

T-113

~~11-3782140~~

ABSTRACT

VILLAGE DEVELOPMENT AND COMMUNICATION PATTERN: A FACTOR ANALYTIC TYPOLOGY OF SELECTED VILLAGES AND FARMERS IN THREE STATES OF INDIA

By

K. S. Sripada Raju

The present study deals with the village development dimensions and communication patterns in Andhra Pradesh, Maharashtra and West Bengal of India. Two levels of analyses are distinguished: (1) village as a systemic unit, and (2) individual farmer within the village as a behavioral system. The investigation attempts to provide answers to the following questions at the village level: (1) What are the empirical dimensions of the village development? (2) How do village social systems configure typologically along the dimensions of development? (3) What is the pattern of the outside-village communication linkages? At the farmer level, the following questions are answered: (4) How do within-village interpersonal communication structures, roles and integration among the farmers differ across different village types? (5) What types of farmers in what types of villages constitute what types of communication structures and roles in the interpersonal network?

Basic concepts such as communication process, network, role, linkage, development and modernization are explicated. The theoretical perspectives of agricultural development, modernization and social

change are considered to formulate relevant communication propositions. The general hypothesis is stated: Higher the degree of village development greater is its communication linkage with its environment. Specific empirical hypotheses are derived operationalizing the village development dimensions and communication linking roles. Some exploratory propositions are stated regarding the within-village communication attributes.

Phase I (1966) and Phase II (1967) survey of the Diffusion of Innovations in India provided the cross sectional data for the village and farmer analyses. For the village level study 108 villages were selected on a multi-stage sampling basis in the states of Andhra Pradesh, Maharashtra and West Bengal. Seven villages were studied as cases for farmer level study. The number of farmers ranged from 32 to 146 in each of the seven villages. The data were collected by personal interview with development functionaries, village leaders and farmers.

Eleven development dimensions were extracted from a set of 57 indicators assumed to measure the domain of village development by using R-Factor analysis. The study confirmed the similarity of village development dimensions found in an earlier study. Eight development dimensions were clearly interpretable: (1) Village general development, (2) Man-power-communication resources, (3) Leader change orientation, (4) Leader economic conservatism, (5) Institution handicap, (6) Agricultural development, (7) Primary education and mechanization, and (8) Mechanization with lack of post-primary education.

The external communication linkages of the more developed villages were positively maintained through the contacts of the agricultural development functionaries such as the Agricultural Extension Officer (AEO)

and the Village Level Worker (VLW) as also those of the village leaders. The role of the VLW was relatively strong and direct especially through the demonstrations in the agriculturally developed village whereas the direct linkage of the AEO was relatively weak.

The villages with more change-oriented leadership were not necessarily linked to the outside system through the development functionaries or through the village leaders. The villages whose leaders were more conservative in economic matters did not necessarily lack contact with the outside system. Primary education was not an important factor for establishing the communication contacts for the village with the external system. Presence of mechanization in the village established some external contact.

The Q-type factor analysis yielded three village types and eight farmer types. The case studies in each village type gave the following profiles of the within village interpersonal communication attributes:

The type I village had leadership less oriented to change, poor institutional facilities and a low level of agricultural development. This type of village showed a dominant regional syndrome of West Bengal. There were a large number of communication groups, small number of dyads, monads and chains. The interpersonal communication integration was medium. It had a large number of intergroup bridge roles, medium number of liaison and centrality roles. The group and dyadic heterophily was very high. Farmer type A (i.e., low in change orientation with moderate control over farm economic resources and a high degree of social participation) was likely to dominate as the group centrals. Farmer type B (i.e., high in change orientation with great control over farm economic resources and a

low degree of social participation) tended to dominate as the group peripherals and isolates.

The type II village had leadership less oriented to change but was endowed with better institutional facilities and a moderate level of agricultural development. This type of village indicated a regional syndrome of Andhra Pradesh. There were a large number of chains, dyadic and monadic structures but a small number of groups. The communication integration was low. The liaison, intergroup bridge and centrality roles were medium; the group and dyad heterophily was medium. The group central dominantly belonged to the farmer type D (i.e., high in change orientation with moderate control over farm economic resources and a high degree of social participation). The group peripherals also belonged to type D. The isolate monad belonged to farmer type F (i.e., modest disposition towards change with low control over farm economic resources and a low degree of social participation).

The type III village had leadership more favorable to change and a high level of agricultural development though endowed with moderate institutional facilities. This type of village showed a regional syndrome of Maharashtra. The village scored medium on group, chain and monadic structures while low on dyads. The communication integration was high. The degree of group and dyad heterophily was low. There was a large number of centrality, liaison and intergroup bridge roles. The type G farmer (i.e., high in change orientation with small control over farm economic resources and a moderate degree of social participation) occupied the group central role. The group peripheral also belonged to the type G. The isolate monad belonged to the farmer type H (i.e., low in change

K. S. Sripada Raju

orientation with a moderate control over farm economic resources and a low degree of social participation).

Communication implications for agricultural development are examined in the light of the typology of villages.

VILLAGE DEVELOPMENT AND COMMUNICATION PATTERN:
A FACTOR ANALYTIC TYPOLOGY OF SELECTED VILLAGES AND FARMERS
IN THREE STATES OF INDIA

By
K. S. Sripada Raju

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

1973

G94622

Copyright by
K. S. SRIPADA RAJU

1973

Accepted by the faculty of the Department of Communication,
College of Communication Arts, Michigan State University, in partial
fulfillment of the requirements for the Doctor of Philosophy degree.

Richard V. Farace
Director of Thesis

Guidance Committee: Richard V. Farace, Chairman

Carl K. Ecker

Randall P. Hamman

William C. Henry Jr.

Emilia M. Rosen

ಪ್ರೇಮ-ಭಾಸ ಮಾತೃಭಕ್ತಿ ನಡೆದ
ನನ್ನ ಕನ್ನಡದ ಅವ್ಯಾಸ
ಕುಟುಂಬದಿಂದ ಅರ್ಪಣೆ

Dedicated to
Seethamma, my Mother

ACKNOWLEDGMENTS

I must acknowledge my indebtedness to the tradition in India - symbolism, musicology, mysticism and philosophy.

Let me start invoking that awkward fat belly person, Lambodara who is the trouble shooter and solvent of all inquiry and action, and that colorful peacock-rider, Sharada, the inspiring source of all knowledge and conceptualizations. They provide all the spirit and strength to the farmer as well as to me: To the farmer, the subject of my study, to renew his self-reliant strength and cope with the vagaries of monsoon, market and political climate; to me to cope with the empirical data drudging process and the uncertainties of my experimental living cross-culturally, of which this thesis is only a tip of an iceberg.

In understanding the nature of reality and life, Sri Shankaralinga Bhagavan Saraswathi Paramahansa of Komaranahalli, Chitradurga District, Karnataka, India, who was himself an innovator par excellence (A. Raa. se., 1971, p. 36) and to whom my parents introduced me at my earliest age, has been my living light.

To keep up my spirits many hours I have spent listening to the musical compositions of Purandaradasa, Thyagaraja, Shama Shastry, Muthuswami Deekshitar, Swathi Thirunal, and Pattinattar sung melodiously by Srimathi M. S. Subbulakshmi.

I have spent many hours reading Shankara, Allama, Basava, and Mahadevi. They have kept me always renewed and refreshed in my study of rural and forest communities. That tradition has taught me the greatness of scholarship, the pragmatics and philosophy of communication. Professor M. H. Gopal and Professor S. V. Ayyar provided me a link to the scholarship in the United States. My scholarly friends Mr. Umapathi Sastry and Dr. B. K. Narayan helped me to sustain it. I am grateful to all of them.

It is said of scholarship [by Mammata (c1100 A.D.)]: A tiny drop of good quality work--that is enough for the scholars. Unknown to jealousy, they make that drop the very ocean and revel. In the Department of Communication I found such a community of scholars. I acknowledge my gratitude to them.

I express my grateful thanks to Dr. R. Vincent Farace, my thesis Director and Chairman of my Guidance Committee. He gave me very cordially all the help and recognized the academic freedom and time I needed to explore my ideas. Whenever I went to him with my load of problems written on my face, he decoded those nonverbal cues. His receptivity and enlightened conversation always put me at ease and invariably kept up my spirits; his constructive critique and counsel did always help me to strengthen my confidence and increase my competence.

Dr. Everett M. Rogers guided me in formulating my research proposal, getting access to the data, and was very largely responsible for my stay at Michigan State University. Both as the initial Chairman of my Guidance Committee, and as a Committee member subsequently he very readily provided advice in shaping my work amidst his very busy circuits

across the nations. In him I saw a rare co-existence of a demand for rigorous scholarship and an empathic affection for his students (sishya vaathsalya). The stream of students that come to him every day reminded me of the Upanishadic posture of a teacher: Let students seeking truth come to me like water flowing down the stream and like the days rolling into months and years (yathaa aapaha pravathaa yanthi, yathaa masaaha aharjaram eevam maam brahmachaarina). I express my gratitude and thanks to him.

To Dr. Carl K. Eicher, Dr. William A. Herzog, and Dr. Randall P. Harrison, members of my Guidance Committee I express my appreciation and grateful thanks for the stimulating discussions, critical reviews, comments and suggestions in my work. I must thank Dr. Clyde D. J. Morris who blew off cinders from my mind and Dr. Daniel B. Wackman who offered useful advice in the initial stages of my work.

I wish to thank the farmers in Andhra Pradesh, Maharashtra, and West Bengal for providing the data, the NICD-MSU-U.S. AID Project authorities for permission to use the data for my thesis. Dr. Prodipto Roy who drew my interest to the village level factor analytic study, Dr. Lalit K. Sen for his encouragement in my advanced studies, Dr. V. M. Mishra for the support when I needed it most, and Dr. Ronald G. Havelock for the research opportunities at the Center for Research on Utilization of Scientific Knowledge, Institute for Social Research, University of Michigan, Ann Arbor, while I was working there.

I thank Dr. L. Jaganmohan Rao, Dr. Krishna Kumar, and Dr. Dilip K. Bhowmik for their very friendly help. Dr. Rao and Mrs. Uma Rao offered extraordinary assistance when I was in dire need. Also I

thankfully acknowledge the aid and hospitality given by Mrs. Lalitha and Mr. M. Hanumanthaiya, Mrs. Nalini and Mr. M. Krishnappa, Mrs. Dakshayani and Dr. O. Ganesh, Mrs. Indu and Dr. Sathyanarayana Rao, Mrs. Kamala and Dr. R. Sathyanarayana, Mrs. Rupina and Mr. P. K. Prabhakar, and Mr. Ghanta S. C. Bose.

A Special note of thanks is due to Mr. S. N. Prakash and Dr. S. N. Bhat for their comradeship and conversations lit with wit and wisdom while we were working for Kannada Kuta, a cultural organization to keep ourselves in tact amidst cross-cultural currents. To Mrs. Lillian Manhart and her son Mr. Martin Manhart I express my appreciation and thanks for offering me an idyllic place in their lake-side home near Pinckney where I heard through the ripples of the lake in spring and summer, read through the colorful maple leaves of fall, saw in the snowy white landscape the message of Saraswathi, the muse of knowledge.

To the oak, the maple, the weeping willow, the Red Cedar river, the ducks, the squirrels, the robins, the cardinals, the bells of Beaumont Tower, that cheerful body of MSU students--and all the living and non-living entities in the beautiful Michigan State University campus, I owe a great deal for insight and inspiration.

I thank Mrs. Joanne Helfrich for her very ready help in computer programming. My appreciation and thanks are due to Mrs. Rita Weigers and Mrs. Ruth Langenbacher for their patience with my confused scripts (one of my friends had nicknamed me as Confusion Achar!), cooperation and very excellent typing. To Mrs. Judith Osborne, Miss Suzy Pavick and Miss Lynn Langenbacher I express my thanks for their courtsey and help.

To the great people of Miyapura and Thyavanagi (Karnataka, India) I owe a good deal for it is there, I became a part of the working farmer community and culture.

I can only acknowledge my deep gratitude to the great family in the shelter of Oudumbara (Miyapura, Karnataka, India).

To my sisters: Gowrakka and Shyamala, to my brother and sister-in law: Murthyanna and Pankajakshamma, to my nieces: Manju, Kumuda, Veena, Sandhya, to my nephews: Gurunatha, Nari, Valla, to my uncle and aunt: Narasimhakakka and Kakki, and to my great friends: Subbanna and all the Purohit brothers, I express my deep love, affection and admiration. I am grateful to them for taking care of my mother whom I could not serve in times of her need. It is she who brought home to me the meaning of Shankara's expression: "A bad son is sometimes born but never a bad mother" (kuputhroojaayetha kvachidapi, kumaatha na bhavathi), and Beveridge's expression: "Mothers are a long suffering race." With deep love and gratitude I dedicate my work to her.

To Smitha who communicated to me constantly so that I exist (sath) in cognition (chith) consistently cheerful (ananda) I say onakkam, an expression of affection, love, regard, thanks and all that.

TABLE OF CONTENTS

Chapter		Page
I	THE PROBLEM AND THE PURPOSE	1
	Statement of the Problem	
	The Purpose	
	Why This Study?	
	Information Needs of Modern Agriculture	
	Organization of the Thesis	
II	CONCEPTUALIZATION AND HYPOTHESIS	12
	The Approach	
	Necessary Conditions for Human Communication	
	Participating Systems	
	Communication Arc	
	Network Concepts	
	Necessary Conditions for a Human Communication Network	
	Components of a Human Communication Network	
	Characteristics of Networks	
	Communication Roles in Informal and Formal Organizations	
	Communication Roles in a Network	
	Communication Integration	
	Communication Participant Composition	
	Developmental Communication: Agricultural Development Theory Perspective	
	Social Change Theory Perspective	
	Agricultural Development Theory Perspective	
	Social Change Theory Perspective	
	Communication Propositions	
	The Hypothesis	
III	STUDY DESIGN, DATA SET AND METHODOLOGY	37
	General Study Design	
	Data Collection Methods	
	Sampling Procedure	
	Selection of Leaders (Formal and Informal)	
	Data Collection Instruments and Procedures	
	Concept of Development: Types of Variables	
	Variables Relevant to Village Development and Modernization	
	Village Development Variables	

Chapter III (cont'd.)

Chapter		Page
	Data Processing and Analytical Procedures	
IV	VILLAGE DEVELOPMENT DIMENSIONS AND EXTERNAL COMMUNICATION CONTACT	61
	R Factor Analytic Findings	
	Factor I - Village General Development	
	Highest Loadings	
	Other Loadings	
	Factor II - Manpower-Communication Resources	
	Highest Loadings	
	Other Loadings	
	Factor III - Leader Change Orientation	
	Highest Loadings	
	Other Loadings	
	Factor IV - Leader Economic Conservatism	
	Highest Loadings	
	Factor V - Institution Handicap	
	Highest Loadings	
	Other Loadings	
	Factor VI - Leader Economic Risk Orientation	
	Highest Loadings	
	Other Loadings	
	Factor VII - Agricultural Development	
	Highest Loadings	
	Other Loadings	
	Factor VIII - Land Resources and Tenancy	
	Highest Loadings	
	Other Loadings	
	Factor IX - Primary Education and Mechanization	
	Highest Loadings	
	Other Loadings	
	Factor X - Mechanization with Lack of Post- primary Education	
	Highest Loadings	
	Other Loadings	

Chapter IV (cont'd.)

Chapter

Page

Factor XI

Highest Loadings

Other Loadings

Summary and Discussion of R Factor Analytic Results

Comparison with Previous Factor Analytic Study

Selected Development Dimensions

Factor Scores of Selected Development Dimensions

Empirical Terms

Linking Roles

Communication Behavior of Linking Roles

Development Functionary Linkages

Village Leader Linkages

Hypotheses Testing

Findings

Village Institutional Development and External

Communication Contact

Findings

Conclusion

Agricultural Development and External Communication

Contact

Findings

Conclusion

Village Manpower - Communication Resources and

External Communication Contact

Findings

Conclusion

Leader Change Orientation and External Communication

Contact

Findings

Conclusion

Leader Economic Conservatism and External Communication

Contact

Findings

Conclusion

Chapter IV (cont'd.)

Chapter	Page
Village Primary Education and Mechanization Factor and External Communication Contact Findings Conclusion	
Mechanization with Lack of Post-primary Education and External Communication Contact Findings Conclusion	
V VILLAGE SOCIAL SYSTEM TYPOLOGY	132
Towards a Village Typology Analytic Method Results of Q Factor Analysis (three-factor structure)	
Description of Village Typology Village Social System Type I Village Social System Type II Village Social System Type III Summary of Findings	
VI COMMUNICATION PATTERN AND VILLAGE TYPOLOGY	153
Objectives of the Chapter	
Communication Structure Communication Structure and Communication Network	
Communication Integration Communication Role Communication Participant Composition Village Typology and Some Communication Propositions Communication Structure Proposition Communication Integration Propositions Communication Role Propositions Communication Participant Propositions Methodology and Data Selection of Village Social Systems Variables and Operationalization Method of Data Analysis Farmer Composition (Participating System) Variables	
Findings: Communication Structure	

Chapter VI (cont'd.)

Chapter	Page
Village Type I	
Village Type II	
Village Type III	
A Comparison Among the Three Types of Villages	
Findings: Communication Integration	
Findings: Communication Role	
Findings: Participant Composition	
Findings: Participant Composition (Village Type II)	
Findings: Participant Composition (Village Type III)	
Discussion of Findings	
Communication Structure	
Communication Integration	
Participant Composition (Type I Village)	
Participant Composition (Type II Village)	
Participant Composition (Type III Village)	
VII SUMMARY DISCUSSION AND IMPLICATIONS	218
Summary	
Discussion	
Limitations of the Study	
Implications	
APPENDICES	238
APPENDIX A	
Tables	
APPENDIX B	
Operationalization and Measurement	
Procedures of Variables	
BIBLIOGRAPHY	380

LIST OF TABLES

Table	Page
1 (Appendix A) Data Set for Village Development Dimensions, India, 1966	238
2 (Appendix A) Basic Statistics and Missing Data on 58 Variables for 108 Villages, India	245
3 (Appendix A) Missing Data Substitution and Transformation	247
4 (Appendix A) Product Moment Correlations Among 58 Variables (Village Development Indicators) for 108 Villages, India, 1966	249
5 (Appendix A) R Factor Structure and Percent of Variance Explained	257
6 Orthogonally Rotated R Factor Matrix for 57 Village Development Indicators	63
7 (Appendix A) Communality of Variables in Eleven-Factor Solution	258
8 Alphabetical List of Variables used in Factor Analysis for Describing Village Development Dimensions	67
9 Factor I: Village General Development (VGD) (Variance explained: 8%).	70
10 Factor II: Manpower-Communication Resources (MCR) (Variance explained: 6%).	72
11 Factor III: Leader Change Orientation (LCO) (Variance explained: 6%).	75
12 Factor IV: Leader Economic Conservatism (LEC) (Variance explained: 5%).	77

Table	Page
13 Factor V: Institution Handicap (IH) (Variance explained: 7%)	79
14 Factor VI: Leader Economic Risk Orientation (LERO) (Variance explained: 4%)	81
15 Factor VII: Agricultural Development (AD) (Variance explained: 6%)	83
16 Factor VIII: Land Resources and Tenancy (LRT) (Variance explained: 4%)	85
17 Factor IX: Primary Education and Mechanization (PEM) (Variance explained: 5%)	87
18 Factor X: Mechanization with Post-Primary Education (MP-PE) (Variance explained: 5%)	89
19 Factor XI: No name (difficult to interpret) (Variance explained: 5%)	91
20 Village Development Dimensions--A Comparative Picture of the Factor Analytic Findings	94
21 Selected Village Development Dimensions	97
22 Village General Development and External Communication Contact	104
23 Village Institutional Development and External Communication Contact	107
24 Village Agricultural Development and External Communication Contact	110
25 Village Manpower - Communication Resources and External Communication Contact	113
26 Village Leader Linkage and Manpower-Communication Resources	115
27 Village Leader Change Orientation and External Communication Contact	117
28 Village Leader Change Orientation and External Communication Contact	119
29 Village Leader Economic Conservatism and External Communication Contact	121

<i>Table</i>	<i>Page</i>
30 Village Leader Economic Conservatism and Development Functionary Contact	122
31 Village Primary Education, Mechanization and External Communication Contact	125
32 Village Primary Education, Mechanization and Development Functionary Contact	126
33 Village Primary Education, Mechanization and Leader External Communication Contact	127
34 Mechanization with Lack of Post-Primary Education and External Communication Contact	129
35 Mechanization with Lack of Post-Primary Education and Village Leader Linkage	130
36 (Appendix A) Inter-correlation of 100 Villages as Variables with Respect to 57 Development Indicators .	261
37 Orthogonally Rotated Q Factors for Village Typology . .	135
37A (Appendix A) Q Factor Analysis of 100 Villages (Results of Six Orthogonal Rotations)	277
38 Orthogonally Rotated Factor Matrix for 100 Villages (Three-Factor Solution): Type I village Social Systems.	136
39 Type I village Social Systems	137
40 Orthogonally Rotated Factor Matrix for 100 Villages (Three-Factor Solution): Type II Village Social Systems	138
41 Type II Village Social Systems	139
42 Orthogonally Rotated Factor Matrix for 100 Villages (Three-Factor Solution): Type III Village Social Systems	140
43 Type III Village Social Systems	141
44 Description of Village Typology (z scores)	144
45 Type I Village Social System Profile	146
46 Type II Village Social System Profile	148
47 Type III Village Social System Profile	150

<i>Table</i>	<i>Page</i>
48 Village Social System Typology: Summary of Findings . . .	152
49 Village Typology in Succinct Form	162
50 Village Social Systems Selected for Study of Communication Attributes	175
51 Village Typology and Communication Structure	179
52 Village Typology and Communication Structural Indices (mean values)	191
53 Village Typology and Communication Integration	191
54 Village Typology and Communication Role	192
55 A Profile of the Farmer Typology in Village Type I (Mulwa) (z scores) N=64	194
56 Composition of Interpersonal Communication Contacts in Village Type I	198
57 A Profile of the Farmer Typology in Village Type II (Polamuru) (z scores) N=63	200
58 Composition of Interpersonal Communication Contacts in Village Type II (Polamuru)	202
59 A Profile of Farmer Typology in Village Type III (Pophali) (z scores) N=66	205
60 Composition of Interpersonal Communication Contacts in Village Type III (Pophali)	208
61 Case Evidence: Communication Structure	210
62 Case Evidence: Communication Integration	211
63 Case Evidence: Communication Role	213
64 Summary of Village Typology, Farmer Typology and Communication Attributes	222

LIST OF FIGURES

figures	Page
1 Research-Practice-Effect Cycle	7
2 A Model of Human Communication	16
3 Sociogram IA (Type I Village: Mulwa (Maharashtra) Farming Advice Network	180
4 Sociogram IB (Type I Village: Kanchumarru (Andhra Pradesh) Farming Advice Network	182
5 Sociogram IIC (Type II Village: Polamuru (Andhra Pradesh) Farming Advice Network	183
6 Sociogram IID (Type II Village: Manchili (Andhra Pradesh) Farming Advice Network	185
7 Sociogram IIE (Type II Village: Harishpur (West Bengal) Farming Advice Network	186
8 Sociogram IIIF (Type II Village: Pophali (Maharashtra) Farming Advice Network	188
9 Sociogram IIIG (Type III Village: Laxmidanga (West Bengal) Farming Advice Network	190

CHAPTER I

THE PROBLEM AND THE PURPOSE

Statement of the Problem

What are the empirical dimensions of village development? How do village social systems differ along the dimensions of development? How do communication structures differ across different types of village social systems? How are the farmers located in the network of communication relations with other farmers in different village types? Given the operation of farmer interpersonal contacts, extension personnel contacts and mass media institutions, how can we describe the information flow process among the farmers differentiated in terms of their socioeconomic and change orientation characteristics?

The Purpose

To seek answers to some of the foregoing questions, conceptually and empirically, is the purpose of the present investigation. Specifically stated, the purpose of the dissertation is two-fold:

- (1) to conceptualize communication linkages as related to a typology of village social systems in terms of development dimensions, and
- (2) to analyze communication linkages among farmers in selected villages of India, using variations in a

10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000

typology of village social systems, and a typology of farmers within villages as the major bases for differentiating among the communication patterns.

Why This Study?

Given that the agricultural professionals working among the farmers do not have sufficient time and resources to reach personally each and every farmer, what predictions can we make regarding the message flow among the farmers living in a village system to "optimize" professional contact? Given different modes of communication contacts (formal extension organization, mass media institutions, informal friendship and kinship networks), what regularities do we expect in the communication contacts of the farmers with the development functionaries at different levels in the extension organization, the exposure to mass media, and the participation in different kinds of networks? Answers to such questions are of practical importance to the agricultural professionals, and also of theoretical interest to the students of farming communities, organizations and communication.

For the agricultural extension professional, the first problem is to identify the on-going communication lines of the farmers among whom he is working. If he thinks that the existing communication lines are unsuitable to design new plans and programs, or to send new messages, then the problem of streamlining the communication structure to suit the flow of new information has to be tackled. He can "optimize" the information flow among the members of a farming community by channeling the information through those who occupy central positions in the communication

[illegible]

network and through organizational leaders. But he should also be aware of the nature of distortion* that accompanies information diffusion through different channels. This knowledge is basic in devising different communication strategies which combine the elements of utmost credibility, least cost, least message distortion, and maximum beneficial outcome for a given audience.

A parsimonious description of the farmers that are interlinked, and an analysis of the structural features of communication linkages, enable the professional to disseminate effectively new knowledge and reinforce or change the ideas and practices already introduced into the farmer community. Further, it is useful to know the communication linkages of persons and groups in a given social system. This enables us to evaluate the relative effectiveness of mass media like radio, print, film and television in disseminating farm information in varied social structural contexts.

Information Needs of Modern Agriculture

The agricultural information** needs of subsistence farmers are, by and large, limited to manage the farm inputs familiar to them through

* Different degrees of skills and knowledge in the network, the kinds of relations, attitudes and expectations of persons are likely to affect the encoding and decoding process. This process is likely to result in the deletion or addition of some details in a given message, or their alteration.

** In this thesis, by the term "agricultural information," we mean all those messages relevant to the farmer in the production and marketing of agricultural crops.

The construct of "information" is many-sided. Cherry (1966, pp. 219-256) distinguishes three levels of information corresponding to the

hereditary farming. Consider, for example, the management of physical inputs such as seeds, manures and farm equipments. For the most part, the farmers preserve the needed seeds from previous harvests or may get them in exchange for ungraded consumption seed stocks from their neighbors. They make the manures domestically by using farm and domestic wastes. They depend on village artisans for fabricating farm instruments and equipments. Animal and human labor are the main energy base for agricultural operations. Information on the use and management processes of these inputs is part of family and local ecological tradition. For example, in some farming communities farm products such as dung and plant stumps have varied uses, e.g., for compost manure, domestic fuel and housing material.

Anthropological and sociological studies of farming communities in the less developed countries describe the formation of groups and lines of communication in terms of kinship, clan, caste, tribe, physical propinquity, and other sociological relations (Firth, 1936; Majumdar,

three levels of semiotic--the syntactic, semantic, and pragmatic levels. At the syntactic level, the patterns of matter-energy units essentially concern signs and statistical relations between signs. Given a set of discriminable matter-energy units, and, at minimum probabilities of occurrence and non-occurrence other than 0 to 1, then information (Berlo, 1970, p. III-10). At the semantic level, the pattern of matter-energy units are about something other than the signs. At the pragmatic level the patterns of matter-energy units and their statistical relations have something to do with the subjective expectations, needs, values, skills, and problems of the participating systems.

Morris (1968) describes four ways (I_1, I_2, I_3, I_4) in which the term "Information" (I) has been explicated during the last 20 years: I_1 is statistical information. I_2 may be looked at as "pieces of information or as Brillouin's "absolute information"--anything creative or imaginative that adds to a given body of knowledge. I_3 is distributed information that spreads to more than one person. I_4 is the information that relates to the state of the communication system.

1958; Mayer, 1966). Given the low level of agricultural technology, the information flow process in subsistence agriculture has mainly been confined to the closely knit circuit of family, the geographically contiguous system called the village, the extended family kinship, and the loosely organized market system.

The son relies on the father's wisdom and experience for agricultural knowledge. The present generation of farmers looks to its elders and the accumulated wisdom of previous generations for advice and information. The communication network which does not spread geographically far beyond the kinship ties among farmers serves their agricultural information needs also. However, migrant farmers in the village may add a new channel or a new source of agricultural information which may widen the reservoir of information and diversify its sources.

As the transformation of agriculture from subsistence to commercial farming takes place, modernization processes* among farmers set in. The modernization process in agriculture is characterized by four main elements: (1) the changing nature of agricultural inputs (e.g., seeds, plant nutrients, energy bases, operating skills and cultivation practices), (2) the changing supply sources of agricultural inputs (e.g., manufacturing plants, marketing networks for agricultural inputs, irri-

*The concept of modernization is multi-dimensional (see Eisenstadt, 1966; Weiner, 1966; Rogers, 1969). Black (1966) defined modernization as the process by which historically evolved institutions are adapted to the rapidly changing functions that reflect the unprecedented increase in man's knowledge, permitting control over his environment, that accompanied the scientific revolution. Mellor (1967) represents the modernization of agriculture by a production function depicting agricultural output as a function of various inputs, the new inputs being largely of an institutional nature, including research, education and communications facilities.

gation systems, agricultural training schools and agricultural experimental stations), (3) the changing mode of agricultural output disposal (e.g., warehousing, transport and marketing processes), and (4) the organizational complexities affecting the decision-making processes in farming business. In the process of change an interplay of the foregoing elements gets embedded in a continuously larger network of social, political and economic relations (Wharton, 1969, pp. 15-16).

The decision-making processes at the farm level become increasingly sensitive to what happens in the market, manufacturing, finance and credit sectors, agricultural research centers, legislatures and administrative services. The farm folk-wisdom needs to be substituted and/or complemented by the body of scientific knowledge of agriculture generated in the areas affecting the farmer's decisions. So the information flow processes for modernized agriculture, as in other substantive areas (e.g., education, industry and medicine), involve a linkage with the research point of the research-practice-effect cycle (Figure 1).

New agricultural information, technological and farm management methods relevant to the farmer to cope with the modernizing agricultural system originate mainly from outside the farmer's kinship and local neighborhood system though the information reaches him after mediation by the familial kinship and friendship networks. As the farmer improves his communication skills in retrieving and decoding new information, his utilization of the potential sources of new agricultural information (like the formal extension organizations, broadcast, print and other mass media institutions) become more effective. As the degree of information utilization increases, the lumpy overhead costs involved in



Figure 1. Research-Practice-Effect Cycle.

creating and maintaining the information systems are matched with the greater increments of benefits accruing to the farmer and the community.

The information "explosion" in agriculture has been one of the main contributing factors to the "Green Revolution" of the later 1960's in the South Asian countries. This explosion has taken place at different levels in the macro-system of agricultural production where agricultural scientists, technologists, agricultural statesmen, administrators, extension personnel and farmers have all played their key roles in the agricultural transformation (Brown, 1970; U. S. Congress Committee on Foreign Affairs, 1970; Raju, 1971).

From the point of view of farm production, the impact of agricultural information on the farmer is of prime importance. The cognitive, motivational and performance system of the farmer can be modified by information: information can create awareness of new alternatives available to him, affect the probability of his choice among a given set of alternatives, motivate him to modify his value system, reorder his priorities, and enable him to improve his skills and capacities to manipulate and control his action environment.

What is even more important from the viewpoint of self-sustained agricultural growth, is the process of information exchange or transaction. Who takes the initiative in information transaction? How frequently does it take place and in what location? What kind of information is transacted, in what language, in what medium? What roles are involved, and under what terms and conditions?

To the extent the agricultural information originates in the social system components such as the family, village and kinship, it is

very likely that the information is mostly in oral form and depends on the interpersonal network for its flow. As the new agricultural information originates in the agricultural research centers, however, or flows from those enterprising farmers who are outside the kinship and the village, we need to look at the communication linkages of the village to outside systems. We have to ask ourselves the following questions to identify some elements that affect the structure and process of the inter-system communication linkages:

What are the dimensions or types of information provided by modern agriculture? How does this information enter into the user or the client system, i.e., the farmers? What are the characteristics of the networks that transmit the information among the farmers? What is the nature of the medium and the format of the message? What are the communication roles played by the "outsiders" and "insiders" as related to the village social system in the information flow process? Do those farmers who play distinct communication roles differ from other farmers in the use of different sources and channels of information? Do these communication roles facilitate the flow of information into and through the system? What are the communication styles (frequency, continuity and source of initiation of communication) of the facilitating communication roles? These questions have immediate and continued relevance to the agricultural development planners.

The present study does not deal with all the foregoing questions. It is limited to the communication pattern in the village social system, differentiated in terms of development, its communication linkages with the outside system, the communication structure, role, integration among

the farmers within the village and also the composition of the farmers that constitute the interpersonal communication network in the village.

Thus we distinguish two levels for the purpose of the present investigation:

- (1) the village as a systemic unit whose components are economic and social institutions, organizational characteristics, leadership profile and communication environment, and
- (2) the individual farmer as a behavioral system whose components are his social psychological dispositions, economic and social characteristics, demographic characteristics, and communication contacts.

Organization of the Thesis

We stated in Chapter I the problem and the purpose of the present investigation.

Chapter II presents basic concepts of communication process, network and propositions derived from a theory of development and modernization.

In Chapters III, IV and V we consider village social system as the unit of study for describing the communication contacts. In Chapter III we deal with the study design, research site, data collection methods and the variables used in the study.

An "R" factor analytic procedure is used for data reduction and description of village development dimensions in Chapter IV. Correlational analysis is used to test the statistical hypotheses relating the development dimensions to external communication contacts of the village.

Chapter V is devoted to data reduction using the "Q" factor analytic method to describe a village social system typology.

In Chapter VI farmer as an individual behavioral system is considered as the unit of study for describing the interpersonal communication contact, structure and composition. Sociogram analysis is employed to describe the communication structure and to examine the empirical propositions relating the typology of village and internal interpersonal communication structure. Q factor analytic design is used for data reduction and description of farmer typology.

In Chapter VII we summarize the study, discuss the findings and present our conclusions with implications for further research.

CHAPTER II

CONCEPTUALIZATION AND HYPOTHESIS

This chapter has four purposes: (1) to provide a set of concepts for formulating communication propositions relevant to village development and farmer modernization, (2) to develop a theoretical perspective for establishing the relevancy and choice of variables in the analysis of village development and modernization processes, and (3) to state a general hypothesis for testing against the empirical evidence.

The Approach

The approach taken here is to consider the communication structure* and process** from a "systems perspective." General systems theory is useful for conceptualizing the more complex behavior of social systems of which communication structure and process are important components. One method*** of general systems theory is a deductive scheme which starts

* Patterning of recurring and ongoing communication" (Watzlawick, 1967, p. 118).

** Process is an ongoing relational transaction in the context of specified dimensions.

*** Another method is empirico-intuitive. It takes the world as we find it, examines the various systems that occur in it and then draws

with a set of postulates and definitions about systems* and generates hypotheses regarding relations among the components. We propose to adopt this approach in formulating the problem for our investigation.

System: Our model represents a system which consists of some components that are interconnected and oriented to a common goal. In general, following Smith and Hunt (1970) we say a system is a set $Z = (S, P, F, M, T, G)$ where

S = a set of system state functions

P = a set of input value functions (stimuli)

F = a set of specified input value functions
relevant to a specified sequence of time

M = a set of changes in system states as a result of
interaction of inputs and initial system state

T = a set of time values setting the frame of reference
with reference to which system is operating

G = a set of rules which tells us how to find a new
system state given a current system state and
the input.

To formulate a problem specifically for investigation one of the procedures in systems analysis is to specify the variables of the system

up statements about the regularities that have been observed to hold (Bertalanfy, 1962).

*"A system is a set of objects together with relationships between the objects and between their attributes" (Hall and Fagen, 1956, p. 81). The components are parts of a given system. E.g., consider a number of farmers in a village. Let us suppose they receive messages in print relating to farming from an agricultural experimental station. They talk to the workers at the experimental station regarding their farming problems. The interaction between the agricultural experimental station people and the farmers may be conceptualized as a communication system. The writers of pamphlets in agricultural experimental station are one component. The farmers may be considered as another component, and so on depending on how we formulate the problem for study.

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

31

32

33

34

35

36

37

38

39

40

(Carroll and Farace, 1968, p. 27). In the present study, we are mainly interested in the system states specified at two levels: The village social system and the farmer as an individual behavioral system.

Chapter III deals with the specification of the variables considering the village as a social system. In Chapter VI variables are specified considering the farmer as an individual behavioral system.

In this chapter, we would like to look at the concept of system state in terms of the following: (1) the state of communication arcs* of the village social system with its environment, (2) the state of communication arcs of the individual farmers within the village social system, (3) the state of interpersonal communication contacts as measured by structural and role indices,** and (4) the state of network participant composition as measured in terms of the types of farmers in the village social system.

Structure: The term "structure" is used here in a very general sense to refer to a system of relatively stable, enduring relationships among an identifiable set of elements. The elements of a structure may be social psychological attributes (e.g., cognition and beliefs), complex concepts of group characteristics, information seeking behavior, initiating talk, manipulating symbols, expression of liking or disliking of persons or events of any kind (Peak, 1958). In analyzing the structure of a system, we may focus on the relations among the elements with respect to a designated attribute at a given point in time (Hare, 1960, p. 10).

*See page 17 for definition.

**See Chapter VI.

For purposes of our present investigation, we consider the communication structure as one of the attributes within the village.

Necessary Conditions for Human Communication

A static analysis of a communication transaction shows that there should be minimally four components representing specific levels of organization and system complexity:

1. Participating System A
2. Participating System B
3. Message M_1
4. Medium M_2

If A (one participating system) makes available M_1 (a message) to B (another participating system) through M_2 (a medium) then we say a communication arc or line is formed between A and B. A process approach to communication enables us to look at the transaction beginning from any of the other components (see Figure 2). We need not necessarily be restricted to a unidirectional and linear approach (Watzlowick, 1967, p. 46; Berlo, 1970; Harary and Havelock, 1971).

Given a specific context, "Who says what, in which channels to whom with what effect" (Lasswell, 1946), each of the four components may be analyzed further. Let us look at the components: (1) participating systems, and (2) the communication arc.

Participating Systems

In human communication the participating systems may vary in the degree of complexity from an individual person to an entity like a nation or a larger aggregate. In the context of the present study, as we have

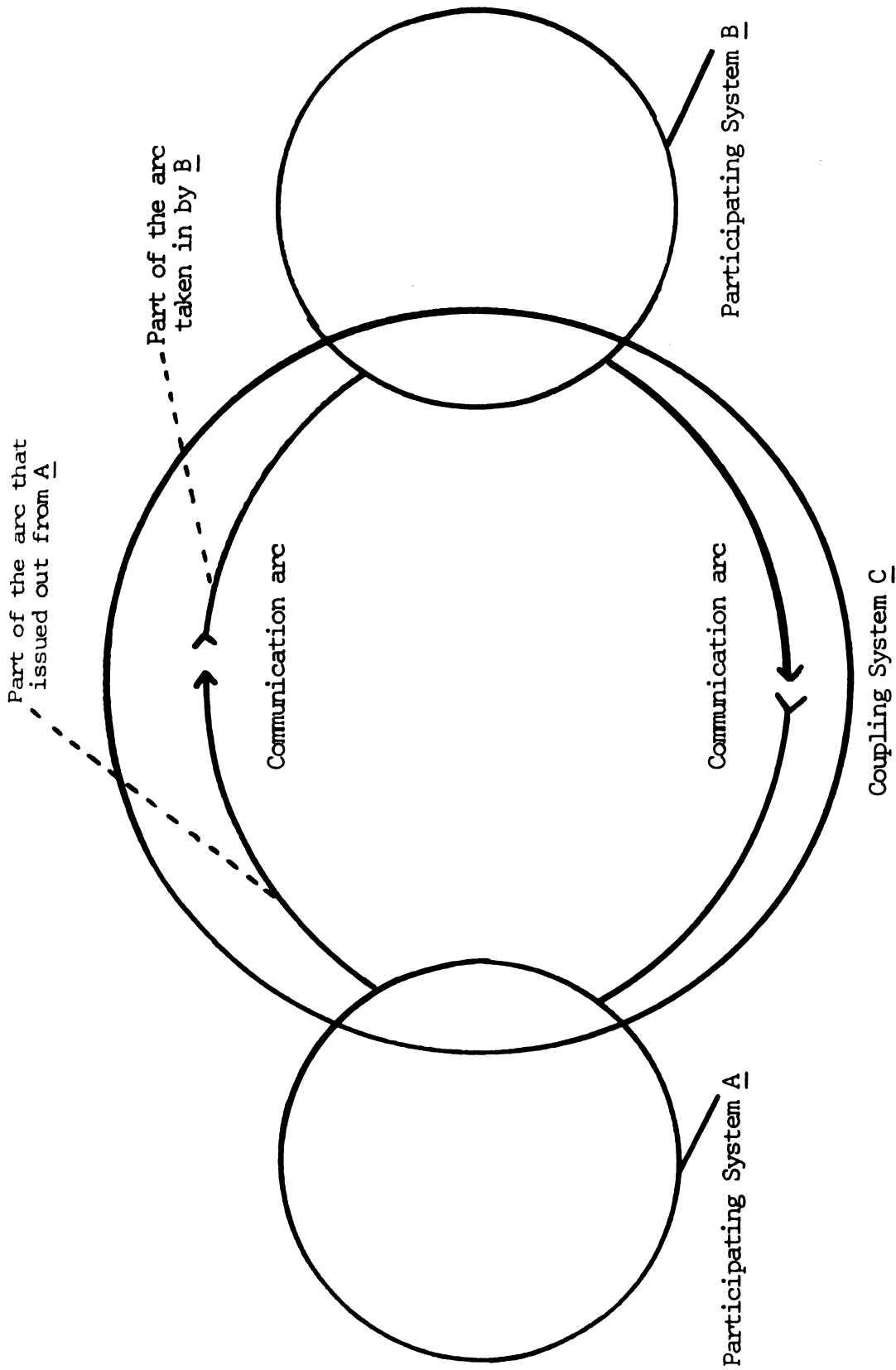


Figure 2. A Model of Human Communication.

mentioned earlier, we conceptualize the participating systems at two levels: (1) the village social system, and (2) the farmer as a behavioral system.

For each of the foregoing systems we must specify the S (a set of system state) functions. We propose to specify the S function for the village social system in terms of its level of development (see Chapter III and IV). Degree of modernization in terms of change orientation (as one of the dimensions) is used to specify the S function for the farmer as a behavioral system (see Chapter VI). The selection of relevant variables to describe the state of the participating systems and the appropriate data analytic techniques to analyze the structural relations among the variables form the subject matter of Chapter III through Chapter VI.

Communication Arc

By communication arc we mean the coupling of the participating systems through a message-medium system. Two components of the communication arc or line may be analyzed: (1) that part of the arc that issues out from A (see Figure 2), (2) that part of the arc taken in by B assuming that the participating system A is sending the message. Each of the components of the communication arc or line is termed as demiarc or half-line (Harary and Havelock, 1971): the outgoing demiarc as "male" and the incoming demiarc as "female."

"Male Half-line" or "Male Demiarc": If A has the desire or capacity to give a message (M_1) to B through a medium (M_2) then we say a "male half-line" ($\longrightarrow$) exists between A and B ($A \longrightarrow B$).

"Female Half-line" or "Female Demiarc": If B has the desire or capacity to ask for or receive a message (M_1) from A (through a medium

(M_2) then B is said to have a "female half-line" ($\triangleright$ —) for A's message ($A\triangleright$ — B).

The communication arc is the basic ingredient for the concept of communication network.

Network Concepts

Information transaction through networks forms a substantial domain of man's communication styles. Farming communities are no exception.

The abstract concepts used in network analysis help us to understand the human communication network, and to formulate some propositions relating the characteristics of a village social system to its internal interpersonal communication network.

Following Frank and Frisch (1970), we define the concepts in network analysis, in a general way, as follows:

Node: A node may be the source (Δ) of message flow, a terminal (0) where the message is received, or a point ($\square$) through which it passes.

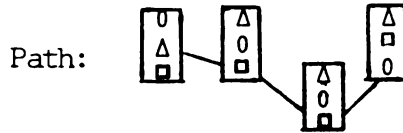
Nodes: Δ Source
 0 Terminal (Receiver)
 $\square$ Other

Branch: A branch couples the two points or nodes to transmit the message.

Branch: Δ — $\square$

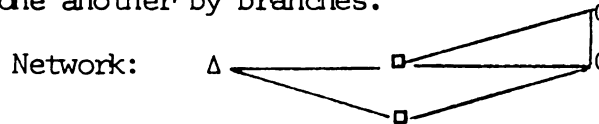
Path: A path is a subset of the network. It is a specific sequence of nodes through branches, that connects a given point of message source

and a point of message receiver.



There may be several paths in a network.

Network: A network is a set of nodes connected to one another by branches.



Necessary Conditions for a Human Communication Network

In the context of the human communication process, we may define a network as a set of two or more persons or other entities of human organization where they are directly or indirectly interconnected for transacting symbolic information. Katz (1966) defined network as a set of persons who can "get in touch with each other." "Getting in touch" may include indirect as well as direct interaction.

Components of a Human Communication Network

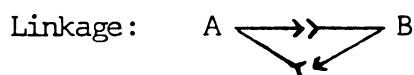
Dyad: A dyad is the branch of a network. There should be at least two human systems of specified level and complexity, that comprise the network as "contacts"; they are the members of the network (Katz, 1966, p. 203).

Chain: A chain is the path of a network. If n number of persons in a communication network are interconnected at given points in time through indirect relations ($A \longrightarrow B \longrightarrow C \longrightarrow \dots n$)

we call this a chain.

Group: If three or more persons have a communication contact configuration where at least two or more members seek information from a same node or a person, then it is a group.

Linkage: Given two or more systems in interaction, if we find evidence for the existence of reciprocity in giving and receiving information among them then we say there is a linkage.



In the linkage process, when the transaction between A and B are observed over time, we find B extending the male demiarc, and A, the female demiarc.

A network may comprise one or more linkages.

Clique: In a given network, if we observe the communication linkages among "contacts" we may find some members who interact with each other relatively more frequently than with other members in the network. We call this structural unit of mutually interacting members a clique* (Festinger, Shacter, and Back, 1950: Farace and Morris, 1969). Linkage is a necessary condition for a clique.

* Festinger and others give a more limited definition of a clique by limiting the number of members to three or more.

Isolate: In a given social system, if a member does not get in touch with any other member for a given communication event at a specified interval of time with respect to a given issue then that member is an isolate.

Characteristics of Networks

Given an interpersonal network, we may describe it from the point of view of the ego or a designated person in the network. The ego's network consists of all the other persons or the "contacts" with whom he can get in touch. The "contacts" may be ego's kinsmen, professional colleagues, neighbors, or any other categories of persons (Katz, 1966, p. 203).

We may distinguish, following Katz (1966), from the point of view of the ego, some categories of networks.

Potential or possible networks: Potential networks refer to all possible networks likely to be formed in a given cultural, technological, ecological, economic, social and institutional environment. They are communication paths, but may seldom be used. These paths can be shown for a given person in a community by raising the communication contact matrix to $(N-1)$ various powers. For example, any citizen in a democratic nation may establish contact with his national leaders. But not all the citizens do so. Again, an illiterate, poor farmer engaged in "primitive" farming may exchange farming information with farmers who are technologically advanced and economically affluent. In actuality this network may not likely to be formed.

21

22

23

24

25

26

27

28

29

30

31

32

33

34

35

36

37

38

39

40

41

42

43

44

45

46

Actual networks: Actual networks refer to the "contacts" latent and activated, direct and indirect, who are currently in ego's networks. It is the "social field" (Lewin, 1936) or the "influence domain" (Lin, 1968, p. 125) in which the ego is communicationally involved at given points in time with respect to a given issue. It may include transactions of the face-to-face type as well as other mediated communication; it may comprise different kinds of networks serving different purposes, and many times, there may be an overlap among them. These networks may transcend local community.

Network state: Networks may be distinguished in terms of the degree of live and dormant state of their activation. Certain networks begin to operate whenever a relevant issue or a need for them arises. For instance, some networks which are relevant for political information and influence get activated during political campaigns and voting season. Unexpected news events may set in motion a hitherto dormant network (Spitzer and Spitzer, 1965). Among farmers, for example, specific agricultural information needs may make a network become functional and live. If the farmers' purpose is to transact social or religious ideas and tasks then the agricultural information network may be irrelevant. Another network relevant to social or religious purpose is activated.

Katz (1966) makes a continuous-discontinuous dichotomy among the "contacts" that form the basis for networks. A continuous network is one where the relationship among "contacts" is in a state of activation. Each participant is actively oriented to send and receive messages. A discontinuous network is subject to deactivation.

