation of the sub-continent, it appears that there is little scope to build up any revolutionary situation to bring about drastic changes. Therefore emancipation of the masses, though desirable, may not be aimed for at this stage.

What appears 'feasible', even if difficult, is a pragmatic transition towards a *sustained and ecologically-balanced optimum growth*, which we take as the primary task of any State administration and that should dictate its responsibilities and functions.

iii) Identification of basic issues

The following may be treated as the basic issues to be addressed:

a) The system distortions at sub-regional levels due to superimposed boundaries

We have discussed this issue in chapters 3 and 4, especially in relation to the Bengal region. Similar system distortions have taken place in other regions also, in different forms.

b) The structural imbalance

There is structural imbalance amongst the countries of the sub-continent, specially, due to their highly disproportionate sizes and the lack of proximity:

In the sub-continent India is by far the largest country, so large that the rest of the countries taken together constitute less than 25% of the total area of the former. This gross inequality of size is one of the biggest hindrances towards any meaningful co-operative system amongst the countries of the region.

Amongst the seven countries forming the 'South Asian Association for Regional Co-operation – SAARC', India has common borders with all the other six countries, but none of the other countries have common borders between them. Because of the lack of proximity between them other countries do not have direct access

to each other. On the other hand, India, having a common border with all the other countries, has border tensions with all the rest. This highly unequal interaction is not congenial to the growth of a unified conglomeration.

c) Religious divide

It has been already mentioned that the present structure of the sub-continent was built on the basis of religious divide, whereby a transient societal psyche of a given epoch has been made to perpetuate, which remains the major source of discord in the social and political arena of the entire region.. Any endeavour to alter the present situation in South Asia must depend on how this religious divide, particularly between the Hindus and the Muslims, is going to be addressed.

Religious fundamentalists in India who raise the slogan of 'Hindutva' (Hindu-ism) and 'Akhand Bharat' (unified India) and the post-cursors of the '*two nation theory*' of the 1940s Muslim League in Pakistan, together with factions representing both the lines in Bangladesh, pose the greatest hurdle in the way of peace in the sub-continent.

d) Ambitious elite: the 'hawks' as the forces of 'status-quo'

All the Nation States in the region have developed their own sets of ruling elite who promote hawkish nationalist fervour and shall oppose any change in the status quo for fear of losing their control on State power and other advantages they are currently enjoying.

e) Peoples' psyche: distorted history, myths and beliefs

A distorted account of history tinted through religious bigotry and communal hatred has gone deep into the societal psyche, along

with certain carefully cultivated myths and beliefs, forming a hard mass of the 'collective unconscious'.

f) Other issues that arise in the process of investigation.

As we proceed with the investigation there will be other issues that may also demand attention.

iv. Identification of relevant systems, drawing the conceptual models and comparing them with real world situation

The task being decided and the issues being identified, we can now look for the relevant systems and draw their conceptual models to compare those with the real world situations.

a) Identification of 'national' entities'

Firstly we may look to the problem situations and issues one by one. The issue of superimposition of boundaries may be looked into by identifying all the historic 'national' and 'regional' entities [systems] throughout the sub-continent. A convenient basis for system identification may be 'language', since the very 'evolution' distinct language and its enrichment through wider use reflects an intensive systemic interaction.

If we take language as the basis of modelling the national entities, we find that there are about two dozen major languages in the subcontinent with hundreds of other minor languages interspersed all over. There are innumerable 'tribal' languages or dialects which are spoken by a few thousand, or a few hundred people only. Thus once we draw the systemic diagram of the major linguistic entities, to be taken as 'national' entities, we shall have a number of smaller linguistic entities between them forming 'shatter-belts'³⁶³. In some cases these systems may overlap and cross the political boundaries of the existing Nation States or the provinces within them.

b) Identification of the 'sub-regional systems '

After identifying the basic 'national' entities our next move will be to identify the regional blocks based on historic legacy, cultural affinity, economic interaction and territorial-ecological settings. Again examining the existing political boundaries, here we get a core region surrounded by some peripheral regions; while some 'nations' may not properly fit into any of these groupings and may constitute *shatter-belts* where different traits co-exist or compete.

c) Identification and accommodation of 'pan regional' interactions.

Apart from these national or supra-national systems we may also look to the geo-strategic regions as described in chapter 4 (section 4.2iv) and identify systems comprising the different peripheral regions of the sub-continental land mass together with other neighbouring regions outside the subcontinent. We call them '*pan regions*'.

Thus we may draw the 'Bay of Bengal regional system', the 'Arabian Sea littoral system' and also a 'North Western system' including parts of central Asia. Since such regions can never be sharply demarcated, there will be obvious overlapping at many points.

Along with the conceptual models regarding the territorial issues we can draw similar conceptual models on other issues also.

³⁶³ The weaker region pressed between two or more stronger regions.

v) Analysing the cultural situation: 'social system analysis' and 'political system analysis'

After constructing the conceptual models of the ideal systems (ideal in our view, which may differ from observer to observer) we go for comparing them with the real world situations, to find out the interventions needed to improve the problem situations.

However, for any intervention we have to look to the cultural and political realities, in order to ascertain the positive and negative responses, of the clients and owners.

This we may accomplish through 'social system analysis' and the 'political system analysis' as stipulated in SSM.

vi) Identification of the necessary intervention/changes—systemically desirable and culturally feasible

Based on the above analysis we can now try to suggest some intervention to improve the problem situations in the subcontinent.

Our suggested intervention to improve the problem situation in South Asia shall be application of the concept of the 'simultaneous devolution and consolidation (SDC)', described in section 8.3 which will be primarily directed :

- a) to remove the system distortions through restoration of the suppressed systems at different hierarchical levels within the concerned systems.
- b) to allow regional systems to be restored irrespective of political boundaries,
- c) to accomplish those goals keeping the present Nation States and their boundaries unchanged.

8.4.4 Present trend and probable situations

If the present situation continues, we may have a scenario where India moves towards a more centralised State based on the 'Hindutva' religious fervour and opting for accumulation of military prowess aspiring to be a *world power*.

In this situation the tendency of all the peripheral entities shall be to look 'outward', to the wider environment to find counterweights to protect their identity and self-interest.

This may lead to two possible developments:

i. A 'torn' region'

Pakistan may drift away towards the Middle East and Central Asia and become more dependent on the West; while Bangladesh may drift towards the South-east Asia and Nepal towards China.

In this scenario all the smaller countries in the region shall be more inclined to join hands with India's rivals.

ii. Disastrous core periphery confrontation

India, by enhancing its economic and military prowess, overpowers and subjugates other countries in the region completely, turning them into vassal states.

In this situation, the subjugated entities join hands with all other recalcitrant forces within India,. accentuating the centrifugal drift and eventually India becomes a more 'torn' country, facing the danger of disintegration.

In this context we propose the third alternative – a road map towards SDC.

8.4.5 A 'Road Map' to SDC

Application of SDC in the South Asian context will require, first of all, adoption of a pragmatic strategy that will be acceptable to all the stakeholders.

i) Fixing the goal

The 'goal' shall be to build an interactive and pro-active conglomerate of all the South Asian nations through free mutual consent. The European Union [EU] may be taken as an example of such development, although differing situations may demand different type of union

ii) The road map

(a) All the multinational countries in the region [especially, India and Pakistan] to move towards the culture of a *true federation*, allowing all the systemic national entities within their fold complete autonomy.

(b) Creation of economic and cultural blocks in and around the subcontinent, comprising of the countries of fully autonomous

national units, in the economic, cultural, or other arena, allowing the constituent autonomous units of the federal States to have constitutional rights to join such blocks freely.

(c) Appropriate measures for the removal of all apprehension in the political psyche of the smaller countries and entities of being dominated, or coerced to a subjugated status, ensuring the sovereignty of all the present State systems within their existing boundaries.

(d) Appropriate and massive de-construction of the present paradigm of the sub-continental history based on religious and polemical bias to prepare the masses to realise the necessity for change and the mutual benefit in it.

(e) Inter-linguistic intellectual and literary exchanges to be harnessed.

(f) Practising Democracy in real earnest. Considering a uniform voting system, ensuring proper reflection of the peoples opinions.³⁶⁴

(g) Restoration of the disrupted communication networks and easing travel restrictions aiming at free movement of people, to be achieved in stages, within a defined time frame.

(h). Managing the wider environment, i.e. the international community to lend support to the move

8.5 IMPEDIMENTS TOWARDS THE IMPLEMENTATION OF SDC IN SOUTH ASIA AND THE LIGHT AT THE END OF THE TUNNEL

It is needless to mention that the ideas and propositions put forward for the intervention in the South Asian problem situation in this chapter are constructs of a certain world view which may not be shared by many. Many of the stakeholders may not even be ready to consider such exercises to be of any worth. There will be others who may find these propositions 'threatening' to their long cherished 'ideals' and interests.

There is nothing unlikely in such a situation. John Mingers laments describing his 'rude awakening' while trying to apply certain systemic measures to improve problem situations in certain organisations:

³⁶⁴ Changing the present 'first past the post' electoral system to a 'proportional' voting system may improve the situation.. –F. A. Quarishi (1990), *Electoral reforms: A case for Proportional Representation*, Shamiksha Prokashoni, Dhaka.

" Most importantly, (and shockingly) I discovered the politics of organisations. The projects that never got started because certain people refused co-operation or information. [Some] projects were eagerly welcomed because those could be used by one department against another. The antagonism towards us, and indeed attempts to sabotage, when our studies threatened the power position of particular groups."³⁶⁵

This is not any special case, but rather a general tendency in every field and in every sphere. The issues raised in this study are obviously much more complicated and sensitive than the problems faced by systems practitioners in the course of human activity systems of comparatively smaller dimension. Therefore, the impediments to be encountered in this case are understandably more numerous and difficult.

Checkland, while expressing his disappointment about the current state of affairs in the 'systems movement' criticised certain concepts, such as, the concept of *emancipation* in Critical Systems Thinking (CST), for '*grandiosity*' and '*naïve expectation*':

" ... urging that 'emancipation' should be the aim, with rhetoric about equalising the balancing of power in a situation and removing structures of domination – as if a drug 'baron' might be prevented by words on paper or the admonishment of academics from using systems methodology to improve his laundering of money from drug smuggling".³⁶⁶

These terse remarks from Checkland for 'grandiosity' and 'naïve expectation' may be addressed to our present attempt as well.

However, on the positive side, the problem situations in South Asia, as described earlier, are real and on all these issues there are ongoing debates, with a clear *desire* for a change, at least in a significant segment of the population of the region.

8.5.1 Some positive developments towards SDC

In the backdrop to the impediments mentioned above, the following may be taken as the light at the end of the tunnel:

a) There has been a move from the governments of India, Bangladesh, Nepal and Bhutan to form a regional economic block comprising: [a] the eastern provinces of India, such as West Bengal, Assam, Tripura and other hill states; [b] Bangladesh, [c] Nepal, and [d] Bhutan.

³⁶⁵ John Mingers (2002)

³⁶⁶ Peter Checkland, *Systemist*, Vol.24, No. 2, Dec. 2002.

This move is very significant in the backdrop of our study, since, it clearly accepts and justifies the line of argument put forward in this study advocating restoration of the distorted and suppressed regional systems. The same argument could be put forward for similar groupings of other suppressed regional systems, in the western and southern regions of the sub-continent.

b) India has been persistently urging Bangladesh to allow transit and transshipment across the soil of the latter to connect her almost landlocked North Eastern provinces to her mainland. On the other hand, Nepal and Bhutan have been urging India to allow them transit through Indian soil to use Bangladesh sea ports. This is a clear demonstration of the necessity of the restoration of the disrupted regional communication networks, highlighted in this study.

c) A regional trade grouping named BIMSTEC (Bangladesh, India, Myanmar, Srilanka and Thailand Economic Co-operation) has already been floated, although not much concrete has yet come out of it. However this justifies our assertion of the Bay of Bengal rim countries forming a distinct historical and natural system, what we have termed to be a 'pan region'.

This 'pan regional system' needs to be restored on a wider and more systemic framework, including all the rim countries and allowing the Indian states within the bay of Bengal territorial system as identified in this study to join the forum *directly*, which will need the Indian central authority to agree to *devolution* as part of SDC.

The same argument may be forwarded for similar steps in the western frontier of South Asia also.

d) India's peripheral states (like West Bengal, Tamilnadu, Maharashtra, Kerala and Assam) have been urging the central government for long to allow them to trade with other countries directly. This type of devolution, if allowed, will fulfil an important step towards SDC. At the same time countries around India, like Nepal, Bhutan, Bangladesh and Sri Lanka, have are now India as their largest trade partner. But, the trade between India and her neighbours is highly imbalanced in favour of India, which sores India's relation with all of her neighbours. We look to it as a symptom of system distortion. A move towards SDC should improve the situation.

d) The formation of the SAARC (the South Asian Association for Regional Co-operation) is a manifestation of a *desire* on the part of the 'owners' and 'clients' to develop a collective identity of the South Asian nations. Although achievement of this forum to date has not been more than a few rounds of high level get-togethers and some

limited scale co-operation in economic and other fields. However, it is, at least, way ahead of the 'European Coal Union' of the 1950s, the precursor to the present EU.

e) The move for a 'South Asian Free Trade Agreement' [SAFTA] is on the way to bolster the trade and economic interaction amongst the SAARC countries. This move is also facing lots of impediments. However, the process is on the move.

Thus, reality on the ground shows certain very encouraging and supportive stances, alongside the impediments; some light at the end of the tunnel³⁶⁷.

8.6 SUMMARY

In this chapter we have tried to look at spatial systems holistically using soft systems thinking in conjunction with our earlier attempt (chapters 5 and 6) to understand the system characteristics of spatial systems as we find them in the real world situations around us.

Present day problem situations in South Asia, in particular, have been examined using Checkland's 'Soft Systems Methodology—SSM and other inquiring methods. Certain systemic interventional measures have been suggested to improve problem situations, which has been termed the 'Simultaneous Devolution and Consolidation-SDC'.

It is considered that the problem situations in the present day South Asia may be addressed through this systemic appraisal and the proposed intervention will bring improvement in the situation. However, it has been maintained that this task is a very complicated one and what has been suggested is only indicative of many probable interventions that may come from other investigations.

It is also maintained that what has been suggested for South Asia in this chapter may also be applicable to other regions of the world facing similar problem situations.

In the next chapter the global situation will be examined to try to extend the concepts developed so far to the global spatial system, to enhance its systemic harmony through inter-regional and intra-regional SDC at various hierarchical levels.