100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000

Our present study deals with an actual and a live agricultural production information network among farmers in seven villages of India.

Communication Role

In addition to structural concepts we consider the concepts of communication role and integration in the present investigation.

Role: In general terms, we define role as a behavior set of a person or an entity occupying a defined position in an interaction relation with other positions or persons or entities in a given organization, informal or formal.

The term role is in usage reflecting different conceptualizations based on the needs, expectations and actions of the entity in position. Deutsch and Krauss (1965) make a distinction among prescribed role, subjective role and enacted role. A prescribed role consists of a system of expectations shared by persons in the social world surrounding the occupant of a position (Hare, 1960). A subjective role refers to the specific expectations perceived by the occupant of a position applicable to his own behavior in his interaction with other positions. An enacted role consists of specific overt behaviors of the occupant of a position when he interacts with the occupants of some other position.

The perspective taken in the present investigation is in accord with the concept of enacted role. We focus mainly on the dimension of the enacted role which we label for our purpose as communication role.

Communication role is a set of behaviors a given individual displays to process symbolic information in a given role set. We conceptualize communication roles in two ways: (1) by virtue of the enacted role of a person in an informal or formal organization, and (2) by

virtue of his structural location within a communication network.

Communication Roles in Informal and Formal Organizations

The communication roles in an organizational structure may be described by virtue of the nature of the informal or the formal functions a person performs in an organization. These roles are predominantly concerned with the processing of symbolic information.

Havelock (1969, pp. 7-2 to 7-15), lists a typology of such roles interlinking the systems involved in knowledge building and knowledge utilization. A subset of such roles relevant to the communication processes in farming communities are mentioned here:

Conveyor: Conveyor, or information carrier (Rao, 1966) is one who seeks information and takes the initiative in informing others about events or products or processes. In a formal organization like agricultural extension service, a subject-matter specialist may play this role.

Consultant: This role facilitates in analyzing a specific situation of a given client system, e.g., farmers, industrialists, patients, and enables the client system seeking information to make efficient evaluations and decisions. A farmer may seek the help of a professional expert or an experienced farmer for dealing with a specific problem such as water management or land development.

Leader: By virtue of his power and influence, an individual in a given social system affects the knowledge levels, motivations, attitudes, expectations and overt behaviors of other members within the

100

101

102

103

104

105

106

107

108

109

110

111

112

113

114

115

116

117

118

119

120

121

122

123

124

125

126

127

range of his influence. Concepts such as "Opinion Leader" (Lazarsfeld, 1948), "Star" (Menzel and Katz, 1955), "Information Man" (American Psychological Association, 1963), "Key Communicator" (Jacobs and others, 1966), "Informal Educator" (Wenrich and others, 1969), "Information Influential" (Morris, 1960), and "Central Communicator" (Blake, 1970) have provided empirical evidence to the communication role of a leader. A communication leader (Guimarães, 1970) is a person who is looked upon by his peers as both a recipient and a source of information.

The concept of formal leaders (Ashby, 1962) suggests that the formally constituted leaders (e.g., elected leaders and appointed leaders) have an important communication role in affecting the credibility of the message, opening up formal channels for communication transactions and disseminating information in a specified organization. They act as "funnels" through which all information flows into the formal organization.

Gatekeeper: The concept of gatekeeper (Lewin, 1951, pp. 176-187; Allen, 1966; Allen and Cohen, 1969) emphasizes the set of norms, rules and procedures embodied in a particular role acting as a facilitator or as a barrier for the flow of information.

Innovator: An innovator is defined as one who is relatively earlier in adopting new ideas and practices in a social system and who exposes other members to the first consequences of the innovation adoption (Rogers, 1962; Havelock, 1969).

Defender: The concept of "resistor" (Ross and others, 1968) and "defender" (Havelock, 1969) is used to describe the role of a person who champions the client against the innovation. He challenges the "change agents" and the innovators. He is always on watch to foresee the dangers and undesirable consequences of new ideas and practices.

Communication Roles in a Network

One of the role sets considered in this study is the position of a person in a given communication network. Let us consider the locations of persons in a formal or informal organization in terms of information seeking and information giving activities. We assume that some individuals locate themselves in places which are structurally distinct and functionally differentiated. These positions may be defined in terms of communication transactions. In considering the positions we may make a distinction between formal and informal role structure. In formal role structure of an organization, there is a public, recognized, and sanctioned "official" role written or unwritten in the charts and conventions of the organization based on the principle of division of labor. In the informal role structure, the roles are identified based on the actual pattern of the individual's communication practices, and his choices of members in giving and seeking information. The roles that so emerge are "unofficial" or informal.

Three communication roles derived from the informal information seeking activities of the members of a social system are considered here. They are: centrality role, liaison role, and bridge role (MacDonald, 1970).

The centrality role refers to a configuration of communication transactions where a person or an entity occupying the position is relatively nearer to all other persons or positions in terms of communication proximity. In other words, the most central position is the one closest to all other positions. Operationally, communication centrality is the length of the communication chain involved in influencing other members in a given

network (Lin, 1968).

In the experimental studies of small group communication networks, centrally located persons have been found to send more messages than those of their more peripheral colleagues. More central positions in networks are more highly regarded, and their occupants are more likely to be seen as group leaders (Bavelas, 1950; Leavitt, 1951; Shaw, 1964).

The liaison role refers to the communication position of an individual or entity that inter-links two or more persons, or other entities who would have been isolated in the absence of that linking position.

Another characteristic of the liaison role is his low or no participation in any of within group transactions. (Jacobson and Seashore, 1951; Weiss and Jacobson, 1955; Schwartz, 1968; MacDonald, 1970; Amend, 1970).

The bridge role combines membership and participation in two or more groups.

Communication Integration

Given a social system (defined as a complex of elements with norms, roles and expectations standing in interaction striving towards a common goal) we may look at the communication processes in the social system involving different communication roles. The concept of communication integration relates to these communication processes among the sub-systems of a system.

Integration,* in general, can be defined as an on-going process

* Integration is a multi-dimensional concept. At least three dimensions of integration have been theoretically identified; normative integration, functional integration, and communicative integration (Guimaraes, 1970).

of making relatively separate parts into a whole. Communication integration is defined as the degree to which the sub-systems and elements of a communication system are structurally interlinked (Guimarães, 1970).

The communication behavior of the conveyors, consultants, leaders, gatekeepers, innovators, defenders, network-centrals, liaison persons and bridge roles are relevant in determining the degree of both internal and external integration of a social system. They provide the communication arcs for information dissemination.

Considering the level of village social system development, we can postulate a certain degree of village external and internal communication integration. The village has in its environment other systems from which extrinsic message inputs (e.g., mass media, information from extension organization) are available to it. The communication interconnectedness of the village with the exogenous systems we may refer to as external integration. The within-village communication connectedness of the farmers we may refer to as internal integration. It is the degree to which the individual farmers in the village are interconnected into a whole.

Communication Participant Composition

Within a village the farmers who are members of an interpersonal communication system are likely to show differences in terms of their socioeconomic characteristics. We propose to evolve an empirical typology of farmers to describe the communication participant composition. If the composition of groups and dyads show a high degree of dissimilarity or heterogeneity in terms of the types of farmers we then consider the participant composition to indicate a high degree of heterophily.

What can we say about the internal and external communication integration, communication network, structural differentiation, roles, and network participant composition in the context of the level of village development and degree of farmer modernization? For deducing testable propositions we have to look toward a theory.

The relevant theoretical orientation to the problem under present investigation is derived from the theory of agricultural development and modernization. The terms "development" and "modernization" without reference to an entity and a sector of attributes are ambiguous. The term development may be used to indicate the structural and functional differentiations and of resource capacities of a system in its operation for realizing the system's goals at varying rates. The term "modernization" may be used to indicate the general process of change in social psychological tendencies and man-environment relations at a specified level of observation and sector of analysis.

Agricultural Development Theory Perspective

Mellor (1967, p. 21) articulated the elements of a theory of agricultural development in terms of three interrelated parts: (1) the role of agriculture in economic development, (2) the economic nature of traditional agriculture, and (3) the economic process of modernizing agriculture. It is the economic process of modernizing agriculture, one of three elements, that is relevant to us here for postulating a set of communication propositions.

Let us consider the main proposition of the process of modernizing agriculture focusing on the farmers as entrepreneurs and managers at the farm level. We summarize the proposition in the following way:

Proposition 1: $A0 = f(I, R, P, M, F, E, S, C)$ which says that agriculture output (A0) is a function of a set of interrelated functions, where:

A0 = agricultural output

I = a set of incentive functions

R = a set of research functions

P = a set of physical input functions,

(e.g., seed, water, fertilizer, power, land, pesticides, tools and equipment)

M = a set of market functions

F = a set of finance functions

E = a set of education functions

S = a set of service functions

C = a set of communication functions

Considering the communication component of the agricultural development proposition, Mellor states in his model of agricultural modernization: the main functions of the communication system are (1) to make farmers become aware of new alternatives, (2) inform them how these alternatives work under village conditions, and (3) make the farmers understand the reasons for their success or failure with the innovations.

We consider two subsets of the communication component affecting the agricultural development: (1) communication contacts of a village

social system with its environment and (2) interpersonal communication contacts among the farmers within a village social system.

Social Change Theory Perspective

In analyzing the process of social change, we may look at three levels: (1) the individual and the environment, (2) the interaction between or among the individuals, and (3) the social system defined along a continuum of a small group to a large world aggregate. At each of these levels, psychological theories, social psychological theories and sociological theories have offered explanations for the process of social change.

In the present investigation, our analytical interests are at the village level (as an aggregate social system) and at the level of the farmer (as an interactive behavioral system). The relevant social change theories for the foregoing two levels come from the sociological and social psychological perspectives.

Appelbaum (1970) summarized the dominant paradigms* (models which give rise to particular coherent traditions of scientific research) of social change: (1) evolutionary theories, characterized primarily by the assumptions of cumulative change, often in smooth, linear fashion always in the direction of increasing complexity and adaptability; (2) equilibrium theory, characterized by the concept of homeostasis and

* Kuhn (1970, pp, 181-187) considers paradigm as "disciplinary matrix" and labels its constituents: symbolic generalizations, beliefs in particular models, values related to predictions (accuracy, error, simplicity, consistency and plausibility) and the exemplars (the concrete problem-solutions).

focusing on conditions tending towards stability as a consequence; (3) conflict theory, characterized by the assumptions that change is endemic to all social organizations, and focusing on conditions that tend towards instability as a consequence; and (4) "rise and fall" theories, that civilizations regress as well as grow--that all societies do not move in the same direction.

Among the social change theories, we find it heuristically useful for the present investigation to work within the paradigm of evolutionary theory of social change. The main emphasis in this theory is on the magnitude and the direction of change at the social system and individual levels from a technologically simple, organizationally more self-sufficient and relatively slow rate of change to a more complex, inter-dependent and rapid change encompassing the style of man's life (Parsons, 1966). The propositions related to change processes in farming communities of the less developed countries have been discussed under the rubrics, "persistence and change among the peasant populations" (Wolf, 1966) and "modernization among peasants" (Rogers, 1969). Communication factors as correlates of development and modernization have been articulated in the framework of this paradigm.

Broadly, we categorize the conceptualization of modernization process into two: (1) unilinear and modernity-tradition dichotomy (polar opposite) and (2) non-linear and configurational. The former approach derives its ideas from the works of sociologists such as Maine, Morgan, Weber, Tonnies, and Durkheim. It assumes that the change process involves a movement from one pole to another which contains mutually exclusive societal qualities. Lerner (1956) developed the bipolar model of modernization further

enumerating the prerequisites and sequences of the unilinear and polar opposite model. A typical representation of this model says: some critical levels in urbanization, literacy, industrialization, mass media exposure, empathy, and achievement motivation are preconditions for modernization to occur. The non-linear and configurational approach considers that a societal system contains elements of both new (modernity) and old (tradition) in the process of change (Rudolph and Rudolph, 1967, pp. 8-12). When a society confronts new ideas and institutions, there is a dynamic interplay of the elements of modernity and tradition. The process of change results in the creation of a more or less stable mixture or configuration of the processes of the confronting society. These may be complete displacement, marginal substitution, partial adaptation for the existing values and processes (Whitaker, 1970, p. 460). There is no fixed sequence involved in the modernization process. Depending on the need to cumulate control over the environmental phenomenon affecting the welfare of the organism, different processes, sequences, relationships, and outcomes are probable (Rudolph and Rudolph, 1967; Gusfield, 1967; Sen, 1968, Ascroft, 1969; Whitaker, 1970).

Both schools agree on the process of change, but differ on the initial states, the path, the sequential process, the interplay and configuration of elements and the end state of the system.

Our theoretical orientation is that the societal systems have multilinear (not necessarily rectilinear) modes of change. Also, the temporal sequences and structural characteristics of the change processes do not fit into a bipolar, unilinear model of tradition and modernity. Considering the farmer as a behavioral system we expect to find a

typology of farmers which is not necessarily modern-traditional polar opposites. It contains elements of modernity and tradition in different configurations.

Communication Propositions

Both agricultural development theory perspective (Mellor, 1967) and social change theory perspective, as we have mentioned earlier, recognize communication as one of the functional factors in effecting modernization. Lerner (1957; 1963), Farace (1967), Shaw (1968), Rogers (1969), and Ascroft (1969) have established the vital role of communication factors in the development and modernization process. Deriving from these theoretical perspectives, we postulate the following propositions:

- Proposition I: Development is a systemic process continuously building the structural, functional and resource capacities of a given system to realize the system's goals at optimum rates.
- Proposition II: Modernization is a process by which individuals change to cumulate control over a given system and its environment related to their welfare.
- Proposition III: The nature of the welfare function determines the direction, rate, complexity of human and technological makeup of modernization and the nature of control.
- Proposition IV: Communication is the main vehicle of this control.
- Proposition V: Internal and external communication integration of a given system facilitates the effectiveness of this control.
- Proposition VI: Agricultural development is, ceteris paribus, a function of the communication system.

10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000

Given the foregoing propositions, we would like to raise some questions related to the degree of village development, farmer modernization, and their relations to communication attributes. These questions relate to five main aspects:

- (1) typology of village social systems
- (2) external communication linkages of the village social systems
- (3) communication attributes of interpersonal contacts among farmers within the village social system
- (4) typology of farmers
- (5) composition of the interpersonal communication contacts among the farmers.

Are there any communication contact differences along the dimensions of village development? In a relatively more developed village system what is the nature of external (i.e., village with the larger system) and internal (i.e., within village) communication? Given the interpersonal communication contacts within a village, what differences do we find in the nature of network structure and composition along the dimensions of village development?

In answering these questions, we would like to formulate the following hypothesis based on the foregoing Propositions I through VI.

The Hypothesis: The higher the development level of a village, the greater is its contact with its environment.

Village social systems vary along the dimensions of development as well as along the dimensions of communication attributes. It is predicted that an agriculturally more developed village would establish greater communication linkages with the development agencies because they are the main sources of new agricultural information. This

10-1
10-2
10-3
10-4
10-5
10-6
10-7
10-8
10-9
10-10
10-11
10-12
10-13
10-14
10-15
10-16
10-17
10-18
10-19
10-20

prediction is derived from Proposition V.

A more developed village has a greater need to control and cope with the pressures of change. This prediction is derived from Proposition III.

The client system obtained in the more developed village is keener on asking questions and presenting their problems for identification and solution. The stimulating client environment is likely to motivate the development workers to seek and search for information relevant to the problems through reading technical books and journals, and consulting the information sources that disseminate the technology related agriculture. This prediction is derived from Proposition IV. Additionally, the empirical evidence found by Rao (1966, pp. 62-65) that the flow of technical knowledge in the village was in favor of Kothuru (the more developed village) supports our hypothesis.

Specific empirical hypotheses supporting the foregoing general hypothesis are presented in Chapter IV.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840.

CHAPTER III

STUDY DESIGN, DATA SET AND METHODOLOGY

In this chapter, we deal with description of the source and site of data for the empirical testing of the general hypothesis stated in Chapter II.

The specific purposes of this chapter are to describe the

- (1) general study design
- (2) data collection methods
- (3) unit of study and selection of respondents
- (4) data collection instruments
- (5) types of variables
- (6) data processing and analytical procedures.

1. General Study Design*

Our analysis is based on data gathered using survey research methods from a sample of 108 villages in India during 1966. The sample was selected on the basis of the following criteria in the 5-stage sample design using administrative units, viz., state, district, block,

*The study design presented in this chapter is based on the detailed description reported in Agricultural Innovations in Indian Villages by Fliegel and others (1968).

24

25

26

27

28

29

30

31

32

33

34

35

36

37

38

39

40

41

42

43

44

45

46

47

48

49

50

village level worker circle and village.

Stage I: A purposive selection of three states was made to represent different structures of administration, strategies of development and the relative intensities of these strategies in each state.

Stage II: In each selected state, a purposive selection of ten districts was made to represent the relative intensities of agricultural development programs.

Stage III: In each purposively selected district (except one) three development blocks were selected at random from a list of development blocks obtained from the state government.

Stage IV: In each development block, six village level worker (VLW) circles were selected at random from a list of village level worker circles obtained from the Development Block administration.

Stage V: In each selected village level worker circle, two villages were selected at random from a list of villages.

2. Data Collection Methods

In each village, data were gathered by a team of five interviewers led by one among them. The author was one of the interviewers in one of the selected states, viz., Andhra Pradesh.

The data collection methods consisted of:

- (1) Retrieving information from official records and published government reports
- (2) Interviewing the village level worker (VLW) who is the official in charge of implementing the development programs (mainly agricultural) at the village level

- (3) Interviewing five formal elected or appointed leaders at the village level
- (4) Interviewing three informal leaders of the village selected based on the sociometric choice in seeking advice on agriculture by the formal leaders
- (5) Interviewing the extension officers in charge of agriculture (AEO), health and medical services at the block level
- (6) Interviewing the block development officer (BDO) who coordinates all the development programs in the block.

Sampling Procedure

Stage I (Selection of States)

Three states, viz., Andhra Pradesh, Maharashtra and West Bengal were purposively selected. Andhra Pradesh was chosen to represent states where elected people participated in the decision-making processes for development at the village, the block, the district and the state level. Maharashtra was selected to represent the states where elected people participated directly in development decision-making at the district level and the state level (the block level and the village level decision-making being left to the appointed leadership and the bureaucracy). West Bengal was selected to represent states where people's direct control over development decisions came from the state level (decision-making at the district, block

and the village level involving people's participation only indirectly).

Stage II (Selection of Districts)

Within each of the three selected states, the districts were stratified according to the following criteria:

- (1) Districts where the highest level of agricultural development inputs through Intensive Agricultural Development Program (assured irrigation, finance and technological help) was made available
- (2) Districts with development blocks organized for implementing special programs to facilitate development process among some ethnic groups (tribals who had historically lived a life of a high degree of isolation and self-sufficiency in mountainous and forest tracts of the country)
- (3) Districts with development programs common across all districts in the whole state.

In Andhra Pradesh, West Godavari District was selected according to the criterion (1); Adilabad District was selected according to the criterion (2); and Kurnool District was selected according to the criterion (3).

In Maharashtra, Yeotmal District was selected according to criterion (1); Nasik district was selected according to criteria (2); and Bhandara and Sangli districts were selected according to criteria (3).

In West Bengal, Birbhum District was selected according to

2000

1000

1000

1000

100

100

•

24

10

3.

2002

•

3

-

•

100

10

•

10

1

the criterion (1); West Dinajpore and Burdwan Districts were selected to represent the criterion (3). There was no specific district where development blocks were organized specifically oriented to tribal development.

Stage III (Selection of Blocks)

Within each selected district, three development blocks were randomly selected with the rule that in the district selected for ethnic speciality, one block should be randomly selected controlled on the tribal blocks. This gave a total of nine development blocks in Andhra Pradesh.

In Maharashtra, one tribal block was selected randomly in the Nasik District. From each of the two districts of Bhandara and Yeotmal, three blocks were randomly selected. Two development blocks were randomly selected in another district. For Maharashtra, this gave a total of nine development blocks.

In West Bengal, three development blocks were selected randomly from each one of the three districts to give a total of nine development blocks.

Thus, in all the three states, we selected a total of twenty-seven development blocks.

Stage IV (Selection of Village Level Worker (VLW) Circles)

Each development block is organized into a number of village level worker circles. From the list of village level worker circles, we selected randomly two of them from each of the twenty-seven development blocks. This gave us fifty-four VLW circles across all the three states.

Stage V (Selection of Villages)

We obtained a list of villages in each of the selected VLW circles and picked two villages at random from each one of the VLW circles across all the three states. This gave us 108 villages which make the N for the present analysis.

Study Unit and Respondent Selection

The village social system is the unit of study. The selection of respondents was so made as to be pertinent in obtaining information on various attributes of each one of the 108 villages.

The following categories of persons related to the development aspects of a village were interviewed:

1. Village Panchayat President/Vice-President (elected)
2. Formal Leaders of the Village (elected or appointed)
3. Informal Leaders of the Village
4. Village Level Worker (appointed)
5. Agriculture Extension Officer (appointed)
6. Medical Officer (appointed)
7. Health Worker/Midwife (appointed)
8. Block Development Officer (appointed)

Selection of Leaders (Formal and Informal)

One of the assumptions we made in selecting the leaders was that the leaders represent the ethos of the village life, values, attitudes and communication styles.

In each village, five formal leaders were identified representing the following facets of village life.

1. General political area: mobilization of people for village level decision-making and legitimizing the general policy of the village

Leadership roles: the Panchayat President, Union

Board Chairman or Panch, and members of the Panchayat

2. Educational area: school development, management and teaching

Leadership role: Teacher

3. Religious area: establishing and management of temples, mosques, and churches

Leadership roles: Trustees and Board Members

4. Cooperative institutions: credit, marketing and farming

Leadership roles: President and Secretary

5. Youth organization:

Leadership roles: President and Secretary

Additionally, based on the sociometric choice made by the formal village leaders, we identified three other leaders who did not occupy any formal leadership position in the village, but whose opinion and advice set an atmosphere for the village development, mainly in the area of agriculture. In a way, they may be considered as the opinion leaders in the village on farming matters.

Thus, we relied on eight leaders in each village to give us information on different aspects of village development.

In some villages, however, we were not able to identify as many as eight leaders. The same person was playing the leadership role in more than one area. Hence the total number of leaders in some villages was not more than six. In bigger villages, we interviewed as many as ten leaders. But on the average, it worked out to eight leaders per village.

We further supplemented the information on the village by asking the development workers like the Village Level Worker (VLW), Agricultural Extension Officer (AEO), Block Development Officer (BDO), Midwife and Medical doctor on different aspects of village development.

4. Data Collection Instruments and Procedures

The instruments used to gather information from each category of informants were in the form of questionnaires. The questions were administered to them in person by the trained interviewers in the language comfortable to the respondents (see Appendix B for the questions.).

The interview lasted between thirty to ninety minutes. The interview with the AEO, the midwife, the medical doctor and the BDO took about thirty minutes; the interview with the village leader took about an hour; and the interview with the VLW lasted for about ninety minutes.

5. Concept of Development: Types of Variables

The dominant characteristic of contemporary research on development is an emphasis on complex and speculative concepts based on a very large number of empirical referents (Crittenden, 1967, p. 990). The empirical referents for development differ in their relevance and meaningfulness depending on the conceptualization of the entity studied in terms of its level and complexity.

Comparative international studies which consider nation as the entity for analyzing the phenomenon of development have provided different empirical referents. Seers (1970) and McGranhan (1970) have questioned the adequacy of per capita national product alone as a valid measure of development. They have reexamined the concept of development at the

national level and argue that the concept of development has to be viewed as both an economic and a social process. Human factors, e.g., education, health and leisure-time activity, have to be recognized as important components of the concept of development (McGranhan, 1970, p. 62).

Development is a systemic, coherent and positive process. Let us look at some of the hypothesized relationships between development and social and economic indicators.

Better education, health and nutrition may be thought of as positively related to development. They are expected to advance with development (McGranhan, 1970, p. 63). Mental illness, crime and pollution may also be positively related with economic development. Then does economic development mean increase in crime, economic, political, social, cultural and ecological aggression? Identification and accommodation of variables relevant to the concept of development is open for continuous inquiry.

Three approaches have been made to conceptualize the items related to development:

- (1) An empirical approach which defines development as that which distinguishes developed from developing communities or the same communities at different periods of development; this may include trivial and negative items.
- (2) Evaluative approach which defines development in terms of some collection of values and purposes which are embraced by contemporary communities, but which may not necessarily distinguish between developed and developing communities or have any objective relationship to each other. This may include arbitrary items and exclude structural trans-

formation.

- (3) Development may be defined as consisting of change of valuative and structural factors that are empirically associated with each other at a point of time.

It is not out of context to quickly look at the categories of variables included in the description and analysis of national and regional developments.

Farace (1966) grouped 46 measures of national development under (1) political system, (2) health and nourishment, (3) agricultural productivity, (4) climate, (5) population characteristics, (6) cultural factors, (7) economic factors, and (8) mass communication.

Harbinson and others (1970) in their quantitative analysis of modernization and development of 112 countries used 36 measures to construct 7 indices of development: (1) economic development, (2) cultural development, (3) health, (4) educational effort, (5) high level manpower stock, (6) high level manpower flow and (7) demographic development.

The United Nations Research Institute for Social Development has provided a set of variables pertinent to the concept of development at the national level (McGranhan, 1970, p. 69). The study started with 73 social and economic measures and reduced them to a set of 18 component variables.

Crittenden (1969) grouped thirty-three indicators of modernization in a study of the dimensions of modernization in the American states under the following categories: (1) Benchmark indicators (e.g., education, income, fertility), (2) other indicators of modernization (e.g., urbanization, newspapers, TV sets, automobiles, housing), (3) scope of

government indicators (e.g., tax level, spending level), (4) centralization indicators and (5) reference indicators (e.g, population, political parties).

Shaw (1967) used the following indices for studying the district development in India: (1) economic development (e.g., population, urbanization, income), (2) political development (e.g., voting), (3) communication development (e.g., linguism, education, library, and newspaper).

Obviously, not all measures meaningful at one level of study are relevant at another level. A sub-system analysis has to regard some variables as environmental and exogenous. We shall examine this aspect in a little more detail below when we discuss the relevancy of variables for village level development.

Variables Relevant to Village Development and Modernization

We describe the village as a social system in terms of some attributes which are related to the concept of development and modernization. The minimum conditions for considering an entity as a system are what Schramm (1967, p. 30) calls boundary maintenance and interdependent relations among the components. The common attributes of a behavioral system are: (1) to maximize the accomplishment of defined goals, and (2) to minimize the stress and strain (Schramm, 1967, p. 31).

Village as a social system satisfies the foregoing conditions. The Census Commission studies in India (1961) and social anthropological studies (Dube, 1955, Mayer, 1966, Doshi, 1969, p. 297) bear empirical evidence for considering the village as a system with a unique sense of belongingness on the part of its inhabitants by virtue of a greater frequency of mutual interaction among the persons residing in a

contiguous geographical area and sharing institutional facilities commonly.

For convenience of analysis, we make a distinction between two sets of variables: (1) a set of variables relevant to the concept of village development, and (2) a set of variables relevant to the external and internal communication contacts relating to the village social system.

We shall begin with the explication of the first set of variables. In Chapter IV we deal with the external communication contact. We present the internal communication contact in Chapter VI.

Village Development Variables

As we mentioned earlier, one of our research objectives in this study is to seek answers to the following questions at the village social system level.

- #1. What variables are conceptually meaningful in describing and ordering the village systems along the dimensions of development?
- #2. What data analytic methods are useful to describe and order villages in terms of development based on multi-variate measures?
- #3. What is the meaningful typology of village systems analytically useful to talk about their internal communication structures, integration and external linkage?

With reference to question #1 we assume the existence of a domain consisting of an interplay of influences affecting the development phenomenon occurring in the village social system. The battery of variables selected for analysis here are hypothesized to be conceptually

related to this domain of development. These variables are assumed to measure a number of development activities and characteristics at the village level.

The conceptual relevance of the variables and the availability of quantitative measures for the village level analysis, are the two main guidelines followed in this investigation for choosing the variables.

For purpose of the present investigation, we consider it useful to make a conceptual distinction between "development" and "modernization." Development refers to a set of complex changes in the economic and social aspects of a system at an aggregate level whereas modernization refers to social psychological aspects of the components constituting the system (Smith and Inkeles, 1966; Rogers, 1969).

In abstract terms, development may be defined as a process by which a system continuously increases its capacity and performance to realize its goals. Conceptualization of development and its aspects is dependent on the nature of the system. For example, when psychologists speak of development, the reference is to the psychological aspect of a person or a group. When a sociologist or a political scientist looks at the process of development, the conceptualization of a system is its social structure, power, authority, and political organization. When the economist analyzes the concept of development, he looks at the factors of production, allocation of resources, capital formation and utilization, growth and composition of output, institutional structure and economic organization.

In general, the mode of increasing the capacity of a given system is indicated in initiating and sustaining of new structures and roles, resource capabilities, evolving new relations, building new institutions,

innovations, and renovative techniques of production, management, and application of new knowledge to reshape, control and cope with the environment. Development is basically a dynamic process through time. However, at any one time, we may identify this process by looking at the capacity of a given entity to accomplish its goals in specified components of development domain at a rate consistent with the explicit or implicit values of the entity. This capacity may be looked upon both as a product and as a process depending on whether we are analyzing synchronically or diachronically.

A representative sample of development indicators at the village level is proposed to be selected from a set of available data.

A. Development institutions

The concept of development, as we indicated earlier, has as its integral part the capacity of a village system to regenerate and mobilize human and non-human resources to accomplish specified set of system goals. This capacity of the system is, in part, indicated by the number and variety of institutions operating affecting the village system. Literature on development frequently refers to the adequacy of institutional configuration and strength of the societies aspiring for development (Kirany, p. 96). In the particular context of agricultural development, Luykx (1964) and Wharton (1967) refer to these institutions under the concepts of capital intensive infrastructure (e.g., irrigation, transport and storage facility), capital extensive infrastructure (e.g., credit and financial facilities, and institutional infrastructure (e.g., land tenure and agriculture reform).

Lerner (1957, p. 411) refers to the facilitating role of the institutions in providing services, knowledge, and alternative solutions for problems facing the village social system engaged in its transformation.

Eisenstadt (1966, p. 43) speaks of the continued creation of structural differentiation, growth of interrelation among the differentiated units and ability of the system to transform itself to meet the demands for change and sustained growth.

The concept of differentiation defined as the diversity of publicly discriminated meaning areas maintained by the community was measured by Young and others (1968) focusing on the simple presence or absence of institutionalized patterns (e.g., primary school, central sewer system, secondary school, and post office). They found a correlation (.59) between their community differentiation scale and the level of agricultural technology (Young and others, 1968, p. 349). These institutions at the village level cover a wide range of services and facilities affecting agriculture, education, health, communication and transport.

The hypothesized relation between the degree of the proximate existence of institutions and the level of village development is positive. In the present investigation the following variables were used as indicators of the proximate existence of institutions in the village.

1. Village institution scale. The following items were used in constructing the scale (see Appendix B Variable #58 for measurement procedure):

- (a) High school
- (b) Co-operative society

- (c) Godown (warehouse) facility
- (d) Youth club
- (e) Post office
- (f) Panchayat (village government) headquarters
- (g) Bicycle repair shop
- (h) Retail market
- (i) Temple/church/mosque
- (j) Village grocery Store

2. Village institution proximity scale

The physical distance between the village and the location of facility were obtained for the following institutions (see Appendix B Variable #58 for measurement procedure):

- (a) Veterinary facility
- (b) Co-operative society
- (c) Godown facility
- (d) Village level worker headquarters
- (e) Panchayat headquarters
- (f) Block development headquarters

B. Techno-economic resources

One of the factors affecting the development of a village is the availability of economically exploitable physical resources such as cultivable land, labor, cattle wealth, energy base, physical and financial capital for operating the farm and farming related activities.

The hypothesized relation between the degree of availability of resources and the level of village development is positive.

The following variables were chosen as indicative of human, physical and financial resources (see Appendix B for measurement procedures of these variables).

3. Land ownership (variable #5)
4. Percentage of cultivators to agricultural workers (variable #10)
5. Man-land ratio (variable #1)
6. Percentage of male agriculture workers to total male workers (variable #8)
7. Percentage of female agriculture workers to total female workers (variable #9)
8. Cattle wealth index (variable #53)
9. Grain mill index (variable #48)
10. Oil engine index (variable #47)
11. Machine index (variable #50)
12. Electric pumps (variable #46)
13. Draught animal index (variable #6)
14. Availability of electricity (variable #51)
15. Tax (variable #52)
16. Number bicycles per thousand persons (variable #45)
17. Transportation facility index (variable #39)
18. Village store items (variable #55)

C. Agricultural development

In the villages where the main economic activity is cultivating food and commercial crops, the degree of agricultural development is indexed by the adoption of modern agricultural inputs and crop patterns.

1000
1001
1002
1003
1004
1005
1006
1007
1008
1009
1010
1011
1012
1013
1014
1015
1016
1017
1018
1019
1020
1021
1022
1023
1024
1025
1026
1027
1028
1029
1030
1031
1032
1033
1034
1035
1036
1037
1038
1039
1040
1041
1042
1043
1044
1045
1046
1047
1048
1049
1050
1051
1052
1053
1054
1055
1056
1057
1058
1059
1060
1061
1062
1063
1064
1065
1066
1067
1068
1069
1070
1071
1072
1073
1074
1075
1076
1077
1078
1079
1080
1081
1082
1083
1084
1085
1086
1087
1088
1089
1090
1091
1092
1093
1094
1095
1096
1097
1098
1099
1100
1101
1102
1103
1104
1105
1106
1107
1108
1109
1110
1111
1112
1113
1114
1115
1116
1117
1118
1119
1120
1121
1122
1123
1124
1125
1126
1127
1128
1129
1130
1131
1132
1133
1134
1135
1136
1137
1138
1139
1140
1141
1142
1143
1144
1145
1146
1147
1148
1149
1150
1151
1152
1153
1154
1155
1156
1157
1158
1159
1160
1161
1162
1163
1164
1165
1166
1167
1168
1169
1170
1171
1172
1173
1174
1175
1176
1177
1178
1179
1180
1181
1182
1183
1184
1185
1186
1187
1188
1189
1190
1191
1192
1193
1194
1195
1196
1197
1198
1199
1200
1201
1202
1203
1204
1205
1206
1207
1208
1209
1210
1211
1212
1213
1214
1215
1216
1217
1218
1219
1220
1221
1222
1223
1224
1225
1226
1227
1228
1229
1230
1231
1232
1233
1234
1235
1236
1237
1238
1239
1240
1241
1242
1243
1244
1245
1246
1247
1248
1249
1250
1251
1252
1253
1254
1255
1256
1257
1258
1259
1260
1261
1262
1263
1264
1265
1266
1267
1268
1269
1270
1271
1272
1273
1274
1275
1276
1277
1278
1279
1280
1281
1282
1283
1284
1285
1286
1287
1288
1289
1290
1291
1292
1293
1294
1295
1296
1297
1298
1299
1300
1301
1302
1303
1304
1305
1306
1307
1308
1309
1310
1311
1312
1313
1314
1315
1316
1317
1318
1319
1320
1321
1322
1323
1324
1325
1326
1327
1328
1329
1330
1331
1332
1333
1334
1335
1336
1337
1338
1339
1340
1341
1342
1343
1344
1345
1346
1347
1348
1349
1350
1351
1352
1353
1354
1355
1356
1357
1358
1359
1360
1361
1362
1363
1364
1365
1366
1367
1368
1369
1370
1371
1372
1373
1374
1375
1376
1377
1378
1379
1380
1381
1382
1383
1384
1385
1386
1387
1388
1389
1390
1391
1392
1393
1394
1395
1396
1397
1398
1399
1400
1401
1402
1403
1404
1405
1406
1407
1408
1409
1410
1411
1412
1413
1414
1415
1416
1417
1418
1419
1420
1421
1422
1423
1424
1425
1426
1427
1428
1429
1430
1431
1432
1433
1434
1435
1436
1437
1438
1439
1440
1441
1442
1443
1444
1445
1446
1447
1448
1449
1450
1451
1452
1453
1454
1455
1456
1457
1458
1459
1460
1461
1462
1463
1464
1465
1466
1467
1468
1469
1470
1471
1472
1473
1474
1475
1476
1477
1478
1479
1480
1481
1482
1483
1484
1485
1486
1487
1488
1489
1490
1491
1492
1493
1494
1495
1496
1497
1498
1499
1500
1501
1502
1503
1504
1505
1506
1507
1508
1509
1510
1511
1512
1513
1514
1515
1516
1517
1518
1519
1520
1521
1522
1523
1524
1525
1526
1527
1528
1529
1530
1531
1532
1533
1534
1535
1536
1537
1538
1539
1540
1541
1542
1543
1544
1545
1546
1547
1548
1549
1550
1551
1552
1553
1554
1555
1556
1557
1558
1559
1560
1561
1562
1563
1564
1565
1566
1567
1568
1569
1570
1571
1572
1573
1574
1575
1576
1577
1578
1579
1580
1581
1582
1583
1584
1585
1586
1587
1588
1589
1590
1591
1592
1593
1594
1595
1596
1597
1598
1599
1600
1601
1602
1603
1604
1605
1606
1607
1608
1609
1610
1611
1612
1613
1614
1615
1616
1617
1618
1619
1620
1621
1622
1623
1624
1625
1626
1627
1628
1629
1630
1631
1632
1633
1634
1635
1636
1637
1638
1639
1640
1641
1642
1643
1644
1645
1646
1647
1648
1649
1650
1651
1652
1653
1654
1655
1656
1657
1658
1659
1660
1661
1662
1663
1664
1665
1666
1667
1668
1669
1670
1671
1672
1673
1674
1675
1676
1677
1678
1679
1680
1681
16

The hypothesized relation between the degree of adoption of modern agricultural inputs and the level of village development is positive.

The following variables were chosen to index the agricultural development (see Appendix B for description of measurement procedures of respective variables).

19. Multiple cropping index (variable #47)
20. Agricultural adoption index (variable #44)
21. Seed distribution index (variable #30)
22. Plant protection adoption scale (variable #28)
23. Cattle and manure adoption scale (variable #27)
24. Prize winning performance (variable #29)
25. Implementation adoption scale (variable #26)
26. Improved seed (Guttman) scale (variable #25)
27. AEO's rating of agricultural development (variable #24)
28. BDO's rating of agricultural development (variable #22)

D. Health and family planning practices

The positive state of adoption of modern health practices and family planning methods are indicators of development. It is hypothesized that the relation between the adoption of modern health practices in the village and the level of development is positive.

The following variables were selected as indicators of the state of health in the village (see Appendix B for description of measurement procedure of respective variables).

29. Infant mortality (variable #19)
30. Birth rate (variable #20)
31. Physician's rating of village health development (variable #23)

32. Percent of women practicing family planning (variable #21)

E. Educational development

Educational experience has a positive contribution towards developing the necessary skills, knowledge and attitudes in the village systems. The hypothesized relation between the educational attainments of the village manpower and the level of village development is positive.

The following variables were chosen to index the educational development of the village (see Appendix B for description of measurement procedure of respective variables).

33. Male literacy (variable #11)

34. Female literacy (variable #12)

35. Male primary grade (variable #13)

36. Female primary grade (variable #14)

37. Male middle grade (variable #15)

38. Female middle grade (variable #16)

39. Male high grade (variable #17)

40. Female high grade (variable #18)

F. Political development

Participation in political activity is assumed to be an indicator of development. It is hypothesized that the degree of political participation and the level of village development is positive.

The following variables were chosen to indicate the political activity (see Appendix B for description of measurement procedures for respective variables).

41. Political parties in the village (variable #2)

42. Voting in Panchayat election (variable #4)

43. Voting in national election (variable #3)

G. Communication resources

Availability of communication resources is hypothesized to be positively associated with the degree of development of the village. The villagers would have greater opportunity to widen their knowledge of the social and technological changes going on in the outside world if the communication resources are available. Outside knowledge is likely to create a sense of motivation to set new goals for the individuals and the community, to achieve new goals or adopt alternative methods to accomplish the old ones. Also, this is likely to develop a concern for the wider (regional, national and international) welfare of the people and increase the degree of independence or liberation from the unsatisfactory local norms.

The following variables were chosen to index the communication resources (see Appendix B for description of measurement procedures of respective variables).

- 44. Number of persons per monthly magazines, daily newspapers and weekly newspapers received in the village (variable #49)
- 45. Number of persons per radio in good working order (variable #57)
- 46. Accessibility to postal facility (variable #35)
- 47. Accessibility to library facility (variable #36)
- 48. Accessibility to cinema facility (variable #37)
- 49. Officers residing in the village (variable #38)

H. Leadership profiles

Among the human resource structures, leadership roles and characteristics are considered to be relevant factors of development at local, national and international levels. It is widely believed that incongruous human resource structures are serious impediments to self-sustained economic and social development (Himmert Strared and others, (1971, p. 27)).

The variables included to index the village leadership profiles of human resource structures are the following (see Appendix B for description of measurement procedures of respective variables).

- 50. Leader caste status (variable #56)
- 51. Leader empathy index (variable #31)
- 52. Leader land oriented conservatism index (variable #56)
- 53. Leader sacred-secular value index (variable #34)
- 54. Leader change norm index (variable #32)
- 55. Leader economic orientation index (variable #33)
- 56. Leader occupational mobility index (variable #43)
- 57. Leader credit orientation index (variable #41)

Data Processing and Analytical Procedures

The data for the foregoing variables were available from the MSU-AID*Diffusion Project data file, punched on the IBM cards at the Department of Communication, Michigan State University. Table 1 (Appendix A) gives the variables, the data location, their brief description, form and assumed level of measurement. For each variable the source of information on which it is based is indicated in Appendix B.

*Michigan State University - Association for International Development (MSU - AID).

The form in which the data are proposed to be analyzed can be described as "implications model" and not "causal model." We are merely seeking to describe the elements and their inter-relationships having implications for the concept and measurement of village development and its implications for communication correlates. We see this as a preliminary step for a later formulation of a causal model of village development.

The hypotheses concerning the development level of the village social system and communication patterns are proposed to be tested based on non-experimental survey data and case evidence.

The first step is to arrive at the descriptive statistics so that we can look at the nature of the frequency distribution of the variables in terms of mean, standard deviation and the degree of skewness, and also to note the extent of missing data.

The descriptive statistics and the extent of missing data are reported for each variable in Table 2 (Appendix A). Also see Appendix B for a detailed profile of the distribution of each variable. Table 3 (Appendix A) presents the extent of missing data on them for the 108 villages, the N for the present village study.

Bastat program which gives basic statistical measures such as mean, standard deviation and skewness was run to obtain the basic statistical measures suppressing missing data.

We set up an arbitrary tolerance limit of 10 percent of missing data for retaining the variables in the analysis. In cases where we considered that a particular variable was conceptually important, we relaxed the arbitrarily set limit.

The second step is the construction of a matrix of intercorrelations using all the relevant variables that are hypothesized to measure the domain of village development. Such a matrix is presented in Table 4 (Appendix A). By inspecting the coefficient of correlation, we find that almost all variables show a measure of statistically significant correlation ($P < .05$) with other variables in the matrix. That is, the correlations among the variables can occur by chance alone five times or less out of one hundred cases.

The third step is to reduce the intercorrelation matrix of 57 variables into a smaller set whose interrelationships are assumed to provide an empirical basis to describe the dimensions of village development.

Factor analytic method has been widely used in data reduction and description of the development dimensions (Farace, 1965; Adelman and Morris, 1967; Rummel, 1971; Adelman and Dalton, 1971).

Given a set of descriptive variables, factor analysis resolves them in terms of a small number of categories or factors based on the strength of the intercorrelation of the variables (Holzinger and Harman 1941, p. 3).

The factor analytic designs vary depending on the nature of the entities that we are studying and the nature of the variables whose variance component we propose to extract as hypothetical factors. In the present study we are concerned with the village social system as the entity and the variables assumed theoretically to indicate some aspects of village development. The variables we are analyzing are very large, numbering 57. We have conceptually categorized these variables

under eight labels. We propose to describe the villages, their level of development in terms of eight components. The problem for us now is to empirically relate the 57 variables in such a way that their structural relations as indicated by their intercorrelations provide us a justification to consider them as a group of variables which are under the influence of some "hypothetical factor," a higher level conceptual abstraction.

Consider each of the 57 variables as some kind of a "response" each village social system (the entity we are studying) is giving us when we use the instruments (the set of questions in the present case) to measure their "development state." We propose to extract some factors from the variance of the "response variables." Conventionally, this mode of factor analysis is referred to as "R factor analysis." In this third step, we employed FACTORA Program available at CISSR, the Michigan State University Computer Center specifying the following options.

1. Unity was substituted for the diagonal value in the correlation matrix.
2. Varimax rotation of factors was employed.
3. Orthogonal solution was used.
4. Kiel-Wrigley criterion of 3 variables was set up for terminating the factor rotation.

Our fourth step is to obtain a composite score for each of the development factors extracted from the matrix of correlations. This composite score is the basis for ordering each of 108 village social system along different dimensions of development.

Chapter IV presents the findings of steps three and four.

CHAPTER IV

VILLAGE DEVELOPMENT DIMENSIONS AND EXTERNAL COMMUNICATION CONTACT

The objectives of this chapter are:

1. To present the R Factor analytic results of the 57 variable correlation matrix extracting the village development dimensions
2. To test empirically the general hypothesis relating the selected dimensions of village development to external communication integration indicators.

R Factor Analytic Findings

How many factors can we extract from the correlation matrix of 57 variables? Our objective was to get a set of meaningful factors consistent with the principle of parsimony, obtain a composite score for each one of the factors which subsumed the functional unity among the variables correlated with it.

In addition to the criterion of parsimony, we set out two other criteria based on the statistical considerations alone in choosing the number of factors: (1) "purity" of factor loadings, and (2) percent of variance explained by the number of factors chosen. These criteria are sometimes conflicting and may be demanding a different type of factor solution. For example, if we stick to the criterion of parsimony in

selecting the number of factors, we may have left out a large amount of variance unexplained among the battery of variables. On the other hand the criterion of extracting as complete an amount of variance as practicable calls for an increase in the number of factors.

We took into consideration the criteria of factor "purity," parsimony, variance maximization, conceptual relevance, meaningfulness and interpretability of factors, and a balance had to be struck in deciding the number of factors we could extract.

Thus four main considerations guided the choice of the factor solution: (1) parsimony, (2) conceptual clarity, (3) "purity" in factor loadings, and (4) the maximum amount of variance explained. A satisfactory solution should yield factors which convey all the essential information of the original set of variables (Holzinger and Harman, 1941, p. 3). Accordingly, we decided to choose eleven-factor solution which explained 57 percent of the variance based on the varimax principle. Table 5 (Appendix A) gives the factor structure of all the solutions.

In this chapter, we make a detailed presentation of the eleven-factor structure. Table 6 below presents the variables with their highest loadings on each of one of eleven factors starting with Factor I. The last column presents the communality (h^2) for each variable. The communality of a variable represents the degree of variance of each variable accounted for across all the eleven factors.

Table 7 (Appendix A) gives the spectrum of communality. Communality values in the eleven-factor solution range from .305 to .913. Six variables have a range of communality from .305 to .406. The remaining 51 variables have a communality of .421 or better.

Table 6. Orthogonally Rotated^a Factor Matrix for 57 Village Development Indicators.

| Village Development Indicators | | Factors ^b (F) | | | | | | | | | | h ² (Communality) | |
|--------------------------------|------------------|--------------------------|--------|--------|-------|-------|-------|-------|-------|-------|-------|------------------------------|------|
| F# | (Variable Code*) | F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F9 | F10 | F11 | |
| I | | | | | | | | | | | | | |
| 22 | Agladb | .809* | .135 | .078 | -.038 | -.079 | .009 | .108 | .029 | -.034 | -.062 | -.043 | .706 |
| 24 | Aglada | .738* | .095 | .087 | .106 | -.073 | .058 | .063 | .073 | .066 | .027 | .005 | .595 |
| 23 | Hfpladb | .703* | .177 | .125 | .068 | -.190 | .012 | .106 | -.008 | -.178 | -.346 | -.049 | .747 |
| 50 | Machine | .558* | .081 | .072 | -.110 | -.211 | -.071 | .000 | -.205 | .148 | .439 | -.211 | .686 |
| 51 | Elec | .526* | .099 | .053 | .146 | -.295 | .260 | .367 | .044 | .021 | .206 | .040 | .646 |
| 46 | Elecpump | .514* | -.017 | .125 | .095 | -.095 | .009 | .317 | -.022 | .108 | .391 | .062 | .568 |
| 16 | Midfem | .489* | .376 | -.164 | -.003 | -.301 | .041 | .087 | -.248 | .094 | -.091 | -.354 | .711 |
| 52 | Tax | .438* | .322 | .152 | .024 | .035 | -.019 | -.002 | -.266 | -.003 | -.073 | .088 | .405 |
| 29 | Prize | .260* | .224 | -.051 | .257 | .025 | .230 | .230 | .047 | -.090 | .094 | -.200 | .352 |
| II | | | | | | | | | | | | | |
| 6 | Danix | -.101 | -.740* | .045 | -.153 | -.011 | -.167 | -.125 | -.041 | -.075 | -.083 | -.060 | .644 |
| 10 | Tanix | .089 | .627* | -.043 | -.123 | -.020 | -.022 | .232 | .063 | -.065 | .040 | -.124 | .498 |
| 12 | Litfem | .357 | .626* | .096 | -.115 | -.340 | -.076 | -.070 | -.198 | .078 | -.238 | -.111 | .782 |
| 57 | Radio | -.124 | -.546* | .151 | .253 | .046 | .226 | -.185 | .128 | -.356 | .111 | -.300 | .732 |
| 49 | Mag | .138 | .521* | .107 | -.120 | -.320 | .068 | -.014 | -.159 | .116 | -.097 | -.066 | .476 |
| 11 | Litem | .215 | .444* | .383 | .043 | -.302 | -.057 | -.023 | -.067 | .001 | -.352 | -.098 | .625 |
| 3 | Nv | .091 | .361* | .327 | .105 | -.108 | .011 | .013 | .164 | .017 | -.027 | -.326 | .403 |
| 36 | Libac | .247 | .339* | -.290 | .023 | -.247 | .044 | .330 | .024 | -.011 | -.204 | .231 | .528 |
| III | | | | | | | | | | | | | |
| 32 | Chanorm | -.064 | -.201 | .791* | -.164 | .128 | .004 | .153 | .059 | .128 | .017 | .058 | .761 |
| 2 | Pp | .215 | .096 | .611* | .135 | -.222 | -.046 | .135 | -.144 | .013 | .089 | -.098 | .555 |
| 56 | Caste | -.106 | -.111 | -.586* | -.110 | .153 | -.314 | -.061 | -.049 | -.116 | .095 | .107 | .540 |
| 31 | Emp | .264 | -.173 | .549* | -.104 | -.067 | .068 | .084 | .065 | .047 | -.092 | -.053 | .445 |
| 34 | Sac | .042 | .187 | .523* | -.156 | -.086 | -.231 | .225 | -.083 | .268 | .089 | -.104 | .544 |

* See Table 8 for variable list and Appendix B for operationalization.

^aVarimax notation.

^bPrincipal axis technique. Unity was employed in the main diagonal of the correlation matrix as communality estimate.

Table 6 (cont'd.)

| Village Development Indicators | | F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F9 | F10 | F11 | h^2 (Communality) |
|--------------------------------|------------------|-------|-------|-------|--------|--------|-------|-------|-------|-------|-------|-------|---------------------|
| F# | (Variable Code*) | | | | | | | | | | | | |
| IV | 33 Ecorient | .028 | .109 | .041 | -.760* | .044 | .550 | -.007 | -.003 | -.071 | .062 | -.095 | .913 |
| | 43 Occupmobi | -.057 | .142 | -.018 | -.679* | -.135 | .133 | -.034 | -.083 | -.055 | -.010 | .070 | .536 |
| | 42 Riskori | -.109 | -.027 | .075 | -.679* | .150 | -.049 | -.026 | -.155 | .152 | -.104 | .063 | .566 |
| | 53 Catt | -.041 | .081 | -.305 | .465* | .310 | .103 | .195 | -.001 | .268 | .090 | .190 | .578 |
| | 4 Pv | .116 | .034 | .166 | .556* | .169 | .222 | -.269 | -.127 | .047 | .050 | -.181 | .555 |
| V | 37 Ciredist | .112 | .076 | .143 | -.029 | -.728* | .011 | -.075 | -.103 | -.134 | .013 | .080 | .611 |
| | 39 Transix | .085 | .148 | .097 | -.015 | -.702* | .025 | .158 | -.041 | .070 | .050 | .038 | .568 |
| | 8 Agocxm | .041 | -.039 | -.078 | .077 | .634* | .070 | -.142 | .405 | .063 | .114 | .204 | .663 |
| | 54 Instigut | .057 | .183 | -.046 | -.013 | -.548* | .012 | .196 | .033 | .188 | -.230 | -.381 | .612 |
| | 58 Instprox | .376 | -.063 | .039 | .140 | -.488* | -.017 | .210 | .267 | .069 | -.103 | -.082 | .542 |
| | 7 Mucix | .299 | .042 | -.131 | -.082 | -.473* | -.122 | -.155 | .087 | -.141 | -.008 | .033 | .406 |
| | 35 Postac | .212 | .338 | .039 | -.142 | -.402* | .151 | .254 | .137 | .233 | -.111 | -.232 | .568 |
| VI | 40 Landconsor | .022 | .167 | -.004 | -.165 | .123 | .596* | -.065 | .041 | -.145 | .084 | -.075 | .465 |
| | 9 Agocxf | .115 | .054 | .127 | .222 | .284 | .530* | .063 | .420 | -.154 | -.019 | .021 | .647 |
| | 55 Visgut | -.114 | -.196 | .021 | .053 | -.222 | .526* | -.026 | -.255 | .300 | -.061 | .128 | .556 |
| | 41 Creditori | .218 | -.168 | .043 | -.297 | -.040 | .511* | .172 | .033 | -.082 | .183 | -.278 | .576 |
| VII | 27 Catman | .248 | .088 | .070 | -.059 | -.285 | .080 | .692* | .043 | -.095 | .045 | -.034 | .658 |
| | 44 Agadopt | .345 | .278 | .417 | .050 | -.061 | -.032 | .687* | -.045 | -.009 | -.038 | -.077 | .858 |
| | 25 Sedgut | .061 | .073 | .220 | -.108 | -.000 | -.170 | .616* | -.034 | .025 | -.160 | .006 | .506 |
| | 28 Plantpro | .087 | .188 | .425 | .172 | .179 | .185 | .513* | .149 | -.006 | .154 | -.075 | .635 |
| | 30 Sedix | -.041 | .143 | .032 | .241 | -.075 | .359 | .467* | -.253 | .053 | -.012 | .091 | .509 |
| | 19 Infmart | -.109 | .178 | .349 | .080 | -.168 | .017 | .365* | .229 | -.062 | -.079 | .290 | .480 |

*See Table 8 for variable list and Appendix B for operationalization.

^aVarimax notation.^bPrincipal axis technique. Unity was employed in the main diagonal of the correlation matrix as communality estimate.

Table 6 (cont'd.)

| Village
Development
Indicators | | F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F9 | F10 | F11 | h^2
(Commu-
nality) |
|--------------------------------------|---------------------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|-----------------------------|
| F# | Variable
(Code*) | | | | | | | | | | | | |
| VIII | 5 Lo | .076 | -.015 | -.165 | .210 | .074 | .189 | .040 | -.742* | -.019 | -.017 | .063 | .672 |
| | 1 Mlr | .016 | .094 | .089 | -.097 | -.158 | -.156 | .006 | -.687* | .038 | -.098 | .094 | .567 |
| IX | 48 Grainm | .115 | -.025 | .043 | -.084 | .086 | .064 | .150 | .017 | .734* | -.101 | -.115 | .619 |
| | 14 Primef | -.043 | .075 | .301 | .047 | .016 | -.030 | -.108 | -.037 | .696* | -.294 | .027 | .686 |
| | 13 Primem | .027 | .079 | .141 | .188 | .079 | -.135 | -.058 | .017 | .687* | .003 | -.078 | .568 |
| | 45 Bicy | -.114 | .384 | -.034 | -.049 | -.353 | -.055 | -.116 | -.143 | .501* | -.221 | .230 | .678 |
| | 26 Imple | .293 | .043 | .240 | .139 | .098 | -.075 | .197 | .018 | -.314* | -.154 | .010 | .341 |
| X | 17 Him | .235 | .105 | .016 | -.185 | -.183 | -.129 | .022 | .007 | .277 | -.705* | .041 | .727 |
| | 15 Midem | .095 | .087 | .121 | -.127 | -.034 | -.080 | -.029 | -.159 | .408 | -.665* | .044 | .692 |
| | 18 Hifem | -.121 | .028 | .015 | .132 | -.093 | .031 | .268 | -.269 | .101 | -.499* | -.261 | .514 |
| | 47 Oilengi | .296 | .147 | .263 | .025 | .040 | -.065 | -.038 | -.146 | .145 | .447* | -.391 | .581 |
| XI | 20 Birth | .168 | -.063 | .094 | .197 | .005 | -.051 | -.015 | .202 | -.012 | .146 | -.568* | .476 |
| | 38 Office | -.151 | .094 | .086 | -.055 | -.082 | .155 | .035 | -.007 | .129 | -.110 | -.450* | .305 |
| | Variance explained | 8% | 6% | 6% | 5% | 7% | 4% | 6% | 4% | 5% | 5% | 5% | |

* See Table 8 for variable list and Appendix B for operationalization.

^aVarimax notation.^bPrincipal axis technique. Unity was employed in the main diagonal of the correlation matrix as communality estimate.

Table 8 (Appendix A) gives reference to the variable code numbers and labels used in R Factor analysis.

The description of each one of the eleven factors is based on the operational meaning and the conceptual significance borne out by the variables that show the highest loadings on the factor. "Purity" of factor loading* and simplicity of factor structure are desirable for a "clean" factor interpretation. It seemed very difficult to satisfy such criteria. Therefore, we formulated some guidelines based on previous factor analytic studies of development and modernization.

1. The major structural meaning of the factor was derived from the variables which showed loadings of .30 or better
2. Conceptual and theoretical sense of the configuration of the variables was stressed more than the mere size of individual factor loading
3. In cases where we found the factor loadings very complex i.e., the size of loadings being similar across more than one factor for a given variable, we included that variable in interpreting the factor where it made the most conceptual sense
4. For each variable, we included its secondary and tertiary loadings on other factors in their interpretation.

Following the foregoing guidelines, we found all the 57 variables to be associated primarily with one or the other factor of the eleven-factor structure.

Factor I

Village General Development

Factor 1 accounts for eight percent of the variance among the 57 variables. Nine variables show primary relations with this factor,

*The factor loading measures the degree of involvement of a variable in making up the factor. It is a correlation coefficient between the variable and the factor.

Table 8. Alphabetical List of Variables* used in Factor Analysis for Describing Village Development Dimensions.

| Code Name | Code No. | Variable Name |
|--------------|----------|---|
| Agadopt | #44 | Agricultural Adoption |
| Aglada | #24 | Agricultural Extension Officer Rating |
| Agladb | #22 | Block Development Officer's Rating |
| Agocxf | # 9 | Agricultural Occupation Index
(Female) |
| Agocxm | # 8 | Agricultural Occupation Index
(Male) |
| Bicy | #45 | Bicycle Index |
| Birth | #20 | Crude Birth Rate |
| Caste | #56 | Caste Status (Leader) |
| Catman | #27 | Cattle and Manure Adoption |
| Catt | #53 | Cattle Wealth Index |
| Change norms | #32 | Change Norm Index (Leader) |
| Cinedist | #37 | Cinema Facility Distance |
| Creditori | #41 | Creditorientation (Leader) |
| Danix | # 6 | Draught Animal Index |
| Ecorient | #33 | Economic Orientation (Leader) |
| Elec | #51 | Availability of Electricity |
| Elecpump | #46 | Electric Pump |
| Emp | #31 | Empathy Index (Leader) |
| Grainm | #43 | Grain Mill Index |
| Hfpladp | #23 | Physician's Rating of Village Health
and Family Planning Development |
| Hifem | #18 | Females with High School Grade
Education |
| Him | #17 | Males with High School Grade
Education |
| Imple | #26 | Implement Adoption Scale |
| Infmart | #19 | Infant Mortality |
| Instigut | #54 | Institution Scale |
| Instprox | #58 | Institution Proximity |
| Landconsori | #56 | Land Oriented Conservatism |
| Libac | #36 | Library Facility Distance |

* See Appendix B for operational definitions and measurement.

Table 8 (cont'd.)

| Code Name | Code No. | Variable Name |
|-----------|----------|---|
| Litem | #11 | Male Literacy |
| Litfem | #12 | Female Literacy |
| Lo | # 5 | Land Ownership |
| Machine | #50 | Machine Index |
| Mag | #49 | Magazine Rate |
| Midem | #15 | Males with Middle Grade Education |
| Midfem | #16 | Females with Middle Grade Education |
| Mlr | # 1 | Man Land Ratio |
| Mucix | # 7 | Multiple Crop Index |
| Nv | # 3 | National Voting |
| Occupmobi | #43 | Occupational Mobility (Leader) |
| Oilengi | #47 | Oil Engine Index |
| Office | #38 | Officers Residing in Village |
| Plantpro | #28 | Plant Protection Adoption |
| Postac | #35 | Postal Accessibility |
| Pp | # 2 | Political Parties |
| Primef | #14 | Females with Primary Grade |
| Primem | #13 | Males with Primary Grade |
| Prize | #29 | Village Progress Index |
| Pv | # 4 | Panchayat Voting |
| Radio | #57 | Persons Per Radio |
| Riskori | #42 | Risk Orientation (Leader) |
| Sac | #34 | Sacred-Secular Values Index (Leader) |
| Sedgut | #25 | Seed Adoption Scale |
| Sedix | #30 | Seed Distribution Index |
| Tax | #52 | Tax Rate |
| Tenix | #10 | Ratio of Agricultural Laborers to Cultivators |
| Transix | #39 | Transportation Facility Index |
| Visgut | #55 | Village Store Items |
| Wfp | #21 | Women Practising Family Planning Methods |

their factor loadings ranging from .260 to .809 (Table 6).

Highest Loadings

Three variables which indicate the subjective ratings of the level of village development made by three different development workers (viz., the block development officer, the agricultural extension officer and the public health officer) on a 7-step development ladder scale show a very high loading on Factor I: the block development officer (.809),* the agricultural extension officer (.738), and the public health officer (.703) dominate the factor. Also this factor is characterized by a high ratio of machines to population (.558), availability of electricity in the village (.526), use of electricity in lifting water for irrigation purposes (.514), greater proportion of girls in the village educated up to middle school level (.489), high taxable capacity of the village (.438), and the prize-winning performance of the village in development activities (.260) (Table 9).

Other Loadings

The empirical meaning of Factor I becomes clearer if we look at the variables whose secondary and tertiary loadings on this factor range from .212 to .376 (Table 9): Proximity to institutions** (.376), higher rate of general literacy among women (.357) and men (.215), adoption of

* Figures in the parenthesis refer to factor loading for respective variables.

** Institutional facilities such as veterinary dispensary, cooperative society, gardening and warehousing facilities, headquarters of development workers and office locations of organizational decision making.

Table 9. Factor I: Village General Development (VGD) (Variance explained: 8%)

| Variable
Code* | Factor I
(VGD) | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F9 | F10 | F11 | h ² |
|-------------------------|-------------------|------|-------|-------|-------|------|------|-------|-------|-------|-------|----------------|
| <u>Primary loadings</u> | | | | | | | | | | | | |
| 22 Agladb | .809 | .135 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .706 |
| 24 Aglada | .738 | ... | ... | .106 | ... | ... | ... | ... | ... | ... | ... | .595 |
| 23 Hfpladp | .703 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | .747 |
| 50 Machine | .558 | ... | ... | ... | -.211 | ... | ... | -.205 | ... | .439 | -.211 | .686 |
| 51 Elec | .526 | ... | ... | ... | -.295 | .260 | .367 | ... | ... | .206 | ... | .646 |
| 46 Elecpump | .514 | ... | ... | ... | ... | ... | .317 | ... | ... | .391 | ... | .568 |
| 16 Midfem | .489 | .376 | ... | ... | -.301 | ... | ... | -.248 | ... | ... | -.354 | .711 |
| 52 Tax | .438 | .322 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .405 |
| 29 Prize | .260 | .224 | ... | .257 | ... | .230 | .230 | ... | ... | ... | -.200 | .352 |
| <u>Other loadings</u> | | | | | | | | | | | | |
| 58 Instprox | .376 | ... | ... | ... | -.488 | ... | .210 | .267 | ... | ... | ... | .542 |
| 12 Litfem | .357 | .626 | ... | ... | -.340 | ... | ... | ... | ... | -.238 | ... | .782 |
| 44 Agadopt | .345 | .278 | .417 | ... | ... | ... | .687 | ... | ... | ... | ... | .782 |
| 07 Mucix | .299 | ... | ... | ... | -.473 | ... | ... | ... | ... | ... | ... | .406 |
| 47 Oil engi | .296 | ... | .263 | ... | ... | ... | ... | ... | ... | .447 | -.391 | .581 |
| 26 Imple | .293 | ... | .240 | ... | ... | ... | ... | ... | -.314 | ... | ... | .341 |
| 31 Emp | .264 | ... | .549 | ... | ... | ... | ... | ... | ... | ... | ... | .445 |
| 27 Catman | .248 | ... | ... | ... | -.247 | ... | .330 | ... | ... | ... | ... | .658 |
| 36 Libac | .247 | .339 | -.290 | ... | -.247 | ... | ... | ... | ... | -.204 | .231 | .528 |
| 17 Him | .235 | ... | ... | ... | ... | ... | ... | ... | .277 | -.705 | ... | .727 |
| 41 Creditori | .218 | ... | ... | -.297 | ... | .511 | ... | ... | ... | ... | -.278 | .576 |
| 02 Pp | .215 | ... | .611 | -.222 | ... | ... | ... | ... | ... | ... | ... | .555 |
| 11 Litem | .215 | .444 | .383 | ... | -.302 | ... | ... | ... | ... | -.352 | ... | .625 |
| 35 Postac | .212 | .338 | ... | ... | -.402 | ... | .254 | ... | .233 | ... | -.232 | .568 |

Note: ... = Loading .199 or less. They are omitted unless they are the next highest loading.
F = Factor. h² = Communality.

* See Table 8 and Appendix B for explanation.

modern cultivation practices by farmers (.345), multiple cropping practices (.299), use of oil engine for irrigation (.296), use of new agricultural implements (.293), adoption of new cattle breeds and use of chemical fertilizers (.248), empathic ability of village leadership (.264), accessibility of the library facilities to the village (.247), greater proportion of boys with high school education (.218), propensity of village leaders to borrow money for investments (.218), active functioning of political parties in the village (.215), and accessibility of postal facility to the village (.212).

A configuration of the foregoing measures around Factor I suggest that this factor is a village general development factor because it indexes the overall development of the village based on the subjective ratings of development workers as also its positive correlation with the objective measures: Educational, technological, communication, political and agricultural domains of development.

Factor II

Manpower-Communication Resources

Factor II explains six percent of the total variance among the 57 variables. The loadings on Factor II range from .201 to .740 (Table 10).

Highest Loadings

The dominating variables loading on this factor are (-.740), a smaller proportion of village animal power used for draught purposes in agricultural operations and a larger ratio of agricultural laborers to land owning cultivators (.627). The implication of these variables is

Table 10. Factor II: Manpower-Communication Resources (MCR) (Variance explained: 6%)

| Variable
Code* | Factor II
(MCR) | F1 | F3 | F4 | F5 | F6 | F7 | F8 | F9 | F10 | F11 | h ² |
|-------------------------|--------------------|------|------|------|-------|-------|------|-------|-------|-------|-------|----------------|
| <u>Primary loadings</u> | | | | | | | | | | | | |
| 06 Danix | -.740 | ... | ... | ... | ... | -.167 | ... | ... | ... | ... | ... | .644 |
| 10 Tanix | .627 | .357 | ... | ... | ... | .232 | ... | ... | ... | ... | ... | .498 |
| 12 Litfem | .626 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | .782 |
| 57 Radio | -.546 | ... | ... | ... | ... | ... | ... | ... | -.356 | ... | ... | .732 |
| 49 Mag | .521 | ... | ... | ... | -.320 | ... | ... | ... | ... | ... | ... | .476 |
| 11 Litem | .444 | ... | .383 | ... | -.302 | ... | ... | ... | ... | -.352 | ... | .625 |
| 03 Nv | .361 | ... | .327 | ... | ... | ... | ... | ... | ... | ... | -.326 | .403 |
| <u>Other loadings</u> | | | | | | | | | | | | |
| 45 Bicy | .384 | ... | ... | ... | ... | ... | ... | ... | .501 | ... | ... | .678 |
| 16 Midfem | .376 | .489 | ... | ... | ... | ... | ... | ... | ... | ... | -.354 | .711 |
| 35 Postac | .338 | ... | ... | ... | -.402 | ... | ... | ... | ... | ... | ... | .568 |
| 52 Tax | .322 | .438 | ... | ... | ... | ... | ... | -.266 | ... | ... | ... | ... |
| 44 Agadopt | .278 | .345 | .417 | ... | ... | ... | .687 | ... | ... | ... | ... | .858 |
| 29 Prize | .224 | .260 | ... | .257 | ... | .230 | .230 | ... | ... | ... | -.200 | .352 |
| 32 Chanorm | -.201 | ... | .791 | ... | ... | ... | ... | ... | ... | ... | ... | .761 |

Note: ... = Loading .199 or less. They are omitted unless they are the next highest loading.
F = Factor. h^2 = Communality.

* See Table 8 and Appendix B for explanation.

that there is a greater potential of landless manpower in the village as also a possible tendency for the cultivators to rely heavily on manpower for agricultural operations. Further the syndrome of greater reliance on agricultural tenants and laborers is positively associated with a higher rate of general literacy among women (.626) and men (.444) in the village. Also this factor is positively associated with the prevalence of relatively a smaller number of persons per radio (-.546), a larger number of print media per person (.521), a greater degree of library facilities accessible to the village (.339) and a greater political participation of the village in national elections (.361).

Other Loadings

Factor II has secondary loadings of the greater proportion of girls educated up to middle school grade (.376). This adds to the literacy and communication skills of the village population. The accessibility of the village to postal (mailing) facilities is positively associated with this factor (.338). The proportion of families in the village paying one or more rupees as taxes, is positively associated with this factor (.322). The number of bicycles per 1,000 people in the village is also positively associated with this factor (.384).

All together, Factor II represents the development aspect of the village indicating more reliance on agricultural labor manpower, greater reliance on literacy and communication skills of the people, and greater accessibility for the village to message-media facilities.

Factor III

Leader Change Orientation

Factor III accounts for six percent of the variance among the 57 variables. Five variables show primary loadings on this factor ranging from .523 to .791 (Table 6).

Highest Loadings

Village leaders' favorable attitude towards new agricultural, health and family planning programs, women's education programs, substitution of contractual relationships in place of traditional professional-client relationships, which indicate the acceptance of change as a norm (.791), political activism as indicated by two to three political parties operating in the village (.611), dominance of upper caste strata in village leadership (-.586),* ability of the village leaders in putting themselves in other's roles and situations (.549), village leaders' value orientation along the line of thinking, believing and using the science-technology approaches to solve problems based on rational considerations (.523), have the highest loadings (Table 11).

Other Loadings

Adoption of modern agricultural practices (.417) such as plant protection measures (.425), improved cattle breeding (-.305), implements (.240), seeds (.220), and oil engines (.263) are positively related to the favorable attitude of the village leaders towards change in

*The highest caste was scored as 1 and the lowest was scored as 5 (see Variable #56, Appendix B).

Table 11. Factor III: Leader Change Orientation (LCO) (Variance explained: 6%)

| Variable
Code* | Factor III F1
(LCO) | F2 | F4 | F5 | F6 | F7 | F8 | F9 | F10 | F11 | h^2 |
|-------------------------|------------------------|-------|------|-------|-------|------|-----|-------|------|-----|-------|
| <u>Primary loadings</u> | | | | | | | | | | | |
| 32 Changenorm | .791 | -.201 | ... | ... | ... | ... | ... | ... | ... | ... | .761 |
| 2 Pp | .611 | ... | ... | -.222 | ... | ... | ... | ... | ... | ... | .555 |
| 56 Caste | -.586 | ... | ... | ... | -.314 | ... | ... | ... | ... | ... | .540 |
| 31 Emp | .549 | .264 | ... | ... | ... | ... | ... | ... | ... | ... | .445 |
| 34 Sac | .523 | ... | ... | ... | ... | ... | ... | .268 | ... | ... | .544 |
| <u>Other loadings</u> | | | | | | | | | | | |
| 28 Plant Pro | .425 | ... | ... | ... | ... | .513 | ... | ... | ... | ... | .635 |
| 44 Agadopt | .417 | ... | ... | ... | ... | .687 | ... | ... | ... | ... | .858 |
| 11 Litem | .383 | .444 | ... | ... | ... | ... | ... | ... | ... | ... | .625 |
| 19 Infmort | .349 | ... | ... | ... | ... | .365 | ... | ... | ... | ... | .480 |
| 3 Nv | .327 | .361 | ... | ... | ... | ... | ... | ... | ... | ... | .403 |
| 53 Catt | -.305 | ... | .465 | ... | ... | ... | ... | ... | ... | ... | .578 |
| 36 Libac | -.290 | .339 | ... | ... | ... | ... | ... | ... | ... | ... | .528 |
| 47 Oilengi | .263 | ... | ... | ... | ... | ... | ... | ... | .447 | ... | .581 |
| 26 Imple | .240 | ... | ... | ... | ... | ... | ... | -.314 | ... | ... | .341 |
| 25 Sedgut | .220 | ... | ... | ... | ... | .616 | ... | ... | ... | ... | .506 |

Note: ... = Loading .194 or less. They are omitted unless they are the next highest loading.

F = Factor. h^2 = Communality

* See Table 8 and Appendix B for explanation.

agriculture. General literacy among men is higher (.383). There is active political participation on the part of the villagers in terms of participation in the national voting (.327), but there is high infant mortality (.349), and low library accessibility (-.290).

Factor IV

Leader Economic Conservatism

Factor IV accounts for five percent of the variance among the 57 variables. Five variables show primary loadings on this factor ranging from .556 to .760* (Table 6).

Highest Loadings

Village leaders' orientation to occupational changes and their inclination toward the credit sources for financing agriculture development are indexed by this factor. Greater proportion of leaders is not inclined to sell any portion of the land to finance the farm development; they are inclined to think of other ways of financing rather than selling the land. There is an element of land conservatism involved in this. They also feel that the major portion of finance for farm development

* Auto correlation effect: It is necessary to note here one of the factors affecting the factor loadings. In Factor IV (leader economic conservatism) among the five variables with highest correlations with the factor, the following variables have their highest loadings: #33 Ecorient, -.760, #43 Occupmobi, -.679, #42 Riskori, -.679. If we look at the operationalization of the three variables (see Appendix B) we notice that variable #33 Ecorient is derived by adding the scores of four variables of which #43 Occupmobi and #42 Riskori are the two variables. Because variables #43 and #42 are already a composite part of variable #33 there is an element of auto-correlation effect in their loadings on this factor. But this does not distort the meaning of the factor and only contributes to the redundancy of its meaning.

Table 12. Factor IV: Leader Economic Conservatism (LEC) (Variance explained: 5%)

| Variable
Code* | Factor IV
(LEC) | F1 | F2 | F3 | F5 | F6 | F7 | F8 | F9 | F10 | F11 | h ² |
|-------------------------|--------------------|------|-------|-----|------|------|-------|-------|-------|-----|-------|----------------|
| <u>Primary loadings</u> | | | | | | | | | | | | |
| 33 Ecorient | -.760 | ... | ... | ... | ... | .550 | ... | ... | ... | ... | ... | .913 |
| 43 Occupmobi | -.679 | ... | .142 | ... | ... | ... | ... | ... | ... | ... | ... | .536 |
| 42 Riskori | -.679 | ... | ... | ... | ... | ... | ... | -.155 | ... | ... | ... | .566 |
| 04 Pv | .556 | ... | ... | ... | ... | ... | -.269 | ... | ... | ... | ... | .555 |
| 53 Catt | .465 | ... | ... | ... | .310 | ... | ... | ... | ... | ... | ... | .578 |
| <u>Other loadings</u> | | | | | | | | | | | | |
| 41 Creditori | -.297 | ... | ... | ... | ... | .511 | ... | ... | ... | ... | ... | .576 |
| 29 Prize | .257 | .260 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .352 |
| 57 Radio | .253 | ... | -.546 | ... | ... | ... | ... | ... | ... | ... | ... | .732 |
| 30 Sedix | .241 | ... | ... | ... | ... | ... | .467 | ... | ... | ... | ... | .509 |
| 09 Agocxf | .222 | ... | ... | ... | ... | .530 | ... | ... | ... | ... | ... | .647 |
| 05 Lo | .210 | ... | ... | ... | ... | ... | ... | ... | -.742 | ... | ... | .672 |
| 20 Birth | .197 | ... | ... | ... | ... | ... | ... | ... | ... | ... | -.568 | .476 |

Note: ... = Loading .199 or less. They are omitted unless they are the next highest loading.

F = Factor. h² = Communality

* See Table 8 and Appendix B for explanation.

should not come from loan either. Greater proportion of village leaders is less likely to sell their farms and invest it in another type of business (-.679) or is less likely to move to a city for a job even if it offered double the income (-.679). These orientations of village leaders also go with a greater proportion of people participating in Panchyat (local self-government) elections (.556) and a higher density of cattle population per 100 people (.465) (Table 12). This factor indexes the village leaders' conservative interest in land, greater interest and participation of villagers in the political decision-making at the village level.

Factor V

Institution Handicap

Factor V accounts for seven percent of variance among the 57 variables. Seven variables show their highest primary loadings on this factor ranging from -.402 to -.728 (Table 6).

Highest Loadings

Low proximity of the village to cinema facility (-.728), low accessibility to transport facility (-.702), lack of institutional development such as high school, cooperative society, warehouse, post office, Panchyat (local self-governing body) headquarters, bicycle repair shop, village shop and retail market, public places of worship facilities (-.548), low proximity to veterinary dispensary and VLW headquarters (-.488), postal facility (-.402), and absence of multi-crop cultivation (-.473) characterize this factor (Table 13).

[illegible]

Table 13. Factor V: Institution Handicap (IH) (Variance explained: 7%)

| Variable
Code* | Factor V
(IH) | F1 | F2 | F3 | F4 | F6 | F7 | F8 | F9 | F10 | F11 | h ² |
|-------------------------|------------------|------|------|------|------|------|------|------|------|-----|-------|----------------|
| <u>Primary loadings</u> | | | | | | | | | | | | |
| 37 Cinedist | -.728 | ... | ... | .143 | ... | ... | ... | ... | ... | ... | ... | .611 |
| 39 Transix | -.702 | ... | .148 | ... | ... | ... | ... | ... | ... | ... | ... | .568 |
| 08 Agocxm | .634 | ... | ... | ... | ... | ... | ... | .405 | ... | ... | ... | .663 |
| 54 Instigut | -.548 | ... | ... | ... | ... | ... | ... | ... | ... | ... | -.381 | .612 |
| 58 Instprox | -.488 | .376 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .542 |
| 07 Mucix | -.473 | .299 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .406 |
| 35 Postac | -.402 | ... | .338 | ... | ... | ... | ... | ... | ... | ... | ... | .568 |
| <u>Other loadings</u> | | | | | | | | | | | | |
| 45 Bicy | -.353 | ... | ... | ... | ... | ... | ... | ... | .501 | ... | ... | .678 |
| 12 Littfem | -.340 | ... | .626 | ... | ... | ... | ... | ... | ... | ... | ... | .782 |
| 49 Mag | -.320 | ... | .521 | ... | ... | ... | ... | ... | ... | ... | ... | .476 |
| 53 Catt | .310 | ... | ... | ... | .465 | ... | ... | ... | ... | ... | ... | .578 |
| 11 Litem | -.302 | ... | .444 | ... | ... | ... | ... | ... | ... | ... | ... | .625 |
| 51 Elec | -.295 | .526 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .646 |
| 27 Catman | -.285 | ... | ... | ... | ... | ... | .692 | ... | ... | ... | ... | .658 |
| 09 Agocxf | .284 | ... | ... | ... | ... | .530 | ... | ... | ... | ... | ... | .647 |
| 36 Libac | -.247 | ... | .339 | ... | ... | ... | ... | ... | ... | ... | ... | .528 |
| 02 Pp | -.222 | .611 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .555 |
| 55 Visgut | -.222 | ... | ... | ... | ... | .526 | ... | ... | ... | ... | ... | .556 |
| 50 Machine | -.211 | .558 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .686 |

Note: ... = Loading .199 or less. They are omitted unless they are the next highest loading.

F = Factor. h² = Communality

* See Table 8 and Appendix B for explanation.

Other Loadings

A low ratio of bicycles per 1,000 population (-.353), low proportion of literates among men (-.302) and women (-.340), low ratio of print media per 100 population (-.320), lack of electricity in the village (-.295), lack of adoption of improved cattle practices (-.85), low accessibility to library facility (-.247), low level of political activity (-.222), fewer number of items in the village stores (-.222), and a low degree of mechanization (-.211) are other variables showing secondary loadings on Factor V which represents the handicaps of the institutional development in the village.

Factor VI

Leader Economic Risk Orientation

Factor VI accounts for four percent of the variance among the 57 variables. Four variables show primary loadings on this factor ranging from .511 to .596 (Table 6).

Highest Loadings

Factor VI is primarily loaded with the village leaders' propensity to sell some land owned by them in order to use that proceed to intensively cultivate a profitable crop (.596), their preparedness to borrow money for investing in a profitable business (.511), availability of institutional facilities for development (.526), and a greater proportion of women labor making up the work force (.530) (Table 14).

| DATE | DESCRIPTION | AMOUNT | CHECK NO. | DEBIT | CREDIT | BALANCE |
|----------|-------------|--------|-----------|-------|--------|----------|
| 12/15/25 | 12/15/25 | 100.00 | | | | 100.00 |
| 12/16/25 | 12/16/25 | 100.00 | | | | 200.00 |
| 12/17/25 | 12/17/25 | 100.00 | | | | 300.00 |
| 12/18/25 | 12/18/25 | 100.00 | | | | 400.00 |
| 12/19/25 | 12/19/25 | 100.00 | | | | 500.00 |
| 12/20/25 | 12/20/25 | 100.00 | | | | 600.00 |
| 12/21/25 | 12/21/25 | 100.00 | | | | 700.00 |
| 12/22/25 | 12/22/25 | 100.00 | | | | 800.00 |
| 12/23/25 | 12/23/25 | 100.00 | | | | 900.00 |
| 12/24/25 | 12/24/25 | 100.00 | | | | 1000.00 |
| 12/25/25 | 12/25/25 | 100.00 | | | | 1100.00 |
| 12/26/25 | 12/26/25 | 100.00 | | | | 1200.00 |
| 12/27/25 | 12/27/25 | 100.00 | | | | 1300.00 |
| 12/28/25 | 12/28/25 | 100.00 | | | | 1400.00 |
| 12/29/25 | 12/29/25 | 100.00 | | | | 1500.00 |
| 12/30/25 | 12/30/25 | 100.00 | | | | 1600.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 1700.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 1800.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 1900.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 2000.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 2100.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 2200.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 2300.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 2400.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 2500.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 2600.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 2700.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 2800.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 2900.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 3000.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 3100.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 3200.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 3300.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 3400.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 3500.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 3600.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 3700.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 3800.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 3900.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 4000.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 4100.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 4200.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 4300.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 4400.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 4500.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 4600.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 4700.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 4800.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 4900.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 5000.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 5100.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 5200.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 5300.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 5400.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 5500.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 5600.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 5700.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 5800.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 5900.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 6000.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 6100.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 6200.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 6300.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 6400.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 6500.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 6600.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 6700.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 6800.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 6900.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 7000.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 7100.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 7200.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 7300.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 7400.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 7500.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 7600.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 7700.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 7800.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 7900.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 8000.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 8100.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 8200.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 8300.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 8400.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 8500.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 8600.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 8700.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 8800.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 8900.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 9000.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 9100.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 9200.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 9300.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 9400.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 9500.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 9600.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 9700.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 9800.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 9900.00 |
| 12/31/25 | 12/31/25 | 100.00 | | | | 10000.00 |

Table 14. Factor VI: Leader Economic Risk Orientation (LERO) (Variance explained: 4%)

| Variable
Code* | Factor VI
(LERO) | F1 | F2 | F3 | F4 | F5 | F7 | F8 | F9 | F10 | F11 | h ² |
|-------------------------|---------------------|-------|------|-------|-------|-------|------|------|------|-----|-----|----------------|
| <u>Primary loadings</u> | | | | | | | | | | | | |
| 40 Landconso | .596 | ... | .167 | ... | ... | ... | ... | ... | ... | ... | ... | .465 |
| 09 Agocxf | .530 | ... | ... | ... | ... | ... | ... | .420 | ... | ... | ... | .647 |
| 55 Visgut | .526 | ... | ... | ... | ... | ... | ... | ... | .300 | ... | ... | .556 |
| 41 Creditori | .511 | ... | ... | ... | -.297 | ... | ... | ... | ... | ... | ... | .576 |
| <u>Other loadings</u> | | | | | | | | | | | | |
| 33 Eoorient | .550 | ... | ... | ... | ... | -.760 | ... | ... | ... | ... | ... | .913 |
| 30 Sedix | .359 | ... | ... | ... | ... | ... | .467 | ... | ... | ... | ... | .509 |
| 56 Caste | -.314 | ... | ... | -.586 | ... | ... | ... | ... | ... | ... | ... | .540 |
| 51 Elec | .260 | .526 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .646 |
| 34 Sacred | -.231 | ... | .523 | ... | ... | ... | ... | ... | ... | ... | ... | .544 |
| 29 Prize | .230 | .260 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .352 |
| 57 Radio | .226 | -.546 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .732 |
| 04 Pv | .222 | ... | ... | ... | .556 | ... | ... | ... | ... | ... | ... | .555 |

Note: ... = Loading .199 or less. They are omitted unless they are the next highest loading.

F = Factor. h² = Communality

* See Table 8 and Appendix B for explanation.

1884

1885

1886

1887

1888

1889

1890

1891

1892

1893

1894

1895

1896

1897

1898

1899

1900

1901

1902

1903

1904

1905

1906

1907

1908

1909

1910

1911

1912

Other Loadings

Village leaders are, in general, oriented towards mobility in terms of the choice occupation, location of activity, nature of business and are prepared to finance their activities either by borrowing or by selling their land (.550). The villagers show greater utilization of new seed variety (.359). The electric power facility is available to them (.260). The village leaders belong to upper castes (-.364) and are likely to be less secular in their belief system (-.231). The village has a prize-winning performance (.230). There is a low ratio of population to radio (.226). There is a greater participation in Panchayat voting (.222).

Factor VII

Agricultural Development

Factor VII accounts for six percent of the variance among the 57 variables. Six variables show their primary loadings on this factor ranging from .692 to .365 (Table 6).

Highest Loadings

Factor VII is characterized by the greater percentage of village cultivators using green manure, compost manure, utilization of artificial insemination for improving cattle breed (.692), adoption of other innovative agricultural practices like village leaders' usage of chemical fertilizers, green manure, new implements, improved seeds, pesticides, new breed of cattle, greater percentage of leaders using improved seeds and plant protection measures most recommended, agricultural implements,

Table 15. Factor VII: Agricultural Development (AD) (variance explained: 6%)

| Variable
Code* | Factor VII
(AD) | F1 | F2 | F3 | F4 | F5 | F6 | F8 | F9 | F10 | F11 | h ² |
|-------------------------|--------------------|------|------|------|------|-------|------|-----|-----|-------|-----|----------------|
| <u>Primary loadings</u> | | | | | | | | | | | | |
| 27 Catman | .692 | .248 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .658 |
| 44 Agadopt | .687 | ... | ... | .417 | ... | ... | ... | ... | ... | ... | ... | .858 |
| 25 Seedgut | .616 | ... | ... | .220 | ... | ... | ... | ... | ... | ... | ... | .506 |
| 28 Plantpro | .513 | ... | ... | .425 | ... | ... | ... | ... | ... | ... | ... | .635 |
| 30 Sedix | .467 | ... | ... | ... | ... | ... | .359 | ... | ... | ... | ... | .509 |
| 19 Infmart | .365 | ... | ... | .349 | ... | ... | ... | ... | ... | ... | ... | .480 |
| <u>Other loadings</u> | | | | | | | | | | | | |
| 51 Elec | .367 | .526 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .646 |
| 36 Libac | .330 | ... | .339 | ... | ... | ... | ... | ... | ... | ... | ... | .528 |
| 46 Elecpump | .317 | .514 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .568 |
| 04 Pv | -.269 | ... | ... | ... | .556 | ... | ... | ... | ... | ... | ... | .555 |
| 18 Hifem | .268 | ... | ... | ... | ... | ... | ... | ... | ... | -.499 | ... | .514 |
| 35 Postac | .254 | ... | ... | ... | ... | -.402 | ... | ... | ... | ... | ... | .568 |
| 10 Tanix | .232 | ... | .627 | ... | ... | ... | ... | ... | ... | ... | ... | .498 |
| 29 Prize | .230 | .260 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .352 |
| 34 Sac | .225 | ... | ... | .523 | ... | ... | ... | ... | ... | ... | ... | .544 |
| 58 Instprox | .210 | ... | ... | ... | ... | -.488 | ... | ... | ... | ... | ... | .542 |
| 54 Instigut | .196 | ... | ... | ... | ... | -.548 | ... | ... | ... | ... | ... | .612 |
| 53 Catt | .195 | ... | ... | ... | .465 | ... | ... | ... | ... | ... | ... | .578 |

Note: ... = Loading .199 or less. They are omitted unless they are the next highest loading.

F = Factor. h² = Communality

* See Table 8 and Appendix B for explanation.

improved cattle stock, and pesticides for plant protection (.687).

The high percentage of cultivators utilizing improved seeds for food and cash crops (.616), greater extent of cropped area treated with plant protection measures (.513), higher improved seed rate as adopted by standards recommended by the agricultural experts (.467), higher rate of infant mortality (.365) are positively associated with this factor (Table 15).

Other Loadings

Additionally we find other variables measuring the aspects of education (.268), energy (.367), communication (.330), institutional facilities (.210) and leaders' secular attitude (.225) positively loaded on the agricultural development factor.

Factor VIII

Land Resources and Tenancy

Factor VIII accounts for four percent of the variance among the 57 variables. Only two variables load on this factor, their loadings being $-.742$ and $-.687$ (Table 6).

Highest Loadings

Low percentage of village cultivable land owned by the top ten cultivators ($-.742$), large number of people per crop area viz., high density of people per cropped area ($-.687$)* make up this factor. Hence we label this factor as land resources and tenancy (Table 16).

*The variable was scored high if it has low density.

Table 16. Factor VIII: Land Resources and Tenancy (LRT) (Variance explained: 4%)

| Variable
Code* | Factor VIII
(LRT) | F1 | F2 | F3 | F4 | F5 | F6 | F7 | F9 | F10 | F11 | h ² |
|-------------------------|----------------------|------|-----|-----|------|-------|------|------|-----|-------|------|----------------|
| <u>Primary loadings</u> | | | | | | | | | | | | |
| 05 Lo | -.742 | ... | ... | ... | .210 | ... | ... | ... | ... | ... | ... | .672 |
| 01 Mlr | -.687 | ... | ... | ... | ... | -.158 | ... | ... | ... | ... | ... | .567 |
| <u>Other loadings</u> | | | | | | | | | | | | |
| 08 Agocxm | .405 | ... | ... | ... | ... | .634 | ... | ... | ... | ... | ... | .663 |
| 18 Hifem | -.269 | ... | ... | ... | ... | ... | ... | ... | ... | -.499 | ... | .514 |
| 58 Instprox | .267 | ... | ... | ... | ... | -.488 | ... | ... | ... | ... | ... | .542 |
| 52 Tax | -.266 | .438 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .405 |
| 55 Visgut | -.255 | ... | ... | ... | ... | ... | .526 | ... | ... | ... | ... | .556 |
| 30 Sedix | -.253 | ... | ... | ... | ... | ... | ... | .467 | ... | ... | ... | .509 |
| 16 Midfem | -.248 | .489 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .711 |
| 19 Infmart | .229 | ... | ... | ... | ... | ... | ... | .365 | ... | ... | ... | .480 |
| 50 Machine | -.205 | .558 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .686 |
| 20 Birth | .202 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .568 | .476 |

Note: ... = Loading .199 or less. They are omitted unless they are the next highest loading.

F = Factor. h² = Communality

* See Table 8 and Appendix B for explanation.

Other Loadings

A greater proportion of male agricultural workers (.405), greater proximity to village institutions (.267), infant mortality (.229), and birth rate (.202), lower percentage of women with high school education (-.269), low tax base (-.266), poor village store facilities (-.255), low utilization of improved seed (-.253), low mechanization or machine-use (-.205) characterize this factor.

Factor IX

Primary Education and Mechanization

Factor IX accounts for five percent of the variance among the 57 variables. Five variables have their highest loadings on this factor ranging from -.314 to .734.

Highest Loadings

Number of grain mills per thousand population has the highest loading on this factor (.734). High percentage of girls attending primary school (.696), high percentage of boys attending primary school (.687), high ratio of bicycles per ten thousand population (.501), but low percentage of cultivators using recommended agricultural implements in the village (.314) characterize this factor (Table 17).

Other Loadings

High percentage of boys attending middle school (.408), high percentage of boys attending high school (.277), ratio of persons to number of radios is negatively loaded on this factor (-.356), positive loadings of variety of items in village store (.300), high ratio of cattle

Table 17. Factor IX: Primary Education and Mechanization (PEM) (Variance explained: 5%)

| Variable
Code* | Factor IX
(PEM) | F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F10 | F11 | h ² |
|-------------------------|--------------------|------|-------|------|------|-----|------|-----|-----|-------|-----|----------------|
| <u>Primary loadings</u> | | | | | | | | | | | | |
| 48 Grainm | .734 | ... | ... | ... | ... | ... | .150 | ... | ... | ... | ... | .619 |
| 14 Primef | .696 | ... | ... | .301 | ... | ... | ... | ... | ... | ... | ... | .686 |
| 13 Primem | .687 | ... | ... | ... | .188 | ... | ... | ... | ... | ... | ... | .568 |
| 45 Bicy | .501 | ... | .384 | ... | ... | ... | ... | ... | ... | ... | ... | .678 |
| 26 Imple | -.314 | .293 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .341 |
| <u>Other loadings</u> | | | | | | | | | | | | |
| 15 Midem | .408 | ... | ... | ... | ... | ... | ... | ... | ... | -.665 | ... | .692 |
| 57 Radio | -.356 | ... | -.546 | ... | ... | ... | ... | ... | ... | ... | ... | .732 |
| 55 Visgut | .300 | ... | ... | ... | ... | ... | .526 | ... | ... | ... | ... | .556 |
| 17 Him | .277 | ... | ... | ... | ... | ... | ... | ... | ... | -.705 | ... | .727 |
| 53 Catt | .268 | ... | ... | ... | .465 | ... | ... | ... | ... | ... | ... | .578 |
| 34 Sac | .268 | ... | ... | .523 | ... | ... | ... | ... | ... | ... | ... | .544 |

Note: ... = Loading .199 or less. They are omitted unless they are the next highest loading.
 F = Factor. h² = Communality.

* See Table 8 and Appendix B for explanation.

01
11
21
31
41
51
61
71
81
91
02
12
22
32
42
52
62
72
82
92
03
13
23
33
43
53
63
73
83
93
04
14
24
34
44
54
64
74
84
94
05
15
25
35
45
55
65
75
85
95
06
16
26
36
46
56
66
76
86
96
07
17
27
37
47
57
67
77
87
97
08
18
28
38
48
58
68
78
88
98
09
19
29
39
49
59
69
79
89
99
10
20
30
40
50
60
70
80
90
11
21
31
41
51
61
71
81
91
12
22
32
42
52
62
72
82
92
13
23
33
43
53
63
73
83
93
14
24
34
44
54
64
74
84
94
15
25
35
45
55
65
75
85
95
16
26
36
46
56
66
76
86
96
17
27
37
47
57
67
77
87
97
18
28
38
48
58
68
78
88
98
19
29
39
49
59
69
79
89
99
20
30
40
50
60
70
80
90
21
31
41
51
61
71
81
91
22
32
42
52
62
72
82
92
23
33
43
53
63
73
83
93
24
34
44
54
64
74
84
94
25
35
45
55
65
75
85
95
26
36
46
56
66
76
86
96
27
37
47
57
67
77
87
97
28
38
48
58
68
78
88
98
29
39
49
59
69
79
89
99
30
40
50
60
70
80
90
31
41
51
61
71
81
91
32
42
52
62
72
82
92
33
43
53
63
73
83
93
34
44
54
64
74
84
94
35
45
55
65
75
85
95
36
46
56
66
76
86
96
37
47
57
67
77
87
97
38
48
58
68
78
88
98
39
49
59
69
79
89
99
40
50
60
70
80
90
41
51
61
71
81
91
42
52
62
72
82
92
43
53
63
73
83
93
44
54
64
74
84
94
45
55
65
75
85
95
46
56
66
76
86
96
47
57
67
77
87
97
48
58
68
78
88
98
49
59
69
79
89
99
50
60
70
80
90
51
61
71
81
91
52
62
72
82
92
53
63
73
83
93
54
64
74
84
94
55
65
75
85
95
56
66
76
86
96
57
67
77
87
97
58
68
78
88
98
59
69
79
89
99
60
70
80
90
61
71
81
91
62
72
82
92
63
73
83
93
64
74
84
94
65
75
85
95
66
76
86
96
67
77
87
97
68
78
88
98
69
79
89
99
70
80
90
71
81
91
72
82
92
73
83
93
74
84
94
75
85
95
76
86
96
77
87
97
78
88
98
79
89
99
80
90
81
91
82
92
83
93
84
94
85
95
86
96
87
97
88
98
89
99
90
91
92
93
94
95
96
97
98
99

per 100 population (.268), positive relation with secular orientation (.268) characterize this factor.