³⁶⁷ Some may, however, quip, 'the light at the end of the tunnel' could be an oncoming train, or a torch carried by a man bringing more work to be done'.

Chapter-9

DISCUSSION: A SYSTEMS' VIEW OF WORLD ORDER

'We see the earth as part of the solar system that is part of a galaxy that is part of a universe. Furthermore, we see our body consists not only of organs in great variety but of cells, of atoms and electrons, of energy structures, and so on. There is a hierarchy of systems from the quark or the photon to the total universe. Each level of the hierarchy interacts with levels both above it and below it'.

– Kenneth E. Boulding.³⁶⁸

'Maps are too important to be left to cartographers alone.'

-- J.B. Harley³⁶⁹

Introductory notes

The quotation above, from Boulding, gives a description of the cosmic continuum in our spatial journey through the extra-terrestrial space beyond the earth surface and the intra-organismic microcosm at the bottom.

However, what has not been specifically mentioned is the arena of the 'human activity systems', in between the two, the systems relevant to our earthly existence, which is the main focus of our present study. This starts from the individual human being through the family, the local community, the local state, the Nation State, the conglomerates of Nation States and then reaching the global apex, taking the world as a composite whole.

The first two areas (the planetary macrocosm and the intra-organismic microcosm), with certain well-defined parameters, are amenable to scientific evaluation and measurement; at least to a large extent. However, the area intermediate between the two, the 'human activity systems' over the earth surface, shows a much higher degree of complexity, almost un-amenable to scientific

³⁶⁸ Kenneth E. Boulding (1985), *The World as a Total System*, Sage, Beverly Hills.

³⁶⁹ As quoted by Sankaran Krishna (1994), 'Cartographic Anxiety : mapping the Body Politic in India' in *Alternatives : Social Transformation and Humane Governance*, 19(4), 507-21

measurement. This is because of the involvement of Man in the process. Man with his unique quality of being the only 'thinking animal' within the *biome* has an almost unlimited capability for manipulating and interfering in the normal course of nature, bringing uncertainty at every level and every part of it.

It has been noted earlier that all the 'systems' we perceive on the earth surface are products of human perception and observation. Whatever systems we conceive are tinted by the observer's own world view,³⁷⁰ or *weltanschauung*.³⁷¹

Again, one has to bear in mind that human beings, individually or in a group, always perceive the world with 'self' at the centre. Therefore, the multiplicity of the 'egocentric' conceptual structures of the world, based on the different perceptions of individual observers, is inescapable.

This 'egocentrism' should have confined the individual to his or her own cave had it not been the case that each and every individual has to depend on others for biological survival and psychological comfort. The 'egocentric' individual is thereby compelled to take refuge in 'ethnocentrism'.³⁷² Thus, egocentrism, or the individual's love for himself, is also the foundation of his attachment to his surroundings and this is precisely the beginning of our community living.

Yi-fu Tuan (1974) describes this *topophilia* as the manifestation of 'all of the human being's affectionate ties with the material environment'.

From this 'topophilia' we proceed to what we call 'nationalism'. Every nation in the world, large or small, has the illusion of its own *superiority* and *centrality* in relation to others. This may be taken as the manifestation of the *collective egocentrism* of the group of people constituting the *nation*. In other words, the tendency of a 'nation' to press for its separate identity and existence is the product of its 'national egocentrism', which is perhaps essential for the sustenance of any nation as a separate entity.³⁷³

³⁷⁰ "...to build systems out of messy situations is always tinted by the observer's own perception" --Yi-fu Tuan (1974).

³⁷¹ *Weltanschauung* is a German word meaning --'What view of the world makes this situation meaningful'-- Flood and Carson (1988); Hitler uses this expression repeatedly in his *Mein Kampf*.

³⁷² LeVine and Campbell (1972) defines: "Ethnocentrism .. is an attribute or outlook in which values derived from one's own cultural backgrounds are applied to other cultural contexts where different values are operative.... It does not occur to such a person that there is more than one view ... or that it regards those of other cultures as incorrect, inferior or immoral".

³⁷³ Even people belonging to the smallest nation state are found to sing the glory of their 'great' motherland.

We have so far discussed spatial systems from various perspectives. We have discussed the distortions of spatial systems due to human interference with special reference to South Asia and proposed certain systemic interventions to improve those problem situations.

In this chapter we shall look to the global spatial system extending our observations made in earlier chapters and some of the concepts developed therein, especially the concept of SDC.

It is imperative that before embarking upon any exercise on the world order, we look to the system distortions of spatial systems around the world and indicate our own 'world view', the 'Weltanschauung', as it is called, through which kaleidoscope we intend to appreciate the situation.

9.1 THE WORLD AS A TOTAL SYSTEM

All spatial systems we define or identify around the world are in some way or other the products of our imagination, the 'artefacts of the human brain'. Foin, Jr. (1974) goes one step further:

'... there is only one real system on the planet, that is the entire planet, and that if we recognise any part of it as a system, we do so by establishing arbitrary boundaries, no matter how natural the assembly may seem'.³⁷⁴

To look at the world *as a whole* and to describe different aspects of interactions in nature and human society on a *global scale* is noticed today in almost all disciplines and intellectual discourses. In addressing the world economic regimes, the ecosystems and environmental issues, the term *global* has become the catch-word.

Geographers and historians have always been looking at the world at large, as large as they could conceive, or had access to, through the available information. In the past information was scanty and the conception of the *world as a whole* was fragmentary and limited to the known extent of the 'discovered' earth surface only, there remaining a vast extent of the unknown swath of land all around. The descriptions of the *expanse of the world* by Heroditus³⁷⁵ in the 4th century BC and by Ibn Khaldun³⁷⁶ in the 14th century AD, is not much different.

Even as late as the fifteenth century (1492), our conception of the earth surface was so limited that the Spanish adventurer

³⁷⁴ Foin, Jr. (1974)

³⁷⁵ See Hisdtory, Heroditus, op. cit.

³⁷⁶ See Al Muqaddimah, Ibn Khaldun, op. cit..

Columbus sailed westward through the Atlantic to reach the eastern coast of India! That was the level of the knowledge of geography available till then.

There were 'blank spots' on the earth surface even a century ago, when imperial powers contested and confronted each other to conquer them. And, as long as there were such 'blank spots' the notion of the world as a 'total whole' remained incomplete.

Today we live in a completely different world. a world where every square inch of it has been mapped, more or less, in detail and is controlled by one or the other of the Nation States, having sliced the earth surface amongst them. A global appreciation of events and interactions is, therefore, inescapable in our present day human existence.

The introduction of the word '*ecosystem*' is credited to A.G. Tansley who coined it in 1935 as a general term for the 'whole complex of organisms – both the animals and the plants – naturally living together as a sociological unit'³⁷⁷

In Geography, only in 1970 Rumney presented the *geosystem* as a 'single planetary system in which land, sea and air are dynamically integrated'.³⁷⁸

Today there are global 'summits' and conferences every now and then, where experts from different parts of the world, representing different stakeholders, meet and discuss issues that are supposed to affect the entire planet as a whole and therefore urgency is expressed vociferously for a comprehensive and holistic approach to all global issues.

There is a difference between having a global outlook in general and looking at the global issues being intertwined *systems*. However, even at the beginning of the 20th century geographers with futuristic comprehension did forecast:

'From the present time forth, in the Post-Columbian³⁷⁹ age, we shall again have to deal with a closed political system, and none the less that it will be one of worldwide scope. Every explosion of social forces, instead of being dissipated in a surrounding circuit or unknown space will be sharply re-echoed from the far side of the globe. – Mackinder (1904)

Over the last century three rival political doctrines competed on the global scenario, each with its own world view. There were the

³⁷⁷ K.J. George, (2000), op.cit.

³⁷⁸ Ibid

³⁷⁹ Mackinder divided the historic time before and after the cross Atlantic expedition of Columbus into the pre-Columbian, Columbian and Post Columbian periods. We shall discuss it in the next section.

imperialist ideologues projecting the view that *might* is the ultimate winner and that nature ordains the strong to prosper at the cost of the weak. There were liberals who opposed this view and spoke of free trade and international co-operation on a capitalist line, and there were the socialists and the 'socialist internationals' urging for a universal regime based on a 'classless' society (Taylor, 1996).

A close look at the above three lines of approach will reveal that all of them look for a *globally* integrated system ignoring (or undermining) the intermediate systemic hierarchies of spatial stratification.

Also there are attempts to look to the global economic system, the global eco-system, the global atmospheric system, the global demographic system, global health system, all ignoring the territorial boundaries or the various Man-made spatial differentiation on the earth surface. Such attempts fail at the end, or give faulty results, since nothing today is free of human interference. Even the health of the atmosphere, the ecological balance, for which there is so much arguments now a days, is threatened more by human activities than due to other natural phenomena, 'global warming', being only one example.

Over the last few decades there have been a number of fresh approaches in political geography, political economy and international relations looking at the global interactive patterns of world politics and economy from newer standpoints. Some of those have attracted wide attention and brought new dimensions to the ongoing debates.

Although it is not possible to go into a full-fledged discussion on this topic here, it may be useful for our study to have a short overview of the same, for which we make the following typology:

- i. The Mackinderian paradigm of 'heartland' and 'rim-land'
- ii. The geo-strategic approaches
- iii. The free market *globalisation* approaches
- iv. The *world modelling* approaches of environmental, social and economic indices and trends
- v. The 'universalist' and socialist approaches
- vi. The Systems approaches.

9.1.1 The 'Mackindarian' paradigm

The concept of "HEARTLAND"

Although territorial control has always been the primary objective of power struggles from the earliest days, the target of the earlier empires was more or less confined to their immediate vicinity. There could not be a *global view* until human beings were able to circumnavigate the globe. It was only after the fifteenth century that a total overview of the spherical mass known as the *earth* could be apprehended.

During the nineteenth and early twentieth century the subject of Geography gradually attained special importance as a necessary arm of imperial expeditions. There developed, especially in Europe, academic discourses on different aspects of territorial control, albeit from the respective 'national' perspectives of the concerned geographers. Taylor comments:

'In the case of geo-politics it has been very easy to identify the nationality of an author from the contents of his or her writings.'³⁸⁰

Thus, Ratzel in Germany came out with his theories that reflected the unease of a land starved country, while Halford Mackinder in England came out with his grand vision of global control through the control (or containment) of the 'heartland', again reflecting the ambition and worry of his own nation. Thus we get a breed of geographers later labelled as the 'geographers of imperialism'.³⁸¹

The early economists used to deal only land, labour and capital as discrete inputs deciding the course of economy. Here 'land' was taken in the narrower sense, so far as its ownership provided the means of agricultural production and habitat. The broader meaning of the land at the global expanse was hardly appreciated.

Mackinder presented his much discussed geo-political thesis '*The Geographical Pivot of History*' in 1904, at a meeting of the Royal Geographical Society of England, of which he was an active organiser and the leading figure. Being himself an articulate politician of his time he could find a ready acceptance of his thesis by the ruling elite around that time, which became

³⁸⁰ Peter J. Taylor (1988)

³⁸¹ Goldweska and Neil Smith eds.(1984)

the 'starting point for almost all discussions of geopolitics' from then onwards and till today.³⁸²

The thrust of Mackinder's thesis was the identification of a *pivot area* that would control a wider area around it by sheer dint of its geographical location and strategic advantage. (**Fig.9.1**).

He declared:

'One who controls the pivot, controls the World Island,
One who controls the World Island controls the World.'

Mackinder changed his thesis twice, once in 1919 in the aftermath of the World War I, when the *pivot area* was renamed as the *heartland*, and again in 1943, in the midst of the World War II.

As mentioned earlier there are many who consider that Mackinder's concept had given a ready tool and apology to imperial and colonial expansionism and it had a profound influence in the shaping of the mental make-up of the European ruling elite, by providing an intellectual back-up to justify their imperial ambitions³⁸³.

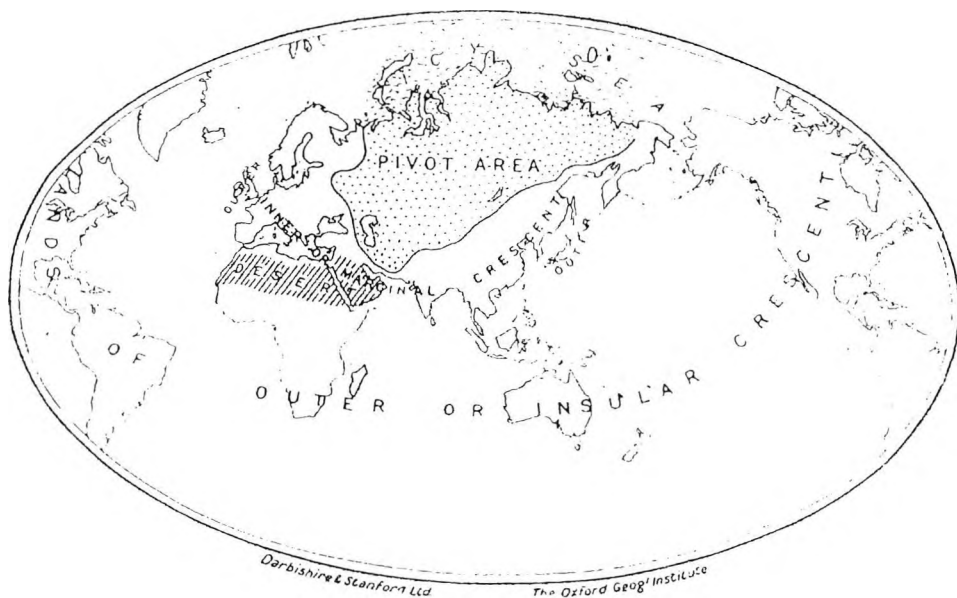
The notion that control of the so-called 'heartland' was absolutely essential for any move to 'command the world' is considered by many to have bolstered Nazi Germany in its attempt to try to conquer the "heartland" as the first step towards conquering the rest of the world. Many would blame this for having led to the disastrous World War II³⁸⁴.

³⁸² Taylor(1988). Taylor describes Mackinder as a political economist with a holistic view., who was also a member of the parliament for several terms and was in a position to influence the decision making process of the empire, especially on geo-political issues..

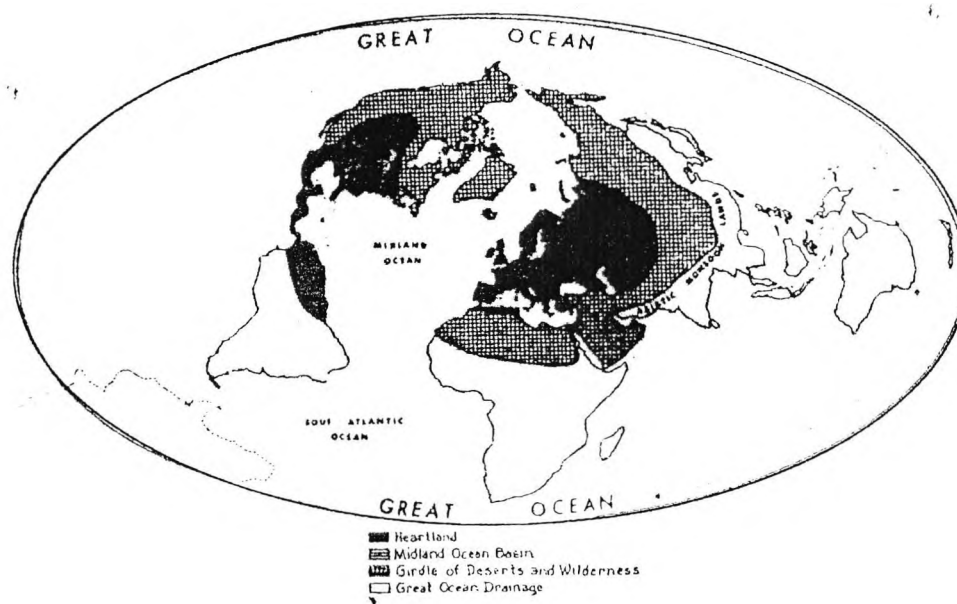
³⁸³ As O'Tuathail comments: "... it was destined to make him [Mackinder] famous decades later when, during the World War II, the American and British public discussed German geopolitics and the reverence it accorded the ideas of Mackinder." --Geroid O'Tuathail {1998}, op.cit.

Agnew (1997) commenting on the past of the geo-political discourses writes: 'It (political geography) suffered from association with the efforts of previous generations to create a 'science' of geopolitics that was widely seen as having contributed in the form of nazi expansionism to the onset of the Second World War'.

³⁸⁴ "German geopolitics has been accused of supporting the aggressive stance of the Third Reich. In fact the Nazi politicians dissatisfied with, what they claimed, the 'unfair and confining boundaries' awarded to Germany at Versailles were looking for a handy tool and the concept of *lebensraum* (originally from Ratzel, literally 'living space') appealed to them. Which 'justifies' expansion". – Taylor (1988) However, Taylor in the same vein also doubts whether geopolitics had that much importance to the Nazi war machine as it has been claimed and propagated by its opponents.- ibid



a.



b.

Fig. 9.1 : Mackinder's world : 1904 and 1943

a. 1904 : From the 'Geographical Pivots of history'

b. 1943 : From 'Geography and Politics in a world Divided' by
saul Bernard Cohen (1963), Random House, London.

The conceptual framework of the 'heartland' envisaged a global power structure from the geo-strategic point of view. In the limited sense it suggests the benefit of fortification at convenient locations, from where physical occupation of other territories is to be carried out. Geroid O'Tuathai (1998) commenting on the far reaching impact of this concept in the following words:

"Mackinder's address is important in the history of geopolitics for three reasons: (a) for its God's eye view; (b) for its division of the globe into vast swaths of territory; and (c) for its sweeping story of geography's conditioning influence on the course of history and politics".

However, here the consideration is entirely on the *territorial aspect* of the space. The demographic and other system imperatives are totally ignored. It also ignores the social aspirations of the population concerned and the non-physical aspects of human habitations like language, culture, religion, etc., and the values attached to them.

Mackinder made a sweeping analysis of history by dividing it into three distinct phases: (a) Pre-Columbian, (b) Colombian and (c) Post-Colombian. In his analysis, during the Pre-Columbian era the 'horseman' had absolute supremacy which ended with the advent of the sea powers, ushering a new era, which he counts from the year 1492 AD, the year of the maritime expedition by Christopher Columbus, 'discovering' the land mass across the Atlantic. His 'Post-Colombian' era starts with the advent of new transport technology, particularly the railways, which, in his opinion, brought back the balance in favour of the land powers, when the 'pivot would reassert itself' (Taylor, 1996). The period in between, a time span of around three centuries, was the 'Columbian'.

The "heartland" concept could be well applied as long as land routes were the principal means of communication and transportation of forces. The scenario changed dramatically with the advent of steam engines that made sea routes cheaper and more dependable than the land routes and ushered in a totally different global communication network, drastically restructuring the geographical nodality around the globe. The 'sea lords', having the control over the sea-lanes, had a clear edge over the erstwhile 'land-lords'. In this changed context definition of heartland required a complete rephrasing³⁸⁵

³⁸⁵ Instead of 'one who commands the heartland, commands the World Island' now it was 'one who rules the Wave, rules the world'. Judging from this perspective the outcome of the World War II was perhaps a foregone conclusion since in the high waters Germans were no match to the Allied forces.

With the passage of time as the global scenario changed with the emergence of the new power equations, other 'geographers of empire', especially from the US and Germany came forward with their own versions of the Mackendarian paradigm, reflecting their respective 'topophilia'. Thus Spykeman in the US went for a new mapping of the global order in line with Mackinder, but with the US, now emerging as the new 'heartland' by virtue of its maritime strategic power and global reach (**Fig.9.2**), while the German strategists came out with their own 'geo-strategic' divisions of core and periphery, reflecting their own national psyche of that period (**Fig. 9.3**).

From 'Heartland' to 'core-area'

With the advance in space technology, a completely new situation has emerged today . The one time vast territorial expanse of the globe has shrunk to a 'little pinhole', as it appears today from the spaceships hovering above. The amazing revolution in electronics has reduced the role of natural resources and heavy metals in industrial production, ushering in the new era of "brain power industries" ³⁸⁶ increasing the importance of human elements in space administration. This new *three dimensional*, or *four-dimensional* geography of our age³⁸⁷ demands an altogether different approach towards the global space configuration than the proclamations made by Mackinder and his like.

It is generally found that when several distinct entities are placed together within a boundary, one of these entities usurps the control of the entire system claiming the status of 'core area', or 'core-nation'. This 'core-nation' rules others in the name of stability and advancement. The attempt to build a *unipolar global system* may also be considered as an extension of the core-area bias to the global level. Therefore, it should not be taken that the notion of 'heartland' has lost all its relevance.

In the changed circumstances it theorises the locational and strategic advantages of certain territories over others, leading to what we may term the 'grass root geopolitics'.

9.1.2 The geo-strategic approaches

While Mackinder looked for a comprehensive theory of global domination, the seed for a regional strategic domination was

³⁸⁶ Thurrow. (1985).

³⁸⁷ Chapter 5.5. ; Bunge(1988)

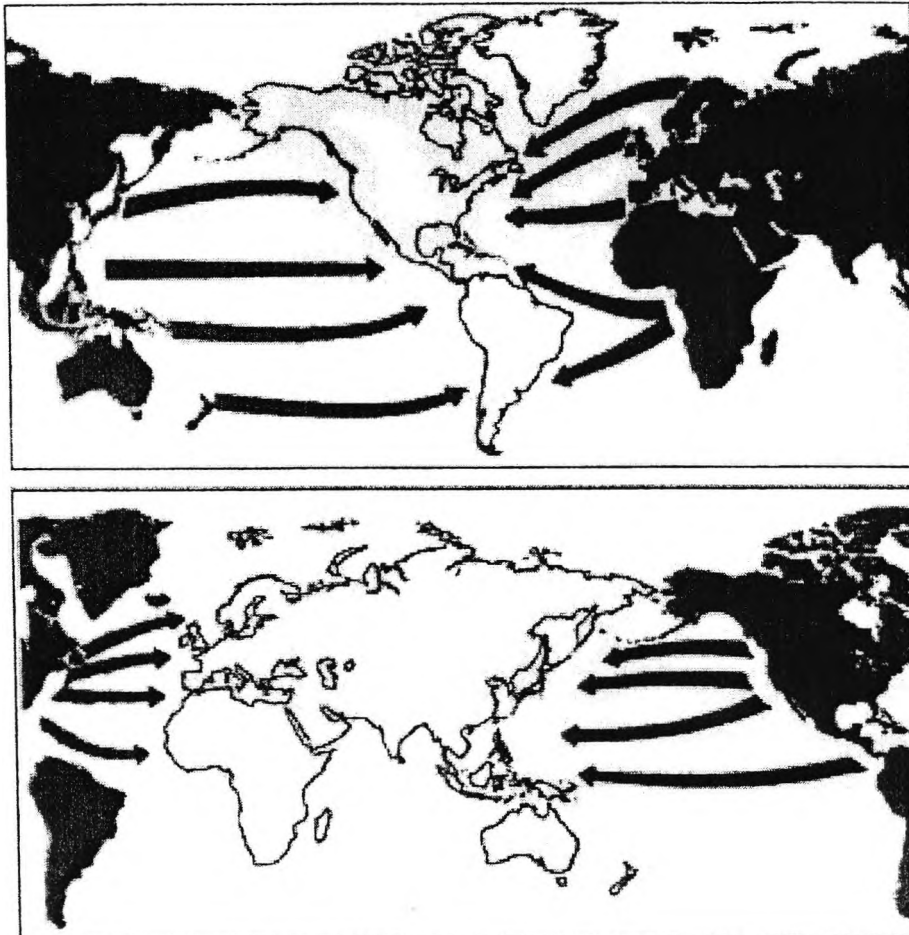


Fig.9.2 : Spykeman's World : Primacy of US : from *The Geography of peace*.
Nicholas Spykeman : as reproduced by John Agnew (ed. 1997)

sown much earlier in the 'Monroe doctrine' put forward by President Monroe of the US in 1823, whereby European intervention in the affairs of American continent was barred, making it a basic tenet of US foreign policy. The Germans came out with a similar theory of *pan-regions* in the 1930s with a sweeping division of the globe into three north-south vertical divides, basing Germany, US and Japan as the *cores* and each having a vertical slice of the earth surface (**Fig. 9.3**).

However, the outcome of the World War II changed the context altogether. Immediately after the World War II, *geopolitics* as an academic discourse was 'virtually abandoned'. The very term 'geopolitics' 'became an embarrassment to be distinguished from 'respectable' political geography.³⁸⁸ It was because of its perceived contribution to the encouragement to Nazism, as mentioned earlier.

Revival of 'Geopolitics'

The discourse again came in the limelight, albeit in a new format, to indicate the process of managing the global rivalry between the superpowers.

Taylor credits Sal Cohen in this regard, who, in his opinion, has kept the 'global thinking alive' during this period.³⁸⁹ Cohen went for a revision of Mackinder's heartland thesis providing a 'more militarily flexible and geographically sensitive' model. According to Cohen the global space is not strategically singular, but rather consists of 'separate arenas in a fundamentally divided world'. He described a hierarchy of two types of regions: *geostrategic* and *geopolitical*; geopolitical regions being subdivisions of the former (**Fig.9.4**). From our point of view Cohen's affirmation of the distinctive position of 'regional' territorial entities bears special significance, to which we shall return later in this chapter.

From the 'territorial clash' to the 'clash of civilisation'

Throughout the cold war period the former USSR was looked on as a fortress and a ring of anti-Soviet alliances were promoted in the '*rimland*' of Mackinder, such as the: NATO³⁹⁰ in Europe, the CENTO³⁹¹ in the Middle-east and the SEATO³⁹² in the East. The

³⁸⁸ Taylor (1996), op. cit.

³⁸⁹ Taylor (1996), op.cit.

³⁹⁰ The North Atlantic Treaty Organisation

³⁹¹ The Central Treaty Organisation (Initially it was named the 'Baghdad Pact', comprising Pakistan, Iran, Turkey and Iraq; latter, Iraq was dropped and the new name given CENTO.

³⁹² The South East Asian Treaty Organisation, comprising of the Nations in South East Asia.

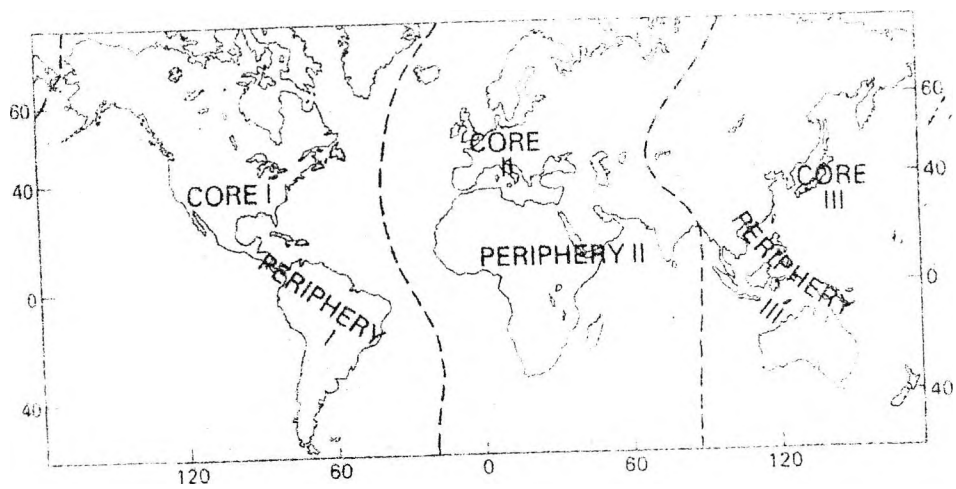


Fig. 9.3 : The 'Pan regional concept' of the Germans: From Taylor (1993b)

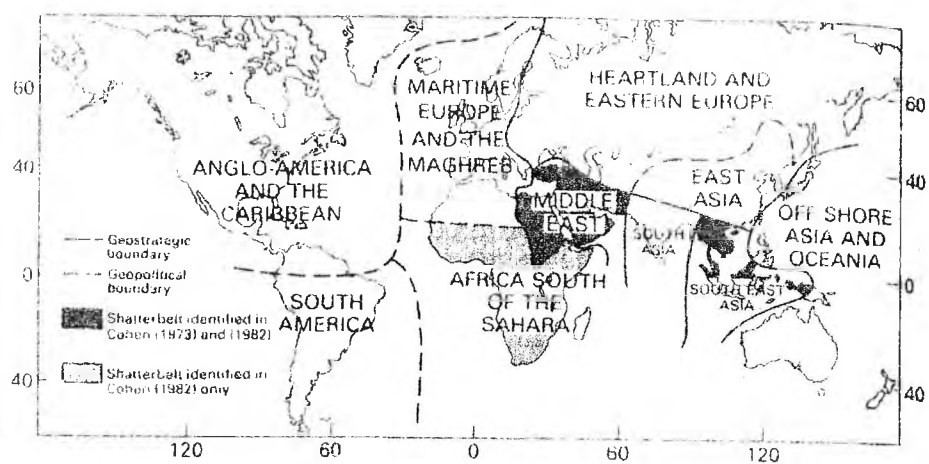


Fig. 9.4 : Saul Cohen's Geo-strategic and geo-political regions
from Taylor (1993b)

aim was to create a 'crescent' around of defence to block any southward advance of the USSR, from the concept of a territorial clash for global domination.