Factor X

Mechanization with Lack of Post-primary Education

Factor X explains five percent of the variance among the 57 variables. Four variables have their primary loadings on this factor ranging from .447 to .705 (Table 6).

Highest Loadings

A low percentage of boys (-.705) and girls (-.499) going to high school, low percentage of boys going to middle school (-.665), high ratio of oil engines (.447) and other farm machinery (.439) characterize this factor (Table 18).

Other Loadings

General male and female literacy and primary education are negatively loaded on this factor. Library facility, institutional development and health and family planning development are also negatively associated with this factor. Facility of electric power, electric pump and other mechanical indicators are positively loaded on this variable.

This factor is tentatively interpreted as mechanization factor combined with lack of post-primary education.

Table 18. Factor X: Mechanization with Post-Primary Education (MP-PE) (Variance explained: 5%)

| Variable
Code* | Factor X
(MP-PE) | F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F9 | F11 | h ² |
|-------------------------|---------------------|------|------|-----|-----|-------|-----|-----|-------|------|-------|----------------|
| <u>Primary loadings</u> | | | | | | | | | | | | |
| 17 Him | -.705 | ... | ... | ... | ... | ... | ... | ... | ... | .277 | ... | .727 |
| 15 Midem | -.665 | ... | ... | ... | ... | ... | ... | ... | ... | .408 | ... | .692 |
| 18 Hifem | -.499 | ... | ... | ... | ... | ... | ... | ... | -.269 | ... | ... | .514 |
| 47 Oilengi | .447 | ... | ... | ... | ... | ... | ... | ... | ... | ... | -.391 | .581 |
| 50 Machine | .439 | .558 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .686 |
| <u>Other loadings</u> | | | | | | | | | | | | |
| 50 Machine | .439 | .558 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .686 |
| 46 Elecpump | .391 | .514 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .568 |
| 11 Litem | -.352 | ... | .444 | ... | ... | ... | ... | ... | ... | ... | ... | .625 |
| 23 Hfladp | -.346 | .703 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .747 |
| 14 Primef | -.294 | ... | ... | ... | ... | ... | ... | ... | ... | .696 | ... | .686 |
| 12 Litfem | -.238 | ... | .626 | ... | ... | ... | ... | ... | ... | ... | ... | .782 |
| 54 Instigut | -.230 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | .612 |
| 45 Bicy | -.221 | ... | ... | ... | ... | -.548 | ... | ... | ... | ... | ... | .678 |
| 51 Elec | .206 | .526 | ... | ... | ... | ... | ... | ... | ... | .501 | ... | .646 |
| 36 Libac | -.204 | ... | .339 | ... | ... | ... | ... | ... | ... | ... | ... | .528 |

Note: ... = Loading .199 or less. They are omitted unless they are the next highest loading.
 F = Factor. h² = Communality

* See Table 8 and Appendix B for explanation.

Factor XI

Factor XI accounts for five percent of variance among the 57 variables. Only two variables with their highest loadings are negatively associated with this factor.

Highest Loadings

Birth rate is negatively correlated with this factor ($-.568$) as also the residence of officials in the village ($-.450$).

Other Loadings

By looking at the secondary loadings we find this factor to be correlated negatively with mechanization ($-.391$), institutional facilities ($-.381$), national voting ($-.326$), number of people per radio ($-.300$), credit orientation ($-.278$), women educated up to high school grade ($-.261$), low prize-winning performance of the village ($-.200$).

The meaning of this factor is not clear hence it is left uninterpreted. There is an element of low birth rate, isolation and handicaps of institutional accessibility (Table 19).

Summary and Discussion of R Factor Analytic Results

Factor I (labeled as village general development) indexes both the subjective reputational ratings by the development workers as well as the objective indicators of village development. We consider this dimension to represent a measure of over all general development of the village.

Factor II (termed as manpower--communication resources) indicates the dimension of village manpower resources, the literacy skills of

Table 19. Factor XI: No name (difficult to interpret) (Variance explained: 5%)

| Variable
Code* | Factor XI | F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F9 | F10 | h ² |
|-------------------------|-----------|------|------|-----|-----|-------|------|------|------|------|-------|----------------|
| <u>Primary loadings</u> | | | | | | | | | | | | |
| 20 Birth | -.568 | ... | ... | ... | ... | ... | ... | ... | .202 | ... | ... | .476 |
| 38 Office | -.450 | ... | ... | ... | ... | ... | .155 | ... | ... | ... | ... | .305 |
| <u>Other loadings</u> | | | | | | | | | | | | |
| 47 Oilengi | -.391 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .447 | .581 |
| 54 Instigut | -.381 | ... | ... | ... | ... | -.548 | ... | ... | ... | ... | ... | .612 |
| 16 Midfem | -.354 | .489 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .711 |
| 03 Nv | -.326 | ... | .361 | ... | ... | ... | ... | ... | ... | ... | ... | .403 |
| 57 Radio | -.300 | ... | .546 | ... | ... | ... | ... | ... | ... | ... | ... | .732 |
| 19 Infmart | .290 | ... | ... | ... | ... | ... | ... | .365 | ... | ... | ... | .480 |
| 41 Creditori | -.278 | ... | ... | ... | ... | ... | .511 | ... | ... | ... | ... | .576 |
| 18 Hifem | -.261 | ... | ... | ... | ... | ... | ... | ... | ... | ... | -.499 | .514 |
| 35 Postac | -.232 | ... | ... | ... | ... | -.402 | ... | ... | ... | ... | ... | .568 |
| 36 Libac | .231 | ... | .339 | ... | ... | ... | ... | ... | ... | ... | ... | .528 |
| 45 Bicy | .230 | ... | ... | ... | ... | ... | ... | ... | ... | .501 | ... | .678 |
| 50 Machine | -.211 | .558 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .686 |
| 08 Agocxm | .204 | ... | ... | ... | ... | .634 | ... | ... | ... | ... | ... | .663 |
| 29 Prize | -.200 | .260 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .352 |

Note: ... = Loading .199 or less. They are omitted unless they are the next highest loading.
F = Factor. h² = Communality

* See Table 8 and Appendix B for explanation.

6.2

3

5

62

7

2

61

11

2

6

6

6

7

7

7

7

7

7

7

7

7

7

7

7

7

7

7

7

7

people, and the message-media facilities available to the village.

Factor III (named leader change-orientation) represents village leaders' favorable attitudes towards changes introduced in agricultural and health programs in the village.

Factor IV (labeled leader economic conservatism) characterizes the village leaders' hesitancy and their negative inclination to finance their farm development plans by such methods as selling part of their land or borrowing money.

Factor V (named institution handicap) capsules the handicaps of a village because of the lack of accessibility and proximity to institutional facilities affecting the welfare of the village.

Factor VI (named leader economic risk orientation) represents high economic risk orientated leadership and economic activism in the village as indexed by a high economic participation of women as workers.

Factor VII (named agricultural development) represents modernization process of agriculture as indexed by the adoption of innovative agricultural inputs.

Factor VIII (named land resources and tenancy) represents the dependence of the village economy on land resources and tenant farming.

Factor IX (named primary education and mechanization) represents the aspects of high proportion of children in the village studying in primary schools and more use of mechanized process of farming and farm product processing machineries.

Factor X (named mechanization with lack of post-primary education). This factor describes a coexistence of the adoption of farming related machines and lack of post-primary education.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

Factor XI is difficult to interpret and label. However, it characterizes a lack of residency of development officials in the village and shows a low birth rate.

Comparison with Previous Factor Analytic Study

We may mention here the findings of a previous factor analytic study which is relevant to our present investigation because of the comparability of the unit of analysis involved and national setting for the data.

Adelman and Dalton (1971) studied 108 villages in India using 1961 India Census Village survey data. Though the domain of investigation viz., village development is the same, the operationalization procedures employed in the Adelman and Dalton study and in the present one to measure the variables are different. Further, the number of variables included in the R-Factor analysis are also different.

Adelman and Dalton (1971) used 17 variables whereas the present study used 57 variables. But conceptually both of the studies have a common focus of empirical investigation analyzing village development and modernization dimensions. Even though the variables are not operationally the same, the conceptual relevance lends some basis for validating the structure and meaning of factors empirically established.

Table 20 gives the names of variables used in the Adelman and Dalton study, which are found relevant to the factors extracted in the present case.

In both the studies we find the utilization of agricultural inputs such as irrigation facilities, fertilizer, pesticides and new seeds in

Table 20. Village Development Dimensions--A Comparative Picture of the Factor Analytic Findings.

| Variables used in
Adelman and Dalton
Study (1971) | Factors identified
in Adelman and
Dalton Study (1971) | *
F1 | F2 | F5 | F7 | F8 | F9 | F10 |
|---|---|---------|----|----|----|----|----|-----|
| Level of Agricultural
Technology | Village level economic
and social modernization | + | | | + | | | |
| Education | Same | + | + | | | | + | + |
| Transport and location | Same | | | + | | | | |
| Co-operative membership | Co-operative membership | | | + | | | | |
| Land per capita | Tenure and land resources | | | | | + | | |
| % Employment in
agriculture | Same | | | | | + | | |
| % Land owned | Same | | | | | + | | |
| % Tenant farmers | Same | | | | | + | | |

Note: * F1 = Village general development; F2 = Manpower-Communication resources

F5 = Institution handicap; F7 = Agricultural development; F8 = Land resources and tenancy;

F9 = Primary education and mechanization; F10 = Mechanization with post-primary education.

+ = Conceptually equivalent factors of the present study where variables used in Adelman and Dalton (1971) study and the factors identified in their study are matched.

modernizing agriculture. We see Factor VII of our study which indexes the agricultural development dimension containing the measures of improved agriculture technology which is found as a component factor labeled as village level economic and social modernization by Adelman and Dalton. Because of the additional measures we have included in the battery of our variable set, our study additionally indexes other measures related to energy and technology aspects of development such as the availability and use of electricity, use of oil engines to lift water and process agricultural produce.

The variable, transport and location, used in the Adelman and Dalton study, has its conceptual relevance in Factor V (institution handicap) of the present study's factor structure.

The variable education of the Adelman and Dalton study has its components split into three different factors in the present study viz., Factor II (human resources - communication resources), Factor IX (Primary Education and Mechanization), and Factor X (Mechanization with lack of post-primary education).

The variables, land per capita, percent of persons employed in agriculture, percent of land owned, and percent of tenant farmers (of the Adelman and Dalton study) have conceptual relevance to Factor VIII (land resources and land tenure) of the present study.

While comparing our factor structure with that of Adelman and Dalton, we find that our study has partitioned a general factor such as modernization and development factor (of the Adelman and Dalton study) into education, agriculture development and institutional handicap. Even the education factor has been further partitioned into literacy, primary

education, and post-primary education. Thus the present study based on a larger battery of variables while confirming the empirical findings of Adelman and Dalton has mapped a factor space of increased complexity of village development dimensions.

Selected Development Dimensions

We have described in detail (see pages 66-90) the eleven village development dimensions based on 57 empirical measures. Empirical establishment of the village development dimensions was only a means for a further study of the communication linkages of the village social systems which vary on different dimensions of development. Among the eleven dimensions described previously, we selected the following eight dimensions of development because they were conceptually meaningful and clearly interpretable. Table 21 lists the dimensions chosen.

Factor Scores of Selected Development Dimensions

In order to differentiate the village social systems along each one of the development dimensions, we computed factor scores by a weighted combination of z scores of the variables taking into account their loadings on a given factor. The factor scores embody the inter-related functional unity among the variables from which they are derived (Rummel, 1970, p. 152). FACTORA program at the MSU (CISSR)* was used for obtaining the factor scores.

The factor scores on each one of the selected eight dimensions give us the degree of village development.

*Michigan State University (Computer Institute for Social Science Research)

Table 21. Selected Village Development Dimensions.

| | Factor Code #
(Dimension) | Descriptive Label |
|---|------------------------------|---|
| 1 | I | Village general development |
| 2 | II | Manpower communication resources |
| 3 | III | Leader change orientation |
| 4 | IV | Leader economic conservatism |
| 5 | V | Institution handicap |
| 6 | VII | Agricultural development |
| 7 | IX | Primary education and
mechanization |
| 8 | X | Mechanization with lack of post-
primary education |

Village Development Dimensions and External Communication Contact Hypothesis

The eight-factor scores are considered as eight variables in formulating the empirical hypotheses derived from the theoretical hypothesis as follows:

Theoretical Hypothesis:

The more developed a village system is the more integrated it is with the outside system.

Empirical Terms

In order to test the hypothesis empirically we consider the following aspects: (1) eight dimensions of village development as variables characterizing the village social system; (2) three different linking roles relevant to the village development process; and (3)

100

communication behavior of linking roles relevant to external communication of the village.

Linking Roles

In our discussion of the conceptualization of the communication roles (see page 24), we had introduced such roles as the conveyor, the consultant and the leader.

For purposes of empirically testing the theoretically hypothesis stated earlier, we operationalize the communication role into linking role and categorize it as development functionary linkage (the AEO and the VLW) and leader linkage (village leader).

(1) Agricultural Extension Officer (AEO): The AEO occupies an important technological administrative role in the formal organization of agricultural development affecting the village system. He formally links to the village the development directions that come from the district administration as well as the technological information that comes from agricultural research stations and laboratories. Also, his role is significant in the decision-making processes at the block development level affecting the agricultural programs reaching the village. His communication linkage with the village social system establishes active contact lines for disseminating agricultural development ideas to the village.

(2) Village Level Worker (VLW): The VLW occupies the immediate linking role with the village both in his formal functional role relating the block development administration and the village government functionaries and also in his informal person to person contact at the farmer level. His role is the meeting point for the formal structure of the

governmental, the non-governmental processes and the farmers' needs at the village from day-to-day.

(3) Village Leader: The village leaders are a set of persons in the village who occupy formal positions of power and/or positions of opinion leadership to whom people look to for advice and influence on matters affecting their farm business. The communication contacts of the leaders outside the village bring to the village a common information system of ideas, knowledge, values and attitudes that set a frame of reference for individual and group actions.

Formal administrative roles of the AEO and the VLW were identified by looking at the organizational chart (formal structure) of the development organization operating at the block and the village level.

The village leaders were identified based on the leadership of a person as a formally elected leader of the village government or other service structures, or a person who was sought by the people for his opinion and advice on agriculture and related matters.

Communication Behavior of Linking Roles

We operationalized the communication behavior of the AEO, the VLW, and the village leader roles and computed the scores on each one of the communication variables as follows:

Development Functionary Linkages

AEO village visit: AEO communication linkage with the village was measured in terms of the number of times he visited the village

11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000

during a year. The range of the AEO village visit scores is from 00 to 90 (for detailed measurement procedures see Appendix B Variable #60).

VLW village visit: This variable was measured by asking the VLW as to how many times he visited the village during a specified year. His visit scores range from 01 to 98 (for detailed measurement procedures see Appendix B Variable #62).

VLW percent of time spent: The percent of time the VLW spent in the village was measured by asking him what percent of his time was spent in the village. The scores range from 2 to 98 (see Appendix B Variable #61 for detailed measurement procedure).

VLW demonstrations: This variable was measured by asking the VLW how many times he had demonstrated the agriculture-related practices and products in the village during a specified year. The VLW demonstration scores range from 0 to 80 (for detailed measurement procedure see Appendix B Variable #63).

Village Leader Linkages

In order to measure the communication linkage role of the village leaders, we measured their communication contacts in three areas: (1) communication interaction with formal organization functionaries such as the VLW, the AEO, the block development officer and the veterinary doctor; (2) contacts with the urban and development administrative centers; and (3) exposure to mass media. The following specific variables measuring the communication contacts of the village leaders with the outside system were included in the study.

Leader talk with the block development officer (BDO): The village leaders were asked: "How many times in a year have you talked with the BDO?" The responses were scored as described in the Appendix B (for details see Variable #71). The leader talk with the BDO scores range from 0 to 7.

Leader talk with the veterinary doctor: The village leaders were asked about their frequency of talk with the veterinary doctor in a year. The responses were scored as described in Appendix B (see Variable #75). The leader talk scores with the veterinary doctor range from 0 to 7.

Leader talk with the AEO: This variable was measured based on the leader's response to the question, "How many times have you talked with the AEO?" (See Variable #72 in Appendix B for measurement procedures.) The leader talk scores with the AEO range from 0 to 8.

Leader talk with the VLW: This variable was measured based on the leader's response to the question, "How many times have you talked with the VLW?" (See Variable #66 in Appendix B for measurement procedures.) The leader talk scores with the VLW range from 0 to 8.

Leader visit to block headquarters: This variable was measured by asking the leader, "How many times during the past six months have you visited the block headquarters?" The responses were coded as described in Appendix B (see Variable #64). The scores range from 0 to 59.

Leader visit to district headquarters: This variable was measured by asking the leader, "How many times during the past six months have you visited district headquarters?" The responses were scored as described in Appendix B (see Variable #65). The scores range from 0 to 43.

Leader visit to urban centers: This variable was measured by asking the leader, "During the past six months, how many times have you visited the nearest town and city?"; "Have you ever lived outside the village in another urban area for more than a year?" The responses were scored as described in Appendix B Variable #81. The scores range from 0 to 16.

Leader exposure to cinema: This variable was measured by asking the leader, "About how many times a year do you go to the cinema?" The responses were scored as described in Appendix B (see Variable #79). The scores range from 0 to 9.

Hypothesis Testing

1. Village General Development and External Communication Contact

We shall examine the external linkage hypothesis of the village relating external communication contact indices to the village general development.

Deriving from the theoretical hypothesis stated on page 97 we state the following empirical hypotheses:

Empirical hypothesis $H_1:x:A$

Higher the village scores on general development, greater is the contact of the village with the external system through the development functionaries (VLW and AEO).

Empirical hypothesis $H_1:y:A$

Higher the village scores on general development, greater is the contact of the village with the outside system through the village leaders

The statistical hypotheses derived from the empirical hypotheses

$H_1:x:A$ and $H_1:y:A$ are presented in Table 22.

The hypothesized relationship between the village general development factor score and each one of the external communication linkage variables is stated in column 3, Table 22. The variable village general development is derived from the factor scores computed based on the weighted sum of the z scores (standardized in terms of the standard deviation units) of variables loading on the village general development factor (see Factor #1, pages 66-71). The range of scores on this variable is from -2.20 to 3.08.

In column 2 (Table 22) the external communication contact variables are stated. The measurement procedures of these variables are described on pages

In column 4 the Pearsonian r found in this study are reported.

The column 5 indicates the state of the statistical hypotheses in the light of the present findings.

Findings

Development functionary linkage: The correlations of the village general development dimension with the AEO village visit (.31), the VLW village visit (.30), the VLW's percent of time spent in the village (.36), and the VLW demonstrations in the village (.21) are statistically significant past the .05 probability level. Hence the hypothesis of positive external communication linkage of the more developed village social system through the development functionaries is supported.

Village leader linkage: The correlations of village general development dimension with the village leader--VLW talk (.37), the village leader--AEO talk (.26) and the village leader cinema exposure (.34) are statistically significant past the .05 probability level.

Table 22. Village General Development and External Communication Contact.

| Hypothesis Number | External Communication Linkage Variable | Hypothesized Correlation (Pearsonian r) with Village General Development | Findings (Pearsonian r) | State of the Hypothesis |
|-------------------|---|--|-------------------------|-------------------------|
| (1) | (2) | (3) | (4) | (5) |
| H_1 :X:A:1 | AEO village visit | + | .31* | Supported |
| H_1 :X:A:9 | VLW village visit | + | .30* | Supported |
| H_1 :X:A:17 | VLW percent of time in village | + | .36* | Supported |
| H_1 :X:A:25 | VLW demonstration in village | + | .21* | Supported |
| H_1 :Y:A:33 | Village leader visit to BHQ | + | .10 | Not supported |
| H_1 :Y:A:41 | Village leader visit to DHQ | + | -.22* | Not supported |
| H_1 :Y:A:49 | Village leader talk with VLW | + | .37* | Supported |
| H_1 :Y:A:57 | Village leader talk with BDO | + | .17 | Not supported |
| H_1 :Y:A:65 | Village leader talk with AEO | + | .40* | Supported |
| H_1 :Y:A:73 | Village leader talk with Vet Doc | + | .26* | Supported |
| H_1 :Y:A:81 | Village leader cinema exposure | + | .34* | Supported |
| H_1 :Y:A:89 | Village leader urban contact | + | .13 | Not supported |

Note: AEO = Agricultural Extension Officer
 BDO = Block Development Officer
 VLW = Village Level Worker
 Vet. Doc = Veterinary Doctor

BHQ = Block Development Headquarters
 DHQ = District Headquarters

*Significant past the .05 probability level

N = 108 df. = 106

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

The correlations of village general development dimension with village leader--BDO talk (.17), the village leader urban contact (.13), and the leader visit to block headquarters are positive but statistically not significant past .05 level.

The correlation between village general development and village leader visit to district headquarters is negative (-.22) and statistically significant.

Conclusion

External linkages of the more developed village social system are positively maintained through the communication contacts of the agricultural development functionaries such as the AEO and the VLW.

The village leader's external communication contacts are maintained through his interpersonal contacts with the AEO, the veterinary doctor, the VLW and exposure to cinema.

The village leader external linkages through interpersonal contacts with the BDO, visits to urban centers and block headquarters are weak while visits to the administration centers such as the district are negative.

2. Village Institutional Development and External Communication Contact

We shall examine the external contact hypothesis relating to another dimension of village development, viz., institution handicap.

Deriving from the theoretical hypothesis stated on page we state the following empirical hypotheses:

Empirical hypothesis $H_1: x:B$

The greater the village scores on institutional handicaps,

the less integrated the village is with the agricultural research system through the development functionaries (AEO and VLW).

Empirical hypothesis $H_1:y:B$

The greater the village scores on institutional handicap is, the less integrated the village is with the outside systems through village leaders.

To provide the statistical evidence to examine the empirical hypotheses, we operationalized the communication variables indicating the communication behavior of the AEO, the VLW, and the village leader roles as described on pages 99-102.

The statistical hypotheses derived from the empirical hypotheses $H_1:x:B$ and $H_1:y:B$ are presented in Table 23.

The hypothesized relationship between the scores on village institutional handicap and each one of the external communication contact measures in terms of the linkage roles are stated in Column 3 of Table 23. The variable, institution handicap, is derived from the factor scores computed based on the weighted sum of the z scores (standardized in terms of the standard deviation units) on variables loading on village institution handicap factor (see Factor #V). The range of scores on this variable is from -3.04 to 1.77.

In Column 4 of Table 23, we state the Pearsonian r found in the present study.

Column 5 mentions the state of the statistical hypotheses in the light of the findings mentioned in Column 4.

Findings

Development functionary linkage: The correlation of institution handicap with AEO's village visit score (-.23), VLW's village visit score (-.28), and the VLW's percent of time spent in the village (-.37 are

Table 23. Village Institutional Development and External Communication Contact.

| Hypothesis Number | External Communication Linkage Variable | Hypothesized Correlation (Pearsonian r) with Village Institution Handicap | Findings (Pearsonian r) | State of the Hypothesis |
|------------------------|--|---|-------------------------|-------------------------|
| (1) | (2) | (3) | (4) | (5) |
| H ₁ :X:B:2 | AEO village visit | - | -.23* | Supported |
| H ₁ :X:B:10 | VLW village visit | - | -.28* | Supported |
| H ₁ :X:B:18 | VLW percent of time spent in the village | - | -.37* | Supported |
| H ₁ :X:B:26 | VLW demonstrations in the village | - | -.06 | Not supported |
| H ₁ :Y:B:34 | Village leader visit to block headquarters | - | -.27* | Supported |
| H ₁ :Y:B:42 | Village leader visit to district headquarters | - | -.03 | Not supported |
| H ₁ :Y:B:50 | Village leader talk with VLW | - | -.38* | Supported |
| H ₁ :Y:B:58 | Village leader talk with the block development officer | - | -.28* | Supported |
| H ₁ :Y:B:66 | Village leader talk with the AEO | - | -.31* | Supported |
| H ₁ :Y:B:74 | Village leader talk with veterinary doctor | - | -.17 | Not supported |
| H ₁ :B:82 | Village leader cinema exposure | - | -.35* | Supported |
| H ₁ :Y:B:90 | Village leader urban contact | - | -.48* | Supported |

Note: AEO = Agriculture Extension Officer

VLW = Village Level Worker

* Significant past the .05 level (PL .05) N = 108 df = 106

negatively related and statistically significant past .05 probability level. Hence the hypothesized relations are supported. The linkage through the VLW demonstrations (-.06) though negative is not statistically significant.

Village leader linkage: The correlation of institutional handicap with the village leader visit to block headquarters (-.27), the village leader talk with the VLW (-.38), the leader talk with the BDO (-.28), the leader talk with the AEO (-.31), the leader cinema exposure (-.35), and the leader urban contact (-.48) are all negative and statistically significant at the .05 probability level.

The leader visit to district headquarters (-.03), the leader talk with the veterinary doctor (-.17) are negatively correlated with the village institution handicap but are not statistically significant past .05 probability level.

Conclusion

The evidence is strong to support the assertion that the more institutionally handicapped a village is, the less is its linkage with the external system, either through formal developmental functionary roles or through village leadership roles.

3. Agricultural Development and External Communication Contact

We shall examine the relationships between agricultural development dimension of village development and external communication linkages of the village social system. Deriving from the theoretical hypothesis on page 97 we state the empirical hypotheses as follows:

Empirical hypothesis $H_1:x:C$

The higher the village scores on the agricultural development, the higher is the contact of the village with the agricultural research system through the development functionaries (AEO and outside the village VLW).

Empirical hypothesis $H_1:y:C$

The higher the village scores on the agricultural development, the higher is its contact with the outside system through village leaders.

Statistical hypotheses derived from the empirical hypotheses

$H_1:x:C$ and $H_1:y:C$ are presented in Table 24.

The external communication contact variables are presented in Column 2 of Table 24. Their operational definitions are as described on pages 99-102.

In Column 3 of Table 24 their hypothesized relation with the variable agricultural development is indicated. The score for the variable agricultural development was derived from the Factor VII extracted as one of the village development dimensions (see page 82). We computed the z scores of the variables that loaded on this factor using the factor loadings as the weight and summed the weighted scores across all the variables, and obtained an average z score which range from -1.59 to 2.76.

In Column 4 of Table 24, the Pearsonian r found in this study between the agricultural development dimension and the respective external communication contact variables are stated.

In Column 5 of Table 24, mention is made of the state of the statistical hypotheses in the light of the findings.

Table 24. Village Agricultural Development and External Communication Contact.

| Hypothesis Number | External Communication Linkage Variable | Hypothesized Correlation (Pearsonian r) with Agricultural Development | Findings (Pearsonian r) | State of the Hypothesis |
|------------------------|--|---|-------------------------|-------------------------|
| (1) | (2) | (3) | (4) | (5) |
| H ₁ :X:C:3 | AEO village visit | + | -.06 | Not supported |
| H ₁ :X:C:11 | VLW village visit | + | .31* | Supported |
| H ₁ :X:C:19 | VLW percent of time spent in the village | + | .19* | Supported |
| H ₁ :X:C:27 | VLW demonstrations in the village | + | .20* | Supported |
| H ₁ :Y:C:35 | Village leader visit to block headquarters | + | .06 | Not supported |
| H ₁ :Y:C:43 | Village leader visit to district headquarters | + | .15 | Not supported |
| H ₁ :Y:C:51 | Village leader talk with VLW | + | .29* | Supported |
| H ₁ :Y:C:59 | Village leader talk with the block development officer | + | .21* | Supported |
| H ₁ :Y:C:67 | Village leader talk with the AEO | + | .29* | Supported |
| H ₁ :Y:C:75 | Village leader talk with veterinary doctor | + | .22* | Supported |
| H ₁ :Y:C:83 | Village leader cinema exposure | + | .30* | Supported |
| H ₁ :Y:C:91 | Village leader urban contact | + | .23* | Supported |

Note: AEO = Agriculture Extension Officer

VLW = Village Level Worker

* Significant past the .05 level (PL .05) N = 108 df = 106

Findings

Development functionary linkage: The correlation of agricultural development dimension of village development with the VLW village visit (.31), the VLW percent of time spent in the village (.19), and the VLW demonstration in the village (.20) are positive and statistically significant past .05 probability level. Hence the VLW role linkage with the agricultural development aspect of the village is supported.

The correlation between the agricultural development dimension of the village and the AEO's village visit is -.06, which is not significant. This finding does not support the hypothesis.

Village leader linkage: The correlation between agricultural development dimension of the village social system and the village leader talk with the VLW (.29), the leader talk with the block development officer (.21), the leader talk with the AEO (.29), the leader talk with veterinary doctor (.22), the leader cinema exposure (.30), and the leader urban contact (.23) show positive and statistically significant correlation with the agricultural development dimension past .05 probability level. Hence the hypothesis is supported.

Village leader's visit to block headquarters (.06) and village leader visit to district headquarters (.15) show correlation with agricultural development in the hypothesized direction but are not statistically significant, hence do not support the hypothesis.

Conclusion

A village social system which scores high on the agricultural development dimension has positive linkages through the formal development

worker at the grass roots such as the village level worker, and the leader's linkage with the development workers at different levels in the hierarchy. The evidence suggests that the role of the VLW is relatively strong and the direct linkage of the AEO to the village social system is relatively weak. The village leaders' visit to block headquarters or district headquarters are not strong indicators of communication linkages with the outside system. But their interaction with the development workers, their visit to urban centers and their exposure to cinema establish strong linkages between the agriculturally developed village and its outside system.

4. Village Manpower - Communication Resources and External Communication Contact

We shall examine the relationship between manpower-communication resources and external communication linkage. Deriving from the theoretical hypothesis on page 97, we state the empirical hypotheses as follows:

Empirical hypothesis $H_1:x:D$

The higher the village scores on manpower-communication resources, the higher is its contact with the agricultural research system outside the village through development functionaries.

Empirical hypothesis $H_1:y:D$

The higher the village scores on manpower-communication resources, higher is its linkage with the outside systems through the village leader contacts.

The statistical hypotheses derived from the empirical hypotheses

$H_1:x:D$ and $H_1:y:D$ are presented in Table 25.

Table 25. Village Manpower - Communication Resources and External Communication Contact.

| Hypothesis Number | External Communication Linkage Variable | Hypothesized Correlation (Pearsonian r) with Manpower-Communication Resources | Findings (Pearsonian r) | State of the Hypothesis |
|------------------------|--|---|-------------------------|-------------------------|
| (1) | (2) | (3) | (4) | (5) |
| H ₁ :X:D:4 | AEO village visit | + | .10 | Not supported |
| H ₁ :X:D:12 | VLW village visit | + | .09 | Not supported |
| H ₁ :X:D:20 | VLW percent of time spent in the village | + | .12 | Not supported |
| H ₁ :X:D:28 | VLW demonstrations in the village | + | .19* | Supported |
| H ₁ :Y:D:36 | Village leader visit to block headquarters | + | .08 | Not supported |
| H ₁ :Y:D:44 | Village leader visit to district headquarters | + | .24* | Supported |
| H ₁ :Y:D:52 | Village leader talk with VLW | + | .21* | Supported |
| H ₁ :Y:D:60 | Village leader talk with the block development officer | + | .23* | Supported |
| H ₁ :Y:D:68 | Village leader talk with the AEO | + | .37* | Supported |
| H ₁ :Y:D:76 | Village leader talk with veterinary doctor | + | -.07 | Not supported |
| H ₁ :Y:D:84 | Village leader cinema exposure | + | .28* | Supported |
| H ₁ :Y:D:92 | Village leader urban contact | + | .26* | Supported |

Note: AEO = Agriculture Extension Officer

VLW = Village Level Worker

* Significant past the .05 level (PL .05) N = 108 df = 106

The external communication linkage variables are mentioned in Column 2 of Table 25. The operationalization of the communication linkage variables are described on pages 99-102.

In Column 3 of Table 25, the hypothesized relation of these variables with the manpower-communication resources and the respective external communication contact variables are stated. The variable manpower-communication resources was measured based on the linear combination of the z scores of the variables loaded on Factor II (see page 71) weighted according to their respective factor loadings. The z scores range from -2.26 to 3.58.

In Column 5 of Table 25, we mention the state of the statistical hypotheses in the light of the findings in Column 4.

Findings

Development functionary linkage: The Pearsonian r between manpower-communication dimension and the VLW demonstrations is equal to .19 which is significant past the .05 probability level. This is the only supporting evidence for the external linkage hypothesis of a developed village social system in terms of manpower-communication dimension through the formal role of the VLW

The Pearsonian r between the AEO's village visit score and manpower-communication dimension of the village development is equal to .10. The Pearsonian r of the VLW visit score and the VLW percent of time spent in the village with the same village development dimension are equal to .09 and .12 respectively. All the three findings are not statistically significant, and hence, do not support the general hypothesis of positive relation between manpower-communication dimension of village development

and linkage through formal functionaries with the outside systems.

Village leader linkage: The Pearsonian r between village leader visit to district headquarters, leader talk with the VLW, the BDO and the AEO and other are shown in Table 26 below.

Table 26. Village Leader Linkage and Manpower-Communication Resources.

| External Linkage Variables | Manpower-Communication Resource
Dimension of Village Development |
|------------------------------------|---|
| Leader visit to block HQ | .08 |
| Leader talk with the VLW | .24* |
| Leader talk with BDO | .21* |
| Leader talk with the AEO | .37* |
| Leader talk with veterinary doctor | -.07 |
| Leader cinema exposure | .28* |
| Leader urban contact | -.26* |

* Significant past the .05 probability level.

Except the two communication linkage indicators viz., leader visit to block headquarters and the veterinary doctors, all the remaining six indicators of external communication linkage of village leaders are statistically significant. The hypothesis that the villages which score high on manpower - communication resources are positively related to the village leader external contacts are supported.

Conclusion

There is no positive relation between the manpower - communication dimension of village development and linkage through formal functionaries

with the outside system.

Village leader tendency to establish linkages outside the village and the communication resource development of the village is positively related.

5. Leader Change Orientation and External Communication Contact

We shall examine the relationship between village leader change orientation dimension of development and external communication linkage of the village system.

Deriving from the theoretical hypothesis on page 97 we state the empirical hypothesis as follows:

Empirical hypothesis $H_1:x:E$

Higher the village scores on leader change orientation, higher is the contact of the village with the agricultural research system through the development functionaries.

Empirical hypothesis $H_1:y:E$

Higher the village scores on leader change orientation, higher is the communication contact with the outside system through the village leader contacts.

Statistical hypotheses derived from the empirical hypotheses

$H_1:x:E$ and $H_1:y:E$ are presented in Table 27.

The external communication linkage variables are mentioned in Column 2 of Table 27. Their operational definitions are described on pages 99 to 102.

In Column 3 of Table 27, the hypothesized relation with the village leader change orientation is indicated. The score for the variable village leader change orientation was derived from the Factor III which

Table 27. Village Leader Change Orientation and External Communication Contact.

| Hypothesis Number | External Communication Linkage Variable | Hypothesized Correlation (Pearsonian r) with Village Leader Change Orientation | Findings (Pearsonian r) | State of the Hypothesis |
|------------------------|--|--|-------------------------|-------------------------|
| (1) | (2) | (3) | (4) | (5) |
| H ₁ :X:E:5 | AEO village visit | + | -.03 | Not supported |
| H ₁ :X:E:13 | VLW village visit | + | -.07 | Not supported |
| H ₁ :X:E:21 | VLW percent of time spent in the village | + | -.06 | Not supported |
| H ₁ :X:E:29 | VLW demonstrations in the village | + | .06 | Not supported |
| H ₁ :Y:E:37 | Village leader visit to block headquarters | + | .23* | Supported |
| H ₁ :Y:E:45 | Village leader visit to district headquarters | + | .03 | Not supported |
| H ₁ :Y:E:53 | Village leader talk with VLW | + | -.03 | Not supported |
| H ₁ :Y:E:4 | Village leader talk with the block development officer | + | .10 | Not supported |
| H ₁ :Y:E:69 | Village leader talk with the AEO | + | .08 | Not supported |
| H ₁ :Y:E:77 | Village leader talk with veterinary doctor | + | .14 | Not supported |
| H ₁ :Y:E:85 | Village leader cinema exposure | + | .05 | Not supported |
| H ₁ :Y:E:93 | Village leader urban contact | + | -.10 | Not supported |

Note: AEO = Agriculture Extension Officer

VLW = Village Level Worker

* Significant past the .05 level (PL .05) N = 108 df = 106

was extracted as one of the dimensions of village development (see page 74). Based on the z scores of the variables that loaded on this factor and multiplying them with their factor loadings as the weight we summed up all the z scores and divided them by the number of variables to give us a composite factor score measuring village leader change orientation. These z scores of the variables range from -2.75 to 1.97.

In Column 4 of Table 27, the Pearsonian r found in this study between village leader change orientation and external communication linkage indicators are presented.

In Column 5 of Table 27, we mention the state of the statistical hypotheses in light of the present findings.

Findings

Development functionary linkage: Table 27 shows no evidence for the hypothesis that village leader change orientation and external communication with the development functionaries are positively related. The AEO village visit (-.03), the VLW village visit (-.07), the VLW percent of time spent in the village (-.06), and the VLW demonstrations (.06) show no statistically significant correlations with the village change orientation dimension. Hence the empirical hypothesis $H_1:x:E$ is not supported.

Village leader linkage: The Pearson r between the village leader change orientation and village leader communication linkage indicators are as follows:

Table 28. Village Leader Change Orientation and External Communication Contact.

| Village Leader External Communication
Linkage Indicators | Village Leader Change Orientation
(Pearsonian r) |
|---|---|
| Visit to block HQ | .23* |
| Visit to district HQ | .03 |
| Talk with the VLW | -.03 |
| Talk with the BDO | .10 |
| Talk with the AEO | .08 |
| Talk with the veterinary doctor | .14 |
| Cinema exposure | .05 |
| Urban contact | -.10 |

*Significant past the .05 probability level.

Except for the village leader visit to the block headquarters, their external communication linkages are not statistically significant, as related to the leader change orientation.

Conclusion

The village social systems with more change oriented leaders will not necessarily be linked with the development functionaries outside the village social system.

The village social system with change oriented leadership is not necessarily linked with the development functionaries or outside urban centers and mass media through the village leader's contact.

6. Leader Economic Conservatism and External Communication Contact

We shall examine the relationship between village leader economic

conservatism, a dimension of development and external communication linkages of the village social system.

Deriving from the theoretical hypothesis on page 97, we state the empirical hypotheses as follows:

Empirical hypothesis $H_1:x:F$

Higher the village scores on leader economic conservatism, less is the contact of the village with the agricultural research system outside the village through the development functionaries.

Empirical hypothesis $H_1:y:F$

Higher the village scores on leader economic conservatism, less is the contact of the village with the outside system through the village leader communication linkages.

The statistical hypotheses derived from the empirical hypotheses $H_1:x:F$ and $H_1:y:F$ are presented in Table 29.

The external communication linkage variables are mentioned in Column 2 of Table 29. Their operational definitions are described on pages 99 to 102. In Column 3 the hypothesized relations are indicated. In Column 4 the Pearsonian r found in this study between the village leader economic conservatism and external communication linkage indicators are presented. Column 5 mentions the state of the statistical hypotheses in the light of the present findings.

The score for the variable village leader economic conservatism was derived from Factor IV extracted as one of the dimensions of the village development (see page 76). The z scores of the variable that loaded on this factor were multiplied by the factor loadings as their weights. We summed up all the z scores and divided them by the number of variables to give us a composite factor score measuring village leader economic conservatism. These z scores range from $-.362$ to 2.12 .

Table 29. Village Leader Economic Conservatism and External Communication Contact.

| Hypothesis Number | External Communication Linkage Variable | Hypothesized Correlation (Pearsonian r) with Village Leader Economic Conservatism | Findings (Pearsonian r) | State of the Hypothesis |
|------------------------|--|---|-------------------------|-------------------------|
| (1) | (2) | (3) | (4) | (5) |
| H ₁ :X:F:6 | AEO village visit | + | -.09 | Not supported |
| H ₁ :X:F:14 | VLW village visit | + | -.08 | Not supported |
| H ₁ :X:F:22 | VLW percent of time spent in the village | + | -.09 | Not supported |
| H ₁ :X:F:30 | VLW demonstrations in the village | + | .14 | Not supported |
| H ₁ :Y:F:38 | Village leader visit to block headquarters | - | .12 | Not supported |
| H ₁ :Y:F:46 | Village leader visit to district headquarters | - | .19* | Not supported |
| H ₁ :Y:F:54 | Village leader talk with VLW | - | .07 | Not supported |
| H ₁ :Y:F:62 | Village leader talk with the block development officer | - | .19* | Not supported |
| H ₁ :Y:F:70 | Village leader talk with the AEO | - | .15 | Not supported |
| H ₁ :Y:F:7 | Village leader talk with veterinary doctor | - | .25* | Not supported |
| H ₁ :Y:F:86 | Village leader cinema exposure | - | -.10 | Not supported |
| H ₁ :Y:F:94 | Village leader urban contact | - | -.22* | Supported |

Note: AEO = Agriculture Extension Officer

VLW = Village Level Worker

*Significant past the .05 level (PL.05) N = 108 df = 106

Findings

Development functionary linkage: The Pearsonian r 's between leader economic conservatism and communication with the development functionaries of the village social system are not statistically significant as show below:

Table 30. Village Leader Economic Conservatism and Development Functionary Contact.

| Development Functionary Communication
Linkage Indicator | Leader Economic Conservatism
(Pearsonian r) |
|--|---|
| AEO village visit | -.09 |
| VLW village visit | .08 |
| VLW percent of time in village | -.09 |
| VLW demonstrations | .14 |

The three indices of the AEO and VLW communication contacts show negative relationships. But they are not statistically significant. However, the VLW demonstrations in the village has positive relations with village leader economic conservatism. But this is also not statistically significant. Hence the hypothesis is not supported.

Village leader linkage: Pearsonian r between leader economic conservatism and leader visit to urban areas is equal to $-.22$ which is significant past the $.05$ level, supporting the hypothesis that leader economic conservatism is negatively related to leader external communication linkages.

Leader cinema exposure shows a negative Pearson r of $-.10$ which is not significant. Hence this does not support the hypothesis.

Leader visit to district (.19), leader talk with the BDO (.19), and leader talk with the veterinary doctor (.25) show significant positive correlation between leader economic conservatism and external communication contact by the leaders. The Pearsonian r 's are statistically significant. Hence the hypothesized relation is not supported. On the other hand, there is a strong evidence for an alternative hypothesis that there is a positive correlation between leader economic conservatism and external communication linkages as indexed by some contacts.

Conclusion

The correlation between leader economic conservatism and communication linkage through the visits and contacts of development functionaries is weak.

There is no consistent evidence for supporting the hypothesis that village leader economic conservatism is negatively correlated with external communication linkages. There is a partial evidence to the assertion that the development workers contact with the village which are high on leader economic conservatism is weak and tends to be negative. But the leaders of such villages establish positive linkage with selected development functionaries like the BDO and the veterinary doctor.

There is positive evidence for the negative correlation between the village social system which is high on leader economic conservatism with leader urban contact.

7. Village Primary Education and Mechanization Factor and External Communication Contact

We shall examine the relationship of village primary education and mechanization factor with the external communication linkage of the village social system.

Deriving from the theoretical hypothesis on page 97, we state the empirical hypotheses as follows:

Empirical hypothesis $H_1:x:G$

The higher the village scores on village mechanization and primary education factor, the higher is the village contact with the agricultural research system through the development functionaries.

Empirical hypothesis $H_1:y:G$

The higher the village scores on primary education and mechanization, the higher is the contact of the village with the outside system through the village leaders.

Statistical hypotheses derived from the empirical hypotheses

$H_1:y:G$ and $H_1:y:G$ are presented in Table 31.

The external communication contact variables are mentioned in Column 2 of Table 31. Their operational definitions are as described on pages 99 to 102.

In Column 3 of Table 31, the hypothesized relations are indicated. The score for the variable village primary education and mechanization factor was derived from Factor IX (primary education and mechanization) which was extracted as one of the dimensions of village development (see page 86).

Based on the z scores of the variables that loaded on this factor and multiplying them with their loadings as the weight, we summed up all the z scores and divided them by the number of variables to obtain a composite score measuring village mechanization and primary education

Table 31. Village Primary Education, Mechanization and External Communication Contact.

| Hypothesis Number | External Communication Linkage Variable | Hypothesized Correlation (Pearsonian r) with Village Primary Education | Findings (Pearsonian r) | State of the Hypothesis |
|------------------------|--|--|-------------------------|-------------------------|
| (1) | (2) | (3) | (4) | (5) |
| H ₁ :X:G:7 | AEO village visit | + | -.12 | Not supported |
| H ₁ :X:G:15 | VLW village visit | + | -.08 | Not supported |
| H ₁ :X:G:23 | VLW percent of time spent in the village | + | -.09 | Not supported |
| H ₁ :X:G:31 | VLW demonstrations in the village | + | -.11 | Not supported |
| H ₁ :Y:G:39 | Village leader visit to block headquarters | + | -.02 | Not supported |
| H ₁ :Y:G:47 | Village leader visit to district headquarters | + | .16 | Not supported |
| H ₁ :Y:G:55 | Village leader talk with VLW | + | .05 | Not supported |
| H ₁ :Y:G:63 | Village leader talk with the block development officer | + | .10 | Not supported |
| H ₁ :Y:G:71 | Village leader talk with the AEO | + | .07 | Not supported |
| H ₁ :Y:G:79 | Village leader talk with veterinary doctor | + | .02 | Not supported |
| H ₁ :Y:G:87 | Village leader cinema exposure | + | -.09 | Not supported |
| H ₁ :Y:G:95 | Village leader urban contact | + | .13 | Not supported |

Note: AEO = Agriculture Extension Officer

VLW = Village Level Worker

* Significant past the .05 level (PL .05) N = 108 df = 106

factor. These z scores range from -2.27 to 7.15.

In Column 4 of Table 31, the Pearsonian r between village primary education and mechanization factor and external communication linkage indicators are presented. Column 5 mentions the state of the statistical hypotheses in light of the present findings.

Findings

Development functionary linkage: It is seen from Table 32 below that the Pearsonian r are not statistically significant.

Table 32. Village Primary Education, Mechanization and Development Functionary Contact.

| External Communication Linkages
of Development Functionaries | Village Primary Education
and Mechanization Factor
(Pearsonian r) |
|---|---|
| AEO village visit | -.12 |
| VLW village visit | -.08 |
| VLW percent of time in the village | -.14 |
| VLW demonstration | -.11 |

Hence the hypothesis is not supported.

Village leader linkage: It is seen from Table 33 that the Pearsonian r are not statistically significant between primary education and mechanization factor, and the leader communication linkages with the outside systems.

The hypothesis that there is a positive correlation between the village primary education-mechanization factor and the external communication linkages of the village leaders is not supported.

Conclusion

Primary education and mechanization factor is not important in establishing the communication contacts of the village with the external system.

Table 33. Village Primary Education, Mechanization and Leader External Communication Contact.

| External Communication Linkage Indicators | Village Primary Education and Mechanization Factor
(Pearsonian r) |
|---|--|
| Visit to block HQ | -.02 |
| Visit to district HQ | .16 |
| Talk with the VLW | .05 |
| Talk with the BDO | .10 |
| Talk with the AEO | .07 |
| Talk with the veterinary doctor | .02 |
| Cinema exposure | .09 |
| Urban contact | .13 |

8. Mechanization with Lack of Post-primary Education and External Communication Contact

We shall examine the relationship between mechanization with lack of post-primary education factor and the external communication linkage of the village social system.

Deriving from the theoretical hypothesis on page 97, we state the empirical hypotheses as follows:

Empirical hypothesis H_1 : $x:H$

Higher the village scores on mechanization with lack of post-primary education, lower is its external communication contacts with the agricultural research system through the development functionaries.

Empirical hypothesis $H_1:y:H$

The higher the village scores on mechanization with lack of post-primary education, the lower is the external contact of the village with the outside system through village leader communication contact.

The statistical hypotheses derived from the empirical hypotheses $H_1:x:H$ and $H_1:y:H$ are presented in Table 34.