With the demise of the Soviet Union this strategy lost all significance and the *geographers of empire* had to look for new geopolitical theories to satisfy their respective constituencies.

The most significant among such new formulations is the much discussed and debated concept of the 'Clash of Civilisations' forwarded by Huntington.

Samuel P. Huntington who was known throughout the cold war period to be 'an intellectual of imperial vision' and an 'apologist of cold war militarism'³⁹³, may be considered as the 'Mackinder of the new era'. His *Clash of Civilisations*, first published as an article in the *Foreign Affairs* journal in 1993, and later developed into a volume in 1996, with certain clarifications, has created a wide range of debate on the issue of the next course of post-cold war global confrontation.

Huntington presents the main focus of his thesis in the following words:

"Civilization identity will be increasingly important in the future, and the world will be shaped in large measure by the interactions among seven or eight major civilizations. These include Western, Confucian, Japanese, Islamic, Hindu, Slavic-Orthodox, Latin American and possibly African."³⁹⁴

Huntington thinks that Nation States have been the principal actors 'for only a few centuries. The broader reaches of human history have been the history of civilizations'. Therefore he concludes that the next course of human history over the next century is going to be a history of a great clash between civilisations, and in this regard he narrows down the clash finally to a clash 'along the fault lines of global civilisation'—between the Western (meaning Christian) world and a 'coalition of Islamic and Sinic civilisations.'.³⁹⁵

Others are taking sides according to their convenience.

In his words, again:

³⁹³ Geroid O' Tuathail(1996, 'Samuel Huntington and the Civilising of Global Space' in *Critical Geopolitics*, University of Minnesota Press, Minneapolis.

³⁹⁴ Samuel P. Huntington (1993), "The Clash of Civilizations?" in *Foreign Affairs*, 72.

³⁹⁵ Samuel P. Huntington (1996), *The Clash of Civilization, and the Remaking of the World*, Penguin, London.

"For forty five years the Iron Curtain was the central dividing line in Europe. That line has moved several hundred miles east. It is now the line separating the people of Western Christianity, on the one hand, from Muslim and Orthodox peoples on the other",³⁹⁶

There has been a wide range of debate on these assertions of Huntington. We have no scope to go into the details of them. What is relevant to our study is that he has tried to wipe-out the individual Nations from the global scenario, by subsuming them within broad framework of what he terms as 'civilisations', which is a religious divide on a global scale.

However, Huntington emerges as the 'geographer of empire', albeit neither for Christendom, nor for the West as a whole, but for his own country, proving the dictum that 'a geopolitician's national identity is easily discernible from his discourses'. He, in reality, pleads for a global divide where the core will be the US, with the rest of the West to act as its periphery, confronting the rest of the world for a total domination of the globe.

The present trend of global polarisation is yet to take any definite shape. But critics may argue that Huntington's assertions are not just any *a priori* analysis of the historical trends, but a pre-emptive bid to precipitate a situation in order to perpetuate and fulfil certain hegemonic goals.³⁹⁷

From a systems perspective this sweeping generalisation of the global scenario, dividing the world into two permanently hostile religious camps, where one has to prosper only at the cost of the other, is untenable because of its uni-dimensional approach. It ignores other system variables that work on the global superstructure.

There can not be a decisive confrontation between the religions where one of the religions can subsume others. A mix is inevitable.

9.1.3 The 'free market' and the globalisation approaches

Apart from the geopoliticians, another group of intellectuals and academics are found to be keen on treating issues globally, -- the economists and the managers of global trade.

³⁹⁶ *ibid.*

Huntington leaves the Orthodox Church out in the Siberian cold, bracketing it with Islam! The reason, though not explicitly explained is not difficult to comprehend. He needs to avoid Russia in his grand coalition.

³⁹⁷ Was it not the same with Mackinder? Did Mackinder ever believe that his 'pivot' will ever be able to 'rule the world'? Was it not just a wake-up call to his own constituency?

The Hobsonian concept of 'free market', which was once claimed to be a 'liberal humanitarian' approach challenging the imperial desires and designs of global economic conquest, has taken a major twist today in the shape of 'globalisation'. At a time when imperialism was the dominating force, the concept of 'free market' was indeed a bulwark against the monopoly of the few. However in today's *globalisation* campaign it has turned into an instrument of coercion which, according to many, is imperialism in a new form. In the words of Bauman:

" The deepest meaning conveyed by the idea of *globalisation* is that of indeterminate , unruly and self propelled character of world affairs; the absence of a centre, of a controlling desk, of board of directors, of a managerial office. Globalisation is Jowitt's 'new world disorder' under another name"³⁹⁸.

There is a widespread confusion about the interchangeability of the two words—*globalisation* and *universalism*. Again to quote Bauman:

" The word universalism ... once in wide use – constitutive of the modern discourse of global affairs, has by now fallen into disuse, rarely heard of. Universalisation' conveyed hope. It declared the intention to make similar the life conditions of everyone and everywhere. Nothing of that is there in globalisation, as shaped by its present discourse."³⁹⁹

Interestingly, not only the critics like Bauman, but even in the words of Huntington:

"Decisions made at the UN Security Council or in the International Monetary Fund that reflect the interests of the West are presented to the world as reflecting the desires of the world community. The very phrase 'the world community' has become the euphemistic collective noun [replacing 'the Free World'] to give global legitimacy to actions reflecting the interests of United States and other Western powers.... The West is in effect using the international institutions , military power and economic resources to run the world in ways that will maintain Western predominance, protect Western interests and promote Western political and economic values." ⁴⁰⁰

From systems thinking how far this globalisation conforms to the systemic imperatives of the global system at large and the regional and other systems at different hierarchical levels is a fit subject to be taken into consideration and investigated.

³⁹⁸ Z. Bauman (1998), *Globalisation: the Human Consequences*, Polity Press, Oxford.

³⁹⁹ Bauman (1998), op.cit.

⁴⁰⁰ Huntington (1993), op. cit.

9.1.4 The 'World modelling' approaches

In the field of political economy there have been a number of approaches for modelling the global trends, especially in projecting the waxing and waning of the global economy over prolonged periods. There is no dearth of such modelling in the literature of economics both old and new. However most of the earlier attempts in this field have been uni-dimensional, looking only to certain specific features of the economic regime. (Such as, Rostow's stages of national growth model, Kondratieff's cycles of hegemonic rises and falls.)

In recent decades there have been a number of approaches looking to the world scenario as a whole and attempts have been made to compute the impacts of diverse socio-economic traits into composite and integrated models. The most well received of those in the field of political economy/political geography has been the 'World systems analysis' by Immanuel Wallerstein., which in the words of Taylor (1988):

"World systems analysis means the attempt by Immanuel Wallerstein and his colleagues to produce a historical social science viewing the modern world as constituting of as single entity, the capitalist world economy..."⁴⁰¹

However this effort of world modelling, although it has been named as 'world system analysis' is again largely uni-dimensional, based mainly on economic indicators and looking at the global level, without taking into account the regional variations.

It is observed that economy moves faster and keeps a step ahead of territorial polity and territoriality is certain to contain and redirect its travel every now and then.⁴⁰²

Wallerstein divides the globe into the three zones, the core, the periphery and the semi-periphery. While the core controls the global economy, the semi-periphery plays a supportive role and the periphery is the vast expanse outside the two, nothing but the 'market' for the world capitalism. In a way, Wallerstein's model is not far away from what Huntington promotes in a different language.

Next we have the 'Club of Rome'.⁴⁰³ Being inspired by Forrester's notion of '*systems dynamics*'⁴⁰⁴ a move was taken to build a large

⁴⁰¹ Taylor (1998). op.cit.

⁴⁰² Z. Bauman, op, cit

⁴⁰³ The Italian industrialist Aurelie Pecci and his colleagues founded the now famous 'club' to do, in their words, 'something about the global problematic', environment being their prime concern.

⁴⁰⁴ W.J. Forrester(1961), *Industrial Dynamics*, MIT Press, Cambridge.Mass.

scale computer model which would provide insight into the world problematic of 'unchecked growth'. The outcome was the much publicised and acclaimed report entitled '*Limits to Growth*'.⁴⁰⁵

'Limits to Growth' produced a number of computer simulated models forecasting the impact of the unchecked tendency to increase growth rate at any cost on the depleting natural resources of the world and also its impact on the global environment. The results projected through these models were alarming and the document received widely divergent responses. It received a very favourable and enthusiastic response from the general masses, especially the environmentalists. On the other hand, it was branded as a '*doomsday forecast*' by its critics.

We shall not go into these debates here, nor shall we go for any analysis of the club's observations. Our concern is that like all other world modelling, this one was also conducted only at the global level, ignoring the intermediate hierarchies of the world system.

9.1.5 The 'universalist' and socialist approaches

The 'Universalist' ideological concepts are probably as old as human civilisation, since almost all the great religions put emphasis on what is termed 'the universal brotherhood of mankind' and a common origin of mankind from one pair of ancestral parents and created by a 'creator' at certain point of distant past.

Philosophers and great thinkers of all times in all parts of the world are found to be basically 'universalists'.

However the idea of 'universalism, or humanism preached by the great religions resulted in the division of mankind into several water-tight segments not always having cordial relations with one another. Many of the major conflicts, which the world has encountered so far, originated from the religious feuds.

The ideological foundation of socialist movements over the last two centuries is also deeply rooted in the egalitarian concepts that emanated from the same universalist perceptions. Unfortunately, as in the case of great religions, the concept of socialism also brought more divisions and confrontations within the human race than the expected unification.

⁴⁰⁵ Meadows and Meadows eds.(1972), *Limits of growth*, Pan Books Ltd., London.

The current spate of 'globalisation' is some times projected as a move towards, building a global order transcending political boundaries. However, the motive behind 'globalisation', as we have already mentioned, is significantly different and in reality quite opposite to the concepts of Universalism or humanism.

Here we recall Vandana Shiva (quoted in chapter-1, section 1.1) – the current global construct does not symbolise the 'planetary consciousness'.

The idea of a 'proletarian' revolution across the world has floundered through the demise of the USSR and the back-tracking of China from the 'Maoist' concept of world revolution.

Only about three decades earlier, the Maoists in India (the 'Naxalites', as they were called after their initial stronghold at *Naxalbari* a rural West Bengal village) raised the slogan "China's President is our President"! That fervour is gone. The USSR is no more. No East Europe. And China is no more interested in the export of the red book.

All over the world socialists are now engaged in internal debates to reflect on their past line of approach and future course of action.

The limitations of both the 'universalist' and socialist movements of the past was that both grossly undermined and ignored the force of 'nationalism' and the systemic imperatives of territorial and regional aspects of human habitation.

There can not be 'internationals' without the 'nation', as much as there can not be a building without the building blocks.

9.1.6 The systems approaches

The systems paradigm is based on the fundamental premises of 'holism'. Systems practitioners look for isomorphy in the law of nature that would be universally applicable. This has been the basic concern of the early visionaries of systems thinking.

In this regard a systems approach to a global order carries a fundamental difference with the global approaches in other disciplines. As mentioned earlier in the basic postulations on systems, a systemicist has to look at the *whole* as well as its *parts*.

We find several pioneering attempts by systems thinkers to look at the world as a total system, mentioning – Bertalanffy,

Boulding, Haimes, Koestler, Chestnut, Churchman, Checkland, among others.

9.2 GLOBAL EXPERIENCES OF SYSTEM DISTORTIONS DUE TO SUPERIMPOSITION OF BOUNDARIES:

In chapter 2 we have mentioned different types of system distortions. Although a detailed inquiry into the system distortions due to improper boundary fixation around the world is beyond the scope of this study, here we shall have an overview of the global situation, listing certain glaring examples. The nature of the distortions and their consequences to the concerned system or systems exhibits a wide variety.

*a) **Western Europe, before and after World War II: The march towards 'union':***

Europe is comprised of a number of ethnic entities each having its own period of ascendancy over the last several hundred years. Almost all the countries of Europe, small or large, ventured in imperial expeditions at one time or other. Russia, Germany, England, France, Spain, Portugal, Italy, Greece, Austria, Denmark, Belgium, Netherlands, Norway... all had their heydays and the European land mass has seen changes in State boundaries perhaps more than any other part of the world. Fierce competition over trade, rivalry over foreign possessions and bloody confrontation over border disputes and control of trade routes had been the order of the day for several centuries culminating in two great wars.

However, through this arduous and tumultuous process European nations could learn the hard lessons. Mutual recognition of all the 'National identities' large or small, and the acceptance of all such identifies as 'equals', has ushered in a completely new era in inter-State relations in present day Europe. Having the 'national' question resolved to a satisfactory level, Europe is now confidently looking forward to build the cherished unified entity of Europe. There are still a few pocket with problems, but with the main issues resolved these minor issues may be left to 'time, the best healer'.

In fact Europe has set an example before the world in this regard. The road map from the European Coal Union of the 1950s to the present European Union is an ideal, a 'role model' of regional integration for the rest of the world.

b) ***The USSR and the CIS: Old wine in a new bottle:***

The formation of the USSR on the ideological basis of Communism/Marxism brought forth one of the greatest distortions of territorial boundaries in modern times. It created a conglomeration of so many regional and national systems, ignoring the systemic imperatives through the application of force, both military and ideological, that lasted almost a century.

After the collapse of communism all the nations submerged within the erstwhile USSR came out with their claims for sovereignty. This has given rise to more than a dozen newly independent sovereign Nation States. However, the remainder of the USSR, the Russian Federation, still retains a vast territory under its control. Apart from the great Asian land mass of Siberia there are many other recalcitrant nations and nationalities still under her domain. Several small nations in the Caucasus, have been fighting for more than two hundred years to establish their self-identity.

Several Central Asian nations were able to emerge as independent Nation States. However, circumstances compelled them to form a regional conglomeration named the CIS (Commonwealth of Independent States). The future course of the CIS is not yet clear. To many it is nothing but an indirect continuation of the Russian hegemony. 'Old wine in a new bottle'.

c) ***The Arab world: One nation too many.***

The Arab world comprising the Arabic speaking countries of Middle East and North Africa is an example of another type of system distortion. Here we have about twenty odd Nation States all having a common language and almost all of their citizens professing the religion of Islam. This linguistic and religious homogeneity, together with a common or intertwined history for several millennia and the geographical contiguity, has not been able to yield as yet a meaningful collective regional identity.

Most of the present day Arab countries, especially on the Arabian Peninsula and the gulf region, are products of political manipulation through external interference, their boundaries having been fixed arbitrarily by the colonial powers.

Most of these countries are ruled by autocratic and mostly dynastic rulers, who virtually own the fabulous oil resources. The common masses have almost no role in political, or economic decision making processes.

It has been mentioned earlier that once a certain territory acquires recognition as a sovereign State, a network of vested interests grows around the state-craft, which strives for the status-quo at any cost. Any move towards democracy, or restructuring of the political system is viewed as a potential danger for the rulers and the small ruling elite.

All the present day Arab countries, large or small, are therefore expected to retain their separate identity, with their present borders unchanged, however *unsystemic* they might appear to others.

*d) **Africa:** Victim of the 'scramble'.*

Africa, particularly the sub-Saharan and southern part of it, has been the worst victim of system distortion due to external interference. This region of the world suffered most during the colonial era, when colonial powers divided it between them. The resources of the region were plundered and the population treated no better than chattels. Human beings were caged, along with other wild animals, and could be bought and sold in open markets and transported to other parts of the world as slaves.

As mentioned earlier, the boundaries of different States of present day Africa were decided on the drawing table in Europe through negotiation and exchanges between the colonial masters, completely ignoring the systems imperatives. (See Fig.1.1 in chapter 1) With few exceptions, most of these States are administrative regions having only little national identity or systemic integration.

Like the Arab world, here also the *forces of status quo* have grown in all the States. So much so that the organisation of African Unity (OAU) has decided to retain the Statehood and boundaries of all the existing States unchanged, giving official seal to the status quo.

However, in spite of such a mandate, legitimising the State identities has not been effective in restraining tribal and ethnic clashes in many of the countries in the region. Africa remains an open battle ground of ethnic and tribal confrontations.

*e) **Germany, Vietnam and Yemen:** Return to the systemic reality.*

In the aftermath of the Second World War Germany, Vietnam and Yemen were divided, each into two separate 'Nation States'. Different ideological orientations were introduced and practised to develop their separate identities, although they were singular units, having common language, common ethnic origin, common history and territorial integrity.

However, the centripetal forces were too strong to be subsumed or contained by such ideological trappings and all the three countries are now united again. The superimposed boundaries have disappeared.

*f) **Korea:** A nation divided by barbed wire.*

Korea is another glaring example of bifurcation of an age-old nation into two, through external dictates. The two parts have been put under completely opposite types of political culture, one having a hard-line communist regime and the other being a model of capitalistic open market economy. Separated by 'barbed wire', concrete fortification and heavily armed border patrols, these two countries are often at loggerheads representing the opposite camps of global polarisation.

However, the strong desire for re-unification reverberates on both sides and how long these barbed wires will be able to keep them apart is yet to be seen.

*g) **Demise of Yugoslavia:** Reappearance of the fault lines*

Yugoslavia was an example of the integration of several spatial systems into one, through regimentation. After 50 years it has now disintegrated unleashing one of the bloodiest ethnic feuds of our time. This again shows the folly of negating national identities and trying to amalgamate several nations into one.

*h) **Kurds and Armenians:** Nations splintered.*

Kurds in Middle East and the Armenians in the Balkans are two historic nations who lost control of their land and have been splintered into several segments and distributed to different Nation States dominated by other ethnic nationalities.

The Armenians have at last got hold of a small tract of land to call their homeland; the Kurds are still wandering at the borders of Turkey, Iraq, Iran and Syria. This situation is also a creation of external interference after the fall of the Ottoman empire, when the victors Balkanised the entire Middle East, but, left no room for the Kurds.

This remains a perpetual problem for the region.

j) Sri Lanka, Israel-Palestine: The Siamese twins

Sri Lanka and Israel-Palestine are current examples where two separate national identities are fighting over the same territory. The origins of the conflicts are different, but their systemic nature is identical. The lands under dispute are not large enough and therefore the fight is more intensive.

**k) Kashmir, Assam, Nagaland, Manipur, and Punjab:
India's simmering volcanoes**

In India, several nations and nationalities are engaged in relentless struggle against the authority of Delhi. These simmering volcanoes make the situation highly unstable and pregnant with possibilities of future changes.

9.3 THE GLOBAL MODELLING AND THE STATUS OF 'NATION STATES'

Looking at the above description of system distortions around the world, which is however not a comprehensive one, the obvious question arises as to how such systemic distortions might be removed or overcome. It is also a pertinent question whether any attempt to 'intervene' in these problems is at all worthwhile.

One of our basic assertions in this study is that Nature is certain to press hard for the restoration of its own systemic order and that any system distortion is bound to face this pressure. How long human interference on such distorted systems can withstand that pressure of *Mother Nature* will vary from circumstance to circumstance. However, the eventual victory of nature and her systemic imperatives is a certainty that has been demonstrated time and again.

9.3.1 Shall the 'State' wither away?

It is alleged that tiny spatial entities admitted to the UN as 'sovereign Nation States' are nothing but pawns in the hands of their promoters. The presence of a large number of such *proxy* states vitiates the decision making process of the world body. On the other hand, there are many spatial units much larger than many of these mini or micro States and with systemic qualities that make them genuine and strong candidates for separate Nation

State status, presently subsumed within larger States, thereby having no direct voice at the global level.

Over the last half a century or more, especially since World War II, the general practice at the international level was towards meticulously honouring the sovereignty of Nation States, large or small, from a concern towards global peace and order. However, the recent tendency appears to be somewhat different, undermining the Nation States and the promotion of generalised global orders, the catchword being 'globalisation'.

The demise of the Soviet Union, bringing an end to the cold war, has deprived the so-called third world countries of the narrow leeway they had so long enjoyed along the frontier between the two superpowers. Today the monopoly of capitalism manifested through the onslaught of 'globalisation' appears to be out to undermine the Nation States in all spheres and make them virtual nonentities, excepting the few, who remain the principal actors on the global scenario. To quote the *La Monde Diplomatique*, (July 1997).

" ... in the cabaret of globalization, the state goes through a striptease and by the end of the performance it is left with the bare necessities only; its powers of repression. With its material basis destroyed, its sovereignty and independence annulled, its political class effaced, the nation-state becomes a simple security service for mega-companies.... The new masters of the world have no need to govern directly. National governments are charged with the task of administering affairs on their behalf."⁴⁰⁶

This succinct observation on the present status of Nation States will be all the more reinforced by the recent Gulf War episode, which has clearly demonstrated the erosion of the concept of Nation State sovereignty.

However, in spite of such pessimism, perhaps the time has not yet come to write off the pivotal position of the Nation State in the global space administration. Rather it may be taken as the new phase of the confrontation between the concepts of the uni-polar and the multi-polar global orders. This fight will perhaps dominate the global scenario for a long time to come, and the Nation States will remain the principal tools of international interactions. Even if the superpower politics makes them pawns on the chessboard, the game cannot run without them.

Looking from the systems perspective, as we have mentioned earlier, the development of the Nation State system has been a novel step forward in finding a workable hierarchical level of

⁴⁰⁶ As quoted by Z. Bauman (1999), op. cit.

spatial conglomeration, much needed for the smooth functioning of the human interactive systems around the world. Especially for those who would like an equitable distribution of the finite resources of the world from an egalitarian approach and desire to see the survival of the human species as a multicultural and multinational combination, the survival of the 'Nation States', in whatever form, constitutes the last hope.⁴⁰⁷

Therefore, we maintain that in spite of the contrary trends of the present time, Nation States will continue to remain the pivot of global space administration.

9.4 WORLD ORDER FROM SYSTEMS THINKING

In spite of the messiness of the spatial systems around us, it is not without reason that we look for 'isomorphies'⁴⁰⁸ all over the earth surface. Identifying the common traits and the interactive relationships between the building blocks of our earth surface is essential to harmonise our egocentrism and ethnocentrism, which would, otherwise, fragment the world habitat into a myriad of minuscule identities, fighting each other like hungry vultures.

If we consider that 'there is *only one real system* on the planet earth, that is the entire planet', then could we solve all our problems and crisis by having a single *World State*?

Boulding (1987) cautions us in this regard. In his words,

'... a federal government did not prevent the United States from having a civil war. Indeed, sometimes governments actually incite civil wars and make them more possible'.

This may be said of many present-day Nation States also.

Thus, a World State as such may not necessarily be the answer to the global management crisis. The answer actually lies in *harmonising* its units or building blocks in a *proper configuration* in order to achieve a *desired goal*.

Now, what shall be the 'desired goal' of this 'world order'? And what do we mean to be the 'proper configuration'? We refer to Boulding (1987) again:

'...if the United States had divided into two countries, north and south, at the time of the revolution, it is doubtful whether there would have been a war between them over slavery. Each would have

⁴⁰⁷ We refer back to Churchman – quoted in Chapter 1, section...

⁴⁰⁸ 'There are isomorphies all around us'.....Bartalanffy (1973).

continued in its own way and the south would have eventually abandoned slavery in just the way Brazil did'⁴⁰⁹.

Here comes the necessity of determining the observer's own 'world view' -- the *weltanschauung*. And the most intriguing question at this point is to decide what shall be the *aim* or *purpose* of the segmentation of the earth surface into different blocks.

In chapter 6 we have noted different types of spatial units based on their divergent purpose. We have mentioned 'Nation States' to be the 'pivots' of the global system at large. But, on what basis shall a given population be called a 'Nation' and what will be the yardstick for drawing the territorial boundary of a Nation-State?

Theoretically, all the members of United Nations are 'equals', although their territorial-demographic sizes or economic and military strengths differ so widely. A tiny island State with a few million people sits on an *equal (!)* footing at the General Assembly of the UN, alongside the giants like the USA, China, India, or, Russia.

However, this so-called 'sovereign equality' is not reflected in the real world. In reality, our present UN system is dictated by a 'Security Council', which is again dictated by only five of its permanent members who have 'veto' powers. With this veto power these 'big five' can force any decision on the world body. This provision of having only five permanent members armed with 'veto' power reflects the real power structure of the post war world order.⁴¹⁰ For all practical purposes, the five permanent members of the UN Security Council are the final arbiter of the destiny of the present world and constitute the Apex of the global organogram⁴¹¹.

This has left the whole of Asia outside China, along with Africa and Latin America out in the cold. In other words, the present global order, particularly the security system, is nothing but the manifestation of the world view of the victors of World War II, which in no way reflects the geographical or demographic reality of the earth surface.

It may be argued that the ideal arrangement would have been to divide the world into regional blocks of *comparable* strength having

⁴⁰⁹ Boulding, (1987) , *The World as a Total System*, Sage, London.

⁴¹⁰ The five permanent members of the UN with 'veto' power are: USA, UK, France, Russia and China. Eight other countries are elected to the council on a regional basis for two year periods, but without any 'veto' power.

⁴¹¹ There are opinions that the relative influence of the permanent members of the security council is diverse. Russia has lost influence, China has gained it, and France has membership only for historical reasons. If there is further integration within the EU, there may be demands for France and UK to be substituted by an EU delegate. Such rethink might lead to consideration of permanent membership for any substantial national confederation. Recent arguments in the EU about variable weighting of representation according to size and budget contribution) may also be spread.

distinguishable systemic traits and to give each of those blocks permanent membership of the Security Council with veto power.

Another answer to this problem may be the '*apportionment*' of the voting strength. Each Member State of the UN may be allowed voting strength based on an agreed evaluation of various aspects related to its population, size, economy and other important parameters. This will give appropriate leverage to the member states of all denominations and ensure better systemic reflection of the world order. Arguments in the EU in favour of variable weighting of representation according to the size (and budget contribution of concerned members) may be a pointer towards that.

9.5 THE 'REGIONALISATION' OF THE EARTH SURFACE: SDC IN THE GLOBAL CONTEXT

We have earlier noted several definitions of the word 'region' (see chapter 2). We have also pointed out that the very concept of 'region' depends, to a large extent, on the 'world view' of the observer and as such it may vary widely from observer to observer. However, if we look from the systems point of view, we may overlook those spatial conglomerates, which are merely assemblages of certain entities without any systemic interactive structures.

J. Feibleman and J.W. Friend identified two kinds of organisations, the 'agglutinative' and the 'participative' organisations. They define *agglutinative* organisations as those with the 'loosest form of organisation, where parts have only the spatial relation of contiguity and the more intimate relation which consists in the sharing of sub-parts by parts is absent.⁴¹²

We may concentrate only on those 'regions' which are 'participative', or conglomerates of spatial units which show appreciable systemic properties and thereby qualify to be examined as *systems*.

9.5.1 Why build regions?

There may be a pertinent question as to why we do at all build *regions*?

It has been observed that 'most interactions that occur in nature, between systems of all kinds, decrease in strength with distance.

⁴¹² J. Feibleman and J.W. Friend (1945), 'The structure and function of organisation', *Philosophical Review*, vol.54.

Any given *particle* has most of its strong interactions with nearby objects' (Simon, 1973).

This property is manifested in spatial systems also. We find that nearer spatial units have more interactions between themselves than with the distant ones. This makes *spatial contiguity* to be the most important factor in building regions and gives a scientific footing to the notion of *regions*.

However, this may not be always true. Many spatially contiguous units are found to have very low level of interaction between them. This is explained by the fact that, although interaction between contiguous units is most likely from a physical perspective, the actual interaction between different spatial units depends more on mutuality, complementarity and, in certain cases, compulsion. Where there is no such mutuality, complementarity or compulsion, two spatial units, even though contiguous, may not be *interactive*. On the horizontal plane such non-interaction or low level of interaction demarcates the natural boundaries of regional systems.

When we look to the vertical segmentation of space, we have a similar situation of low interaction at certain levels, and higher interaction at others. The concept of *hierarchy* comes to our rescue at this point.

We have discussed 'hierarchy' in chapter 2 and chapter 6. We have noted that , in the physical world we find an *atomic nucleus* to be made up of protons and neutrons and these elementary particles interact disposing energies of some 140 million electron volts each. On the other hand the covalent bonds that hold *molecules* together involve energies only of the order of 5 electron volts. The bonds of the tertiary structures of macromolecules, performing their biological activity, involve energies only around one-half of an electron volt--- another order of magnitude smaller (Simon, 1973).