The external communication linkage variables are mentioned in Column 2 of Table 34. Their operational definitions are as described on pages 99 to 102.

In Column 3 of Table 34, the hypothesized relations between mechanization and lack of post-primary education factor and external communication linkage indicators are stated.

In Column 4 of Table 34, the Pearsonian r found in this study between mechanization and lack of post-primary education in the village and external communication linkage indicators are presented.

Column 5 of Table 34 mentions the state of the statistical hypotheses in light of the present findings.

The score on the variable mechanization with lack of post-primary education was derived from the Factor X which was extracted as one of the dimensions of village development (page 88). We multiplied the z scores of the variables that loaded on this factor using their loadings as the weight and summed up all the weighted z scores and divided the sum by the number of variables to give us a composite factor score. The z scores range from -3.31 to 3.17.

Findings

Development functionary linkage: Table 34 shows that except for the VLW's percent of time spent in the village all other development

Table 34. Mechanization with Lack of Post-Primary Education and External Communication Contact.

| Hypothesis Number | External Communication Linkage Variable | Hypothesized Correlation (Pearsonian r) with Mechanization with Lack of Post-Primary Education | Findings (Pearsonian r) | State of the Hypothesis |
|------------------------|--|--|-------------------------|-------------------------|
| (1) | (2) | (3) | (4) | (5) |
| H ₁ :X:H:8 | AEO village visit | - | -.16 | Not supported |
| H ₁ :X:H:16 | VLW village visit | - | -.04 | Not supported |
| H ₁ :X:H:24 | VLW percent of time spent in the village | - | .25* | Not supported |
| H ₁ :X:H:32 | VLW demonstrations in the village | - | -.02 | Not supported |
| H ₁ :Y:H:40 | Village leader visit to block headquarters | - | .11 | Not supported |
| H ₁ :Y:H:48 | Village leader visit to district headquarters | - | -.31* | Supported |
| H ₁ :Y:H:56 | Village leader talk with VLW | - | .01 | Not supported |
| H ₁ :Y:H:64 | Village leader talk with the block development officer | - | -.10 | Not supported |
| H ₁ :Y:H:72 | Village leader talk with the AEO | - | .10 | Not supported |
| H ₁ :Y:H:80 | Village leader talk with veterinary | - | -.13 | Not supported |
| H ₁ :Y:H:88 | Village leader cinema exposure | - | .06 | Not supported |
| H ₁ :Y:H:96 | Village leader urban contact | - | -.12 | Not supported |

Note: AEO = Agriculture Extension Officer

VLW = Village Level Worker

* Significant past the .05 level (PL .05) N = 108 df = 106

functionary linkages are not statistically significant. Hence the hypothesis that village systems which lack a great deal in post-primary education but has mechanization also lack external linkages through development functionary roles is not supported. On the other hand, the VLW's percent of time in the village is positively correlated with the lack of post-primary education but presence of mechanization in the village.

Village leader linkage: As Table 35 shows, there is only one external leader communication indicator viz., leader visit to district

Table 35. Mechanization with Lack of Post-Primary Education and Village Leader Linkage.

| Village Leader Communication Linkage | Mechanization with Lack of Post-Primary Education
(Pearsonian r) |
|--------------------------------------|---|
| Visit to district HQ | -.31* |
| Talk with the VLW | -.01 |
| Talk with the BDO | -.10 |
| Talk with the AEO | .10 |
| Talk with the veterinary doctor | -.13 |
| Leader cinema exposure | .06 |
| Urban contact | -.12 |

*Significant past the .05 probability level.

headquarters which has significant negative correlation with the village social systems which lack post-primary education but has mechanization.

Other variables do not show any significant correlation. Hence there is some evidence for the empirical hypothesis that village social systems which lack in post-primary grade education but has mechanization

also lack leader external linkage.

Conclusion

Lack of post-primary education but presence of mechanization in the village creates weak external linkages to the village social system. In some respect the village becomes isolated.

CHAPTER V

VILLAGE SOCIAL SYSTEM TYPOLOGY

We have seen in Chapter IV a description of the village development dimensions and their external communication correlates. There is no claim that the empirical measures we have employed would cover all the elements in the domain of development but only a sub-set of them: (1) village general development, (2) village institutions, (3) agricultural development, (4) manpower--communication resources, (5) leader change orientation, (6) leader economic conservatism, (7) mechanization with literacy and (8) mechanization with lack of post-primary education. We tested some hypotheses relating these dimensions with the external communication integration indicators of some linking roles.

Towards a Village Typology

In the present chapter we aim at the following objective: To describe 100 villages* in terms of a basic typology derived empirically from the development indicators presented in the previous chapter.

Each village by itself could be a unique type. The best and the most complete description of a typology of 100 villages is done where

*In the data analysis only 100 of the 108 villages could be used for reasons given on the next page.

each village is described in terms of its location on the scales of whatever variables we find relevant and meaningful. But our purpose here is to present the description in a multivariate and parsimonious mode without losing much of the information.

Analytic Method

The typological procedure we have adopted is the Q factor analytic technique to partition the components of inter-village variability with respect to development indicators. The villages were differentiated in terms of the 57 variables (see the list in Appendix B).

Table 36 (Appendix A) gives the inter-correlation of the villages with respect to the 57 variables standardized twice--first with respect to each variable across its values and second, with respect to the village entity as a variable. We submitted the inter-correlation matrix of the 100 villages for the Q-type factor analysis where we considered the 57 variables as the observations or entities or cases, and 100 villages as the variables. Using the FACTORA* program at the Michigan State University Computer Center we specified the following options:

1. Unity was substituted for diagonal value in the correlation matrix
2. Varimax rotation of factors was employed
3. Orthogonal solution was used
4. Kiel-Wrigley criterion of 3 variables was specified for terminating the factor rotation.

*The capacity of the FACTORA program at the Michigan State University Computer Center is limited to 100 variables. Therefore we had to delete eight villages out of our study sample of N=108 villages. We deleted those eight villages which showed a larger percentage of missing data.

Table 37 gives different factor rotated solutions, the percent of variance explained, and the number of villages loading on the factor. Table 37A (Appendix A) gives the clustering of the villages into respective factors across all the factor structures--from two-factor to seven-factor. We studied these village clusters from four points of view:

- (1) Stability of the villages to be in the same cluster across rotations
- (2) Simplicity needed in describing the village social system typology
- (3) Consideration that the seven villages to be studied intensively (see Chapter VI) focussing on the within village communication structure should have their loadings on more than one factor so that we will have a range of variation to consider the set of seven villages representing more than one type of village
- (4) Consideration of the percent of variance explained by the rotated factor solution.

Studying Tables 37 and 37A we considered the three-factor structure and the seven-factor structure. But in terms of simplicity and exploratory description we decided to study the typology of village social systems based on the three-factor structure.

Results of Q Factor Analysis (three-factor structure)

Tables 38 through 43 give the village names and their factor loadings on each one of the three factors. We have noted in brackets name of the state to which the village belongs. All of the three factors show bipolar types where the entities (in the present case they are the village social systems) show positive and negative loadings on the same factor or type.

Table 37. Orthogonally Rotated Q Factors for Village Typology.

| Factor | Total | | Number of villages loaded on the factors | | | | | | | | | | | | | |
|----------|----------|-------------------------------|--|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|
| | Rotation | Percent of variance explained | F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F9 | F10 | F11 | F12 | F13 | F14 |
| Two | | 19% | 56 | 44 | - | - | - | - | - | - | - | - | - | - | - | - |
| Three | | 24% | 39 | 38 | 23 | - | - | - | - | - | - | - | - | - | - | - |
| Four | | 31% | 26 | 29 | 25 | 20 | - | - | - | - | - | - | - | - | - | - |
| Five | | 35% | 20 | 28 | 20 | 19 | 13 | - | - | - | - | - | - | - | - | - |
| Six | | 42% | 17 | 19 | 21 | 16 | 12 | 15 | - | - | - | - | - | - | - | - |
| Seven | | 43% | 17 | 20 | 15 | 13 | 10 | 16 | 09 | - | - | - | - | - | - | - |
| Eight | | 45% | 14 | 19 | 17 | 10 | 11 | 16 | 07 | 06 | - | - | - | - | - | - |
| Nine | | 48% | 16 | 13 | 14 | 11 | 08 | 15 | 08 | 07 | 08 | - | - | - | - | - |
| Ten | | 53% | 14 | 14 | 13 | 10 | 06 | 09 | 08 | 06 | 06 | 08 | - | - | - | - |
| Eleven | | 55% | 09 | 13 | 05 | 13 | 08 | 08 | 11 | 06 | 06 | 15 | 06 | - | - | - |
| Twelve | | 69% | 11 | 13 | 11 | 07 | 09 | 08 | 07 | 06 | 07 | 06 | 09 | 06 | - | - |
| Thirteen | | 59% | 16 | 11 | 06 | 09 | 05 | 05 | 07 | 06 | 08 | 07 | 07 | 06 | 07 | - |
| Fourteen | | 61% | 13 | 11 | 10 | 09 | 07 | 05 | 04 | 09 | 05 | 06 | 03 | 05 | 06 | 07 |

Table 38. Orthogonally Rotated Factor Matrix for 100 Villages
(Three-Factor Solution): Type I Village Social Systems

| Code # | Village name | | h^2 | Factor I | Factor II | Factor III |
|--------|-----------------|----|-------|----------|-----------|------------|
| 019 | Dasnapur | AP | .580 | .588 | -.269 | -.406 |
| 008 | Amakathadu | AP | .314 | .537 | .013 | -.160 |
| 063 | Kakudmunda | M | .373 | .552 | -.252 | .072 |
| 085 | Ahmedpur | WB | .394 | -.523 | .220 | -.267 |
| 098 | Hitta | WB | .308 | -.504 | -.079 | -.220 |
| 075 | Kismatdapat | WB | .255 | -.500 | -.058 | .038 |
| 064 | Hanuwantmal | M | .333 | .498 | -.289 | .043 |
| 102 | Deasa | WB | .268 | -.490 | -.157 | .051 |
| 014 | Vempally | AP | .313 | .485 | .156 | -.231 |
| 020 | Wadagaon | AP | .523 | .480 | -.289 | -.457 |
| 071 | Khandnol | M | .318 | .459 | -.385 | .378 |
| 101 | Noadra | WB | .217 | -.457 | -.037 | -.079 |
| 054 | Mulawa | M | .237 | -.457 | .078 | .148 |
| 044 | Malai | M | .210 | .455 | -.019 | -.048 |
| 061 | Nagsevadi | M | .213 | .444 | -.104 | .070 |
| 015 | Kamanapalli | AP | .194 | .431 | .087 | -.031 |
| 037 | Mundhari B.K. | M | .269 | -.408 | .317 | .038 |
| 036 | Kanchumarru | AP | .259 | -.398 | .271 | -.167 |
| 099 | Bhuri | WB | .220 | -.398 | -.135 | -.208 |
| 107 | Akalpoush | WB | .161 | -.397 | .002 | .059 |
| 062 | Hatgad | M | .175 | .392 | .083 | .121 |
| 045 | Rajegoan | M | .190 | .384 | -.197 | .058 |
| 007 | Tallagokulapadu | AP | .218 | .384 | -.045 | -.261 |
| 097 | Khano | WB | .155 | -.366 | .104 | -.104 |
| 018 | Nagalkonda | AP | .288 | .353 | -.251 | -.317 |
| 017 | Monkapur | AP | .183 | .348 | .002 | -.249 |
| 049 | Yeoti | M | .325 | .339 | -.335 | .313 |
| 043 | Kikripur | M | .096 | .310 | .015 | -.007 |
| 095 | Nimdasapur | WB | .231 | -.309 | -.203 | -.306 |
| 016 | Kistapur | AP | .105 | .307 | .103 | .020 |
| 088 | Markola | WB | .194 | -.290 | -.282 | -.174 |
| 039 | Devada K.D. | M | .111 | .285 | -.165 | .051 |
| 052 | Sheli | M | .171 | .288 | -.187 | .232 |
| 041 | Kattipar | M | .083 | -.275 | -.025 | -.084 |
| 077 | Beltara | WB | .133 | -.268 | -.046 | .244 |
| 038 | Boragoan | M | .118 | .254 | -.172 | .155 |
| 040 | Nilaj B.K. | M | .095 | .250 | -.114 | .141 |
| 089 | Amdole | WB | .071 | -.197 | .174 | -.048 |
| 087 | Uttarabamnigram | WB | .185 | -.135 | -.088 | -.070 |

| State | Number of Villages |
|---------------------|--------------------|
| Andhra Pradesh (AP) | 10 |
| Maharashtra (M) | 16 |
| West Bengal (WB) | 13 |
| Total | 39 |

Table 39. Type I Village Social Systems.

| Code # | Village name | Village social systems with positive factor loadings on Factor I | Code # | Village name | Village social systems with negative factor loadings on Factor I |
|---------------------|--------------|--|--------|-----------------|--|
| 019 | Dasnapur | (AP) .588 | | | |
| 063 | Kakudmunda | (M) .552 | | | |
| 008 | Amakathadu | (AP) .537 | 085 | Ahmedpur | (WB) -.523 |
| 064 | Hanuwantmal | (M) .498 | 098 | Hitta | (WB) -.504 |
| 014 | Vempally | (AP) .485 | 075 | Kismatdapat | (WB) -.500 |
| 020 | Wadagaon | (AP) .480 | 102 | Deasa | (WB) -.490 |
| 071 | Kandhol | (M) .459 | 101 | Noads | (WB) -.457 |
| 044 | Malai | (M) .455 | 054 | Mulawa | (M) -.457 |
| 061 | Nagsevadi | (M) .444 | 037 | Mundhari B.K. | (M) -.408 |
| 015 | Kamanapalli | (AP) .431 | 036 | Kanchumarru | (AP) -.398 |
| 062 | Hatgad | (M) .392 | 099 | Bhuri | (WB) -.398 |
| 045 | Rajegoan | (M) .384 | 107 | Akalpoush | (WB) -.397 |
| 007 | Tallagokula | (AP) .384 | 097 | Khano | (WB) -.366 |
| 018 | Nagalkonda | (AP) .353 | 095 | Nimdaspur | (WB) -.309 |
| 017 | Monkapur | (AP) .348 | 088 | Markola | (WB) -.290 |
| 049 | Yeoti | (M) .339 | 041 | Kattipar | (M) -.275 |
| 043 | Kikripur | (M) .310 | 077 | Beltara | (WB) -.268 |
| 016 | Kistapur | (AP) .307 | 089 | Amdole | (WB) -.197 |
| 039 | Devada K.D. | (M) .285 | 087 | Uttarabamnigram | (WB) -.135 |
| 052 | Sheli | (M) .288 | | | |
| 038 | Boragoan | (M) .254 | | | |
| 040 | Nilaj B.K. | (M) .250 | | | |
| State | | Number of Villages | | | |
| AP = Andhra Pradesh | | 10 | | | |
| M = Maharashtra | | 16 | | | |
| WB = West Bengal | | 13 | | | |
| Total | | 39 | | | |

Table 40. Orthogonally Rotated Factor Matrix for 100 Villages
(Three-Factor Solution): Type II Village Social Systems

| Code # | Village name | | h^2 | Factor I | Factor II | Factor III |
|--------|---------------------------|----|-------|----------|-----------|------------|
| 035 | Manchili | AP | .526 | -.083 | .637 | -.336 |
| 033 | Polamuru | AP | .540 | -.368 | .627 | .107 |
| 048 | Kohka | M | .398 | .089 | -.623 | .033 |
| 010 | Nagatoor | AP | .422 | -.095 | .581 | .275 |
| 028 | Sirigalapatti | AP | .376 | -.169 | .563 | -.175 |
| 006 | Peapally | AP | .324 | -.023 | .559 | -.103 |
| 034 | Mamiduru | AP | .324 | -.166 | .545 | -.003 |
| 027 | Ilakaparru | AP | .292 | -.028 | .538 | -.050 |
| 032 | Pandulaparru | AP | .288 | -.087 | .505 | -.159 |
| 072 | Pandozari | WB | .481 | .395 | -.475 | .315 |
| 026 | Navarasapurum | AP | .350 | -.015 | .454 | -.380 |
| 003 | Nevada | AP | .202 | -.023 | .449 | .012 |
| 029 | Dommeru | AP | .201 | -.003 | .448 | .006 |
| 082 | Kesabpur | WB | .245 | -.132 | -.446 | -.172 |
| 025 | Y.V. Lanka | AP | .202 | .041 | .438 | -.092 |
| 023 | Indhanapally | AP | .286 | .163 | .431 | .272 |
| 031 | Purushottamapally | AP | .195 | -.099 | .423 | .078 |
| 021 | Dingapoor | AP | .251 | .097 | .422 | .252 |
| 090 | Harishpore | WB | .344 | .135 | -.422 | -.384 |
| 047 | Sejagaon | M | .309 | .378 | -.407 | -.024 |
| 056 | Bar | M | .320 | .120 | -.402 | .379 |
| 074 | Mataish | WB | .185 | -.004 | -.401 | .159 |
| 080 | Mamudpur | WB | .269 | -.329 | -.398 | -.045 |
| 084 | Chakadapara | WB | .191 | -.077 | -.398 | -.162 |
| 083 | Jarail | WB | .254 | .032 | -.390 | -.318 |
| 094 | Jindharpore | WB | .356 | -.349 | -.375 | -.306 |
| 096 | Tangsuli and
Nouldanga | WB | .256 | -.263 | -.353 | -.251 |
| 046 | Satona | M | .160 | .163 | -.346 | -.117 |
| 081 | Karanji | WB | .218 | .129 | -.339 | -.295 |
| 086 | Kurumsha | WB | .138 | -.170 | -.327 | .043 |
| 012 | 80 Bannur | AP | .160 | -.120 | .307 | .226 |
| 004 | Kowluru | AP | .324 | -.213 | .306 | -.015 |
| 104 | Beluti | WB | .188 | -.237 | -.297 | -.209 |
| 009 | Konidyala | AP | .098 | -.106 | .293 | .026 |
| 013 | Molkalla | AP | .143 | .193 | .293 | .142 |
| 005 | Vengalampalle | AP | .141 | .249 | .276 | -.054 |
| 042 | Nangapar | M | .142 | .255 | -.266 | -.078 |
| 078 | Gobindpur | WB | .068 | -.107 | -.237 | .012 |

State Number of Villages

| | |
|---------------------|----|
| Andhra Pradesh (AP) | 20 |
| Maharashtra (M) | 5 |
| West Bengal (WB) | 13 |
| Total | 38 |

Table 41. Type II Village Social Systems.

| Code # | Village name | Village social systems with positive factor loadings on Factor II | Code # | Village name | Village social systems with negative factor loadings on Factor II |
|---------------------|------------------|---|--------|------------------------|---|
| 035 | Manchili | (AP) .637 | 048 | Kohka | (M) -.623 |
| 033 | Polamuru | (AP) .627 | 072 | Pandozari | (M) -.475 |
| 010 | Nagatoor | (AP) .581 | 082 | Kesabpur | (WB) -.446 |
| 028 | Sirigalapatti | (AP) .563 | 090 | Harishpore | (WB) -.422 |
| 006 | Peapally | (AP) .559 | 047 | Sejagaon | (M) -.407 |
| 034 | Mamiduru | (AP) .545 | 056 | Bar | (M) -.402 |
| 027 | Ilakaparru | (AP) .538 | 074 | Mataish | (WB) -.401 |
| 032 | Pandulaparru | (AP) .505 | 080 | Mamudpur | (WB) -.398 |
| 026 | Navarasapuram | (AP) .454 | 084 | Chakadapara | (WB) -.398 |
| 003 | Nevada | (AP) .449 | 083 | Jarail | (WB) -.390 |
| 029 | Dommeru | (AP) .448 | 094 | Jindharpore | (WB) -.375 |
| 025 | Y.V. Lanka | (AP) .438 | 096 | Tangsuli and Nouldanga | (WB) -.353 |
| 023 | Indhanapally | (AP) .431 | 046 | Satona | (M) -.346 |
| 031 | Purushottampally | (AP) .423 | 081 | Karanji | (WB) -.339 |
| 021 | Dingapoor | (AP) .422 | 086 | Kurumsha | (WB) -.327 |
| 012 | 80 Bannur | (AP) .307 | 104 | Beluti | (WB) -.297 |
| 004 | Kowluru | (AP) .306 | 042 | Nangapar | (M) -.266 |
| 009 | Konidyala | (AP) .293 | 078 | Gobindpur | (WB) -.237 |
| 013 | Molkalla | (AP) .293 | | | |
| 005 | Vengalampalle | (AP) .276 | | | |
| State | | Number of Villages | | | |
| AP = Andhra Pradesh | | 20 | | | |
| M = Maharashtra | | 6 | | | |
| WB = West Bengal | | 12 | | | |
| Total | | 38 | | | |

Table 42. Orthogonally Rotated Factor Matrix for 100 Villages
(Three-Factor Solution): Type III Village Social Systems

| Code # | Village name | | h^2 | Factor I | Factor II | Factor III |
|--------|------------------------|----|-------|----------|-----------|------------|
| 069 | Jalihal B.K. | M | .390 | .133 | -.081 | .605 |
| 068 | Bambvade | M | .317 | -.030 | .017 | .563 |
| 050 | Wanoja | M | .340 | -.038 | -.236 | .532 |
| 051 | Pimpalkhuti | M | .287 | .059 | -.083 | .526 |
| 057 | Singad | M | .297 | .078 | .140 | .521 |
| 067 | Pachumbri | M | .277 | -.119 | -.017 | .512 |
| 070 | Girgaon | WB | .397 | .368 | -.156 | .487 |
| 103 | Selut | WB | .285 | .037 | -.225 | -.482 |
| 055 | Pophali | M | .396 | .071 | .415 | .469 |
| 108 | Singa | WB | .211 | -.092 | .054 | -.447 |
| 060 | Isapur | M | .285 | .163 | .249 | .443 |
| 065 | Khed | M | .209 | .116 | -.144 | .418 |
| 024 | Murimadugu | AP | .176 | .063 | -.047 | .413 |
| 076 | Laskarpur | WB | .172 | .096 | -.008 | -.404 |
| 066 | Bhatwadi | M | .313 | .384 | -.096 | .395 |
| 053 | Hatala | M | .142 | .003 | .089 | .366 |
| 079 | Tilna | WB | .152 | -.079 | -.174 | -.340 |
| 059 | Dabhadi | M | .171 | -.231 | -.053 | .338 |
| 100 | Bhunpur Norwal | WB | .201 | -.173 | -.251 | -.329 |
| 030 | I Pangadi | AP | .126 | .037 | .147 | -.321 |
| 093 | Muralpur-
Bhagaband | WB | .185 | .142 | -.259 | -.312 |
| 091 | Kakshmidanga | WB | .082 | -.027 | -.094 | -.270 |
| 092 | Malpara Dantura | WB | .126 | -.106 | -.229 | -.249 |

State

Number of Villages

Andhra Pradesh (AP)

2

Maharashtra (M)

12

West Bengal (WB)

9

Total

23

Table 43. Type III Village Social Systems.

| Code # | Village name | | Village social systems with positive factor loadings on Factor III | # village | Village social systems with negative factor loadings on Factor III | |
|-----------------------|--------------|--------------------|--|-----------|--|------------|
| | | * | | | | *** |
| 069 | Jalihal B.K. | (M) | .605 | 103 | Selut | (WB) -.482 |
| 068 | Bambvade | (M) | .563 | 108 | Singa | (WB) -.447 |
| 050 | Wanoja | (M) | .532 | 076 | Laskarpur | (WB) -.404 |
| 051 | Pimpalkhuti | (M) | .526 | 079 | Tilna | (WB) -.340 |
| 057 | Singad | (M) | .521 | 100 | Bhunpur | (WB) -.329 |
| 067 | Pachumbri | (M) | .512 | 030 | I Pangadi | (AP) -.321 |
| 070 | Girgaon | (M) | .487 | 093 | Muralpur-Bhagaband | (WB) -.312 |
| 055 | Pophali | (M) | .469 | 091 | Lakshmidanga | (WB) -.270 |
| 060 | Isapur | (M) | .443 | 092 | Malpara Dantura | (WB) -.249 |
| 065 | Khed | (M) | .418 | | | |
| 024 | Murimadugu | (AP)** | .413 | | | |
| 066 | Bhatwadi | (M) | .395 | | | |
| 053 | Hatala | (M) | .366 | | | |
| 059 | Dabhadi | (M) | .338 | | | |
| State | | Number of Villages | | | | |
| **Andhra Pradesh (AP) | | 2 | | | | |
| *Maharashtra (M) | | 13 | | | | |
| ***West Bengal (WB) | | 8 | | | | |
| Total | | 23 | | | | |

Table 38 gives the highest loadings of villages on Factor I as also their loadings on the other two factors. The factor loadings range from .588 to .135. The communality of the villages ranges from .185 to .580. Table 39 shows the bipolar nature of Factor I. The villages positively loading on Factor I are invariably either from Andhra Pradesh or Maharashtra states. The villages negatively loading are dominantly

from West Bengal state.

Table 40 gives the highest loadings of villages on Factor II together with their loadings on other two factors. The factor loadings range from .637 to .237. The range of communality is from .540 to .068. Table 41 shows the bipolar nature of Factor II. The villages positively loading on Factor II belong to Andhra Pradesh. The villages belonging to West Bengal dominate negative pole.

Table 42 presents the highest loadings of villages on Factor III together with their loadings on other two factors. The factor loadings range from .605 to .249. The communality of villages ranges from .390 to .126. Table 43 shows the bipolar nature of Factor III. The villages from Maharashtra dominate the positive pole of this type whereas the West Bengal villages mostly cluster around the opposite pole.

Description of Village Typology

Based on the three-factor structure we found three basic types of village social systems. We propose to describe the villages loading on each one of the three factors (which we refer here as types) in terms of each one of the 57 variables giving the profiles of villages.

We used the WRAP program available in the Department of Communication, Michigan State University, to compute the average z score for each village type across each one of the 57 variables using the loading of only those villages which had the "pure"* highest loading on the given

* For example, if a village had a pattern of loading such as .40 on Factor I, .45 on Factor II, .50 on Factor III it was considered not a

factor as the weight. Table 44 gives the z scores for Type I, Type II and Type III villages in terms of each one of the 57 variables.

Village Social System Type I

Table 45 presents the profile of the village social system Type I. Type I village is rated low subjectively by the Agricultural Extension Officer on agricultural development of the village. It has less accomplishments in programs related to agriculture (e.g., adoption of plant protection measures, fertilizers, new variety of seeds) and education (village general literacy level, proportion of boys studying in middle and high schools). The village scores low on the availability and utilization of electricity and mass media (newspaper, magazine and radio).

The degree of political participation is low as indicated by the low score on the number of political parties active in the village and the percentage of voters voting in the national election.

The village is characterized by a high population density and a high birth rate. There is a greater ratio of agricultural laborers to land owner-cultivators. The ratio of bullocks to total cattle population is high.

The institutional facilities such as veterinary dispensary, co-operative society, godown facilities, proximity to administrative and

pure loading pattern. On the other hand, a pattern of loading such as .15 on Factor I, .08 on Factor II and .50 on Factor III was considered "pure" loading on Factor III contributing to the definition of Type III.

Table 44. Description of Village Typology (z scores).

| | R. Factor | Variable Code | Village Types
(Q Factor Scores) | | |
|-----------------------------------|-----------|---------------|------------------------------------|---------|----------|
| | | | Type I | Type II | Type III |
| Village general development | I | 22 Aglab | 0.08 | 1.57 | 0.08 |
| | | 24 Aglada | -0.32 | 1.15 | 0.27 |
| | | 23 Hfpladp | -0.13 | 1.55 | -0.51 |
| | | 50 Machine | 0.43 | 1.08 | 0.31 |
| | | 51 Elec | 0.18 | 1.60 | 0.77 |
| | | 46 Elecpump | 0.50 | 0.58 | 1.50 |
| | | 16 Midfem | -0.73 | 2.03 | -1.00 |
| | | 52 Tax | -0.50 | 0.69 | 0.29 |
| | | 29 Prize | 0.50 | 0.92 | 1.30 |
| | | | | | |
| Manpower--communication resources | II | 6 Danix | 2.04 | -2.06 | -0.54 |
| | | 10 Tanix | -0.46 | 0.65 | -0.38 |
| | | 12 Litfem | -1.60 | 1.73 | -0.65 |
| | | 57 Radio | 3.18 | -1.15 | -0.23 |
| | | 49 Mag | -1.39 | 0.49 | -0.03 |
| | | 11 Litem | -1.37 | 0.45 | 0.27 |
| | | 3 NV | -0.60 | 0.28 | 0.45 |
| | | 36 Libac | -1.17 | 0.59 | -1.61 |
| | | | | | |
| | | | | | |
| Leader change orientation | III | 32 Chanorm | 0.47 | -1.29 | 1.83 |
| | | 2 PP | -0.06 | 0.23 | 1.53 |
| | | 56 Caste | 1.03 | -0.95 | -2.39 |
| | | 31 Emp | 0.51 | -0.12 | 1.10 |
| | | 34 Sac | -0.73 | -0.24 | 1.18 |
| Leader economic conservatism | IV | 33 Ecorient | 1.38 | -0.12 | -1.34 |
| | | 43 Occupmobi | 0.52 | -0.29 | -1.63 |
| | | 42 Riskori | 0.59 | -1.08 | -1.05 |
| | | 53 Catt | 0.22 | -1.19 | 0.55 |
| | | 4 Pv | 1.14 | -0.71 | 0.89 |

Table 44 (cont'd)

| | | | | | |
|-------------------------------------|------|---------------|-------|-------|-------|
| Institution development | V | 37 Cinedist | -0.43 | 0.71 | -1.00 |
| | | 39 Transix | -0.30 | 0.62 | -1.61 |
| | | 8 Agocxm | 1.19 | -1.67 | 0.42 |
| | | 54 Instigut | -0.73 | 1.04 | -0.65 |
| | | 58 Instprox | -0.45 | 1.24 | -0.34 |
| Leader financial liberation | VI | 7 Mucix | 0.36 | 1.53 | -1.79 |
| | | 35 Postac | -0.36 | 0.86 | -0.40 |
| | | 40 Landconsor | 1.54 | -0.51 | -1.16 |
| | | 9 Agocxf | 1.24 | -0.55 | 1.20 |
| | | 55 Visgut | 0.10 | -0.99 | 0.23 |
| Agricultural development | VII | 41 Creditori | 1.52 | 0.77 | 0.42 |
| | | 27 Catman | 0.44 | 1.11 | 0.37 |
| | | 44 Agadopt | -0.62 | 0.92 | 1.48 |
| | | 25 Sedgut | -0.29 | -0.44 | 0.54 |
| | | 28 Plantpro | 0.11 | 0.13 | 1.60 |
| Land | VIII | 30 Sedix | 0.44 | -0.66 | 0.48 |
| | | 19 Infmart | -0.46 | -1.36 | -0.44 |
| | | 5 Lo | 0.24 | -1.00 | -0.54 |
| | | 1 Mlr | -0.73 | -0.68 | -1.19 |
| Mechanization and primary education | IX | 48 Grainm | -0.01 | -0.43 | 0.78 |
| | | 14 Primef | -1.01 | -1.44 | 1.03 |
| | | 13 Primem | -0.67 | -1.20 | 0.76 |
| | | 45 Bicy | -1.89 | -0.69 | -1.05 |
| | | 26 Imple | 0.86 | -0.17 | 0.05 |
| Mechanization and illiteracy | X | 17 Him | -2.17 | -0.13 | -1.02 |
| | | 15 Midem | -2.02 | -1.14 | -0.46 |
| | | 18 Hifem | -0.63 | -0.71 | -0.66 |
| | | 47 Oilengi | 0.51 | 0.32 | 1.92 |
| Not named | XI | 20 Birth | 1.31 | 0.20 | 0.15 |
| | | 38 Office | -0.40 | -0.44 | -0.18 |

Table 45.

Expenditure on
variable costs

-0.01* Agla
-0.01 Elec
-0.01 Elec
-0.01 Tax
-0.01 Prize

-0.06 Tanix
-0.00 Litte
-0.07 Litem
-0.00 Wag
-0.07 Libac
-0.00 NV

-0.00 pp

-0.00 Insti
-0.00 Instp

-0.00 Agado

-0.01 Plantp

-0.00 Bicy

-0.07 Him
-0.02 Widen

Key represent
"key" loads

Table 45. Type I Village Social System Profile.

| Score low on
variable code | | Score medium on
variable code | | Score high on
variable code | |
|-------------------------------|-----------|----------------------------------|---------|--------------------------------|------------------|
| -0.32* | Aglada | 0.08 | Agladb | | |
| 0.18 | Elec | -0.32* | Hfpladp | | |
| 0.50 | Elec pump | 0.43 | Machine | | |
| -0.50 | Tax | -0.73 | Midfem | | |
| 0.50 | Prize | | | | |
| -0.46 | Tanix | -1.17 | Libac | 2.04 | Danix |
| -1.60 | Litfem | | | 3.18 | Radio |
| -1.37 | Litem | | | | |
| -1.39 | Mag | | | | |
| -1.17 | Libac | | | | |
| -0.60 | NV | | | | |
| -0.06 | PP | 0.47 | Chanorm | 1.03 | Caste |
| | | -0.22 | Catt | 1.38 | Ecorient |
| -0.73 | Instigut | -0.43 | Cinedis | 0.52 | Occupmobi |
| -0.45 | Instprox | -0.30 | Transix | 0.59 | Riskori |
| | | 0.36 | Mucix | 1.14 | Pv |
| | | -0.36 | Postac | 1.19 | Agocxm |
| -0.62 | Agadopt | 0.10 | Visgut | 1.54 | Land-
consori |
| 0.11 | Plantpro | 0.44 | Catman | 1.24 | Agocxf |
| | | -0.29 | Sedgut | 1.52 | Creditori |
| | | 0.44 | Sedix | 0.24 | Lo |
| -1.89 | Bicy | -0.46 | Infmart | 0.86 | Imple |
| | | -0.73 | Mlr | -0.63 | Hifem |
| | | | | 1.31 | Birth |
| -2.17 | Him | -0.01 | Grainm | | |
| -2.02 | Midem | -1.01 | Primef | | |
| | | -0.67 | Primem | | |
| | | 0.51 | Oilengi | | |
| | | -0.40 | Office | | |

* They represent average of z scores taken across all the villages that "purely" loaded on the respective factors (types).

development functionary headquarters are poor.

The leadership of the type I village social system largely comes from lower castes; the leaders are characterized by less secular and "other-directed" belief elements. Also the village leadership is high on economic conservatism, risk and credit orientation.

Village Social System Type II

Table 46 presents the profile of the type II village. The typical type II village is low in cattle wealth and the percent of animals used as draught animals. It contains a low percentage of agricultural laborers.

Crop farming in the type II village is characterized by a low use of improved seeds, implements and oil engines for irrigation and grain mill to process the agricultural produce.

It is characterized, however, by high ratings of the block development officer and agricultural extension officer regarding agriculture (e.g., use of improved cattle breed, manure, multiple cropping), the ratings of the health officer regarding health and family planning practices achieved in the village. There is electricity available in the village. The village has a greater taxable capacity and a high man-land ratio.

The general literacy of the village population is high but the proportion of children attending primary school is low.

The village is high on communication resources such as newspapers, magazines and radio, library and transport facilities.

Table 46. Type II Village Social System Profile.

| Score* low on
variable code ⁺ | Score medium on
variable code ⁺ | Score high on
variable code ⁺ |
|---|---|---|
| | 0.58 Elecpump | 1.57 Agladb |
| | 0.92 Price | 1.15 Aglada |
| | | 1.55 Hfpladp |
| | | 1.08 Machine |
| | | 1.60 Elec |
| | | 2.03 Midfem |
| | | 0.69 Tax |
| -2.06 Danix | 0.28 NV | 0.65 Tanix |
| -1.15 Radio | | 1.73 Litfem |
| | | 0.49 Mag |
| | | 0.45 Litem |
| | | 0.59 Libac |
| -1.29 Chanorm | 0.23 Pp | |
| -0.12 Emp | -0.95 Caste | |
| | -0.24 Sac | |
| -1.08 Riskori | -0.12 Ecorient | |
| -1.19 Catt | 0.29 Occupmobi | |
| -0.71 Pv | | |
| -1.67 Agocxm | | 0.71 Cinedist |
| | | 0.62 Transix |
| | | 1.04 Instigut |
| | | 1.24 Instprox |
| | | 1.53 Mucix |
| | | 0.86 Postac |
| -0.55 Agocxf | -0.51 Landconsori | |
| -0.99 Visgut | 0.77 Creditori | |
| -0.29 Sedgut | 0.92 Agadopt | 1.11 Catman |
| -0.66 Sedix | 0.13 Plantpro | |
| -1.36 Infmart | | |
| -1.00 Lo | | -0.68 Mlr |
| -0.43 Trainm | | -0.69 Bicy |
| -1.44 Primef | | |
| -1.20 Primen | | |
| -0.17 Imple | | |
| -0.71 Hifem | -1.14 Midem | -0.13 Him |
| 0.32 Oilengi | | |
| -0.20 Birth | | |
| 0114 Office | | |

* Represents average of z scores taken across all the villages with "pure" loadings on the respective factors (types).

⁺ See Table 8 (Appendix A) for explanation.

The participation of village people in the election process of the local government is low. Further, the village is characterized by a low degree of village leader empathic ability (capacity to take the role of others), his orientation to change and to take risk.

The birth and infant mortality rates are low. The items of consumer goods sold in the village store lack very many varieties.

Village Social System Type III

Table 47 presents the profile of the type III village. The type III village is low by the subjective ratings of the block development officer and the agriculture development officer on agricultural development, low by the ratings of the health officer on health and family planning development. But the type III village is high on the use of electric pump for irrigation, shows high prize-winning performance in the area of development such as the use of fertilizers, plant protection measures, oil engines and grain mills.

The type III village is high on primary and middle school education for boys, but is low on the proportion of girls attending middle school. It is low on library and postal accessibility, cinema and transport facilities.

It is low on man-land ratio and adoption of new breed of cattle and new variety of manure though scores high on cattle population.

It is high on political participation through national voting and activity of political parties in the village.

The village leadership is characterized by low economic conservatism, occupational mobility, land conservatism and credit orientation.

Table 47. Type III Village Social System Profile.

| Low score on variable* | | Medium score on variable* | | High score on variable* | |
|------------------------|------------|---------------------------|----------|-------------------------|----------|
| 0.08 | Agladb | 0.77 | Elec | 1.50 | Elecpump |
| -0.51 | Hfladp | 0.27 | Aglada | 1.30 | Prize |
| 0.31 | Machine | 0.29 | Tax | | |
| -1.00 | Midfem | | | | |
| -1.61 | Libac | -0.54 | Danix | 0.45 | Nv |
| | | -0.38 | Tanix | | |
| | | -0.65 | Litfem | | |
| | | -0.23 | Radio | | |
| | | -0.03 | Mag | | |
| | | -0.27 | Litem | | |
| -2.39 | Caste | | | 1.83 | Chanorm |
| | | | | 1.53 | Pp |
| | | | | 1.10 | Emp |
| | | | | 1.18 | Sac |
| -1.34 | Eoorient | -1.05 | Riskori | 0.55 | Catt |
| -1.63 | Occupmobi | 0.89 | Pv | | |
| -1.00 | Cinedist | -1.67 | Agocxm | | |
| -1.61 | Transix | 1.04 | Instigut | | |
| -1.79 | Mucix | 1.24 | Instprox | | |
| -0.40 | Postac | | | | |
| -1.16 | Landconsor | 1.20 | Agocxf | 0.23 | Visgut |
| 0.42 | Creditori | | | | |
| 0.37 | Catman | 0.48 | Sedix | 1.48 | Agadopt |
| | | | | 0.54 | Sedgut |
| | | | | 1.60 | Plantpro |
| | | | | -0.44 | Infmart |
| -1.19 | Mlr | -0.54 | Lo | | |
| | | -1.05 | Bicy | 0.78 | Grainm |
| | | 0.05 | Imple | 1.03 | Primef |
| | | | | 0.76 | Primem |
| | | -1.02 | Him | -0.46 | Midem |
| | | -0.66 | Hifem | 1.92 | Oilengi |
| | | 0.75 | Birth | -0.18 | Office |

* They represent average of z scores taken across all the villages that "purely" loaded on the respective factors (types).

Also the leadership has a high degree of change orientation, empathy and secularism.

The infant mortality rate is high in the type III village. There is a greater number of governmental official residents in the village. The village stores sell a variety of sophisticated consumer goods.

Summary of Findings

Table 48 summarizes the village social system typology.

In type I village, we find a configuration of social psychological attitudes of the village leadership less oriented to change but with high economic conservatism, low level of agricultural development, low communication resources, low political participation, poor institutional facilities and medium primary education for the village children. In type I village we find West Bengal regional syndrome of village development.

In type II village we find a configuration of social psychological attitudes of the village leadership not favorable to change but the village is endowed with a high degree of institutional facilities, manpower-communication resources and a medium degree of agricultural development. In type II village we see a village development syndrome characterized by Andhra Pradesh region.

In type III village we find a configuration of social psychological attitudes of the village leadership favorable to change, low to medium availability of communication resources and institutional facilities but a high level of agricultural development. The village development syndrome of the type III village is characterized by the Maharashtra region.

Table 48. Village Social System Typology: Summary of Findings.

| Village social system type | Agricultural development | Institution facilities | Manpower-- communication resources | Primary education | Political participation | Leader economic conservatism | Leader change orientation |
|----------------------------|--------------------------|------------------------|------------------------------------|-------------------|-------------------------|------------------------------|---------------------------|
| Type I | - (Lo) | - (Lo) | - (Lo) | 0 (Medium) | 0 (Medium) | + (Hi) | - (Lo) |
| Type II | 0 (Medium) | + (Hi) | + (Hi) | - (Lo) | - (Lo) | 0 (Lo to Medium) | 0 (Lo to Medium) |
| Type III | + (Hi) | 0 (Lo to Medium) | 0 (Lo to Medium) | + (Hi) | + (Hi) | - (Lo) | + (Hi) |

CHAPTER VI

COMMUNICATION PATTERN AND VILLAGE TYPOLOGY

We propose to study some attributes of interpersonal communication contacts among the farmers in settings of different types of village systems described in Chapter V.

The specific objectives of this chapter are: (1) to construct measures of communication structure, communication integration, communication network role, and participant composition of farmers in the interpersonal communication contacts, (2) to state some propositions of communication structure, integration, role, and participant composition differentiated in terms of the village typology, and (3) to provide empirical evidence based on some case studies of villages in India with respect to the foregoing communication indicators for generating some testable hypotheses.

Communication Structure

Communication Structure and Communication Network

By the term communication structure we mean a set of elements of some specified participant-message-media systems with different degrees and kinds of relations and configurations among them. If the

communication configuration consists of the connected elements in a given social system then it is a communication network. A communication network thus becomes a subset of a given communication structure. In other words, if two or more persons or participating systems have a communication path that could be traced from one node to another then it is a communication network. That means a network is a set of communication configuration consisting of dyads, chains, circles or groups or any of their complex inter-connected structures. An isolated monad in the communication structure is not a network.

All the elements of a given social system may not be connected to form a network with reference to a given communication criterion attribute. The criterion attribute may refer to any one or more of the characteristics of a participant-message-media system. For example, different kinds of messages, or different kinds of media, or different types of participants may be used in constructing the structure of communication relations. If we consider more than one criterion attribute in mapping the communication structure, the probability of attaining the communication network co-extensive with the communication structure increases. Conversely, if we limit ourselves to only one communication attribute of a given social system, the network tends to become a subset of the communication structure.

In the present chapter we propose to look at some attributes of within village interpersonal communication relations such as structure, integration, role and composition. We wish to recall some of the conceptual definitions we had mentioned in Chapter II and develop them further to construct communication measures for purposes of this chapter.

Anatomy and Measurement of Communication Structure

As we have mentioned earlier, a communication structure may consist of some isolated monads, a network of dyads, chains, groups and circles or isolated substructures like groups, chains and dyads. We consider each one of them as an indicator of the communication structure. In the following sections we give their conceptual definitions and measurement procedures.

Monad isolate: In a given social system, if a person neither seeks nor is sought for information with respect to a specific topic during a specified period, then he is considered to be a monad isolate. If the monad is a member of a dyadic structure which in turn may be a part of a chain or a circle or a group then the monad is considered to be a part of another structure.

Monad isolate index: Adopting the foregoing definition of a monad isolate we counted the number of monads in a given village social system, and computed the ratio of the number of isolated monads to the total number of members in the social system under study and expressed it as percent.

Dyad: In a given social system, if one person seeks information from another but neither of them is sought for information from a third person then we describe the relation between those two persons as dyadic. This definition is wider than that which specifies a reciprocated relationship between two persons (Guimaraes, 1972, p. 51). A dyadic structure may become a part of a chain, or a circle, or a group. In that case the dyadic relation is transformed into a more complex structure.

Dyadic index: Adopting the foregoing definition of a dyad we counted the number of dyads which are not part of a chain or a circle or a group, and computed the ratio of the number of dyads to the total number of members in the social system under study and expressed it as percent.

Chain: In a given social system, if three or more persons seek information not from the same node as a direct source but get the information in steps of three or more transitive sequences in a specified period for a specified topic, then we call that structure a chain. For example, A seeks information from B ($A \longrightarrow B$), and B goes to C for information ($B \longrightarrow C$) is a communication structure of the form chain.

Chain index: We identified the number of chains which are not part of a circle, or a group, and computed the ratio of the number of these chains to the total number of members in the social system under study and expressed it as percent.

Group: We define a group as a communication contact configuration of three or more persons where at least two or more members seek information from the same node or person. Thus a communication group is one which consists of three or more persons who seek or share information from the same person. For example, if $A \longrightarrow B$ (A seeks information from B) and C also seeks or shares information from B ($C \longrightarrow B$) then we call the communication involving ABC ($A \longrightarrow B \longleftarrow C$) as a communication group. This is a narrow definition of a group but operationally useful in our present analysis.

Group index: We identified the groups which satisfy the foregoing definition and expressed the number of groups as a ratio of the total number of members in the social system under study and expressed it as percent.

Communication Integration

Communication integration is the degree to which each of the members in a given social system is connected directly or indirectly to other members through lines of message-media system. We have to understand clearly who the members are in a given social system, as also the reference criterion for message, medium (channel), and participating systems. Each member in a given social system may show different degrees of connectedness with reference to a given element in a message-media system and at a specified time slice. Given the reference to the communication attributes, if a component is not connected with any other element or a sub-structure then it is an isolate. The isolated component may be a monadic element or a dyad or a chain or a group structure. Even though the sub-structure such as a dyad or a group may show a high degree of integration (connectedness) within its elements it may not be connected with all the other sub-structures.

Communication integration measures are many.* The choice of a particular measure is dependent on the following factors: (1) the communication systemic component we are measuring (e.g., an individual or a group or a larger complex, (2) the purpose of the investigation (i.e., whether we are interested in the description of the whole system under study or a substructure of only that system, or whether we are

* Studies by Yadav (1967) and Guimaraes (1972) have contributed towards the conceptualization, measurement, and empirical examination of communication integration in rural communities in India and Brazil.

interested in a comparative study of the systems, (3) the attribute we use in defining the communication relation, and (4) the nature of the data available (if one has no choice of collecting the needed new data). Further, we should note that integration measure is a function of (1) the unit of our study (an individual, informal or formal human relations or organizations), (2) the number of choices we limit for each participant to specify the communication relation, (3) the importance we give to the components of a given communication structure for measuring the inter-connectedness, (4) the importance we give to the number of steps or linkages involved in establishing the communication connectedness among the specified members of the system, and (5) the choice of the numerator and the denominator we employ in constructing the measure of communication integration.

In our present study, taking into account the purpose of our investigation, and the nature of the data we have to work with, we constructed the following communication integration indices.

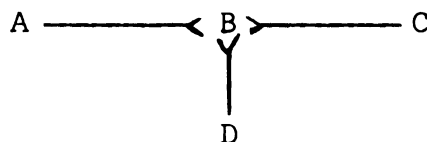
Network integration score: We counted the number of direct and indirect contacts for each person in a given social system. We divided the number of direct and indirect contacts by the total possible number of contacts among all the members in the social system. We expressed this ratio as a percentage score. If each member should talk to every other person in the social system or have a path to receive messages (irrespective of the number of steps or links or direction), then that social system has an integration score of 100. If each member is an isolate, then the integration score is 0.

Dyad isolate score: In a given social system we counted the total number of isolated dyads. We computed the ratio of the number of isolated dyads to the total number of possible dyads, and expressed it as a percentage. If the percentage score is 0, it means that each one of the dyadic unit is completely integrated with other structures of the social system (irrespective of the steps or direction involved in the linkages) assuming that none of the member is an isolated monad. If the percentage score is 100 then it means that the whole system is a set of isolated dyads.