According to Simon, this sharp gradation in bond strength at successive levels causes a system to appear *hierarchical* and to behave so.

Melvin Calvin (1967) explains the difference between an atom and a molecule in the following words: " An atom interacts at one energy level and molecules interact at the other."⁴¹³ This means, here we have two different *hierarchies*.

Although 'wholesale transportation' of the concepts derived from *hard* systems to the realm of *soft* systems is not advisable, we can, nevertheless, extend the concept of hierarchy, as noted above in

⁴¹³ Melvin Calvin (1967), in *Molecular Coding Problems*, Ramsey, Diane M., ed., New York.

molecular physics, to spatial systems as well, to justify the notion that different levels of spatial organisations, like the family, the local state, the Nation State, or the geo-strategic regions, have different operational *energy levels* and as such are clearly discernible.

Thus 'regions' of spatial units are not just mental constructs. They are 'systems' at different hierarchies.

9.5.2 Fixing the territorial hierarchies

One of the greatest dilemmas being confronted by political science is in defining and identifying of an *ideal* "Nation-State". Strict adherence to the text book tenets may either lead to the so-called "*Balkanisation*", by splintering and distributing the space on a horizontal frame to a myriad of nationalities craving for self-identity. On the other hand it may invite "*over-centralisation*", through the vertical attachment of spatial units, submerging the smaller entities within bigger conglomerates, on the perceived notion that the bigger the conglomeration, the greater shall be the material development and advancement. In reality both *Balkanisation* and *over-centralisation* produce inefficient systems.

Considering the Nation-State as the pivot of our global organogram, it is pertinent to look at the wide divergence in their sizes and the consequent problem of equating the global interactions based on the 'sovereign' equality of the States, some being overwhelmingly big and some being tiny tots.

To look for the world order in the very next step, is too big a leap. This necessitates the introduction of intermediate *regional blocks*. In the same way, if a family is taken to be the basic unit at the bottom of the ladder, the Nation-State above stands too far away. We need the *local states* in between. Thus a hierarchical stratification of the spatial entities into several levels, starting from the "individual" at the bottom, to the "global State" at the top, appears to be essential for effective space administration. Consequent devolution of *sovereignty* to each of these levels of hierarchy, in proper proportions, gives us an integrated pattern of global order.

From systems thinking, hierarchies in a territorial configuration may very well be compared to any other systemic hierarchy. It has been found that the time required for a complex system, containing *k* elementary components, say, to evolve by a process of natural selection from those components, is very much shorter if the system is itself comprised of one or more layers of stable subsystems than if it is composed of discrete elementary parts only.

This gives us a strong theoretical argument in favour of federalism or 'local self governance' in the management of large and complex spatial systems.⁴¹⁴

9.5.3 The wide divergence in 'size'

Just as *Balkanisation* causes inefficiency to spatial systems, so does their unwieldy sizes.

There is an optimal size of any organism which is in accord with its structure and environment, which we have discussed earlier. We have also discussed the impact of size on a spatial system in section 5.1.1, where we have shown that the complexity of a system increases exponentially with the increase of its size.

Therefore *systems* demands that we find out the *optimum size* at every hierarchic level of space administration. Unfortunately, since the present State system around us has evolved through an anarchic process, we have all the odd sizes for the present day Nation States, some being tiny micro-states and some having the unwieldy size of early empires.

We have noted earlier that empires did not break down just because of the decline in their military prowess, but more for their unwieldy sizes, that demanded higher and higher inputs to face the ever increasing complexity of the regime.

That decentralisation of unwieldy organisations improves efficiency has been investigated by Starr (1976).

He has shown⁴¹⁵ that the administrative cost of large size organisations would be proportional to S^2 , where S is the size.

With decentralisation, where $S = s_1 + s_2$,
 $(s_1^2 + s_2^2) < S^2$

Thus size brings concentration of power: political, economic and military. It will be wishful to think that in the present world we can

⁴¹⁴ Simon (1973) gives an interesting parable depicting this phenomenon: "Two watchmakers assemble fine watches, each watch containing ten thousand parts. Each watchmaker is frequently interrupted to answer the phone. The first has organised his total assembly operation into a sequence of subassemblies, each subassembly is a stable arrangement of 100 elements and each watch, a stable arrangement of 100 subassemblies. The second watch maker has developed no such organisation. The average interval between phone interruptions is a time long enough to assemble about 150 elements. An interruption causes any set of elements that does not yet form a stable system to fall apart completely. By the time he has answered about 11 phone calls, the first watchmaker will usually have finished assembling a watch. The second watchmaker will almost never succeed in assembling one-- he will suffer the fate of Sisyphus. As often as he rolls the rock up the hill, it will roll down again".

⁴¹⁵ Martin K. Starr (1976), 'The logistics of size' in *World Modelling: a Dialogue*, op.cit.

ask the larger countries to downsize themselves. However, we may look for systemic reorientation to negate the adverse impacts of 'size' on the global order.

9.5.4 The EU : setting the pace

As we emphasise the importance of regional groupings of 'Nation States', we have the current experience of the European Union before us as a ready example. Europe has seen inter-State conflicts over the last several centuries more than any other part of the world. Having gone through that costly experience, European Nations have, over last half a century, gradually moved forward to what has now emerged as the '*European Union*'. It has been a long way starting from the 'European Coal Union' of the 1950s.

Initially there was so much scepticism and resistance. Even today there are stiff resistance from a wide segment of population in the member countries against the monetary union, the single currency issue. The latest example is the overwhelming 'NO' by the Swedish electorate on the issue of single currency. This, however, strengthens our hypothesis. It reflects that in spite of the regional unions, the 'Nations' can not be undermined. If we try to do that, if there is any move to efface the 'Nation States', there will be the inevitable back-lash that will take us back to square one.

In Europe today, 'National identities' have been, more or less, sorted out. There remains still a few issues un-resolved. But, that should not hamper the overall conglomeration. Rather, now there is genuine chances of resolving them. The EU can act as the umbrella for the weaker and smaller identities.

In to days Europe, alongside the consolidation, we also find ready examples of devolution. The recognition of the separate identity of Scotland and Welsh region within the united Kingdom may be cited in this regard.

Thus SDC is already an ongoing process in Europe, which may be the role model for the rest of the world.

9.6 THE COSMIC CONTINUUM

In This analysis of the stratification of the 'social world' starts from the *individual* human beings forming *family*. Taking it as the rudimentary unit or the elemental building block of the societal setting, the next higher hierarchical level in our journey upwards is the *locality* where the family entrenches its root, which may be termed the '*local state*'. By this term we denote all the tiers of

administration, below the *Nation State*, exercising limited authority, delegated by the Sovereign State.

The transition from the 'family' to the 'local state' is not only a *quantitative*, but also a clear *qualitative* change. The family is a 'kinship' based unit, while the local state is a 'habitat' based unit. Sir Henry Maine and Lewis Morgan argued in the late nineteenth century that a fundamental transition in political terms is that of the transition from the kin-based to the domicile or habitat based group. Interestingly, we can identify the characteristics of those early stages of human organisations even today in our present day family structures and the local states.

Even today, a family is a mini-state with its own sovereign, the head of the family, who is a virtual dictator to his wards. Still remaining kinship-based, the family has not changed much from what a family was during the early days of hunting-gathering, so much so that even today the head of the family or the other earning members go out daily from the family hearth to fetch necessities for others within the family.

Today the 'hunting-gathering' family cannot survive in isolation. It has to get linked to a wider spatial system in its immediate surroundings for protection, as well as sustenance. Till the medieval period, when interaction between human groups was limited only to the requirements of survival and reproduction, local states (the villages) were enough to sustain human existence and satisfy all basic human needs, which could be sustained even in virtual isolation, at least to a large extent. Even under the kings and mighty emperors the basic units of the human societies remained virtually unaffected by the regal turmoil at the top.

However, with the march of civilisation human needs increased exponentially, with more and more demands on the meagre resources on the earth surface. This has necessitated intrusion or expedition into others' territories for exploitation to replenish the gap between supply and demand, or for mere aggrandisement. At this stage, the local state, the quiet villages, needed protection from such intrusions or aggression. And the 'State' is born, first in the form of serfdom, then kingdoms and finally the modern 'Nation States'.

Once the State is born and as days go on, the number of States increases and their interaction grows, both extensively and intensively. Today, in the world at large, a Nation State has to face competition with other similar entities, which becomes more and more severe day by day. As no man could live stranded, no family could survive in isolation, no local state could sustain by itself, so

the Nation State today also can not just close its borders and be on its own.

Regional groupings of Nation States are, therefore, the inescapable necessity of the day. It is only through a properly identified and organised hierarchy of 'regional groupings of States' that we may travel to the global apex smoothly and *systemically*.

Only then are we in a position to build a 'cosmic continuum' (**Fig. 9.5.A and 9.5.B**).

9.7. A NOTE OF HOPE FOR SYSTEMICITY

Although systems thinking /systems practice is now found to be spreading up into newer arenas, the enthusiasm and great expectations that reverberated the systems domain, a decade or two earlier, appears to be somewhat dampened in recent years. Several universities have closed down their Systems Science departments for lack of funding. Systems thinkers and practitioners are found to lament the situation, especially for the lack of support from the universities and other funding authorities.⁴¹⁶

However, lack of support from the present day commercialised educational institutions does not signify that the philosophical foundation of systems thinking has lost its ground. This should be taken as a natural trend of the *commercialisation* of education in general. For example, there are not very many practitioners in philosophy, but that does not mean that philosophy will ever be abandoned, or we can do without it. Present situation of systems thinking may be looked from a similar viewpoint.

The way to the rejuvenation of systems thinking and to make a popular discipline is to find new and more important areas of application, especially in such areas that concern the humankind most.

Application of systems thinking in the resolution and improvement of problem situations of organisations, such as the

⁴¹⁶ Checkland, Peter (2002)

Level-6	Super-Meta-System	World System
Level-5	Meta-Meta-System	Regional conglomerate
Level-4	Meta-System	Nation State
Level-3	Structure System	Province/state
Level-2	Generative System	Locality
Level-1	Data System	Family
Level-0	Source System	Individual

Fig. 9.5A Hierarchy of spatial systems
Following the *Architecture of systems problem solving* ,(Klirr, 1985)
As described by Flood and Carson (1988)

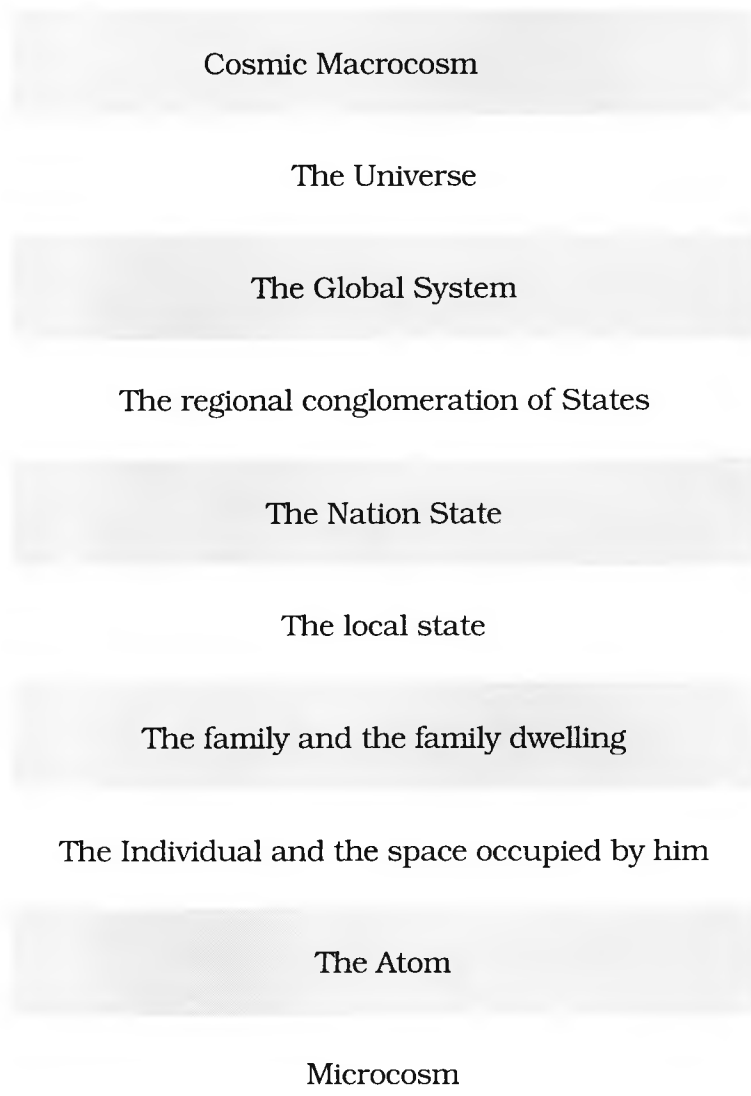


Fig. 9.5B The Cosmic Continuum

multinationals, government departments like national health care, social services etc., are not to be undermined. These are the practical laboratory and testing grounds for systems approaches, ideas and prescriptions.

However, as an academic discipline systems science must also a wider expanse of its application in line with egalitarian concerns held by most of the systems thinkers making it 'value oriented'. A systems thinker can not remain satisfied only by certain 'multinationals' to increase their global reach or margin of profit, or by just helping any other organisation to improve its working. For systems thinking, on the whole, this may be self - defeating.

Systems thinking is needed where the usual scientific methods of evaluation or mensuration fail. We face such situations everyday in our societal arena.

Thus, systems thinking may find a very useful application in spatial management, which has been highlighted in this study. Systems practitioners should give a serious attention to this area. Global, regional, national and local societal issues may be viewed from the holistic perspective of systems science and appropriate theories and methodologies may be developed to address them. It is true that systems thinking delves very often into hypothetical, conceptual and notional exercises, which can not be handled by clear and well defined scientific measurement.. But, in real life situation one has to encounter such 'soft' issues regularly, which one can not ignore or avoid just because enough concrete data is not available.

Dennis Meadows, who is credited for the 'Club of Rome' report, *The Limits to Growth*, admitted that 'only about 0.1% of the data on the variables required to construct a 'satisfactory world model' was available at the time the report was prepared.⁴¹⁷ However, even with that limitation his report stirred the world. Even those who criticised it as a work of 'Malthus with a computer' do not hesitate to admit that:

' As a result of reading *The Limits to Growth* many people are now thinking anew about long-term problems and discussing them much more seriously. (it) has done a great deal of good in compelling social scientists to re-examine some of their assumptions and in exposing the limitations both of data and satisfactory explanatory theories for some of the most important social mechanisms.'⁴¹⁸

⁴¹⁷ See Chrostopher Freeman (1973), 'Malthus with a Computer' in *Thinking about the future: A critique of the 'The Limits to Growth*, H.S.D.Cole et. al. eds. Sussex University Press, Chatto & Wndus Ltd., London

⁴¹⁸ *ibid.*

Leaving everything else aside, *'The Limits to Growth'* report has aroused tremendous general consciousness on environmental issues around the globe and this is certainly a worthwhile contribution towards the global awakening, the club of Rome may rightly claim. Systems thinking has already treaded much ground and systems thinkers have already built a conceptual and operational construct available for use in various fields. Fortunately, using various methodologies are available to look to different 'soft' and complex issues.

Thus, systems approach can work with a much wider data matrix than what was available to the club of Rome'. Therefore, this discussion may be concluded with a note of hope for systemicity.

9.8 SUMMARY

In this chapter discussions have been undertaken on some of the concepts developed in the previous chapters. An attempt has been made to generalise those concepts to be applied to the world system at large. There has also been an attempt to extend certain laws of physical science to the realm of spatial administration.

Special computer programs need to be developed to handle the TIDEX analysis and draw SEM and OEM for the spatial units, real and hypothetical, around the globe. Such programs should be capable of listing and evaluating the elements, sets, sub-sets and factors, with necessary features to handle time variance, weightage, surge, factor 'X' etc., capable of refining the initial results through iteration and recursion.

Such a program shall make evaluation of the efficiency of complex systems quicker and more dependable. Evaluation of the hypothetical alternatives to the spatial configurations on the earth surface, as it is found today, looking from different perspectives will indicate the best possible configuration or combination thereof. Systemic incongruities deciphered by such analysis may therefore be addressed through SDC, and the problem situation improved..

However, studies covering such wide ranging systemic phenomena cannot be conducted by individual efforts. This calls for comprehensive projects with adequate logistic back-up and a concerted effort by experts pulled from different disciplines and professions.

Thus, it is a fit case for the appropriate World bodies and research organisations in the arena to come forward.

Chapter-10

SUMMARY AND CONCLUSIONS

"Now some of us realise that the business we are really in (systems thinking) was not providing with results – solution to inventory problems, waiting line problems, or allocation problems – but rather raising richer questions for people to consider, which is the essence of the creation process we all enjoy."

– C.W. Churchman⁴¹⁹

Introductory notes

The aim of this study, as described at the beginning, was to show that super-imposition of the boundaries of spatial units, particularly those of the Nation States, ignoring their system imperatives, hinders the efficiency of the system or systems concerned. It was also aimed at investigating a few specific cases of system distortions due to such boundary superimposition. A further aim was to look to the issue from a systems approach/systems thinking and suggest methodology to evaluate the efficiency of spatial systems and thereby identify the best possible system configuration for human spatial organisations and also suggest appropriate intervention.

The final aim was to look for the organismic equilibrium ensuring the maximum possible systemic efficiency at different hierarchical levels of spatial organisation in the present day world, starting from the lowest to the global order.

To achieve this goal, objectives were set to identify the nature of various types of boundary superimposition. Thereafter case studies were undertaken to look into two different types of boundary superimposition; one, where several distinct spatial systems are conglomerated into one single unit; another, where one singular system is fragmented and distributed to different politico-administrative entities. Another objective set was to develop a methodology to evaluate the efficiency of spatial systems, which may be used universally to identify system distortions due to the

⁴¹⁹ C.W. Churchman (1974) in the foreward to John P. Van Gigch, *s Applied General Systems Theory*, Harper and Row, London.

superimposition of boundaries. The methodology suggested includes dismantling the complexities of spatial systems by splitting them into hierarchies and then identifying the different entities constituting the system concerned. A method has been developed to evaluate and assign values to different system entities and finally computing them into matrices and models to be used for further investigation.

10.1 OBJECTIVES MET

The objectives of this study have been met in the following way:

(A) Various characteristics of boundaries and different types of spatial entities have been discussed and looked into from a systems point of view (Chapter 2) and the complexities of spatial systems have been dismantled and deciphered in a systematic manner by identifying the elements, sub-sets and sets constituting them (Chapter 5).

(B) Two case studies (Chapters 3 and 4) have been conducted. These have shown how improper delimitation of politico-administrative boundaries may either overburden the State with too much divergence or fragment natural eco-systems causing system distortions. Both cause unwanted and unnecessary complications in space administration resulting in loss of '*energy*' and consequent loss of '*efficiency*' to the system or systems concerned, eventually hindering the growth potential-- political, economic or societal.

(C) A methodology to project the *efficiency* level of spatial systems has been developed in the form of the 'Systemic Efficiency Matrix (SEM)' (Chapter 6). It has been shown that the efficiency of a spatial system is related to the rationale of its boundary fixation and that for the attainment of the optimum efficiency of a spatial entity system distortions caused by improper fixation of boundary must be removed or overcome.

D) To remove such incongruities both the 'hard' and soft' options have been studied. It has been found that the hard' option is to *physically redraw* the existing inefficient boundaries between neighbouring States so that their spatial configurations conform to their respective system imperatives. It is found that any such attempt is bound to unleash serious convulsions since all existing Nation States tend to preserve their status quo at all cost. To avoid this *hard* option a *soft* option has been proposed through a process of '**Simultaneous Devolution and Consolidation (SDC)**' (Chapter 7). This concept involves, on the one hand, downward devolution or delegation of sovereignty in the case of multinational States to all

of their constituent units that qualify for such delegation on the basis of SEM analysis. This step is to be matched by a simultaneous 'upward delegation' of sovereignty through the formation of *regional blocks* and making the boundaries of the spatial units concerned *porous and permeable*, as the specific situation demands. This may be achieved through the formation of *regional blocks* with 'upward delegation' of certain powers to the regional blocks through a process of consensus without compromising the sovereignty and national identity of the concerned Nation States.

(E) It has been demonstrated that system distortions due to superimposed State boundaries are not confined to one or two countries or regions only. It is a universal phenomenon. Therefore, it has been suggested that the results from the case studies conducted in this study may also be applied to the world at large, aiming at a ***global Organismic Equilibrium***.

10.2 CONTRIBUTIONS OF THE STUDY

This study has made contributions to knowledge, particularly in the field of systems science/systems thinking, in the following way:

a) Extension of the Paradigm of Systems Science:

Systems Science being a comparatively new discipline, its application to various fields, particularly those of Social and Political Science is not yet very extensive. The present exercise may be taken as another attempt to expand the paradigm of systems science, extending the concept of 'systems geography' to the realm of real world Geo-politics, particularly in understanding the dynamics of Nations and Nation States, both within and without, based on specific case studies.

b) Development of a methodology for the quantification of the 'efficiency' of spatial entities:

A methodology has been proposed to evaluate the efficiency of boundaries and thereby that of Nation States bounded by them. The application of the systems science paradigm to Geo-politics, particularly in quantifying the efficiency of different types of States and the analysis of the multifarious impacts of super imposed politico-administrative boundaries on the State systems, is new both in its approach and application.

c) Introduction of new concepts:

A number of new concepts, such as, 'Systemic efficiency Matrix (SEM)', 'Organismic equilibrium Model (OEM)', and 'Simultaneous Devolution and Consolidation (SDC)' have been developed and introduced in this study. A 'third stream of inquiry' has been suggested for SSM, to look into the 'collective unconscious' of the societal psyche, to improve the degree of fit of the social analysis.

d) Useful tools for future researchers and administrators

This study has also introduced certain new tools in analysing spatial problems. Future researchers may use these tools in addressing Geo-political systems. Future governments or administrators may find them useful in examining present politico-administrative arrangements or forecasting the outcome of any proposed re-arrangement, with lesser margin of error.

e) Advancement of a concept for global equilibrium:

The notion of Organismic Equilibrium Model (OEM), applied to different hierarchical levels of space administration, is a new concept aimed at suggesting states of *homeostasis* or *synergy* at different levels.

10.3 WHAT NEXT?

This study opens up a new area for investigations into the system distortions due to superimposition of boundaries at various levels. The South Asian case study may be a model for similar studies on system distortions in other regions of the world. The concept of SDC applied to different regions of the world with systemic distortions due to superimposed boundaries, should finally galvanise an approach towards an 'organic equilibrium' for the world order, through the development of regional blocks in the light of the present European Union model.

This study creates a new arena for the application of systems thinking for the identification of problem situations related to State boundaries and interstate boundary conflicts. National and International bodies may come forward to encourage researches and investigations in this direction and the necessary computer software may be developed for regional and global modelling of SEM, OEM and SDC, with proper institutional support.

10.4 CONCLUSION

In conclusion, it may be said that this study is a positive step towards understanding spatial systems and their hierarchical

stratification, starting from the atomic microcosm through to the universal macrocosm.

However, this study is only a step towards more extensive and intensive efforts to carry out SEM, OEM and SDC analysis for Nation States or any politico-administrative entity, to be undertaken by concerned national, regional or world bodies and research organisations. The results of such investigations may then be constantly improved and updated through repeated and regular scrutiny to attain a dependable accuracy. Newer means of communications and fast advancing computational technology, already available, or expected to be available in future, should make this task easier and the results being more and more dependable with the passage of time and thereby contribute immensely to the better administration and governance of space.

REFERENCES

- Abbas, B.M.(1982), *The Ganges Water Dispute*, UPL Dhaka
- Agnew, J. (1997), *Political Geography : A Reader*, Arnold, London.
- Ahmad, N. (1953), 'A Review of the Indo-Pakistan Boundary Disputes Tribunal, 1949-50' in *Geographical Review*, New York, Vol. XLIII No-3 July, 1953.
- Ahmad, N. (1968), *An Economic Geography of East Pakistan*, Oxford university Press, London.
- Ali, M. M.(1975), *History of the Muslims of Bengal*, Imam Muhammad Ib'n Saud Islamic University, Riadh.
- Ali, T. (1983), *Can Pakistan Survive?* , Penguin, London.
- Banerjee, S. (1984), *India's Simmering Revolution*, Zed press, London.
- Bakan, P. (1978), 'Two streams of consciousness: a typological approach' in *The Streams of Consciousness*, Keneth S. Pope and Jerome L. Singer (eds.), Plenum Press. New York.
- Bauman, Z. (1998), *Globalization: The Human Consequences*, Polity press, Oxford.
- Begum, K. (1987), *The Ganges Water Dispute*, UPL, Dhaka.
- Berrien, F.K.(1968), *General and Social Systems*, Rutgers University Press, New Jersey.
- Bertalanffy, L. von (1960), *The problems of life*, Harper Torchbook, New York.
- Bertalanffy, L.Von, (1973), *General Systems Theory*, Penguin, London.
- Bidwai, P. and Achin V. (2000), *The New Nukes: India, Pakistan and Global disarmament*, Signal books, Oxford.
- Bird, J. (1993), *The Changing World of Geography*, Oxford University Press, Oxford.
- Boulding, K. E. (1985), *The World as a Total System*, Sage, London.
- Bradley, B. (1906), *The Romance of an Easter Capital*, reprint 1975, Smith. Elder, London.
- Browney, T. A. (1903), *Geographical Account of the Countries Round the Bay of Bangal*, Temple, Richard E.. ed. Hakluyts Society, London.

Brunn, S. D. and Leinbarch, T.R. eds.,(1991) *Collapsing Space and Time, Geographic Aspects of Communication and Information*, Harper Collins, London.

Bunge, W.(1988),*The Nuclear War Atlas*, Basil Blackwell, Oxford.

Burlew, I. Von (1989), 'The bounding of a problem situation and the concept of a systemic boundary in soft systems methodology', *The Journal of Applied systems Analysis*, 16,35-41.

Calvin, M.(1967), in *Molecular Coding Problems*, Diane M. Ramsey (ed.), New York.

Carstairs, A. M. (1980), *A Short History of Electoral Systems in Western Europe*, George Allen & Unwin, London.

Census of India Report (1961). Vol 1, Part xi c(1).

Chatterjee, S. K. (1975), *The Origin and Development of Bengali' Language, Vol.III*, Rupa & Co., Calcutta.

Checkland, P.(1981), *Systems Thinking, Systems practice*, Inter Science, John Wiley & Sons, New York.

Checkland P. (1983), "OR and the Systems Movement – mapping and conflicts", *Journal of the Operational Research Society*, 34, 661-676, as quoted by Mingers (2002).

Chckland, P. and Scholes, J. (1991), *Soft Systems Methodology in Action*, John Wiley & Sons, New York.

Checkland, P. (2002), "Thirty years of Systems Movement" in *Systemist*, Vol. 24, No.2, December, 2002, pp:99-112.

Chestnut, H. (1982), 'Nations as large Scale Systems' in *Large Scale Systems*, Yacov Y Haimen, ed., North-Holland, Oxford.

Chorley R. J. and Haggett, P. eds.,(1967), *Socio-Economic Models in Geography*, Methuen, London.

Chowdhury, A.M. (1967), *Dynastic History of Bengal*, Asiatic Society, Dhaka.

Churchman, C.W. (1974),in the foreword to John P. Van Gigch's *Applied General Systems Theory*, Harper and Row, London.

Churchman, C.W.(1976), 'The niggling and the Grand' in *World Modeling: a Dialogue*, C. W. Churchman and R. Mason (eds.), North-Holland, Oxford.

Claval, P. (1994) in *Geography and Empire*, Anne Goldweska and Neil Smith (eds.), Blackwell Publishers, Oxford.

Collins, L. and Lapierre, D. (1975,1986), *Freedom at Midnight*, Vikas, New Delhi.