Monad isolate score: In a given social system we counted the total number of isolated monads. We computed the ratio of monads to the total number of persons in the social system and expressed it as percent. If the percentage score is 0 then there are no isolated members in the system. If the score is 100 then the social system is composed of isolated members.

Communication Role

Communication roles are a function of the communication structure of a given social system. By communication role we mean the expected function that a person performs in encoding and decoding of messages relevant to his location in a given communication structure. Consider the following structure:



We identify B as being located centrally while A, D, C are peripherals seeking information from B. The expected communication role may be

described as group centrality or opinion leadership or key communicator role in the case of B. A, C, and D, relatively speaking, play the peripheral or follower roles.

As we mentioned previously, a network is a subset of the communication structure of a social system. We conceptualize the components of a communication network as group, chain and dyad. Looking at the configurations and inter-relations among the network components of a given social system we conceptualize the following communication roles.

Group central: If a person in a communication group has the most direct and indirect linkages with all the other ones then he is considered to be the group central and all the other ones are group peripherals. We identified the group central as one who is sought the most among all the persons in a given group. We computed the ratio of the number of group centrals to the total number of members in the village social system and expressed it as percent.

Inter-group bridge: If a person is a member of more than one group linking the groups to one another, then he is identified as an inter-group bridge. Counting the number of inter-group bridge roles to the total number of members in the social system we expressed it as percent.

Liaison: Group liaison is a person who is not himself a central member of a group, but one who communicates with people in at least two different groups, thus creating a link between the groups through which information passes (Berlo and others, 1972, p. 17). We counted the number of liaison roles to compute the ratio of the number of liaison roles to the total number of members in the social system and expressed it as percent.

Communication Participant Composition

Given an interpersonal communication structure, what types of farmers constitute the members of that communication structure? Does the composition of the communication structure differ in terms of the farmer types across the types of villages? To provide answers to these questions we propose to derive an empirical typology of farmers based on some selected socioeconomic behavioral characteristics as a schema for the description of the farmers composing the village interpersonal communication structure.

By using the multi-variate approach (Q-type factor analysis) we identified the farmers in each one of the village types in terms of eight farmer types.

Group Central: We examined the sociogram of the three villages (Figs. 3,5, 8) depicting the communication roles and structural relationships among the farmers and identified them in terms of farmer typology. We counted the number of farmers who occupied the centrality role in the communication group. We computed the ratio of the specific farmer types occupying the group centrality role to the total number of group centrals within a given village and expressed it as a percentage to give us a measure of the kinds of farmers who are group centrals.

Group Peripheral: The group peripherals were identified as belonging to one of the eight farmer types. We computed the ratio of the farmers belonging to each one of the farmer types to the total number of group peripherals across all identified groups in the village and expressed it as a percentage for each one of the types of farmers to give us a measure of the group peripheral composition.

Table 49. Village Typology in Succinct Form.

| Type of village | Village characteristics | | |
|-----------------|---|-------------------------------------|--------------------------|
| | Social psychological attitudes of village leaders | Agricultural development | Institutional facilities |
| Type I | Less favorable to change | Low level of development | Less facilities |
| Type II | Less favorable to change | Medium to high level of development | More facilities |
| Type III | More favorable to change | High level of development | Moderate facilities |

Isolate monad: Adopting similar procedures used in identifying the group peripherals we identified all the isolates in terms of the farmer types. The isolate monads belonging to a specific type were expressed as a percentage to the total number of isolates in a given village.

We attempted to describe the composition of the interpersonal contacts among the farmers in a village in terms of similar or dissimilar types of farmers making up the contact structure. We computed a heterophily score for the communication group composition as well as the dyadic structures.

Group heterophily score: We looked at the composition of each group and identified the members of the group in terms of the typology of farmers. We assigned a heterophily score on a three-point scale for each group as follows: If the group composition consisted of the same type of farmers we assigned 0 score (absence of heterophily). If the group composition was dominated by the same type of farmers, we assigned a score of 1 (less heterophilous). If the group composition showed a dominance of different farmer types, then we assigned a score of 2 (more heterophilous). If the composition of the group membership tended towards equal proportion of all the three types* of farmers, then we assigned a score of 3 (most heterophilous group).

Dyadic heterophily score: We considered the interpersonal communication structure of the farmers in terms of dyadic relationships and

* In each village type we identified three types of farmers out of the eight types.

looked at their composition in each village type. If the dyad consisted of the same farmer types then we assigned a score of 0 (no heterophily or presence of homophily). If the dyad consisted of different types of farmers then a score of 1 was assigned (presence of heterophily or no homophily). We counted the number of heterophilous dyads and expressed it as a percentage of the total number of dyads in a given village.

Village Typology and Some Communication Propositions

Our findings in Chapter V provided the empirical evidence for conceptualizing the village social system into three types: Table 49 depicts the village typology in a succinct form.

In type I village, we found a configuration of social psychological attitudes of the village leadership (a high economic conservatism and low orientation to change) associated with a low level of agricultural development, poor communication resources, poor institutional facilities, a low degree of political participation and a medium primary education for the village children

In type II village, we found a configuration of a high degree of village institutional facilities, manpower and communication resources and a medium to high level of agricultural development; but the social psychological attitudes of the village leadership were less favorable to change.

In type III village we found a configuration of a low to medium degree of the availability of communication resources and institutional facilities, very favorable social psychological attitudes of the village leadership towards change, and a high level of agricultural development.

Given the foregoing gross profiles of the village social systems, the questions we raise for further investigation here is: Do we expect to find any differences in the attributes of internal interpersonal communication system among the farmers in those village types? We assert that type I, II, and type III village social systems show differences in the interpersonal communication structure among the farmers, communication integration, communication role and participant composition.

Communication Structure Proposition

Proposition 1: In type I village we expect to find less number of groups, isolated monads, isolated dyads and chains.

If the village is less developed institutionally and agriculturally, and leaders are less oriented to change, information sharing burden is more likely to fall very heavily on the internal interpersonal communication lines among the farmers. In such less change-prone farming communities, expertize, credibility, and conventional wisdom in agriculture-related matters have a tendency to be associated with only a few persons who conserve conventional wisdom in oral communication tradition. Moreover, the communication contacts among the farmers persist on the primary institutional lines such as kinship, caste roles and status. Hence we expect the interpersonal communication structure of the type I village to show smaller number of groups, less number of isolate monads, and other isolated structures.

Proposition 2: In type II village there are a medium number of groups, isolated monads, isolated dyads and chains.

The type II village has a high degree of communication and institutional facilities as also a medium-to-high level of agricultural development, but the leadership is less oriented to change. Assuming that the degree of change orientation among the farmers to be of the same order as that of the leaders, we state that the persons acting as sources or relaying functionaries for new agricultural information related to innovative production practices will be relatively smaller in number. The number of information source points that act as the nuclei for communication groups and other structures will be somewhat between the type I village and type III village (see next paragraph). Hence in type II village we expect a medium number of groups, isolated monads, isolated dyads and chains.

Proposition 3: In type III village there are a large number of groups, isolated monads, isolated dyads and chains.

The type III village is moderately developed institutionally, highly developed agriculturally and contains the village leadership more oriented to change. This type of village has a tendency to have a greater degree of external linkages outside the village. The agricultural information is more likely to flow to the farmers both through within village interpersonal communication lines as well as outside-village mass media and formal organization communication lines. Also, in a more developed village of the type III we expect to find a greater number of farmers who have expertise, credibility and specialized knowledge of the changing farm practices so that the centrality in communication or opinion leadership is more likely to be spread over a larger number of farmers. Hence we expect the interpersonal communication structure in type III village

to show a greater number of groups, a greater number of isolated monads and also other isolated structures.

Communication Integration Propositions

Proposition 4: The degree of internal interpersonal communication integration is low in type I village.

Our findings showed previously that type I village is characterized by low indices of agricultural development, poor institution facilities (educational, credit, transport and marketing), and the less change-prone village leadership. In social systems of this kind, the need for exchanging information related to innovative practices in agricultural production tends to be low. There is a tendency for self-sufficiency and a near saturation for information need and absorption. Further, a sense of self-complacency and a syndrome of "I know everything; what new is there to know" pervades the farmer information exchange behavior. The compatibility of agricultural information originating in the agricultural experimental stations with the on-going farming practices, the degree of flexibility in the adaptation of the new agricultural practices are likely to be low. When there are low or no agricultural innovations, the range of options from which to choose and evaluate the alternative outcomes is very narrow. Hence the degree of uncertainty involved in decision-making is also low. The need for new information and the kinds of problems the farmers face in farming do not create an environment for an information exchange pattern to show a high degree of interpersonal communication among the farmers relevant to farming. Either the communication structures are centralized around a very few

persons or we find a large number of isolated structures which may indicate a high degree of self-sufficiency, a highly individualized need for information and an information "balance" or "equilibrium" attained at a low degree of interpersonal communication integration. Hence we expect to find a low degree of interpersonal communication integration in type I village.

Proposition 5: The degree of interpersonal communication integration (with reference to agricultural production information) is medium in type II village when compared to type I and type III villages.

Proposition 6: The degree of internal interpersonal communication integration is high in type III village.

In type III villages we found that the leaders showed a greater orientation to change while those in type II villages scored less on this trait. Assuming that the leadership characteristics reflect the general ethos of the village, we may say that the motivation is high among the farmers in the village type III in seeking new information, comparing and sharing the results of their new experiences of the new agricultural practices. As the farmers of the type III village are more likely to take the initiative for adopting agricultural innovations when compared to those of the type II village, considerations of wider range of options and alternatives, costs and benefits assume greater saliency. Hence the need to know is high. The farmers who are innovative find it rewarding to get more and more information relevant to their production practices. The information gathered and efforts devoted to seek and listen to advice has a great deal in influencing the outcomes of any decision-making. Hence we expect that the degree of internal

interpersonal communication integration is high in the village type III while it is medium in the village type II.

Communication Role Propositions

- Proposition 7: Type I village tends to score less on the degree of liaison role, inter-group bridge role, but more on centrality role.
- Proposition 8: Type II village tends to score medium on the degree of liaison role, inter-group bridge role and centrality role.
- Proposition 9: Type III village tends to score high on the degree of liaison role, inter-group bridge role, and centrality role.

We have stated that communication roles are determined by the structure of communication and the degree of communication integration obtaining in a given social system. If there are more number of groups there is a tendency for the existence of more number of centrality roles. If the degree of communication integration is higher and if the number of groups and chains are large then we expect the communication roles such as liaison, inter-group bridge and centrality to be high also.

We had hypothesized in Proposition 1 that the type I village contains less number of groups and scores low on the degree of communication integration (Proposition 4). Therefore type I village tends to have fewer liaison, inter-group bridge and centrality roles.

We had hypothesized that the type II village contains medium number of groups, isolated monads, isolated dyads and chains (Proposition 2), and medium degree of communication integration (Proposition 5). Therefore, the type II village has a medium degree of liaison, inter-group

bridge and centrality roles.

We had hypothesized that the type III village to have a high number of groups, isolated monads, isolated dyads, and chains (Proposition 3), and a high degree of communication integration (Proposition 6). Hence we expect that the type III village to show a high degree of liaison, inter-group bridge and centrality roles.

Communication Participant Propositions

In the type I village (leadership less favorable to change, poor institutional facilities and a low level of agricultural development):

Proposition 10: The type A farmer (low in change orientation, moderate control over farm economic resources and a high degree of social participation) is likely to dominate as the group central.

Proposition 11: The type C farmer (moderately disposed towards change, moderate control over farm economic resources and moderate degree of social participation) is likely to dominate as the group peripheral.

Proposition 12: The type B farmer (high in change orientation, great control over farm economic resources and a low degree of social participation) is likely to dominate as isolate.

In the type II village (leadership less favorable to change, better institution facilities and medium to high level of agricultural development):

Proposition 13: The type E farmer (low in change orientation, great control over farm economic resources and moderate degree of social participation) is likely to dominate as the group central.

Proposition 14: The type D farmer (high in change orientation, moderate control over farm economic resources and a high degree of social participation) is likely to dominate as the group peripheral.

Proposition 15: The type F farmer (moderately disposed towards change, control over farm small economic resources and a low degree of social participation) is likely to dominate as isolate.

In the type III village (leadership more favorable to change, moderate institutional facilities and high level of agricultural development)

Proposition 16: The type G farmer (high in change orientation, small control over farm economic resources and moderate degree of social participation) is likely to dominate as the group central.

Proposition 17: The type A farmer (low in change orientation, moderate control over farm economic resources and a high degree of social participation) is likely to dominate as the group peripheral.

Proposition 18: The type H farmer (low in change orientation, moderate control over farm economic resources and low degree of social participation) is likely to dominate as isolate.

We assume a positive relation between the change orientation of village leaders and the group centrals. If the social psychological attributes of the village leadership is less favorable to change, we would expect the same degree of unfavorable disposition towards change reflected dominantly among the group centrals in the interpersonal communication structure also.

The farmers who are the group peripherals seeking information on agricultural production problems are more likely to be motivated to know more about the improved methods of agricultural practices, to exchange their experiences of working with the new seeds, use of fertilizer, plant protection measures by contacting the information influentials. Hence we expect that these farmers to be more oriented to change in villages with a high agricultural development. We also expect the group

peripherals to be moderate on social participation because the social contacts facilitates the opportunities for information transfer relevant to farming.

The group isolates are more likely to be low on social participation. In villages with poor institutional facilities and low leader change orientation and low level of agricultural development, the isolates may be more oriented to change. They are likely to have less control over farm economic resources.

Methodology and Data

To provide the empirical evidence in support of the foregoing propositions relating to communication attributes and village typology, we propose to use the data on the internal interpersonal communication contacts from seven villages in India (in the case of participant composition, we use data only from three villages as cases to keep the study within manageable limits). Because the data do not satisfy the requirements of tests to support any statistical inferences our conclusions do not warrant any generalization. Our modest claim is that the case study method provides some empirical evidence to develop a rationale for formulating the testable hypotheses.

Selection of Village Social Systems

Selection of villages for the study of the internal communication attributes of the villages was guided by two considerations: (1) the availability of data, and (2) the representative character of the

village as belonging to one or the other types in the empirically evolved typology of village social systems described in the previous chapter.

From the India Diffusion of Innovations Project Phase II study* we have data on seven villages which belong to different village types as indicated in Table 50.

Mulwa village (N=173)** of Maharashtra and Kanchumarru village (N=35) of Andhra was selected to represent the type I village social system. Each one of them clustered around the negative pole of the village type I (Table 39).

The villages Manchili (N=94) and Polamuru (N=120) of Andhra, and Harishpur (N=72) of West Bengal were chosen to represent the type II village social systems. Both Manchili and Polamuru villages clustered around the positive pole of the type II villages whereas Harishpur loaded on the negative pole (Table 41).

Pophali village (N=110) of Maharashtra and Laxmidanga village (N=75) of West Bengal were chosen to represent the type III village. Pophali village loaded on the positive pole of the type III village whereas Laxmidanga represented its opposite pole (Table 43).

* The data from the India Phase II study are among the most extensively used set for empirical examination of sociological and communication hypotheses. For full description of the study design and data collection methods see Fliegel and others (1968), Raju (1969), Saxena (1968), Abraham (1970), Krishna Kumar (1972), Rao (1972), Bhowmik (1972), Nayak (1973).

** N refers to the number of members involved in communication contacts in the village under study.

Variables and Operationalization

The categories of variables we are interested in the study of communication attributes may be grouped as follows:

Medium: Interpersonal information seeking for advice on farming among the farmers

Message: Information related to technical problems of agricultural production

Participating system: Farmers aged 50 years and below operating farms of 2.5 acres and above.

Medium-message variables: The following question was asked of each selected farmer in each of the seven villages in the course of a personal interview:

Question: If you needed advice on problems associated with farming, what one person in this village would you seek advice from first? (INTERVIEWER: if the respondent mentions an official, e.g., VLW then ask again.)

| | |
|----------------|-----------------------------|
| Name of farmer | Official position
if any |
|----------------|-----------------------------|

.....

.....

The responses to the foregoing question were the basis to construct the interpersonal communication contacts (MEDIA) between farmers (PARTICIPATING SYSTEMS) with reference to agricultural production relevant information (MESSAGE).

Method of Data Analysis

We used sociograms (Figures 3, 4, 5, 6, 7, 8 and 9) to display the communication contacts among the farmers in each of the seven villages. Looking at the sociograms we identified the

Table 50. Village Social Systems Selected for Study of Communication Attributes.

| Typology of villages | Villages with positive loadings | Factor Loadings | | | Villages with negative loadings |
|----------------------|---------------------------------|-------------------|---------------------|-----------------------|---------------------------------|
| | | I Factor (Type I) | II Factor (Type II) | III Factor (Type III) | |
| Type I | None | <u>-.457</u> | .078 | .148 | Mulwa (Maharashtra) |
| | None | <u>-.398</u> | .271 | -.167 | Kanchumarru (Andhra) |
| | None | <u>-.197</u> | .174 | -.048 | Amdole (West Bengal) |
| Type II | Manchili (Andhra) | -.083 | <u>.639</u> | -.336 | None |
| | Polamuru (Andhra) | -.368 | <u>.628</u> | .107 | None |
| | | .135 | <u>-.432</u> | -.384 | Harishpur (West Bengal) |
| Type III | Pophali (Maharashtra) | .071 | .415 | <u>.469</u> | None |
| | None | -.027 | -.094 | -.270 | Laxmindanga (West Bengal) |

interpersonal communication structure, integration and role attributes.

Farmer Composition (Participating System)

To construct the profiles of the farmer (participating system) types composing the communication structure in the village, we selected all the farmers (aged 50 years and below and operating farms of the size 2.5 acres and above) separately for each one of the three types of villages, viz., Mulwa of Maharashtra representing the type I village, Polamuru of Andhra representing the type II village, and Pophali of Maharashtra representing the type III village.

Considering the farmer as an individual behavioral system, we selected the following socioeconomic behavioral characteristics which satisfied the criteria of the peasant typology study done previously (Raju, 1969).

Variables*

88. Family size refers to the number of members related to the head by kinship ties, sharing food from a common kitchen, and shelter.

89. Education refers to the degree of a person's ability to read and write a letter with formal schooling.

90. Acres cultivated refers to the total extent of land cultivated by the respondent during the agricultural year of July to June, 1966.

91. Total value of agricultural produce raised refers to the monetary value (at the appropriate market price) of the quantity of agricultural products.

* For detailed measurement procedures see Appendix B.

92. Change agent knowledge is the degree of awareness of the extension workers on the part of the farmer.

93. Social participation refers to the degree of behavior orientation of a person interacting with other persons in a formal group.

94. Cosmopoliteness refers to the degree to which an individual is oriented outside of his system.

95. Fragmentation index refers to the extent of scattering of cultivating plots of land in non-contiguous places.

96. Taxes paid refers to the value of local taxes like housing and property tax (excluding land tax) annually paid by the farmer.

97. Productive man work units are the estimated number of man days (hired as well as family) used in farm operations through the year.

98. Commercialization is the degree to which an individual is oriented to the market forces for his output disposal.

99. Agricultural innovativeness is the degree to which an individual is relatively earlier in adopting new agricultural ideas than other members of his social system.

100. Political knowledgeability refers to the awareness of the individual about persons who are the chief policy-makers in government.

101. Ritual caste status refers to the ranking of the respondent relative to other persons in the village according to the acceptability of drinking water and eating cooked food with them.

102. Bullock power is the total number of bullocks or draught animals owned by the peasant.

103. Health innovativeness is the degree to which an individual is relatively earlier in adopting new health ideas than other members

of his social system.

Method of Data Analysis

We used Q-type factor analysis for data reduction and construction of farmer typology.

Findings: Communication Structure

Village Type I

Sociograms IA (Fig. 3) and IB (Fig. 4) refer to the village social system which we have described as type I village. Table 51 presents the mean value of the communication structural measures for all the three types of villages. In village type I we identified an average number of 10.5 groups whose size ranged from 3 to 18 with a mean size of 6.5. The mean number of chains is two. The mean size of the chain is three. There is a mean of 12 dyads which are not a part of any group or chain or any other structure. The mean number of monads is 14.

Village Type II

Sociograms IIC (Fig. 5), IID (Fig. 6) and IIE (Fig. 7) refer to the village type II (Table 51). In this village type we find a mean number of 13.5 groups whose size ranges from three to nine with a mean size of 8.7. The mean number of chains is 2.5 with an invariant size of three. The mean number of dyads which are not part of any other structure is 13.5. The mean number of monads which are not a part of any other structure is 19.

Table 51. Village Typology and Communication Structure.

| Communication structural measures | Typology of Village | | | | |
|-----------------------------------|------------------------------------|---------------|--------------------------------------|------|--|
| | Type I
One case
Sociogram IA | N=2
(Mean) | Type II
One case
Sociogram IIC | N=3 | Type III
One case (N=1)
Sociogram IIIF |
| Group Index | 10.7 | 11.1 | 10.8 | 9.1 | 7.3 |
| Mean group size | 6.8 | 6.5 | 4.5 | 5.8 | 11.3 |
| Chain Index | 2.3 | 1.1 | 3.3 | 1.56 | 0.9 |
| Chain size | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Dyad Index | 12.5 | 11.9 | 12.5 | 13.8 | 6.3 |
| Monad Index | 13.8 | 12.6 | 26.6 | 19.6 | 7.2 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Figure 3. Sociogram IA (Type I Village: Mulwa (Maharashtra)
Farming Advice Network
 $N = 146 + 27^* = 173$

* Persons outside the sample.

Legend:

511 $\leftarrow$ 487 : farmer #511 seeks advice from farmer #487

- $\triangle$ Liaison Role
- $\square$ Bridge Role
- $\bigcirc$ Group Central
- $\bigcirc$ Peripheral
- $\bigcirc$ Chain Central
- $\bigcirc$ Isolate

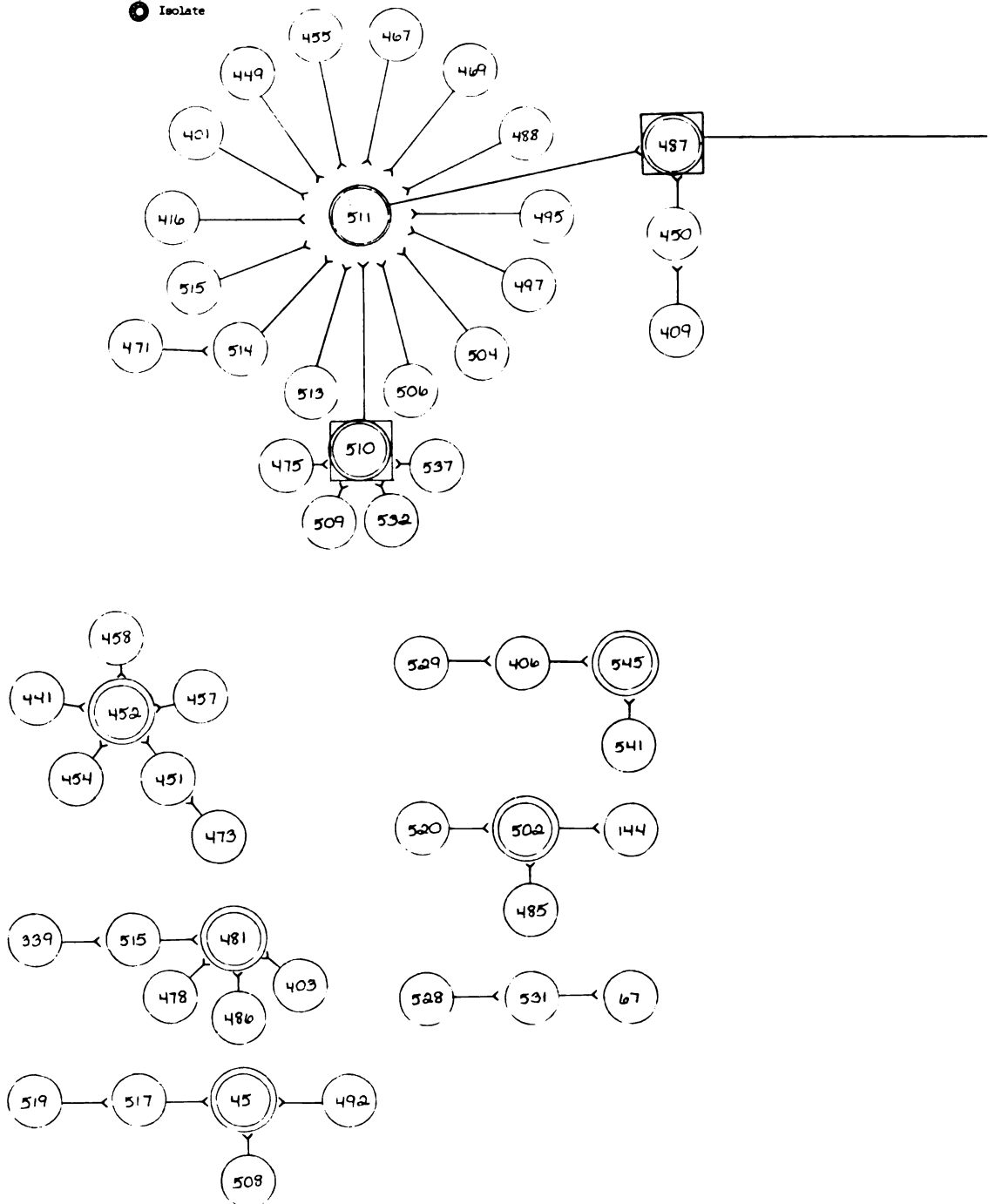
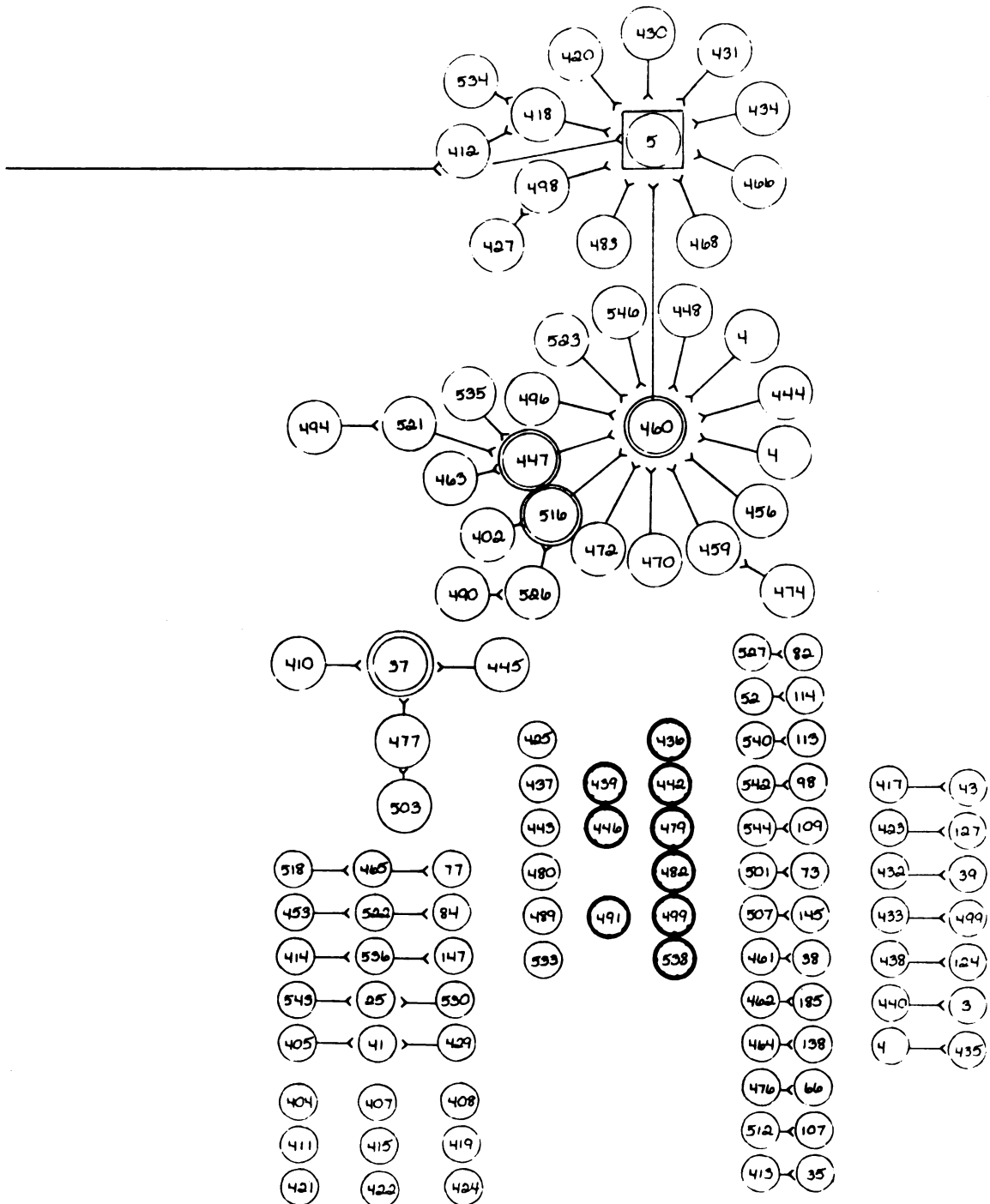


Figure 3.



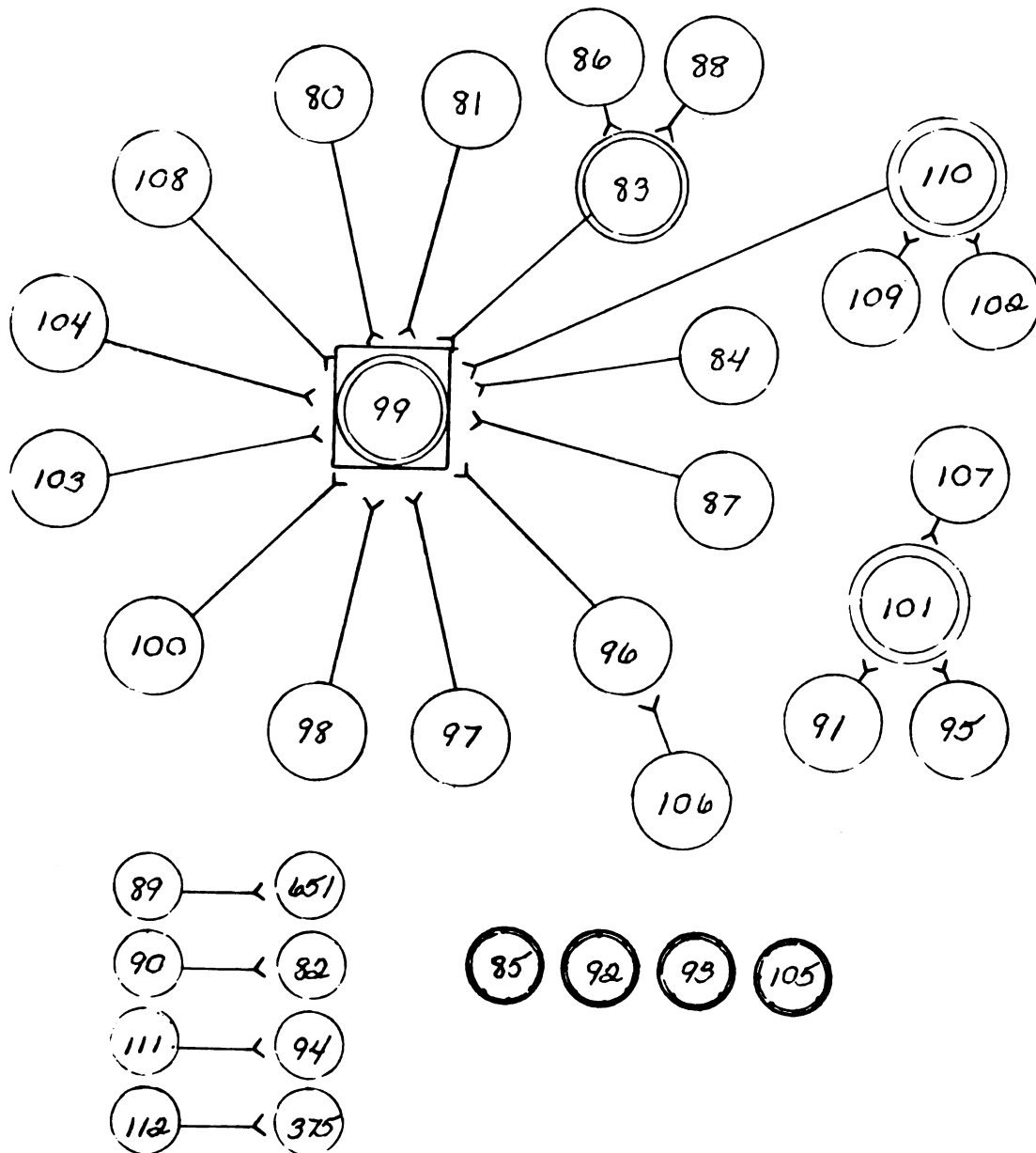


Figure 4. Sociogram IB (Type I Village: Kanchumarru (Andhra Pradesh)
Farming Advice Network
N = 33 + 2* = 35

* Persons outside the sample.

Legend:

99 → 110 : farmer #110 seeks advice from farmer #99

- △ Liaison Role
- Bridge Role
- ⊙ Group Central
- Peripheral
- ◊ Chain Central
- Isolate

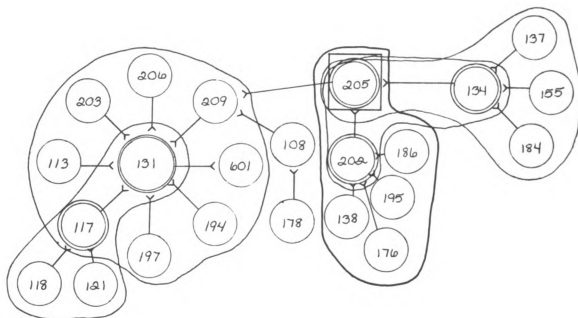


Figure 5. Sociogram IIC (Type II Village: Polamuru (Andhra Pradesh)
Farming Advice Network
 $N = 99 + 21^* = 120$

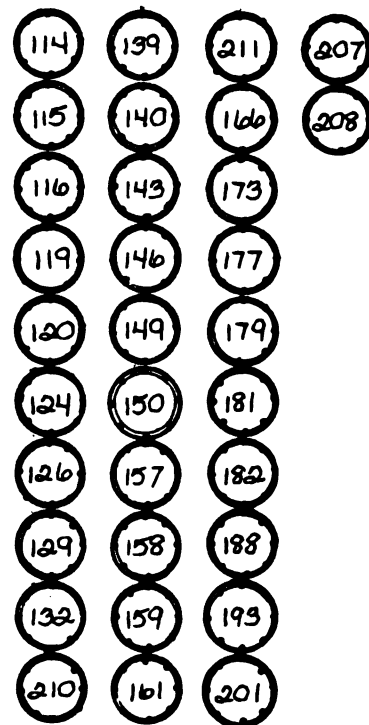
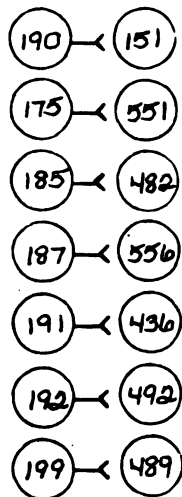
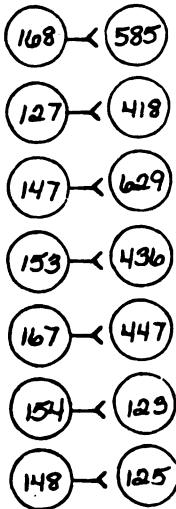
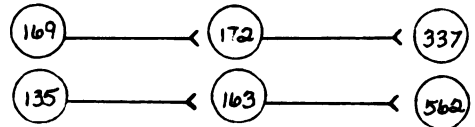
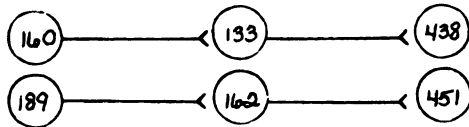
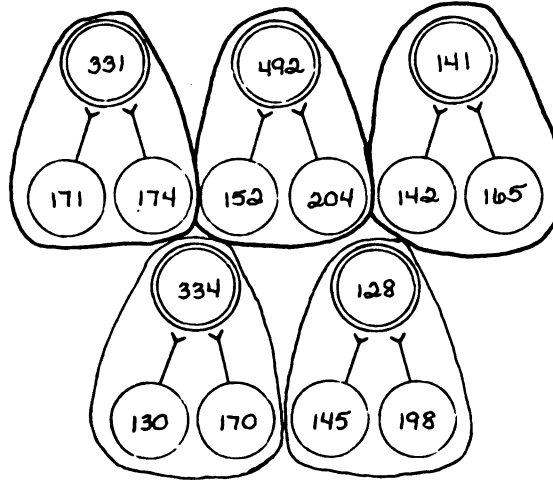
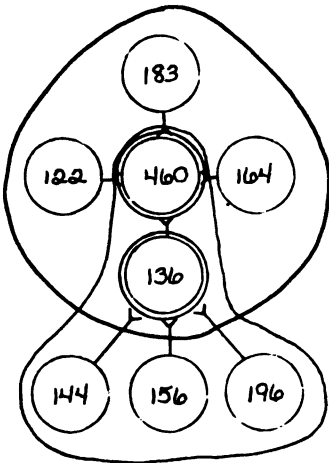
*Persons outside the sample.

Legend:

113 —> 131 : farmer #113 seeks advice from farmer #131

- △ Liaison Role
- Bridge Role
- ⊙ Group Central
- Peripheral
- ⬡ Chain Central
- ⊗ Isolate

Figure 5.



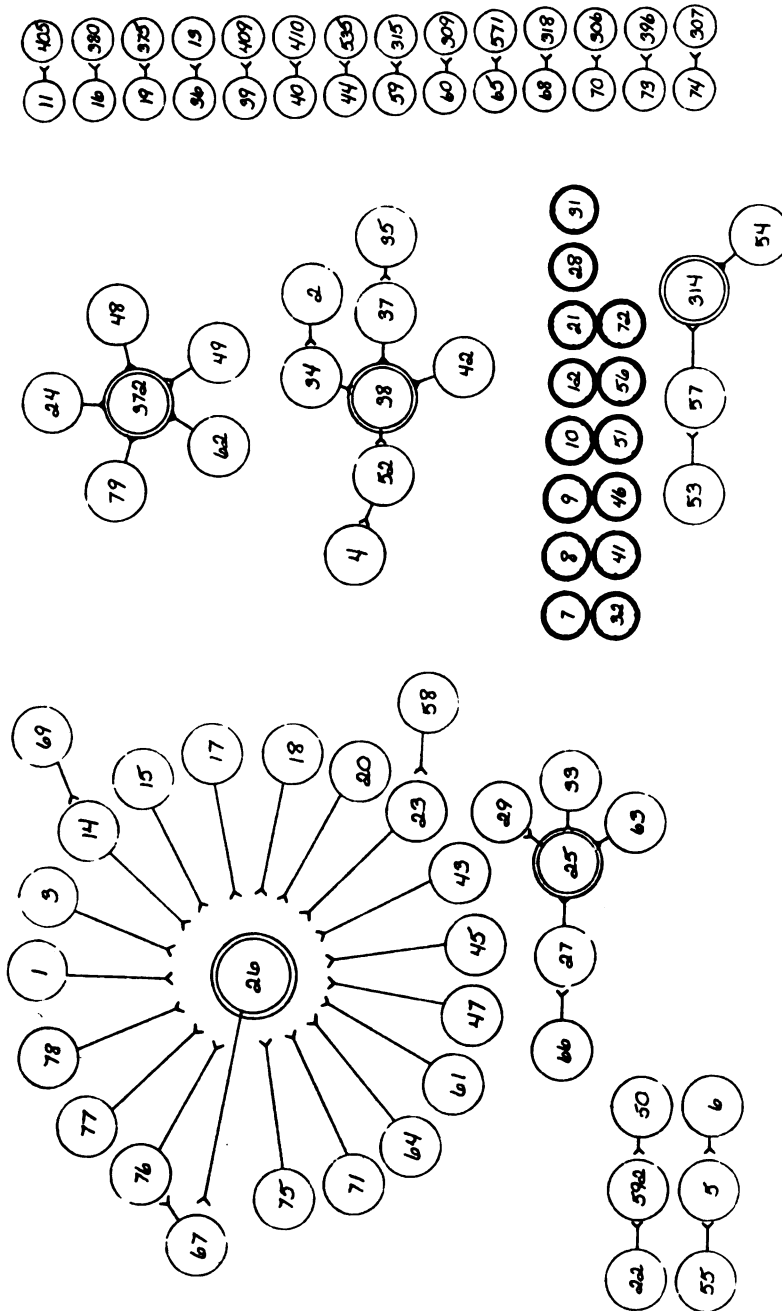


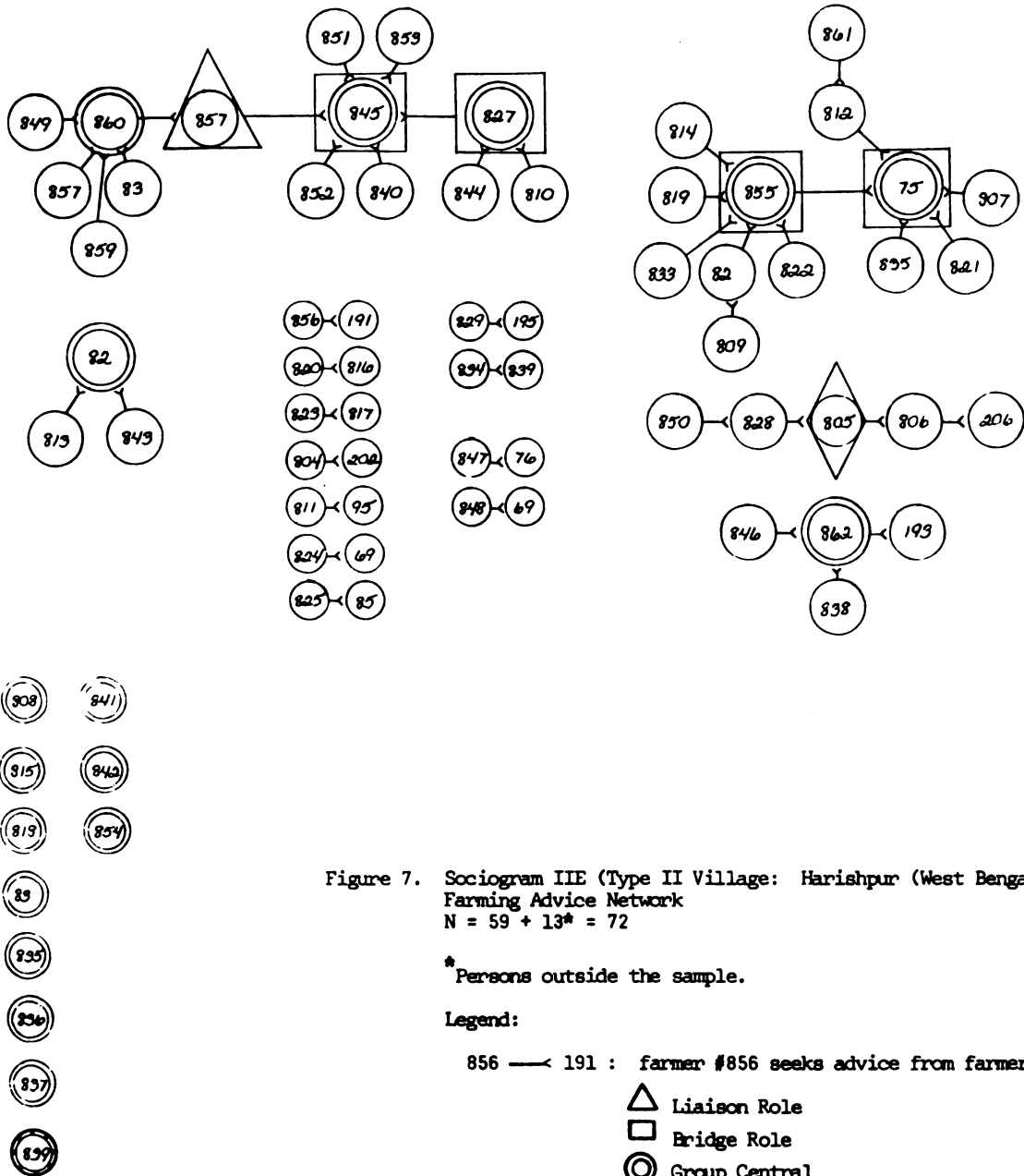
Figure 6. Sociogram IJD (Type II Village: Nanchilli (Andhra Pradesh))
Farming Advice Network
 $N = 78 \times 10^4 = 94$

* Persons outside the sample.

Legend:

26 — 3 : farmer #3 seeks advice from farmer #26

- △ Liaison Role
- Bridge Role
- Group Central
- Peripheral
- Chain Central
- Isolate



Village Type III

Sociograms IIIF (Fig. 8) and IIIG (Fig. 9) refer to the village type III (Table 51). In the village type III we find a mean number of nine groups with the mean size of 8.7, the range being from three to 35. The mean number of chains is 1.5 with a mean size of three. The mean number of dyads is 7.5 whereas the mean number of monads is 12.

A Comparison Among the Three Types of Villages

To facilitate a comparison of the communication structural measures across the three types of villages, we expressed the structural measures in terms of percentage using the size of the system (the number of persons participating in the social system under study) as the denominator. Table 52 gives the measures.

Type I village scores high on the number of communication groups, low on chain and monad, but medium on dyadic structures.

Type II village scores high on chain, dyadic and monadic structures, but low on group.

Type III village scores medium on group, chain and monadic structures while low on dyadic structures.

Findings: Communication Integration

Based on the Sociograms IA through IIIG we computed the scores on the following indicators of communication integration: Network integration, dyad isolation and monad isolation for each one of the

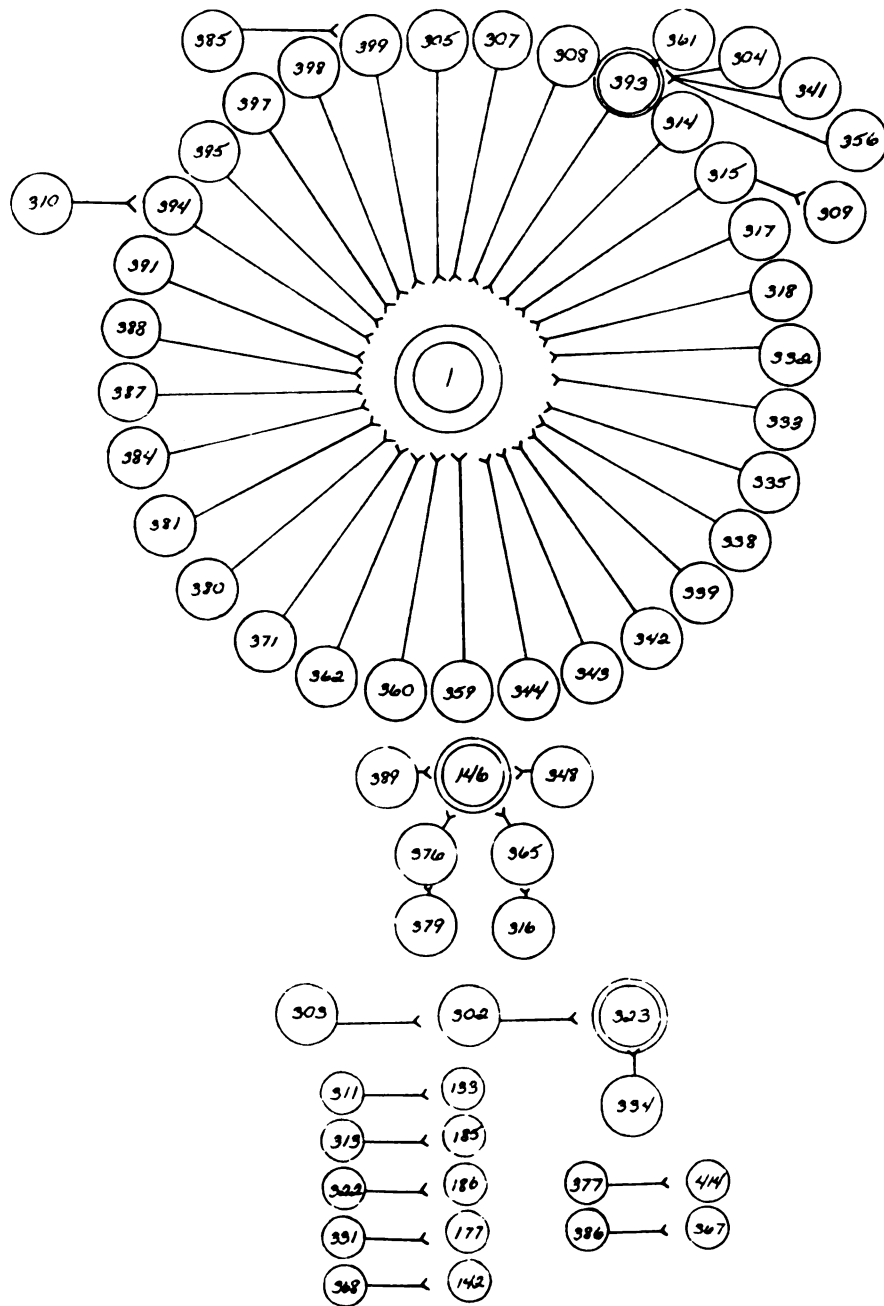


Figure 8. Sociogram IIIF (Type II Village: Pophali (Maharashtra)
Farming Advice Network
 $N = 100 + 10^* = 110$

* Persons outside the sample.