- Cohen, B. S.(1973, second edition), *Geography and Politics in a World Divided*, Oxford University Press, London.
- Cot, J.P. and Mounier, J.P. (1984), in *How to Compare Nations*, Mattei Dogan and Dominique Palassey eds., Chatham House, London.
- Coupland, R. (1944), *The Constitutional Problem in India*, Oxford University Press. London.
- Crane, R. I. ed. (1967), *Regions and Regionalism in South Asian Studies*, Duke University.
- Das, D. (1969), *India from Curzon to Nehru and After*, Rupa and Co., Calcutta, New Delhi.
- Das, B.S., (1983), *The Sikkim Saga*, Vikas, New Delhi.
- Dayal R.(1981), *An Integrated System of World Models*, North-Holland, Oxford.
- Davies, C.C. (1932), *The Problems of North-West Frontier*, London.
- de Blij, H. J. ed. (1967), *Systematic Political Geography*, Wiley, New York.
- Durkheim, E. (1964), *The Rules of Sociological Method*, Free Press, New York.
- East, W. Gordon (1967), *Geography Behind History*, Norton.
- Emery, F.E., ed. (1981), *Systems Thinking*, Vol-1, Penguin, London.
- Feibleman, J. and Friend, J.W. (1945), 'The Structure and Function of Organisation', *Philosophical Review*, Vol. 54.
- Flagle and Roy eds, (1960), *Operation Research and System Engineering*, John Hopkins Press, Baltimore.
- Flood, R. L. and Carson, E.R.(1988), *Dealing with Complexity: An Introduction to the Theory and Application of Systems Science*, Plenum Press, New York and London.
- Foin Jr. T. C. (1976), *The Ecological Systems and the Environment*, Houghton Mifflin, Boston.
- Forrester, J.W (1961), *Industrial Dynamics*, MIT Press, Cambridge, Mass.
- Forrester, J.W. (1971) *World Dynamics*, Wright-Allen, Cambridge, Mass.
- Freeman, C. (1973), "Malthus with a computer" in *Thinking about the Future: a Critique of the Limits of Growth*, H. S. D. Cole et al. eds. Sussex University Press, Chatto and Windus, London.
- Ganguly D.S. (1967), *Regional Economy of West Bangal*, Orient Longman, New Delhi.
- Gardizi, H. and Rashid, J. eds. (1983), *Pakistan the Roots of Dictatorship*, Zed Press, London.

- Goldweska, A., and Smith, N. eds. (1984), *Geography and Empire*, Blackwell Publishers. Oxford.
- Gordon, L. A. (1974), *Bengal: The Nationalist Movement 1876-1947*, Columbia.
- Gotthold, J. J. and Gotthold, D. W. (1988), *Indian Ocean Bibliography*, Clis Press, Denver.
- Gottman, J. (1951), 'Geography and International Rrelations' in *World Politics*, New Haven, London.
- Graphosman World Atlas (2003), *Graphosman*, Dhaka.
- Gray, W. and Rizzo, D.R. eds. (1973), *Unity Through Diversity: A Festschrift for Ludwig von Bertalanffy*, Vol-1, Gordon and Breach, New York.
- Gregory, K.J. (2000), *The Changing Nature of Physical Geography*, Arnold, London.
- Huggett, R. (1980), *Systems Analysis in Geography*, Clarendon Press, Oxford.
- Haggett, P. and Chorley, P.J. (1987) 'Models , Paradigm and New Geography' in *Socio-economic Models in Geography*, Richard J. Chorley and Peter Haggett eds. , Methuen, London.
- Haimes, Y. Y. (1979), 'Nation as large scale systems' in Harold Chestnut ed. *Large Scale Systems*, North Holland, New York..
- Haimes, Yacob Y., Ed.,(1982), *Large Scale Systems*, North Holland, New York.
- Hatry, H. P. and John F. C. (1967), *Program Planning for State, County and City*, George Washington University, Washington.
- Henderson, G and Lebow, R.N. (1974), *Divided Nations in a Divided World*, David Mckay, New York.
- Herodotus, *The Histories*, Translation: Robin Waterfield (1988), Oxford University Press, London.
- Hodson, (1969), *The great Divide*, Penguin, London
- Hossain A.B.M., ed., (1977), *Mainamati-Devparvata: a Survey of Historical Monuments and Sites in Bangladesh*, Asiatic Society of Bangladesh, Dhaka.
- Hugget, R. (1993) *Systems Analysis in Geography*, Clarendon Press, Oxford.
- Huntingford, W.B. ed. (1980), *The Periplus of the Eritrean Sea*, (Scoff's Translation, 1912), Hakluyts Society, London.

- Huntington, E. (1951), *Principles of Human Geography*, New York
- Huntington, S. P. (1993), 'The Clash of Civilizations?' in *Foreign Affairs*, Vol. 72 (summer issue), pp-22-49...
- Huntington, S. P. (1996), *The Clash of Civilization and Remaking of the World Order*, Penguin, London.
- Ibn Khaldun, (1958), *Al Muqaddimah: an Introduction to History*, English translation: Franz Rosenthal, Bollinger Foundation, New York.
- India, A Reference Annual*, (1973), A Government of India Publication, New Delhi.
- Jackson, M. C. (1991), *Systems Methodology for the Management Sciences*, Plenum Press, New York.
- Jane's Information Group Report, 1997.
- Johnson, B.L.C. (1969), *South Asia*, Heinemann Educational, London..
- Johnston, R. J. (1979), *Political, Electoral and Spatial Systems*, Clarendon Press, Oxford.
- Jones, A. (1967), in *A Common Perspective for the North-east India*, Panna Lal Dasgupta (ed.), Calcutta.
- Kamal, K.L.(1982), *Pakistan: The Garrison State*, Intellectual Publishing House, N. Delhi
- Kennedy, P. *Preparing for the Twenty First Century*. New York.
- Khan, A.(1983), *Generals in Politics*, UPL, Dhaka.
- Khan, W. (1987), *Facts are Facts*, UPL, Dhaka.
- Kirstof, L.K.D. (1967), 'The nature of Frontiers and Boundaries' in de Blij, H. J. ed. *Systematic Political Geography*, Wiley, New York.
- Koestler, A.(1973), 'The Tree and the Candle', in *Unity Through Diversity*, William Grey and N.D. Rizzo (eds.), Gordon and Breach, London.
- Koutilya, *The Artha Shastra* (The Economic Principles), Translation: L.N. Rangarajan, (1992), Penguin, London.
- Kramer, N.N.T.A. and de Smit, J. (1977), *Systems Thinking*, Martinus, Leiden.
- Laszlo, E.(1969), *System, System Structure, & Experience: Toward a Scientific Theory of Mind*, Current topics of contemporary thought sreies. Vol.1, Gordon & Beach, London.
- Laszlo, E. (1981), *The Systems View of the World*, Braziller, New York.
- Laszlo, E. (1972), *Introduction to Systems Philosophy*, Gordon and Breach, London.
- Laszlo, E. (1982), *Systems science and World order*, Selected Studies, Pergamon, Oxford.

- Leavitt, H. J. (1972) *Managerial Psychology*, The University of Chicago Press, Chicago.
- Lebon, J.H.G.(1970), *An Introduction to Human Geography*, Hutchinson, London.
- LeVine, R. A. and Campbell. D.T. (1972), *Ethnocentrism: Theories of Conflict, Ethnic Attitudes and Group Behaviour*, John Wiley & Sons, New York.
- Lifshultz, L.(1979), *Bangladesh, The Unfinished Revolution*, Zed Press, London.
- Lijphart, A.(1984), *Democracies: Patterns of Majoritarian and Consensus Governments in Twenty-one Countries*, New Haven, London.
- Macrane, I. D. (1965), *Race Attitude in South Africa*, Oxford University Press, London.
- Mackinder, H. J. (1904), 'The geographical pivot of history', *Geographical Journal*, 23.
- Majumdar D.N. (1944), *Race and Culture in India*, Lughnow.
- Majumdar, R.C.(1943), *History of Bengal*, Vol.1. Dhaka University, Dhaka.
- Majumder R.C.(1971, *History of Ancient Bengal*, G. Bhardwaj & co, Calcutta .
- Majumder R. K. (1957), *The Sepoy Mutiny and Revolt of 1857*, Calcutta.
- Mason, R. O. (1976), 'The search for a world model', in *World Modeling: A Dialogue*, C. West Churchman and Richard O. Mason (eds.), North-Holand, Oxford.
- Meadows, D.H. and Meadows, D. L. eds.(1972), *The Limits To Growth*, Pan Books Ltd, London.
- Menon V.P, (1957), *Transfer of Power*, Sangam Books, New Delhi.
- Mingers, J. (2002), 'An idea ahead of time: the history and development of soft systems methodology' in *Systemist*, Vol 24, No. 2 pp-113-139.
- Mishra, R.N.(1984), *Regionalism and State Politics in India*, Ashish Publishing House, New Delhi.
- Mollah M.K.U.(1981), *The New Province of Eastern Bengal and Assam*, IBS, Rajshahi University, Rajshahi.
- M'Pherson, P.K. (1974), 'A perspective of systems science and systems Philosophy', *Future*, 6(3)
- Myrdal, G. (1957), *Economic Theory and Underdeveloped Region*, Duckworth, London.
- O' Tuathail, G. (1996), *Critical Geopolitics*, Routledge London.

O'Tuathail, G. et al. eds., (1998), *The Geopolitics Reader*, Routledge, London.

Oxford School Atlas, (2002), Oxford University Press, New Delhi.

Pahl, R.E. (1967), 'Sociological models in Geography in *Socio-economic Models in Geography*, Richard J. Chorley and Peter Haggett eds., Methuen, London.

Patil V.T. (1984), *Jawaharlal Nehru and the Cripps Missions*, B.R. Publishing Co., New Delhi.

Patte, H.H.(1973), *Hierarchy Theory : The Challenge of Complex Systems*, Braziller, New York.

Pill, J. (1971), 'The Delphi Method, Substance, Context', in *Socio-economic Planning Science*, 5, No.1 (Feb. 1971)

Pounds, N. J.G. and Ball, S. S. (1964), 'Core area and the Development of European State System' in *Annals of the Association of American Geographers*, Vol. 54, (March, 1964), pp-24-40..

Prescott, J.R.V.(1987), *Political Frontiers and Boundaries*, Unwin Hyman, London.

Quarishi, F. A., (1987), *Christianity in the North Eastern Hills of South Asia: Social Impact and Political Implications*, University Press Ltd. Dhaka.

Rahman, A. ed.(1987), *Bangalee Jatiotabad*, UPL, Dhaka.

Rao, K.L. (1976), *India's Water Wealth: Its Assessment, Uses and projections*, New Delhi.

Rapoport, A. (1986), *General System Theory*, Abacus, London.

Rashid, H.(1978), *Geography of Bangladesh*, Westview Press, Boulder, Co.

Rice, S. (1958), *Hindu Customs and their Origins*, Calcutta.

Risley, H.H, (1891), *The Tribes and Castes of Bengal*, W. Thaker and Co., Calcutta.

Risley, H.H. (1908), *The people of India*, W. Thaker and Co. Calcutta.

Robinson, R., (1973), 'Non European foundations of European Imperialism: Sketch for a theory of collaboration', in R.Owen and B. Sutcliffe (eds.), *Studies in the Theories of Imperialism*, Longman, London.

Rokkan, S., (1975) 'Dimensions of state formation and nationbuilding: a possible paradigm for research or variations within Europe' in C. Tilly (Ed.), *The Formation of Nation-States in Europe*, Princeton, N.J.

Roy, J. (1895), *Phillip Mahan's Account of the Kingdoms of Bengala (Bengal)*, Asiatic Society, New ser. London, vol. XXVII.

- Roy, N. R. (1949), *Banagaleer Etihash* (History of Bengalee Nation), Calcutta.
- Rushbrook, W. L. ed. (1975), *Introduction to India, Pakistan, Bangladesh and Sri Lanka*, London.
- Russell, B. (1938), *Power, A New Social Analysis*, Allen and Unwin, London.
- Samuels, A. (1985), *Jung and Post Jungians*, Routledge and Kegan Paul, London.
- Scumacher, E.F. (1973), *Small is Beautiful: Economics as if People Mattered*, Harper and Row, New York.
- Schweinitz, K. de. Jr. (1983), *The Rise and Fall of British India*, Methuen, London.
- Sengupta, K.P. (1971), *The Christian Missions in Bengal*, Calcutta.
- Shiva, V. (1993), 'The greening of the global reach' in *Global Ecology: A New Arena of Political Conflict*, Zed Press, London.
- Simon, H. A. (1973), 'The Organisation of Complex Systems', in *Hierarchy Theory*, Howard H. Patte (ed.), George Braziller, New York.
- Spate, O.H.K.(1948a), 'The Partition of India and the Prospects of Pakistan', in *Geog. Rev.*, New York, vol. XXXVIII-1, January, 1948.
- Spate, O.H.K (1948b) 'The Partition of Punjab and Bengal' in the *Geography Journal*, London, Vol. No-4-6, April 1948.
- Spate, O.H.K. (1965), *India and Pakistan*, Methuen, London.
- Spate, O.H.K. and Learmouth A. T. A. (1967), *India and Pakistan*, Methuen London.
- Spear, P. (1981), *History of Modern India*, Oxford.
- Spear, P. (1990), *A History of India*, Vol.2, Penguin, London.
- Stevens, A. (1990), *On Jung*, Routledge, London.
- Sumner, W.G. (1906), *Folkways*, Ginn, New York.
- Taylor, P.J. (1984), 'Introduction: Geographical scale and Political geography' in Peter Taylor and John Itonse (Eds.), *Political geography: Recent Advances and Future Directions*, Croom Helm, London and Sydney.
- Taylor, P. J. ed. (1993a), *Political Geography of the Twentieth Century*, John Wiley and Sons, New York.
- Taylor, P.J., (1993b), *Political Geography : World Economy, Nation State and Locality*, Third edition, Longman, UK.
- Thaper, R. (2003), *Early India: From Origin to AD 1300*, Penguin, London.

The Cambridge History of India, Cambridge University Press, Cambridge.
Vol. v, p-206

Thomas R.W. and Huggett, R.J. (1980), *Modelling in Geography, A Mathematical Approach*, Harper and Row, London.

Thurrow, L. C. (1996), *The Future of Capitalism*, Penguin, London.

Tinker, H. (1967), *Experiment with Freedom*, Oxford University Press, London.

Tuan, Yi-Fu (1974), Prentice-Hall, Englewood Cliffs, N.J.

Turrof, M.(1970), 'A synopsis of innovation by the Delphi Method', Paper presented to the *Operation Research Society of America*, Oct. 1970.

Vakil, C.N.(1950), *Economic Consequence of Divided India*, Vora & Co., Bombay.

Van Gigch, J. P. (1974), *Applied General Systems Theory*, Harper and Row, New York.

Werlen, B.(1993), *Society, Action and Space: An Alternate Human Geography*, Routledge, London and New York.

Ward, P. Von (1981), *Dismantling the Pyramid*, Delphi Press, Washington.

West Bengal, An analytical Study, (1971) Bengal Chamber of Commerce & Industry, Calcutta.

Williams, N. (1981), *Welsh Missions in Khasi Hills*, M.A. Dissertation, SOAS, London.