Legend:

882 — 868 : farmer #882 seeks advice from farmer #868

- △ Liaison Role
- Bridge Role
- ⊙ Group Central
- Peripheral
- Chain Central
- Isolate

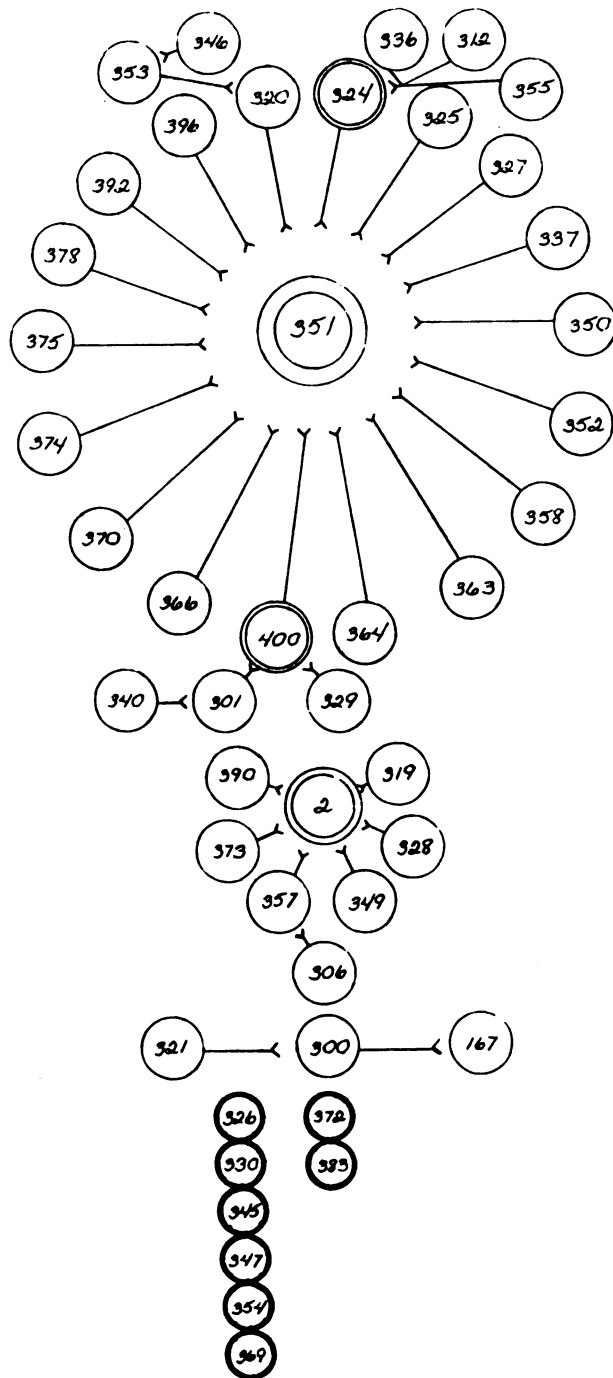


Figure 8.

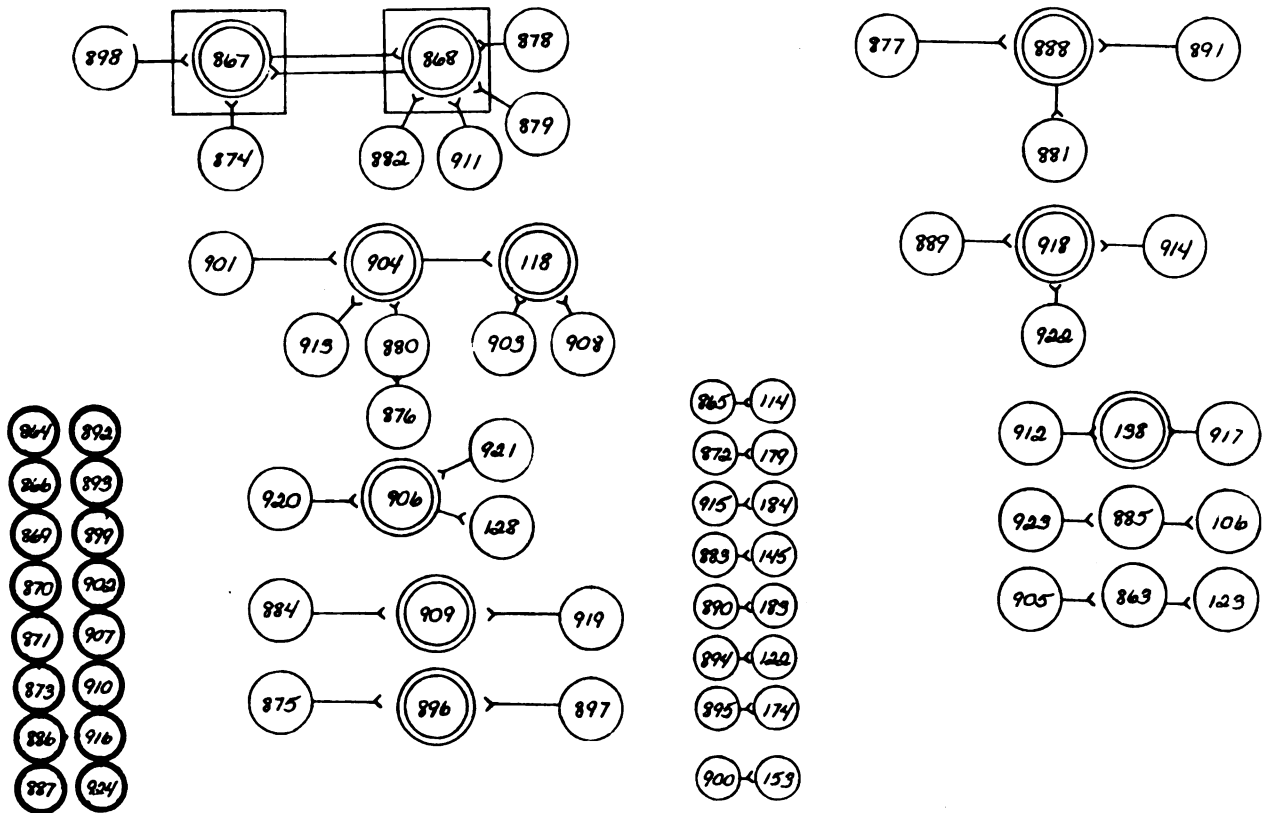


Figure 9. Sociogram IIIG (Type III Village: Laxmidanga (West Bengal)
Farming Advice Network
 $N = 62 + 13^* = 75$

*Persons outside the sample.

Legend:

373 —< 2 : farmer #373 seeks advice from farmer #2

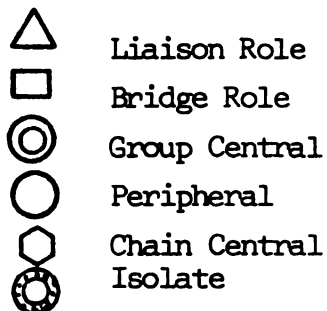


Table 52. Village Typology and Communication Structural Indices (mean values).

| Communication
Structural indices | Typology of Village | | |
|-------------------------------------|---------------------|-------------|---------------|
| | Type I | Type II | Type III |
| Group Index | 11.1 (high) | 9.1 (low) | 10.3 (medium) |
| Chain Index | 1.1 (low) | 3.3 (high) | 3.0 (medium) |
| Dyad Index | 11.9 (medium) | 13.7 (high) | 8.5 (low) |
| Monad | 12.6 (low) | 21.8 (high) | 14.2 (medium) |

three types of villages. Table 53 presents the results.

As seen from Table 53 we find that type II village shows consistently low communication integration as indicated by a low degree of isolated dyad and isolated monad scores.

Type III village shows a high degree of communication integration as indicated by a high degree of network integration, a low degree of isolated dyad and isolated monad scores.

Table 53. Village Typology and Communication Integration.

| Communication
integration indices | Typology of Village | | |
|--------------------------------------|---------------------|----------|-----------|
| | Type I | Type II | Type III |
| Network integration | | | |
| 0 (Low integration) | | | |
| 100 (High integration) | 12 (medium) | 5 (low) | 19 (high) |
| Isolated dyad score | | | |
| 0 (High integration) | | | |
| 100 (Low integration) | 23 (medium) | 25 (low) | 13 (high) |
| Isolated monad score | | | |
| 0 (High integration) | | | |
| 100 (Low integration) | 14 (medium) | 27 (low) | 7 (high) |

Type I village shows a medium scoring on all the three indicators of communication integration: network integration, isolated dyad, and isolated monad scores.

Findings: Communication Role

Based on the Sociograms IA through IIIIG we computed the scores indicating the degree of presence of the following communication roles: Centrality, Inter-group bridge and Liaison. Table 54 presents the findings for the three types of villages.

Table 54. Village Typology and Communication Role.

| Communication
role indices | Typology of Village | | |
|-------------------------------|---------------------|------------|--------------|
| | Type I | Type II | Type III |
| Liaison | .30 (medium) | .73 (high) | 00 (low) |
| Inter-group bridge | 6.3 (high) | 3.20 (low) | 3.6 (medium) |
| Centrality | 10.1 (medium) | 8.8 (low) | 10.3 (high) |

Type II village scores high on liaison role but low on inter-group bridge and centrality roles.

Type I village scores high on inter-group bridge role but medium on liaison and centrality roles.

Type III village scores high on centrality role, but medium on inter-group bridge and low on liaison roles.

Findings: Participant Composition

Results of Q Factor Analysis: An Empirically derived Farmer Typology

The considerations of parsimony and simplicity needed for an

exploratory study of the participant composition put some limitations on the number of village social systems to be chosen. We decided to consider farmers in three villages, each representing one type of village to keep the data analysis within the manageable limits. Accordingly, we selected the following three villages: Mulwa of Maharashtra (type I village), Polamuru of Andhra (type II village) and Pophali of Maharashtra (type III village)) present study guided us to choose the three-factor solution which gave us the three "pure" types of farmers in each one of the three villages.

Using the "pure" factor loadings as weights we computed the average z score on each one of the 16 variables for each type of farmer in each type of village using the WRAP program available at the MSU Department of Communication.

In total we generated nine types of farmers across all the three villages. But a comparative study of the nine types showed that except two types which showed a great deal of similarity in their profiles, all the remaining types of farmers showed different profiles.

Hence we describe below eight types of farmers labeled A through H as they occur in the three types of villages.

Findings: Farmer Typology in Village Type I

(e.g., Mulwa, a type I village whose leadership has social psychological attitudes more favorable to change, institutional facilities are poor and level of agricultural development is low)

Table 55 gives the profile of the farmer typology in village Type I.

Table 55. A Profile of the Farmer Typology in Village Type I (Mulwa)
(z scores*) N=64.

| Item | Farmer Type A | | Farmer Type B | | Farmer Type C | |
|---------------------------------|---------------|-------|---------------|-------|---------------|-------|
| | Rank | N=23 | Rank | N=24 | Rank | N=17 |
| 1. Family size | low | 0.14 | medium | 0.56 | high | 1.50 |
| 2. Education | medium | -0.23 | high | 0.05 | low | -1.05 |
| 3. Acres cultivated | low | 0.33 | high | 1.20 | medium | 0.37 |
| 4. Value of farm produce | medium | 0.35 | high | 1.06 | low | -0.01 |
| 5. Change agent knowledge | low | -1.54 | high | 0.25 | medium | -0.57 |
| 6. Social participation | high | 1.42 | low | -0.79 | medium | 0.18 |
| 7. Cosmopoliteness | medium | 0.06 | low | -0.50 | high | 0.33 |
| 8. Fragmentation | medium | 0.81 | low | -2.50 | high | 2.04 |
| 9. Taxes paid | medium | 0.26 | low | 0.24 | high | 0.50 |
| 10. Productive man-hours | medium | 0.63 | high | 0.96 | low | 0.21 |
| 11. Commercialization | high | 1.97 | medium | -0.56 | low | -1.77 |
| 12. Agricultural innovativeness | low | -0.92 | high | 0.57 | medium | -0.01 |
| 13. Political knowledge-ability | medium | -1.26 | high | -0.50 | low | -1.30 |
| 14. Ritual caste status | high | -0.80 | medium | -1.22 | low | -1.48 |
| 15. Bullock power | low | 0.51 | high | 1.56 | medium | 0.64 |
| 16. Health innovativeness | low | -1.73 | medium | -0.41 | high | 0.40 |

* Converted from the arrays of weighted items (e.g., family size, agricultural innovativeness, etc.) The scores represent the mean of the weighted scores across all farmers who were most associated with a given type. Factor loadings were used as weights.

Farmer Type A: The farmer type A belongs to a higher ritual caste and has a greater degree of social participation and commercialization; he has a medium score on educational attainments, cosmopoliteness, political knowledgeability, amount of taxes paid, number of man hours put in on the farm, and the total value of agricultural produce raised; he has low scores on change agency knowledge, size of farm and family, and use of animal power on the farm. Figure 10 presents a summary of the profile: The farmer type A has a low degree of change orientation, moderate control over farm economic resources and has a high degree of social participation.

Farmer Type B: The farmer type B has a high degree of agricultural innovativeness, change agent knowledge, political knowledge and educational attainments. He cultivates a large extent of land, uses a great number of animals for farming, puts in a large number of work hours on the farm, and raises a higher value of agricultural produce; he occupies a medium position on the ritual caste status, commercialization, family size and adoption of health innovations; scores low on social participation, degree of cosmopoliteness, fragmentation of farm plots and the amount of taxes paid. Figure 10 presents a summary of the profile: The farmer type B has a high degree of change orientation, greater control over farm economic resources and a low degree of social participation.

Farmer Type C: The farmer type C scores high on the degree of cosmopoliteness, health innovativeness, family size, amount of taxes paid and fragmentation of farm plots; he scores medium on the degree of

Farmer Typology (Village Type I)

| <u>Farmer Traits</u> | <u>Score</u> | | |
|------------------------------|--------------|---------------|-------------|
| | <u>Low</u> | <u>Medium</u> | <u>High</u> |
| Agricultural Innovativeness | A* | C+ | B** |
| Health Innovativeness | A | B | C |
| Education | C | A | B |
| Political Knowledge | C | A | B |
| Change Agent Knowledge | A | C | B |
| Cosmopoliteness | B | A | C |
| Labor Employed | C | A | B |
| Value of Agriculture Produce | C | A | B |
| Acres Cultivated | A | C | B |
| Bullock Power | A | C | B |
| Taxes Paid | B | A | C |
| Family Size | A | B | C |
| Commercialization | C | B | A |
| Fragmentation | B | A | C |
| Social Participation | B | C | A |
| Ritual Caste | C | B | A |

* Farmer Type A: Low to medium on change orientation, moderate control over farm economic resources and high on social participation

** Farmer Type B: High on change orientation, great control over farm economic resources and low on social participation

+ Farmer Type C: Medium to high on change orientation, great control over farm economic resources, medium on social participation.

Figure 10. Summary Profile: Farmer Types A, B and C in Type I Village (Mulwa).

social participation, change agent knowledge, agricultural innovativeness, extent of land cultivated and animal power used on the farm; he has a low score on educational attainments, commercialization, ritual caste status, the number of productive man hours put on the farm, and the total value of agricultural produce raised. Figure 10 presents a summary of the profile: The farmer type C is moderately disposed towards change, control over farm economic resources and social participation.

Findings: Participant Composition (Village Type I)

Table 56 presents the findings of the composition of interpersonal communication contact in Village Type I.

Group centrals: Of the farmers occupying the role of group centrals 57 percent belong to farmer type A.

Group peripherals: Of the farmers occupying the role of group peripherals 39 percent belong to farmer type B.

Isolates: Of the farmers who are isolates 39 percent belong to farmer type C ; 35 percent belong to farmer type B and 26 percent belong to farmer type A.

Dyads: The composition of dyadic structure shows that 64 percent of the dyadic structures are heterophilous.

Group heterophily score: The mean group heterophily score is 2.44 (0 = absence of heterophily or presence of homophily; 1 = less heterophilous; 2 = more heterophilous; 3 = most heterophilous).

Dyadic heterophily score: The dyadic heterophily score is 64 (0 = absence of heterophily; 100 = completely heterophilous).

Table 56. Composition of Interpersonal Communication Contacts in Village Type I.

| Role | Farmers belonging to farmer type | | | All type |
|---|----------------------------------|-----|-----|----------|
| | A | B | C | |
| Communication group central | 57% | 14% | 29% | 7 |
| Communication group peripheral | 31% | 39% | 30% | 75 |
| Communication isolate | 26% | 35% | 39% | 23 |
| <p>Group heterophily score: 2.44 (0 = absence of heterophily
 1 = less heterophilous
 2 = more heterophilous
 3 = most heterophilous)</p> | | | | |
| <p>Dyad heterophily score: 64 (0 = absence of heterophily
 100 = complete heterophilous)</p> | | | | |

Findings: Farmer Typology in Village Type II

(e.g., Polamuru, a type II village whose leaders' attitude towards change is less favorable, but the village is endowed with greater institutional facilities and the agricultural development is moderately high)

Table 57 gives the profile of farmer types in village type II.

Farmer Type D: The farmer type D scores high on agricultural innovativeness, change agent knowledge, social participation, cosmopoliteness and animal power for farm operations; scores medium on ritual caste status, number of acres owned, educational attainment, adoption of improved health practices, amount of taxes paid, number of productive man hours put in on the farm, and the total value of agricultural produce raised; scores low on commercialization, family size, political knowledge and fragmentation of farm holdings. Figure 11 presents a summary of profile of farmer type D: He has a high degree of favorable attitude towards change, medium to low degree of control over farm economic resources and a high degree of social participation.

Farmer Type E: The farmer type E scores high on the number of acres cultivated, number of productive man hours put in on farm, the total value of agricultural produce raised, amount of taxes paid, educational attainment, family size and fragmentation of holdings; scores medium on social participation, cosmopoliteness, commercialization, political knowledgeability, and animal power used on the farm; scores low on ritual caste status, agricultural innovativeness, change agent knowledge and health innovativeness. Figure 11 gives a summary of the profile: The farmer type E has a low degree of change orientation, greater control over farm economic resources and moderate in social

Table 57. A Profile of the Farmer Typology in Village Type II (Polamuru) (z scores*) N=63.

| Item | Farmer Type D | | Farmer Type E | | Farmer Type F | |
|---------------------------------|---------------|-------|---------------|-------|---------------|-------|
| | Rank | N=25 | Rank | N=17 | Rank | N=21 |
| 15. Bullock power | high | .98 | medium | 0.62 | low | -0.01 |
| 14. Ritual caste status | medium | .61 | low | .08 | high | 1.44 |
| 12. Agricultural innovativeness | high | .59 | low | -1.39 | medium | -0.70 |
| 6. Social participation | high | .58 | medium | -0.03 | low | -1.48 |
| 3. Acres cultivated | medium | .57 | high | 0.62 | low | 0.00 |
| 10. Productive man-hours | medium | .54 | high | 0.61 | low | -0.11 |
| 4. Value of farm produce | medium | .47 | high | .67 | low | 0.15 |
| 5. Change agent knowledge | high | .39 | low | -1.05 | medium | 0.34 |
| 7. Cosmopoliteness | high | .37 | medium | 0.29 | low | -2.31 |
| 9. Taxes paid | medium | .29 | high | 0.51 | low | 0.12 |
| 11. Commercialization | low | .07 | medium | 0.47 | high | 1.45 |
| 2. Education | medium | -.27 | high | 0.09 | low | -0.99 |
| 1. Family size | low | -.44 | high | 0.98 | medium | 0.63 |
| 16. Health innovativeness | medium | -.59 | low | -2.15 | high | 0.34 |
| 13. Political knowledge-ability | low | -.76 | medium | -1.77 | high | 0.57 |
| 8. Fragmentation | low | -3.40 | high | 1.45 | medium | -0.44 |

* Converted from the arrays of heightened items (e.g., bullock power, ritual caste status etc.) The scores represent the mean of the weighted scores across all farmers who were most associated with a given type. Factor loadings were used as weights.

Farmer Typology (Village Type II)

| <u>Farmer Traits</u> | <u>Score</u> | | |
|------------------------------|--------------|---------------|-------------|
| | <u>Low</u> | <u>Medium</u> | <u>High</u> |
| Agricultural Innovativeness | E** | F+ | D* |
| Health Innovativeness | E | D | F |
| Education | F | D | E |
| Political Knowledge | D | E | F |
| Change Agent Knowledge | E | F | D |
| Cosmopoliteness | F | E | D |
| Labor Employed | F | D | E |
| Value of Agriculture Produce | F | D | E |
| Acres Cultivated | F | D | E |
| Bullock Power | F | E | D |
| Taxes Paid | F | D | E |
| Family Size | D | F | E |
| Commercialization | D | E | F |
| Fragmentation | D | F | E |
| Social Participation | F | E | D |
| Ritual Caste | D | D | F |

*Farmer Type D: High on change orientation, medium-to-low control over farm economic resources and high on social participation

**Farmer Type E: Low on change orientation, great control over farm economic resources and medium on social participation

+Farmer Type F: Moderate on change orientation, small control over farm economic resources and low on social participation.

Figure 11: Summary Profile: Farmer Types D, E and F in Type II Village (Polamuru).

Table 58. Composition of Interpersonal Communication Contacts in Village Type II (Polamuru).

| Role | Farmers belonging to farmer type | | | All _N type |
|---|----------------------------------|-----|-----|-----------------------|
| | D | E | F | |
| Communication group central | 88% | - | 12% | 8 |
| Communication group peripheral | 41% | 35% | 24% | 34 |
| Communication isolate | 19% | 47% | 34% | 32 |
| <p>Group heterophily score: 1.12 (0 = absence of heterophily
 1 = less heterophilous
 2 = more heterophilous
 3 = most heterophilous)</p> | | | | |
| <p>Dyad heterophily score: 47 (0 = absence of heterophily
 100 = complete heterophilous)</p> | | | | |

participation.

Farmer Type F: The farmer type F scores high on ritual caste status, commercialization, health innovativeness, political knowledge; scores medium on agricultural innovativeness, change agent knowledge, family size and fragmentation of holdings; scores low on social participation, number of acres cultivated, productive man hours, total value of agricultural produce, amount of taxes paid, level of education attainment, cosmopolitaness, and animal power used on the farm. Figure 11 gives a summary of the farmer profile: The farmer type F has a moderate attitude towards change, a low degree of control on farm economic resources and a low degree of social participation.

Findings: Participant Composition (Village Type II)

Table 58 presents the findings of the composition of interpersonal communication contact in village type II:

Group central: Of the farmers occupying the centrality role in the communication group (N=8) 88 percent belong to farmer type D.

Group peripheral: Of the farmers who are group peripheral (N=34) 41 percent belong to the farmer type D; 35 percent belong to the farmer type E , 24 percent belong to the farmer type F.

Isolate: Of the farmers who are isolates (N=32) 47 percent of isolates belong to type E farmer; 34 percent belong to type F farmer; 19 percent belong to type D farmer.

Dyads: The dyadic structure composition shows that 53 percent (N=30) are homophilous whereas 47 percent are heterophilous.

Group heterophily score: The mean group heterophily score is 1.12 (0 = absence of heterophily or presence of homophily; 1 = less heterophilous; 2 = more heterophilous; 3 = most heterophilous).

Dyadic heterophily score: The dyadic heterophily score is 47 (0 = absence of heterophily; 100 = completely heterophilous).

Findings: Farmer Typology in Village Type III .

(e.g., Pophali, a village whose leadership has social psychological attitudes more favorable to change endowed with moderate institutional facilities and had a high level of agricultural development)

Table 59 presents the profile of farmer types in village type III.

Farmer Type G: The farmer type G has a high degree of health and agricultural innovativeness, greater change agent knowledge greater educational attainment and cosmopolitaness and belongs to a higher ritual caste status; he scores medium on social participation, animal power used on the farm; scores low on the total value of agricultural produce raised on the farm, amount of taxes paid, productive man hours put in on the farm, commercialization and number of acres cultivated and political knowledge. Figure 12 gives a summary of the profile: The farmer type G has a high degree of change orientation, less control over farm economic resources and a moderate degree of social participation.

Farmer Type A: The farmer type A scores high on the amount of taxes paid, animal power used on the farm, number of productive man hours put in on the farm, family size, and social participation; scores

Table 59. A Profile of Farmer Typology in Village Type III (Pophali)
(z scores*) N=66.

| Item | Farmer Type G | | Farmer Type A | | Farmer Type H | |
|---------------------------------|---------------|-------|---------------|-------|---------------|-------|
| | Rank | N=24 | Rank | N=23 | Rank | N=19 |
| 16. Health innovativeness | high | 1.82 | low | -1.09 | medium | -0.63 |
| 12. Agricultural innovativeness | high | 1.19 | medium | 0.23 | low | -0.11 |
| 5. Change agent knowledge | high | 1.15 | medium | -0.58 | low | -0.60 |
| 13. Political knowledge-ability | high | 1.12 | medium | -0.43 | low | -0.43 |
| 14. Ritual caste status | high | 1.08 | medium | -0.45 | low | -0.56 |
| 2. Education | high | .98 | medium | -0.01 | low | -0.13 |
| 4. Value of farm produce | low | -.21 | medium | 1.19 | high | 1.22 |
| 11. Commercialization | low | -.23 | high | -0.04 | medium | -0.15 |
| 9. Taxes paid | low | -.63 | high | -0.16 | medium | -0.26 |
| 7. Cosmopoliteness | high | -.67 | low | -1.60 | medium | -0.86 |
| 10. Productive man-hours | low | -.67 | high | 1.10 | medium | 0.64 |
| 3. Acres cultivated | low | -.68 | medium | 1.22 | high | 3.16 |
| 1. Family size | low | -.72 | high | 0.96 | medium | -0.01 |
| 6. Social participation | medium | -.93 | high | 0.84 | low | -0.02 |
| 8. Fragmentation | high | -1.29 | low | -2.17 | medium | -1.40 |
| 15. Bullock power | medium | -1.30 | high | 0.99 | low | 0.12 |

* Converted from the arrays of weighted items (e.g., family size, agricultural innovativeness etc.) The scores represent the mean of the weighted scores across all farmers who were most associated with a given type. Factor loadings were used as weights.

Farmer Typology (Village Type III)

| <u>Farmer Traits</u> | <u>Score</u> | | |
|------------------------------|----------------|-----------------|----------------|
| | Low | Medium | High |
| Agricultural Innovativeness | H ⁺ | A ^{**} | G [*] |
| Health Innovativeness | A | H | G |
| Education | H | A | G |
| Political Knowledge | H | A | G |
| Change Agent Knowledge | H | A | G |
| Cosmopoliteness | A | H | G |
| Labor Employed | G | H | A |
| Value of Agriculture Produce | G | A | H |
| Acres Cultivated | G | A | H |
| Bullock Power | H | G | A |
| Taxes Paid | G | H= | A |
| Family Size | G | H | A |
| Commercialization | G | H | A |
| Fragmentation | A | H | G |
| Social Participation | H | G | A |
| Ritual Caste | H | A | G |

* Farmer Type G: High on change orientation, small control over farm economic resources, medium on social participation

*** Farmer Type A: Low to medium on change orientation, moderate control over farm economic resources and high on social participation

+ Farmer Type H: Low to medium on change orientation, high to medium on farm economic resources and low on social participation

Figure 12: Summary Profile: Farmer Types G, A and H in Type III Village (Pophali).

medium on agricultural innovativeness, change agency knowledge, political knowledge, ritual caste status, educational attainment, total value of agricultural produce, number of acres cultivated; scores low on health innovativeness, cosmopolitaness, and fragmentation of farm holdings. Figure 12 gives a summary of the farmer type A profile:

The farmer type A has medium to low degree of change orientation, medium to high control over farm economic resources and a high degree of social participation.

Farmer Type H: The farmer type H scores high on the total value of agricultural produce raised on the farm and the number of acres cultivated; scores medium on health innovativeness, cosmopolitaness, commercialization, amount of taxes paid, number of productive man hours put in on the farm, family size, and fragmentation of holdings; scores low on agricultural innovativeness, change agent knowledge, political knowledge, ritual caste status, education attainment, social participation, and animal power used on the farm. Figure 12 gives a summary of the profile: The farmer type H scores low to medium on change orientation, high to medium on the control over farm economic resources, and low on social participation.

Findings : Participant Composition (Village Type III)

Table 60 presents the findings of the composition of interpersonal communication contact in village type III:

Group central: Of the farmers occupying the role of group central (N=5) 60 percent belong to the type G category of farmers.

Table 60. Composition of Interpersonal Communication Contacts in Village Type III (Pophali).

| Role | Farmers belonging to farmer type | | | All _N type |
|---|----------------------------------|-----|-----|-----------------------|
| | G | A | H | |
| Communication group central | 60% | 20% | 20% | 5 |
| Communication group peripheral | 39% | 30% | 31% | 80 |
| Communication isolate | 37% | 37% | 25% | 8 |
| Group heterophily score: 1.8 (0 = absence of heterophily
1 = less heterophilous
2 = more heterophilous
3 = most heterophilous) | | | | |
| Dyad heterophily score: 64 (0 = absence of heterophily
100 = complete heterophilous) | | | | |

Group peripheral: Of the farmers (N=80) occupying the role of group peripheral, 39 percent belong to the farmer type G; 31 percent belong to farmer type H and 30 percent belong to type A.

Isolate: Of the farmers (N=8) who are isolate, 37 percent belong to type G; 37 percent belong to type A ; 25 percent belong to type H.

Dyad: Of dyads (N=41) 66 percent are heterophilous in composition.

Group heterophily score: The mean group heterophily score is 1.8 (0 = absence of heterophily or presence of homophily; 1 = less heterophilous; 2 = more heterophilous; 3 = most heterophilous).

Dyadic heterophily score: The dyadic heterophily score is 41 (0 = absence of heterophily; 100 = complete heterophily).

Discussion of Findings

Communication Structure

The case evidence supports the proposition that the type I village (with leadership less oriented to change poor institutional facilities and low level of agricultural development) has less number of chains and monads. But we do not find evidence for the statement that type I village has a small number of groups and isolated dyads.

The case evidence does not support the propositions that the type II village has a medium number of groups, chains, isolated dyads and monads and that the type III village has a large number of groups,

chains, isolated dyads and monads.

The case evidence suggests the following as shown in Table 61.

Table 61. Case Evidence: Communication Structure.

| Communication
structure
indicators | Village Type | | |
|--|--------------|---------|----------|
| | Type I | Type II | Type III |
| Group index | high | low | medium |
| Isolated chain index | low | high | medium |
| Isolated dyad index | medium | high | low |
| Isolated monad index | low | high | medium |

Type I village has a large number of groups and a less number of isolated chains, dyads and monads. The type II village has less number of groups and a large number of isolated chains, dyads and monads. The type III village has a medium number of groups, isolated chains and monads but less number of isolated dyads. The question that comes to our mind is: Why does the type I village which has poor institutional facilities, tend to show a large number of informal communication groups and small number of isolated chains, dyads and monads to pool and share the agricultural information? One explanation is that in type I village, which has a kind of leadership which is less oriented to change and has poor institutional facilities, tends to function through informal groupings. The type II village, it appears to us, because it has more institutional facilities may not need a large number of informal groups; the formal institutionalized relations are likely to cater to the communication process of pooling and sharing of agricultural information

among the farmers. Similarly, the type III village which has a moderate institutional facilities functions through a medium number of groups. These facts lead us to the reasoning that the village which lacks the formal institutional structural facilities tends to rely more on informal communication groups.

In light of the case evidence and the reasoning we propose the following hypothesis: the agricultural information seeking, pooling and sharing function among the farmers shifts from informal communication groups to the formal institutions and organizations as the village gets endowed with better institutional facilities such as service societies, agencies, centers, clubs, associations and other forms of formal organizations.

Communication Integration

The case evidence does support the proposition that type III village has a high degree of communication integration.

There is a lack of evidence for the proposition that the village type I has a low communication integration and the type II village has a medium degree of integration.

The case evidence suggests the following as shown in Table 62.

Table 62. Case Evidence: Communication Integration

| Communication
integration index | Village Type | | |
|------------------------------------|--------------|---------|----------|
| | Type I | Type II | Type III |
| Network integration | medium | low | high |
| Isolated dyad score | medium | low | high |
| Isolated monad score | medium | low | high |

In light of the case evidence we find that the village system which has a leadership less oriented to change, poor institutional facilities and a low level of agricultural development does not lack in within village interpersonal communication integration. It has a medium degree of internal interpersonal integration. It is possible that the farmers in such villages depend on increased interpersonal contacts because formal associations and organizations are not available at the village. Further, when the leadership is less oriented to change, there is a need for an interpersonal communication mechanism for defensive, counter attitudinal and counter change advocacy. The defensive mechanism calls for a fair degree of communication integration.

In the type II village which has a leadership less oriented to change and better institutional facilities and a high level of agricultural development, the role of interpersonal communication may be low because the institutional facilities and formal functioning of the institutional personnel cater to the needs of the agricultural developmental communication. Hence the interpersonal integration may be expected to be low.

The type III village which has a leadership well oriented to change and a high level of agricultural development but moderate institutional facilities the need to maintain interpersonal communication line open and integrated is high. Hence we expect the degree of communication integration is high. We have the case evidence supporting this proposition.

Communication Role

The case evidence does not support any of our propositions relating the typology of village systems and the communication roles.

The case evidence suggests the following as shown in Table 63.

Table 63. Case Evidence: Communication Role.

| Communication
role | Village Type | | |
|-----------------------------|--------------|---------|----------|
| | Type I | Type II | Type III |
| Liaison index | medium | high | low |
| Inter-group bridge
index | high | low | medium |
| Centrality index | medium | low | high |

From the evidence we begin to think that the interpersonal communication structure of the type I village shows greater number of inter-group bridge, a medium degree of liaison and centrality roles. The reasoning is that the type I village is characterized by a large number of communication group, moderate degree of within village communication integration, and a high degree of heterophily in terms of composition of the farmer types, poor institutional facilities and leaders less oriented to change. As a result of their interaction effect communication roles such as inter-group bridge, liaison and centrality roles should naturally be more important.

The type II village is characterized by better institutional facilities and a small number of groups, moderate degree of heterophily and a lower degree of communication integration. These characteristics call for a small number of inter-group bridge and centrality roles.

Because of better institutional facilities a liaison role that links the persons from one association to another becomes necessary.

The type III village is characterized by a low degree of heterophily, moderate institutional facilities, and a medium number of groups. We expect a high degree of centrality and a medium degree of inter-group bridge and a low degree of liaison role in the type III village.

Participant Composition (Type I Village)

The case evidence supports the following propositions in the type I village:

The farmer type A (low in change orientation, moderate control over farm economic resources, and a high degree of social participation) dominate as the group centrals.

The farmer type B (high in change orientation, great control over farm economic resources, and a low degree of social participation) are the isolate monads.

The case evidence does not support the following propositions:

The farmer type C (moderately disposed towards change, moderate control over farm economic resources, and moderate degree of social participation) dominate as group peripherals.

The degree of group and dyadic heterophily is low.

In the type I village, the case evidence provides support for the following propositions:

The group centrals in the type I village are dominantly of the farmer type A (low in change orientation, moderate control over farm economic resources, and a high degree of social participation)

The group peripherals dominantly belong to the farmer type B (high change orientation, great control over farm economic resources, and a low degree of social participation)

The isolate monads also dominantly belong to farmer type B.

The degree of group heterophily and dyad heterophily is high.

Participant Composition (Type II Village)

The case evidence supports the following propositions in the type II village:

The group peripherals belong dominantly to the farmer type D (high in change orientation, moderate degree of control over farm economic resources and a high degree of social participation).

The isolate monads belong to farmer type F (moderately disposed towards change, low control over farm economic resources and a low degree of social participation).

The group and dyad heterophily is medium.

The case evidence does not support the following proposition:

The group central belongs dominantly to the farmer type E (low in change orientation, great control over farm economic resources, and moderate degree of social participation).

The case evidence provides support for the following propositions in the type II village:

The group centrals dominantly belong to farmer type D (high in change orientation, moderate control over farm economic resources and a high degree of social participation)

The group peripherals also belong dominantly to the farmer type D

The monad isolates belong to farmer type F (moderately disposed towards change, small control over farm economic resources and a low degree of social participation)

There is a medium degree of group and dyad heterophily (medium number of heterophilous groups and dyads)

Participant Composition (Type III Village)

The case evidence supports the following propositions in the type III village:

The group centrals dominantly belong to the farmer type G (high in change orientation, small control over farm economic resources, and a moderate degree of social participation).

The isolate monads dominantly belong to the farmer type H (low in change orientation, moderate on control over farm economic resources, and a low degree of social participation).

The evidence does not support the following propositions.

The group peripherals are dominantly of the farmer type A (low in change orientation, moderate control over farm economic resources, and a high degree of social participation).

The degree of group heterophily in groups and dyads is high.

In the type III village the case evidence suggests support for the following propositions:

The group centrals dominantly belong to the farmer type G (high in change orientation, small control over farm economic resources and a moderate degree of social participation)

The group peripherals also belong to the farmer type G

The isolate monads dominantly belong to the farmer type H (low in change orientation, moderate control over

farm economic resources, and low degree of social participation)

The degree of heterophily as measured by the number of heterophilous groups and the dyads is low.

CHAPTER VII

SUMMARY, DISCUSSION AND IMPLICATIONS

Summary

The present study was an investigation into the empirical aspects of village development dimensions and the communication pattern of the village social systems differentiated in terms of development. The aspects of communication pattern were: village-outside communication integration, village-within interpersonal communication integration, structure, role and communication participant composition.

Specifically the purpose of the dissertation was two-fold:

- (1) to conceptualize communication linkages as related to a typology of village social systems and
- (2) to analyze communication linkages among the farmers in selected villages of India, using variation in a typology of village social systems, and a typology of farmers within villages as the major bases for differentiating among the communication patterns.

Two levels of analysis were distinguished: (1) the village as a systemic unit and (2) the individual farmer as a behavioral system.

The investigation attempted to provide answers to the following questions:

- (1) What are the empirical dimensions of village development?

- (2) How do village social systems configurate along the dimensions of development in terms of a village typology?
- (3) What are the development factors correlated with the external communication linkages of the village?
- (4) How do within village inter-personal communication structure, role and integration attributes differ across different types of villages?
- (5) What types of farmers are located in the network of communication relations with other farmers in different village types?

Basic concepts such as development, communication process, linkage, structure, network, role and integration were used in formulating the relevant communication propositions.

The following general hypothesis was derived from the theoretical perspectives of agricultural development and social change and tested statistically: The higher the development of the village the greater is the linkage of the village with its environment.

Other propositions relating to within village communication attributes were formulated in the light of case evidence.

The study was based on the cross-section survey data collected by personal interview for the MSU-AID Diffusion of Innovations Project in India in two phases--Phase I (1966) at the village level, and Phase II (1967) at the farmer level. For the village level study 108 villages were selected on a multi-stage random sampling method from the third stage onwards while the sampling at the first and second stage for selecting the states and districts was purposive to represent variations in administrative structures, people's participation and intensity in agricultural development. In studying the communication participant

composition of farmers and in the within village interpersonal communication contacts only three cases were selected.

Factor analytic methods (R and Q types), product moment correlations were employed to provide the statistical evidence for the propositions relating to village development dimensions, village typology, village external communication contact and farmer typology.

The case study method employing sociogram technique was used to provide empirical evidence for propositions relating to within village communication attributes.

The results of the R factor analytic study of village development indicated eleven empirical development dimensions. Among them eight dimensions were clearly interpretable. Hence they were selected for testing the hypotheses related to village development dimensions and village outside communication linkages.

The communication contacts of the more developed villages showed strong linkages with the outside system. The linkages were positively maintained by and through the contacts of the agricultural development functionaries such as the AEO and the VLW as also those of the village leaders.

There was a strong empirical support for the assertion that the more institutionally handicapped a village was, the less it was in its linkage with its external system through the formal development functionaries as well as through the village leaders.

The communication contacts of the VLW were relatively strong and direct in the agriculturally developed village but the direct linkage was weak with the AEO. The village leaders' interaction with the

development functionaries, their visits to the urban centers and their exposure to cinema tended to establish strong linkages between the agriculturally developed village and its outside system.

Except for the VLW demonstrations in the village, other indices of external contact through the development functionaries were not statistically significant but the tendency of the village leader to establish linkages outside the village had positive evidence for the villages endowed with a high degree of communication resources.

The villages with more change-oriented leadership were not necessarily linked to the outside system through the development functionaries or through the village leaders.

The village whose leaders were more conservative in economic matters did not necessarily lack outside contact.

Primary education and post-primary education in the village was not an important factor for establishing the communication contacts for the village with the external system. However, the presence of mechanization in the village tended to establish some external contacts to the village.

Our attempt at constructing a typology of villages along the dimensions of development by using the Q-type factor analysis gave three types of villages. Table 64 presents a summary of village and farmer typology, and communication attributes.

Type I Village: Its leadership was less oriented to change, was handicapped by poor institutional facilities and maintained a low level of agricultural development. The dominant trait of this village showed a regional syndrome of West Bengal.

Table 64. Summary of Village Typology, Farmer Typology and Communication Attributes.

| Characteristics | Description |
|---------------------------|--|
| | Type I Village |
| Profile of the Village | Village leadership is less oriented to change
Poor institutional facilities
Low level of agricultural development
West Bengal regional syndrome |
| Communication Structure | Large number of communication groups,
small number of dyads, monads and chains. |
| Communication Integration | Medium degree of communication integration. |
| Communication Role | Large number of inter-group bridge roles, medium
number of liaison and group centrality roles. |
| Participant Composition | Farmer type A (i.e., the one who has a low degree
of change orientation, moderate control over
farm economic resources and a high degree of
social participation) is likely to dominate as
the group central. Farmer type B (i.e., the one
who has a high degree of change orientation,
substantial control over farm economic resources
and a low degree of social participation) is
likely to dominate as the group peripherals and
isolates. |
| Degree of Heterophily | The degree of group and dyad heterophily is high. |

Table 64 (cont'd.)

| Profile of the Village | <p style="text-align: center;">Type II Village</p> <p>Village leadership is less oriented to change
Better institutional facilities
High level of agricultural development
Andhra Pradesh regional syndrome</p> |
|---------------------------|--|
| Communication Structure | <p>Large number of chains, dyads and monads
small number of groups.</p> |
| Communication Integration | <p>Low degree of within village inter-personal
communication.</p> |
| Communication Role | <p>Medium number of liaison, inter-group bridge
and group centrality roles.</p> |
| Participant Composition | <p>The group centrals dominantly belong to the
farmer type D (i.e., the one with a high degree
of social participation. The group peripherals
also belong to D type. The isolate monad belong
to the F farmer (i.e., the one moderately
disposed towards change, low control over farm
economic resources and a low degree of social
participation).</p> |
| Degree of Heterophily | <p>The degree of group and dyad heterophily is
medium.</p> |

Table 64 (cont'd.)

| Profile of the Village | <p style="text-align: center;">Type III Village</p> <p>Village leadership is more favorable to change
Moderate institutional facilities
High level of agricultural development
Maharashtra regional syndrome</p> |
|---------------------------|---|
| Communication Structure | <p>Medium number of groups, chains and monads while the number of dyads are low.</p> |
| Communication Integration | <p>High degree of within village inter-personal communication.</p> |
| Communication Role | <p>High degree of group centrality, liaison and inter-group bridge roles.</p> |
| Participant Composition | <p>The type G farmer (i.e., the one with a high degree of change orientation, small control over farm economic resources and a moderate degree of social participation) dominates as the group centrals. The type G farmer dominates as the group peripherals. The isolate monad belongs to farmer type H (i.e., the one with a low degree of change orientation moderate control over farm economic resources and a low degree of social participation).</p> |
| Degree of Heterophily | <p>The degree of group and dyad heterophily is low.</p> |

A case study of the type I village showed the following communication characteristics:

There were a large number of communication groups, small number of dyads, monads and chains.

The degree of within village interpersonal communication integration was medium.

There were a large number of inter-group bridge roles, medium number of liaison and group centrality roles.

Farmer type A (i.e., the one who has a low degree of change orientation, moderate control over farm economic resources and a high degree of social participation) was likely to dominate as the group centrals. Farmer type B (i.e., the one who has a high degree of change orientation, substantial control over farm economic resources and a low degree of social participation) was likely to dominate as the group peripherals and isolates.

The degree of group and dyad heterophily was high.

Type II Village: The leadership of the village was less oriented to change but the village was endowed with better institutional facilities and maintained a moderately high level of agricultural development. This type of village showed a regional syndrome of Andhra Pradesh.

A case study of the type II village indicated the following communication characteristics:

There were a large number of chains, dyads and monads but a small number of groups.

The village indicated a low degree of within village interpersonal communication integration. There was a medium number of liaison

inter-group bridge and group centrality roles.

The group centrals dominantly belonged to the farmer type D (i.e., the one with a high degree of change orientation, moderate control over farm economic resources and a high degree of social participation). The group peripherals also belonged to D type. The isolate monad belonged to the type F farmer (i.e., the one moderately disposed towards change with a low control over farm economic resources and a low degree of social participation).

The type II village showed a medium degree of group and dyad heterophily.

Type III Village: Its leadership was more favorable to change; it was endowed with moderate institutional facilities and maintained a high level of agricultural development. This type of village showed a regional syndrome of Maharashtra.

A communication case study of the village type III indicated the following communication characteristics:

There were medium number of groups, chains and monads, but low number of dyads.

The degree of within village interpersonal communication integration was high.

There was a high degree of group centrality, liaison and inter-group bridge roles.

The type G farmer (i.e., the one with a high degree of change orientation, small control over farm economic resources and a moderate degree of social participation) dominated as the group centrals. The type G farmer also dominated as the group peripherals. The isolate

monad belonged to farmer type H (i.e., the one with a low degree of change orientation, moderate control over farm economic resources and a low degree of social participation).

The degree of group and dyad heterophily was low.

Discussion

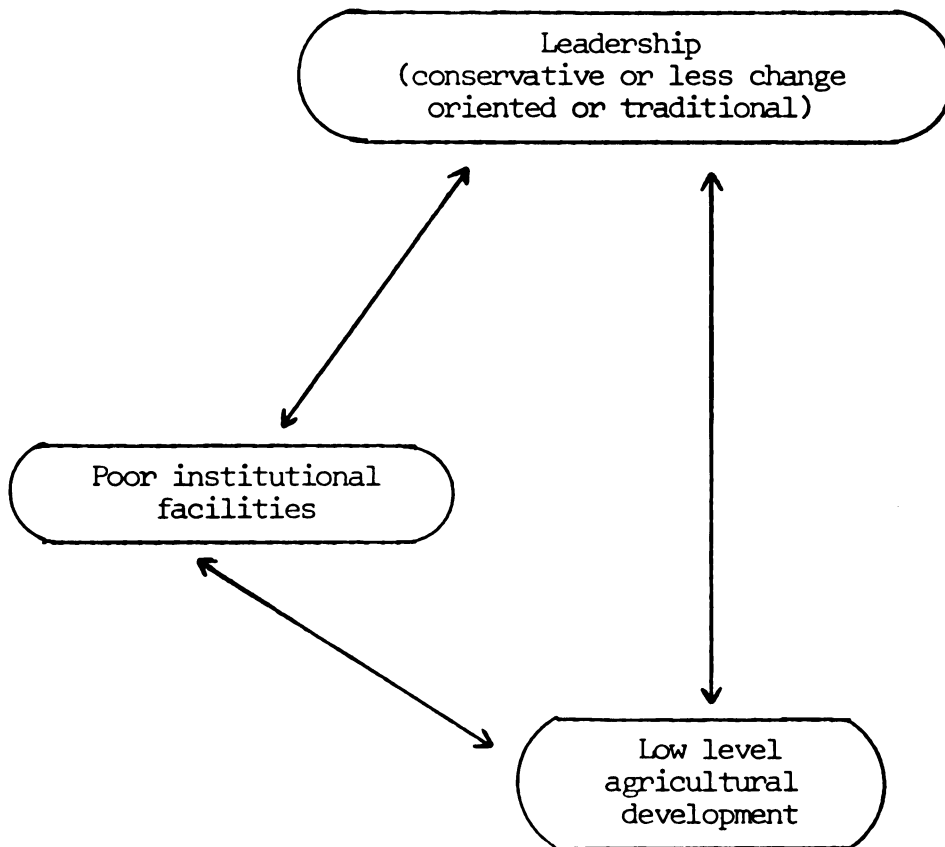
Village development dimensions and typology: Our study empirically validates the dimensions village development and modernization identified by Adelman and Dalton (1971) and explores further other dimensions in the village development space.

Hursh and others (1968, pp. 140-142) presented a bipolar typology of villages based on the criterion of success of agricultural programs in Eastern Nigeria. The villages with successful agricultural programs were positively associated with higher levels of commercial and educational development, and mass media exposure. The village leaders in "success" villages came mostly from farming occupations. They held one or more leadership roles, formal or informal. Their awareness of the agricultural services, personal contacts with the agricultural extension methods were high. This bipolar typology, however, does not explain the coexistence of successful agricultural performance and less change-oriented leadership in a village. The three-village typology of the present study enables us to understand the agricultural development of villages with less change-oriented leadership also.

The evidence from the R and Q factor analytic study of the village development dimensions indicates pointedly towards an interplay of

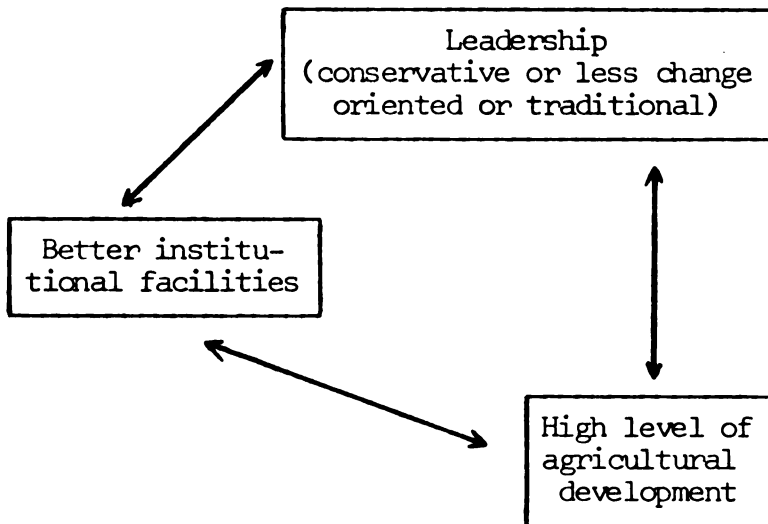
factors related to village agricultural development, leadership attributes and institutional facilities. We see a circular interactive relationship among them affecting each other.

In the type I village we find a case where all the three factors are operating at a low level.

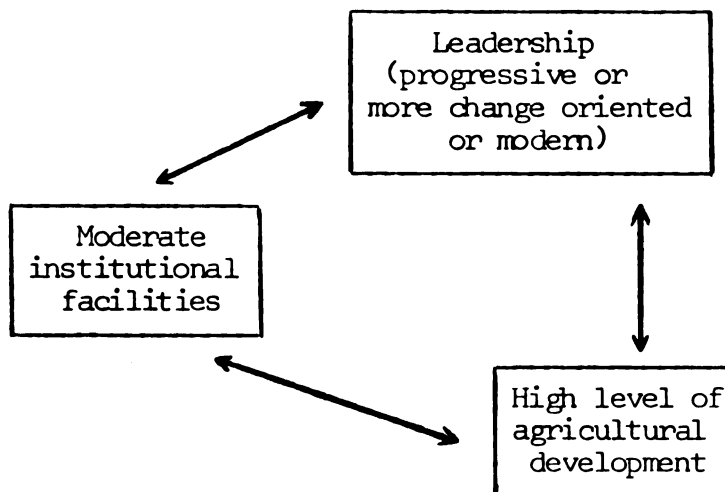


The type II village has a positive and an active operation of the two factors (institutional facilities and agricultural development) but still is handicapped by an unfavorable disposition of the

leadership towards change:



The type III village shows two factors (leadership and agricultural development) operating favorably and one factor (institutional facilities) operating moderately:



The foregoing empirical typology of village development aids us in conceptualizing alternative models of village development and the correlated nature of the communication attributes. In the three-factor

model we can conceptualize the process of village development as being set into motion in any one or all of the components. Considering the autonomous factor which initiates and leads the development process, the model and the path of village development differ according to how the configuration of the change process is operating. The communication ingredients of the development model in terms of the media-mix, message characteristics, structure, role, internal and external integration show different patterns.

Farmer typology: Our findings relating to farmer typology based on a different set of variables (socioeconomic) has some profile similarities with the ones found by Otis Oliver-Padilla in the Puerto Rican study of dairy farmers (1964). He identified three types of farmers: Type I (future minded, favorable towards hard work and achievement, strong believers in science, highly independent in decision making); type II farmer (favorable towards old ways of living, slight tendency to favor value items referring to modern state of affairs); type III is in a state of transition sharing both progressive and traditional ways of looking at the world.

Communication composition within village types: The findings in our case evidence is consistent with the conclusion reached by Saxena (1968) using a different methodology: he found that innovativeness of individual farmers would be higher when both the individual and the village system are modern. In our study of the village type III whose leadership was high on change orientation and was endowed with moderate institutional facilities and a high level of agricultural development we found that the communication group centrals, group peripherals

dominantly belonging to the farmer type G who scores high on change orientation but medium on social participation. Also, in village type II which shows high level of agricultural development we found that farmers who are group centrals and peripherals dominantly belonged to type D who scores high on change orientation.

Further our case evidence is consistent with the Haring's (1965) study of modern type of farmers in the USA. She found that modern type of farmers were higher in joining the change oriented and economic type of organization. We found that the farmers who are group peripherals and group centrals in the type II village to have a high degree of social participation and those in the type III village to have a moderate degree. Our operationalization of social participation indexed the membership in cooperative credit societies and other service organizations.

Communication integration: Our findings are consistent with the findings of Yadav (1967), Guimaraes (1972) and Bhowmik (1972): communication integration is positively correlated with the village modernity measured by farmers' innovativeness or change orientation. Their findings showed linear positive relationships between communication integration and village modernity.

But the analysis of village development and modernization in terms of multi-dimensional typology indicated that the type III village which has innovative leadership and a high level of agricultural development and moderate institutional facilities shows a high degree of communication integration. The village of the type I (low change oriented leadership, poor institutional facilities and low agricultural

development) shows a medium degree of interpersonal communication integration. The type II village which has a less change oriented leadership but is endowed with better institutional facilities and maintains a high level of agricultural development, has a low degree of communication integration.

Heterophily: Our measurement procedures of heterophily and reference dimensions were different from the ones used by Bhowmik (1972). We considered the composition of communication groups and dyads in terms of types of farmers differentiated along the dimensions of change orientation, control over farmer economic resources and social participation. If the groups had equal or near equal compositions in terms of different types we considered the groups to be most heterophilous. If the dyad consisted of different types of farmers then it was counted as heterophilous. Bhowmik used three dimensions, viz., change agency contact, status and movie exposure to measure the degree of heterophily using the difference scores for each dyad. Because of these differences our findings are not comparable.

However, Bhowmik's findings showed no significant positive relationships between village modernity and degree of dyad heterophily. Our case study points to the proposition that the type III village representing the modernity has low degree of heterophily whereas type I village has high degree of heterophily. This assertion is contrary to those of Van den Ban (1963), Rogers with Svenning (1969), Rogers with Shoemaker (1971, pp. 214-215), and the one hypothesized by Bhowmik (1972).

Limitations of the Study

As the sample of 108 villages is from the three purposively selected states and some nine purposively selected districts in India, the generalization regarding the village development dimensions has a restricted relevance to the village population of India.

The set of variables chosen to measure the domain of village development is by no means exhaustive. Availability of data was the main constraint in the choice of variables.

In providing evidence for the concept of village development dimensions, no time order sequence could be studied because of the cross-sectional nature of the data which are a product of one-shot study. The propositions are only indicative of correlational and not causal nature.

The model of village development revealed by our analysis implies that the development phenomenon is an inter-related process, the components as revealed by our empirical study being village leadership, village institutional facilities, and agricultural development, among other things. The evidence does not permit us to interpret the inter-relationships among the components in any unique time order sequence or causality. The implication of such a model is that one or the other component may be the leading factor for initiating change in other components. In other words, the path to village development is not unique or unilinear. The state of village development as measured in terms of the degree of the strength of the components at any given time should lead us to outline the path of the village development model.

The factor analytic model we have used in the empirical extraction of the village development dimensions assumes linear relationships among the measures of development indicators. To the extent the relationships among the measures are non-linear our model does not validly represent the reality of village development process.

Implications

Implications for action: The main aim of this study was to extend the knowledge of comparative study of village communities, their developmental aspects and communication factors affecting the agricultural development. This knowledge has some implications for agricultural community development in designing communication strategies.

The three types of villages we identified call for different communication strategies for development.

The state of the village development at any one time shows different configurations of leadership characteristics and institutional facilities in an inter-dependent relations. We have to identify the most favorable and leading dimension and get involved in the change process working with the favorable dimension and plan a strategy for a sustained development giving emphasis to the related needs of village system.

In type I village where there is a low institutional development, low agricultural development and low degree of change-oriented leadership, change process need be initiated with the personalized communication contact of the development agencies introducing changes which relate more to the visible and physical improvements of agricultural

performance. The change agents should work with the farmers who act as bridges in the inter-personal communication structure of the village.

The village needs the communication inputs that increase the awareness of the leaders and the people to see the need for change in the village. It can be accomplished not by providing information alone. Leadership education program needs to be initiated wherein the leaders are totally exposed to another system situation which shares their major socio-cultural and techno-economic conditions but is coping with the change processes. This type of total communication exposure introduces into the village leaders' cognition several alternative modes of change initiation and management. It tends to increase the capacity of the village to be self-reliant while articulating its needs and seeking help from actual agencies to diffuse and manage the change processes. When the awareness stage is set into operation other stages of innovation decision-making processes (Rogers with Shoemaker, 1971, p. 103) are likely to follow.

In type II village where the institutional facilities and manpower communication facilities are better and the degree of agricultural development is high but the village leadership is less oriented to change, both the mass media and interpersonal communication contacts should be strengthened. Attempts to contact the leaders who occupy the liaison role should be maximized for disseminating information relevant to the operations of agriculture that increases the profitability to the farmer.

Farmers who do not occupy the central role in the interpersonal communication structure but who show a greater degree of change orientation need be in greater frequency of communication contact with the change agents.

In the type II village, resistance and apathy towards change need to be studied further. The developmental forces seem to be working because of exogenous initiatives and pushful operations. For a stable and self-sustaining change process, areas of development should be identified which are compatible with initiatives and priorities of the villagers, and receptivity to change on the part of the leaders.

In the type III village where we find a highly change oriented leadership, low-to-medium availability of communication and institutional facilities but a high degree of agricultural development as measured by the adoption of improved farm practices, most favorable conditions exist for change and sustained development. This type of village is the most favorable one for the change agent to work with. In spite of the relatively low degree of institutional and communication facilities, a highly change oriented village leadership seems to be the leading indigenous force motivating agricultural development. Availability of outside help for evaluation, diagnoses and follow-up action need to be kept up. The communication strategy in this type of village should be to work with the farmers who are less change oriented and help build the village institutional and communication resources for dissemination of information.

Implications for future research: For measuring the development state of a village future research should consider additional important indicators such as the state of unemployment or underemployment, income, housing conditions and industrialization.

Smallest-Space Analysis (SSA) as a multivariate technique of data reduction based on non-metric assumptions has some promises for extracting smaller number of dimensions (Lingoes, 1966). This method of data analysis may be used to see the emerging picture of village development dimensions as compared to the one we have described using factor analytic model.

Given that we have the knowledge of the degree of external communication contact of the village and its internal inter-personal communication structures an attempt may be made for measuring the communication network potential for the information flow using the measurement procedures suggested by Lionberger (1963).

Other researchable questions that need investigation are:
How do the communication behavior of the farmers occupying different communication roles vary? What comparative differences exist in the inter-personal communication structures in the village with respect to different kinds of messages?

The propositions we have formulated in light of the case evidence regarding village inter-personal communication attributes need testing with a large number of cases in order to provide valid statistical evidence for generalization.

APPENDIX A

TABLES

Table 1 (Appendix A): Data Set for Village Development Dimensions, India, 1966.

| Variable #
(1) | Variable Code Name
(2) | Data Location | | Description
(5) | Form
(6) | Assumed Level of Measurement
(7) | Missing Values (% of N)
(8) | Recoding of Missing Values
(9) |
|-------------------|---------------------------|--|--------------------------------------|---|-------------|-------------------------------------|--------------------------------|-----------------------------------|
| | | INDIA Diffusion of Innovations Project Phase I Card #
(3) | Column #
(4) | | | | | |
| 1 | mlr | 5 | 42,43,44
(decimal place after 42) | Persons in the village per acre of crop cultivated in the village | Ratio | Interval | 2% | 999 to $\bar{x}$ = 159 |
| 2 | Pp | 7 | 31 | Political parties in the village | Raw No. | Ordinal | None | 4,5,8,9 to 3 |
| 3 | Nv | 8 | 44,45 | Persons voting in national election | Percentage | Interval | None | |
| 4 | Pv | 8 | 46,47 | Persons voted in Panchayat voting elections (Local Government) | Percentage | Interval | 3.7% | 99 to $\bar{x}$ = 88 |
| 5 | L0 | 9 | 13,14 | Extent of land held by 10 biggest owners in village | Percentage | Interval | 3% | 99 to $\bar{x}$ = 35 |
| 6 | Danix | 9 | 15,16 | Ratio of bullocks to total livestock used as draught animal | Percentage | Interval | 10.19% | 99 to $\bar{x}$ = 43 |
| 7 | Mucix | 9 | 17,18 | Land under more than one crop in a year | Percentage | Interval | 15.74% | 99 to $\bar{x}$ = 19 |

Table 1 (Appendix A) (cont'd.)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|-----|--------|-----|----------------------------|---|--------------|----------|-------|----------------------|
| 8 | Agocxm | 9 | 21,22 | Male agricultural workers to total male workers | Per-cent-age | Interval | .93% | 99 to $\bar{x}$ = 78 |
| 9 | Agocxf | 9 | 23,24 | Female agricultural workers to total female workers | Per-cent-age | Interval | 1.85% | 99 to $\bar{x}$ = 75 |
| 10 | Tenix | 9 | 25,28
(Col. 26 decimal) | Cultivators to agricultural workers | Per-cent-age | Interval | None | |
| 11 | Litem | 9 | 29,30 | Male literate | Per-cent-age | Interval | .93% | 99 to $\bar{x}$ = 29 |
| 12 | Litfem | 9 | 31,32 | Female literate | Per-cent-age | Interval | .93% | 99 to $\bar{x}$ = 10 |
| 13 | Primen | 9 | 37,38 | Males with primary grade | Per-cent-age | Interval | .93% | 99 to $\bar{x}$ = 12 |
| 14 | Primef | 9 | 39,40 | Females with primary grade | Per-cent-age | Interval | 2.78% | 99 to $\bar{x}$ = 06 |
| 15 | Midem | 9 | 41,42 | Males with middle grade | Per-cent-age | Interval | 3.70% | 99 to $\bar{x}$ = 03 |
| 16 | Midfem | 9 | 43,44 | Females with middle grade | Per-cent-age | Interval | 1.85% | 99 to $\bar{x}$ = 03 |

Table 1 (Appendix A) (cont'd.)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|-----|---------|-----|-------|---|--------------------|----------|--------|-----------------------|
| 17 | Him | 9 | 45,46 | Males with high school grade | Per-cent-age | Interval | 3.70% | 99 to $\bar{x}$ = 01 |
| 18 | Hifem | 9 | 47,48 | Females with high school grade | Per-cent-age | Interval | 4.63% | 99 to $\bar{x}$ = 02 |
| 19 | Infmart | 9 | 61,62 | Infant mortality rate per hundred | Per-cent-age | Interval | 8.33% | 99 to $\bar{x}$ = 9.5 |
| 20 | Birth | 9 | 63,64 | Crude birth rate per thousand | Ratio | Interval | 17.59% | 99 to $\bar{x}$ = 30 |
| 21 | WFP | 11 | 18,19 | Women practising family planning methods | Per-cent-age | Interval | 63.80% | 99 to $\bar{x}$ = 36 |
| 22 | Agladb | 11 | 22 | Block development officers rating of village agricultural development | Raw Score (0 to 7) | Interval | 11.11% | 9 to $\bar{x}$ = 3 |
| 23 | HFPladp | 11 | 23 | Physician's rating of village health development | Raw Score (0 to 7) | Interval | 16.67% | 9 to $\bar{x}$ = 3 |
| 24 | Aglada | 11 | 26 | Agricultural Extension Officer's rating of village agricultural development | Raw Score (0 to 7) | Interval | None | |

Table 1 (Appendix A) (cont'd.)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|-----|------------|-----|--------------|---|---------------------------|----------|-------|-----|
| 25 | Sedgurt | 11 | 46 | Improved seed scale
(Guttman) | Raw
Score
(0 to 3) | Interval | None | |
| 26 | Imple | 11 | 76 | Implement adoption
scale | Raw
Score
(0 to 3) | Interval | None | |
| 27 | Catman | 12 | 45 | Cattle and manure
scale | Raw
Score
(0 to 3) | Interval | None | |
| 28 | Plantpro | 12 | 47 | Plant protection
adoption | Raw
Score
(0 to 4) | Interval | None | |
| 29 | Prize | 13 | 31 | Prize winning village
progress index | Raw
Score
(0 to 1) | Ordinal | .93% | |
| 30 | Sedix | 13 | 35,36,
37 | Seed distribution
index | Per-
cent-
age | Interval | 5.56% | |
| 31 | Emp | 18 | 75 | Empathy index of 3
items | Raw
Score
(0 to 8) | | None | |
| 32 | Changenorm | 34 | 20,21 | Leaders' favorableness
toward new programs | Raw
Score
(8 to 27) | Interval | None | |
| 33 | Ecorient | 34 | 22,23 | Leaders' economic
orientation | Raw
Score
(6 to 30) | Interval | None | |

Table 1 (Appendix A) (cont'd.)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|-----|-------------|-----|--|--------------------------------|-------------------------|----------|--------|----------------------|
| 34 | Sac | 34 | 24 | Leaders' value orientation | Raw Score
(2 to 8) | Interval | None | |
| 35 | Postac | 34 | 26 | Distance from postal facility | Raw Score
(0 to 4) | Interval | None | |
| 36 | Libac | 34 | 27 | Distance from library facility | Raw Score
(0 to 4) | Interval | 5.56% | 9 to $\bar{x}$ = 3 |
| 37 | Cinedist | 34 | 28 | Distance from cinema facility | Raw Score
(0 to 4) | Interval | None | |
| 38 | Office | 34 | 56,57
(decimal ratio point between 56 and 57) | Official residence | Number per 1,000 | Interval | 10.19% | 99 to $\bar{x}$ = 07 |
| 39 | Transix | 34 | 68,69 | Access to transport facility | Raw Score
(00 to 12) | Interval | .93% | 99 to $\bar{x}$ = 06 |
| 40 | Landconsori | 34 | 70 | Leaders' land conservatism | Raw Score
(0 to 9) | Interval | None | |
| 41 | Creditori | 34 | 71 | Leaders' credit orientation | Raw Score
(0 to 9) | Interval | None | |

Table 1 (Appendix A) (cont'd.)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|-----|-----------|-----|----------|--|-------------------------|----------|--------|-----------------------|
| 42 | Riskori | 34 | 72 | Leaders' land risk orientation | Raw Score
(0 to 9) | Interval | None | |
| 43 | Occupmobi | 34 | 73 | Leaders' occupational mobility | Raw Score
(0 to 9) | Interval | None | |
| 44 | Agadopt | 35 | 19,20 | Agricultural adoption index | Raw Score
(00 to 51) | Interval | None | |
| 45 | Bicy | 35 | 44,45,46 | Number of bicycles per 10,000 population | Ratio | Interval | None | |
| 46 | Elecpump | 35 | 47,48 | Number of electric pumps per 10,000 population | Ratio | Interval | 11.11% | 99 to $\bar{x}$ = 10 |
| 47 | Oilengi | 35 | 49,50 | Number of oil engines per 1,000 population | Ratio | Interval | .93% | 99 to $\bar{x}$ = 13 |
| 48 | Grainm | 35 | 51,52 | Number of grain mills per 1,000 population | Ratio | Interval | 1.85% | 99 to $\bar{x}$ = 05 |
| 49 | Mag | 35 | 53,55 | Number of magazines per 1,000 population | Ratio | Interval | .93% | 99 to $\bar{x}$ = 057 |
| 50 | Machine | 35 | 58,59 | Number of machines (oil/electricity based farm related machines) | Raw Score | Interval | 12.96% | 99 to $\bar{x}$ = 06 |
| 51 | Elec | 35 | 62 | Availability of electricity | Raw Score
(0 to 1) | Ordinal | None | |

Table 1 (Appendix A) (cont'd.)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|-----|----------|-----|--------------|--------------------------------|------------------------------------|----------|-------|----------------------|
| 52 | Tax | 35 | 67,68 | Families paying tax | Per-
cent-
age
(00 to 50) | Interval | 4.63% | 99 to $\bar{x}$ = 05 |
| 53 | Catt | 35 | 69,70 | Cattle per 100
population | Ratio
(00 to 98) | Interval | None | |
| 54 | Instigut | 38 | 13,14 | Institutional
development | Guttman
Scale
(00 to 98) | Interval | None | |
| 55 | Visgut | 38 | 15 | Village Store Items | Guttman
Scale
(01 to 10) | Interval | None | |
| 56 | Caste | 38 | 31 | Leaders' caste status | Raw
Score
(1 to 5) | Ordinal | 5.56% | 244 |
| 57 | Radio | 38 | 40,41,
42 | Number of persons per
radio | Raw
Score | Interval | None | |
| 58 | Instprox | 39 | 71 | Promimity to
institution | Raw
Score
(0 to 6) | Interval | None | |

Note: N = 108 Villages. Number of Variables = 58.

Table 2 (Appendix A): Basic Statistics and Missing Data on 58 Variables for 108 Villages, India.

| Variable
Code | Mean | S.D. | Skewness | Missing
Data (% to
Base N = 108) |
|------------------|-------|-------|----------|--|
| Mlr #1 | 1.75 | 1.95 | .03 | 2% |
| Pp #2 | 1.06 | 1.06 | .81 | None |
| Nv #3 | 71.31 | 19.34 | -1.31 | None |
| Pv #4 | 88.39 | 15.09 | -2.78 | 3.7% |
| Lo #5 | 35.50 | 23.49 | 1.18 | 3% |
| Danix #6 | 42.94 | 15.79 | .13 | 10.19% |
| Mucix #7 | 19.43 | 1.95 | 1.60 | 15.74% |
| Agocxm #8 | 78.18 | 17.69 | 1.74 | .93% |
| Agocxf #9 | 74.61 | 29.37 | 1.43 | 1.85% |
| Tanix #10 | 0.72 | 0.59 | 0.86 | None |
| Litem #11 | 29.17 | 12.64 | -0.07 | .93% |
| Litemfem #12 | 9.69 | 7.48 | 0.77 | .93% |
| Primem #13 | 11.86 | 7.57 | 2.01 | .93% |
| Primef #14 | 5.87 | 5.49 | 2.35 | 2.78% |
| Midem #15 | 3.07 | 4.11 | 1.97 | 3.70% |
| Midfem #16 | 2.68 | 3.76 | 1.95 | 1.85% |
| Him #17 | 0.99 | 1.63 | 2.51 | 3.70% |
| Hifem #18 | 0.25 | 0.65 | 4.5 | 4.63% |
| Infmart #19 | 9.45 | 9.19 | 1.61 | 8.33% |
| Birth #20 | 29.90 | 16.29 | 1.06 | 17.59% |
| Wfp #21 | 35.97 | 19.83 | 0.67 | 63.80% |
| Agladb #22 | 3.93 | 1.71 | 1.83 | 11.11% |
| Hfpladp #23 | 3.06 | 1.79 | 0.49 | 16.67% |
| Aglada #24 | 4.14 | 1.75 | 0.005 | None |
| Sedgut #25 | 1.12 | 1.11 | 0.49 | None |
| Imple #26 | 1.19 | 1.82 | 1.02 | None |
| Catman #27 | 2.28 | 1.24 | 0.13 | None |
| Plantpro #28 | 0.65 | 0.88 | 1.07 | None |
| Prize #29 | 0.18 | 0.38 | 3.40 | .93% |
| Sedix #30 | 0.28 | 0.54 | 3.63 | 5.56% |
| Emp #31 | 6.69 | 1.26 | - .92 | None |

Table 2 (Appendix A) (cont'd.)

| | | | | |
|-----------------|--------------|--------|-------|--------|
| Change Norm #32 | 20.62 | 4.17 | - .63 | None |
| Eoorient #33 | 17.25 | 4.36 | 0.02 | None |
| Sac #34 | 5.57 | 1.23 | - .75 | None |
| Postac #35 | 2.83 | 1.06 | -0.29 | None |
| Libac #36 | 2.68 | 1.31 | -0.44 | 5.56% |
| Cinedist #37 | 0.81 | 0.98 | 1.31 | None |
| Office #38 | 6.6 | 9.18 | 4.19 | 10.19% |
| Transix #39 | 5.59 | 2.31 | .16 | .93% |
| Landconsori #40 | 5.65 | 2.17 | -0.70 | None |
| Creditori #41 | 6.57 | 1.82 | -1.08 | None |
| Riskori #42 | 2.38 | 1.88 | .61 | None |
| Occupmobi #43 | 2.59 | 1.71 | .55 | None |
| Agadopt #44 | 22.92 | 9.80 | -0.06 | None |
| Bicy #45 | 201.08 | 205.13 | 2.04 | None |
| Elecpump #46 | 10.16 | 22.72 | 2.67 | 11.11% |
| Oilengi #47 | 13.22 | 21.52 | 2.24 | .93% |
| Grainm #48 | 5.35 | 10.8 | 4.64 | 1.86% |
| Mag #49 | 58.00 | 89.36 | 3.65 | .93% |
| Machine #50 | 5.73 | 13.36 | 5.15 | 12.96% |
| Elec #51 | (0.00)(Mode) | -- | -- | None |
| Tax #52 | 4.76 | 7.36 | 3.24 | 4.63% |
| Catt #53 | 49.53 | 27.12 | 0.36 | None |
| Instigut #54 | 6.70 | 2.25 | -0.26 | None |
| Visgut #55 | 3.75 | 2.43 | -0.10 | None |
| Caste #56 | 2.11 | 1.16 | 0.83 | 5.56% |
| Radio #57 | 404.00 | 330.25 | 0.83 | None |
| Instprox #58 | 3.30 | 2.08 | -0.11 | None |

Table 3 (Appendix A): Missing Data Substitution and Transformation.

| Variable
Code | Extent of Missing Data
(Percent to Base N = 108) | Values Substituted |
|------------------|---|---|
| Wfp #21 | 63.80% | Variable dropped from
further analysis |
| Birth #20 | 17.59% | $\bar{x} = 30$ |
| Hfpladp #23 | 16.67% | $\bar{x} = 04$ |
| Mucix #7 | 15.74% | $\bar{x} = 19$ |
| Machine #50 | 12.96% | $\bar{x} = 06$ |
| Agladb #22 | 11.11% | $\bar{x} = 04$ |
| Elecpump #46 | 11.11% | $\bar{x} = 10$ |
| Danix #6 | 10.19% | $\bar{x} = 43$ |
| Office #38 | 10.19% | $\bar{x} = 07$ |
| Infmart #19 | 8.33% | $\bar{x} = 095$ |
| Sedix #30 | 5.56% | $\bar{x} = 028$ |
| Libac #36 | 5.56% | $\bar{x} = 03$ |
| Caste #56 | 5.56% | $\bar{x} = 02$ |
| Hifem #18 | 4.63% | $\bar{x} = 02$ |
| Tax #52 | 4.63% | $\bar{x} = 05$ |
| Pv #4 | 3.70% | $\bar{x} = 88$ |
| Midem #15 | 3.70% | $\bar{x} = 03$ |
| Him #17 | 3.70% | $\bar{x} = 01$ |
| Lo #5 | 3.00% | $\bar{x} = 35$ |
| Primef #14 | 2.78% | $\bar{x} = 06$ |
| Mlr #1 | 2.00% | $\bar{x} = 159$ |
| Agocxf #9 | 1.85% | $\bar{x} = 75$ |
| Midfem #16 | 1.85% | $\bar{x} = 03$ |
| Grainm #48 | 1.85% | $\bar{x} = 05$ |
| Agocxm #8 | .93% | $\bar{x} = 78$ |
| Litem #11 | .93% | $\bar{x} = 29$ |
| Litfem #12 | .93% | $\bar{x} = 10$ |
| Primem #13 | .93% | $\bar{x} = 12$ |
| Prize #29 | .93% | $\bar{x} = 00$ |
| Transix #39 | .93% | $\bar{x} = 06$ |

Table 3 (Appendix A) (cont'd.)

| | | | |
|-------------|------|-----------------|--|
| Oilengi #47 | .93% | $\bar{x} = 13$ | |
| Mag #49 | .93% | $\bar{x} = 057$ | |
| Pp #2 | | None | Transformed
Values 6,5,
8,9 into 3 |
| Emp #31 | | None | 9 to 7 |
| Elec #51 | | None | 1 to 0 |
| Catt #53 | | None | 99 to 49 |

Note: Data for the remaining variables were completely available
(see Table 2 Appendix A).

Table 4 (Appendix A): Product Moment Correlations Among 58 Variables
(Village Development Indicators) for 108
Villages, India, 1966.

| | 1 Manland Ratio (Mlr) | 2 Political Parties (Pp) | 3 National Voting (Nv) | 4 Panchayat Voting (Pv) | 5 Land Ownership (Lo) | 6 Draught Animal Index (Danix) | 7 Multiple Crop Index (Mucix) | 8 Agricultural Occupation Index (Male) (Agocxm) | 9 Agricultural Occupation Index (Female) (Agocxf) | 10 Cultivators to Agriculture Workers (Tenix) | 11 Male Literacy (Litem) | 12 Female Literacy (Litfem) | 13 Males with Primary Grade (Primem) |
|----|-----------------------|--------------------------|------------------------|-------------------------|-----------------------|--------------------------------|-------------------------------|---|---|---|--------------------------|-----------------------------|--------------------------------------|
| 1 | --- | | | | | | | | | | | | |
| 2 | 14 ^a | --- | | | | | | | | | | | |
| 3 | 04 | 21 | --- | | | | | | | | | | |
| 4 | -02 | 17 | 24 | --- | | | | | | | | | |
| 5 | 43 | -05 | -17 | 13 | --- | | | | | | | | |
| 6 | -04 | -03 | -22 | -06 | -03 | --- | | | | | | | |
| 7 | 02 | 11 | 05 | -13 | -02 | 07 | --- | | | | | | |
| 8 | -35 | -22 | -15 | 13 | -19 | 06 | -18 | --- | | | | | |
| 9 | -34 | 10 | 10 | 13 | -15 | -13 | -09 | 40 | --- | | | | |
| 10 | 10 | 02 | 26 | -10 | 01 | -44 | 09 | -07 | 04 | --- | | | |
| 11 | 15 | 37 | 29 | 04 | -01 | -23 | 23 | -25 | -01 | 20 | --- | | |
| 12 | 26 | 29 | 23 | -03 | 05 | -41 | 31 | -29 | -12 | 36 | 69 | --- | |
| 13 | -00 | 07 | 12 | 14 | -00 | -08 | -09 | 05 | -11 | -04 | 08 | 07 | --- |
| 14 | 03 | 15 | 13 | 12 | -03 | -03 | -08 | -05 | -12 | -04 | 22 | 16 | 60 |
| 15 | 25 | 06 | 12 | -03 | -5 | -01 | -07 | -19 | -21 | -07 | 41 | 30 | 25 |
| 16 | 17 | 19 | 16 | -02 | 15 | -31 | 22 | -30 | -05 | 32 | 36 | 67 | 15 |
| 17 | 12 | 06 | 04 | -19 | -06 | -05 | 11 | -27 | -12 | 12 | 34 | 38 | 13 |
| 18 | 08 | 18 | 01 | 05 | 11 | -01 | -07 | -21 | -11 | 03 | 23 | 23 | 10 |
| 19 | 01 | 10 | 06 | 02 | -11 | -07 | 05 | 06 | 06 | -01 | 23 | 07 | 01 |
| 20 | -16 | 14 | 17 | 22 | -03 | -02 | 01 | -04 | 08 | 07 | 10 | -02 | 10 |
| 21 | 07 | 07 | 06 | -03 | 14 | 19 | 04 | -04 | -08 | -16 | 11 | -03 | 19 |
| 22 | 04 | 24 | 21 | 03 | 00 | -23 | 17 | -07 | 06 | 25 | 27 | 36 | -04 |
| 23 | 12 | 28 | 18 | 12 | 04 | -20 | 30 | -24 | 16 | 21 | 41 | 44 | -03 |
| 24 | 03 | 17 | 25 | 14 | 07 | -19 | 24 | 02 | 07 | 18 | 21 | 31 | 07 |
| 25 | 03 | 22 | 01 | -11 | -05 | -04 | -07 | -13 | -07 | 26 | 24 | 15 | 04 |
| 26 | 05 | 24 | 25 | 01 | 08 | -07 | 03 | -02 | 18 | 03 | 04 | 04 | 00 |
| 27 | 03 | 22 | 17 | -22 | -08 | -20 | 13 | -30 | 13 | 19 | 18 | 18 | -08 |
| 28 | -08 | 37 | 24 | 16 | -04 | -22 | -11 | 10 | 33 | 25 | 20 | 00 | 10 |

^aDecimals omitted for correlations: read 14 as 0.14.

Table 4 (Appendix A) (cont'd.)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|----|---------------------|------------------------|----------------------|-----------------------|---------------------|------------------------------|-----------------------------|---|---|--|-----------------------|--------------------------|-----------------------------------|
| | Manland Ratio (Mlr) | Political Parties (Pp) | National Voting (Nv) | Panchayat Voting (Pv) | Land Ownership (Lo) | Draught Animal Index (Danix) | Multiple Crop Index (Mucix) | Agricultural Occupation Index (Male) (Agocxm) | Agricultural Occupation Index (Female) (Agocxf) | Cultivators to Agriculture Workers (Tenix) | Male Literacy (Litem) | Female Literacy (Litfem) | Males with Primary Grade (Prinem) |
| 29 | -11 | 13 | 17 | 17 | 10 | -28 | 03 | -00 | 18 | 17 | 04 | 11 | -06 |
| 30 | 05 | 13 | 08 | 07 | 26 | -17 | -02 | -12 | 13 | 10 | 08 | 06 | 02 |
| 31 | 03 | 28 | 21 | -01 | -09 | 04 | 11 | -04 | 06 | 06 | 19 | 13 | 02 |
| 32 | -02 | 32 | 14 | -01 | -21 | 12 | -24 | -02 | 09 | -10 | 12 | -09 | 09 |
| 33 | -04 | -03 | 01 | -20 | -05 | -02 | 01 | -01 | 10 | 11 | 00 | 10 | -16 |
| 34 | 22 | 37 | 26 | -11 | -01 | -10 | 00 | -10 | -14 | 12 | 29 | 23 | 24 |
| 35 | 07 | 10 | 29 | -07 | -12 | -31 | 12 | -29 | -05 | 33 | 30 | 42 | 09 |
| 36 | 09 | -02 | 10 | -12 | 10 | -33 | 16 | -08 | 03 | 16 | 23 | 35 | -08 |
| 37 | 20 | 21 | 13 | -02 | -02 | -06 | 31 | -51 | -19 | 09 | 33 | 35 | 00 |
| 38 | -01 | 06 | 16 | -02 | 04 | 01 | -05 | -17 | 07 | 06 | 15 | 08 | 07 |
| 39 | 16 | 25 | 17 | 13 | 03 | -05 | 31 | -40 | -23 | 21 | 33 | 38 | 03 |
| 40 | -19 | -06 | 07 | 05 | 02 | -10 | -02 | 05 | 24 | 16 | 01 | -06 | -05 |
| 41 | -08 | 05 | 02 | -03 | 03 | -01 | 05 | -02 | 26 | -02 | -05 | 03 | -21 |
| 42 | 22 | -06 | -09 | -27 | -07 | 15 | -05 | 05 | -23 | -01 | 00 | 05 | 07 |
| 43 | -01 | -02 | -02 | -28 | -13 | -03 | 04 | -12 | -08 | 06 | 00 | 13 | -18 |
| 44 | 10 | 43 | 30 | 02 | 04 | -28 | 01 | -16 | 07 | 30 | 39 | 34 | 07 |
| 45 | 22 | 08 | 04 | -10 | 04 | -28 | 11 | -23 | -21 | 07 | 25 | 42 | 25 |
| 46 | -05 | 36 | 09 | 04 | 05 | -09 | -00 | -09 | 07 | 09 | 05 | 04 | 04 |
| 47 | 02 | 35 | 21 | 14 | -03 | -19 | 05 | -01 | 07 | 04 | 17 | 21 | 15 |
| 48 | 17 | 05 | 09 | 01 | 07 | -03 | -05 | 02 | 02 | 13 | 03 | 10 | 38 |
| 49 | 18 | 30 | 18 | 01 | 04 | -28 | 18 | -29 | -06 | 33 | 33 | 52 | 04 |
| 50 | 06 | 34 | 11 | 07 | 03 | -09 | 15 | -21 | -11 | 10 | 14 | 33 | 05 |
| 51 | -05 | 22 | 13 | 10 | 06 | -22 | 11 | -22 | 12 | 16 | 20 | 19 | 07 |
| 52 | 14 | 19 | 07 | 07 | 14 | -19 | 06 | -10 | -09 | 14 | 35 | 44 | 05 |
| 53 | -10 | -08 | -17 | 21 | 17 | -23 | -21 | 28 | 20 | -07 | -15 | -13 | 18 |
| 54 | 12 | 21 | 25 | -09 | -08 | -12 | 19 | -42 | -18 | 15 | 34 | 40 | 02 |
| 55 | 19 | 01 | -04 | 12 | 25 | -03 | -07 | -07 | 08 | -08 | -03 | -05 | 03 |
| 56 | 06 | -38 | -18 | -13 | 09 | 20 | 17 | 17 | -25 | -02 | -30 | -24 | -16 |
| 57 | -22 | -03 | -09 | 22 | -04 | 36 | -11 | 12 | 25 | -33 | -26 | -47 | -20 |
| 58 | -02 | 28 | 15 | -03 | -14 | -07 | 26 | 13 | 05 | 09 | 28 | 23 | 04 |

Table 4 (Appendix A) (cont'd.)

| | Females with Primary Grade
(Primef) | Males with Middle Grade
Education (Midem) | Females with Middle Grade
Education (Midfem) | Males with High School
Grade Education (Him) | Females with High School
Grade Education (Hifem) | Infant Mortality (Infmart) | Crude Birth Rate (Birth) | Women Practicing Family
Planning Methods (Wfp) | Block Development Officer's
Rating (Agladb) | Physician's Rating of Vil-
lage Health and Family
Planning Development
(Hfpladp) | Agricultural Extension
Officer Rating (Aglada) | Improved Seed Scale
(Guttman) (Sedgut) |
|----|--|--|---|---|---|----------------------------|--------------------------|---|--|---|---|---|
| | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 14 | --- | | | | | | | | | | | |
| 15 | 48 | --- | | | | | | | | | | |
| 16 | 02 | 15 | --- | | | | | | | | | |
| 17 | 33 | 71 | 28 | --- | | | | | | | | |
| 18 | 24 | 29 | 26 | 34 | --- | | | | | | | |
| 19 | 09 | 05 | -16 | 07 | -14 | --- | | | | | | |
| 20 | -09 | -16 | 12 | -20 | -15 | -04 | --- | | | | | |
| 21 | 20 | 09 | -13 | 12 | 09 | 10 | -08 | --- | | | | |
| 22 | -01 | 09 | 46 | 20 | -03 | -05 | 15 | -24 | --- | | | |
| 23 | 04 | 19 | 48 | 37 | 06 | 04 | 21 | -12 | 69 | --- | | |
| 24 | -01 | 04 | 34 | 14 | -10 | 02 | 11 | 04 | 61 | 48 | --- | |
| 25 | 03 | 11 | 14 | 17 | 21 | -04 | -01 | -03 | 14 | 21 | 16 | --- |
| 26 | -00 | -01 | 09 | 05 | 04 | 00 | 04 | -03 | 20 | 34 | 26 | 07 |
| 27 | -10 | 01 | 28 | 09 | 10 | -27 | 04 | -15 | 34 | 36 | 20 | 32 |
| 28 | 03 | -06 | 03 | -11 | 02 | -03 | 19 | -05 | 12 | 13 | 15 | 33 |
| 29 | -03 | -13 | 15 | -10 | 05 | -16 | 17 | -12 | 30 | 16 | 24 | -01 |
| 30 | 07 | -00 | 18 | -05 | 17 | -09 | -11 | -07 | 07 | 15 | 09 | 24 |
| 31 | 08 | 04 | 01 | 15 | 09 | 01 | 09 | 05 | 30 | 16 | 25 | 18 |
| 32 | 25 | 14 | -29 | 05 | -00 | 11 | -03 | 10 | -01 | -05 | 01 | 20 |
| 33 | -06 | -00 | 06 | -02 | -07 | -05 | -05 | -01 | 05 | 01 | -03 | 01 |
| 34 | 25 | 17 | 16 | 09 | 05 | 07 | 09 | 06 | 11 | 12 | 11 | 16 |
| 35 | 08 | 19 | 45 | 28 | 16 | 07 | 02 | -14 | 34 | 31 | 29 | 17 |
| 36 | -07 | 23 | 31 | 19 | 15 | -07 | -13 | -09 | 20 | 30 | 23 | 17 |
| 37 | 02 | 02 | 29 | 12 | -03 | 09 | 07 | -03 | 17 | 35 | 12 | 06 |

Table 4 (Appendix A) (cont'd.)

| | Females with Primary Grade
(Primef) | Males with Middle Grade
Education (Midem) | Females with Middle Grade
Education (Midfem) | Males with High School
Grade Education (Him) | Females with High School
Grade Education (Hifem) | Infant Mortality (Infmart) | Crude Birth Rate (Birth) | Women Practicing Family
Planning Methods (Wfp) | Block Development Officer's
Rating (Agladb) | Physician's Rating of Vil-
lage Health and Family
Planning Development
(Hfpladp) | Agricultural Extension
Officer Rating (Aglada) | Improved Seed Scale
(Guttman) (Sedgut) |
|----|--|--|---|---|---|----------------------------|--------------------------|---|--|---|---|---|
| | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 38 | 14 | 05 | 06 | 11 | 15 | 09 | 12 | 09 | -10 | 03 | -01 | 08 |
| 39 | 12 | 03 | 32 | 12 | 15 | 10 | 01 | 14 | 17 | 18 | 20 | 15 |
| 40 | 012 | -08 | 05 | -10 | -02 | -01 | -07 | 01 | 00 | -07 | 02 | -12 |
| 41 | 017 | -13 | 20 | -11 | -07 | -12 | 20 | -14 | 13 | 11 | 18 | 03 |
| 42 | 20 | 16 | -12 | 07 | 01 | -04 | -14 | 09 | -03 | -10 | -17 | 14 |
| 43 | -02 | 08 | -02 | 11 | -09 | 05 | -07 | 01 | 00 | 04 | -10 | 01 |
| 44 | 07 | 10 | 30 | 13 | 18 | -07 | 14 | -06 | 43 | 47 | 39 | 59 |
| 45 | 42 | 43 | 21 | 42 | 11 | 11 | -29 | 05 | -05 | 03 | -04 | 06 |
| 46 | -04 | -09 | 17 | -05 | -03 | -04 | 12 | 08 | 40 | 25 | 36 | 11 |
| 47 | 06 | -11 | 28 | -16 | -02 | -15 | 13 | -05 | 24 | 07 | 26 | 03 |
| 48 | 49 | 31 | 10 | 24 | -01 | -07 | 08 | 01 | 07 | 03 | 12 | 18 |
| 49 | 14 | 25 | 36 | 31 | 13 | -02 | -05 | 02 | 22 | 26 | 12 | 04 |
| 50 | -07 | -04 | 50 | 04 | -04 | -08 | 05 | -02 | 41 | 25 | 36 | 09 |
| 51 | -09 | -04 | 34 | 08 | -03 | -04 | 15 | -00 | 40 | 38 | 41 | 16 |
| 52 | 12 | 09 | 35 | 12 | 04 | 03 | -01 | 22 | 33 | 40 | 23 | 12 |
| 53 | 03 | -06 | -07 | -14 | 06 | -12 | 03 | -06 | -08 | -08 | 04 | -02 |
| 54 | 07 | 23 | 40 | 29 | 28 | 04 | 10 | -04 | 20 | 23 | 16 | 10 |
| 55 | 15 | 08 | 01 | -01 | 14 | -03 | -17 | 07 | -03 | -11 | -02 | -05 |
| 56 | -26 | -13 | -17 | -12 | -15 | -18 | -13 | -16 | -19 | -23 | -24 | -14 |
| 57 | -27 | -31 | -24 | -39 | -10 | 04 | 31 | -07 | -17 | -11 | -13 | -17 |
| 58 | 02 | 01 | 26 | 18 | 12 | -03 | 16 | -14 | 37 | 38 | 30 | 16 |

Table 4 (Appendix A) (cont'd.)

| | Implement Adoption Scale
(Imple) | Cattle and Manure Scale
(Cattman) | Plant Protection Adoption
(Plantpro) | Village Progress Index
(Prize) | Seed Distribution Index
(Sedix) | Empathy Index (Leader) (Emp) | Change Norm Index (Leader)
(Changenorms) | Economic Orientation
(Leaders) (Ecorient) | Sacred-Secular Value Index
(Leader) (Sac) | Postal Facility Distance
(Postac) | Library Facility Distance
(Libac) | Cinema Facility Distance
(Cinedist) |
|----|-------------------------------------|--------------------------------------|---|-----------------------------------|------------------------------------|------------------------------|---|--|--|--------------------------------------|--------------------------------------|--|
| | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |
| 26 | --- | | | | | | | | | | | |
| 27 | 17 | --- | | | | | | | | | | |
| 28 | 18 | 31 | --- | | | | | | | | | |
| 29 | 15 | 27 | 24 | --- | | | | | | | | |
| 30 | 08 | 33 | 19 | 17 | --- | | | | | | | |
| 31 | 08 | 12 | 19 | 07 | 03 | --- | | | | | | |
| 32 | 10 | 11 | 32 | -16 | 03 | 48 | --- | | | | | |
| 33 | -06 | 08 | 05 | 00 | 02 | 07 | 09 | --- | | | | |
| 34 | 13 | 16 | 30 | 00 | 09 | 30 | 42 | 04 | --- | | | |
| 35 | 03 | 34 | 14 | 18 | 16 | 20 | 02 | 16 | 27 | --- | | |
| 36 | 12 | 34 | 07 | 10 | 16 | -10 | -27 | -00 | 04 | 26 | --- | |
| 37 | -02 | 26 | -06 | -06 | 03 | 06 | -05 | 06 | 06 | 19 | 18 | --- |

Table 4 (Appendix A) (cont'd.)

| | Implement Adoption Scale
(Imple) | Cattle and Manure Scale
(Cattman) | Plant Protection Adoption
(Plantpro) | Village Progress Index
(Prize) | Seed Distribution Index
(Sedix) | Empathy Index (Leader)(Emp) | Change Norm Index (Leader)
(Changenorms) | Economic Orientation
(Leaders) (Ecorient) | Sacred-Secular Value Index
(Leader) (Sac) | Postal Facility Distance
(Postac) | Library Facility Distance
(Libac) | Cinema Facility Distance
(Cinedist) |
|----|-------------------------------------|--------------------------------------|---|-----------------------------------|------------------------------------|-----------------------------|---|--|--|--------------------------------------|--------------------------------------|--|
| 26 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | |
| 32 | | | | | | | | | | | | |
| 33 | | | | | | | | | | | | |
| 34 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | |
| 36 | | | | | | | | | | | | |
| 37 | | | | | | | | | | | | |
| 38 | -00 | 00 | 04 | 00 | 06 | -04 | 02 | 13 | 09 | 12 | -01 | -02 |
| 39 | 10 | 29 | 03 | 07 | 15 | 13 | -05 | 07 | 21 | 35 | 19 | 47 |
| 40 | 06 | 01 | 13 | 11 | 17 | 04 | 03 | 58 | 12 | 07 | -02 | -08 |
| 41 | -00 | 25 | 24 | 09 | 08 | 12 | 09 | 53 | 04 | 17 | -05 | 06 |
| 42 | -16 | 01 | -18 | -17 | -16 | 03 | 12 | 55 | 12 | -03 | -08 | 02 |
| 43 | -05 | -03 | -06 | -13 | -08 | -04 | -01 | 61 | 06 | 16 | 13 | 13 |
| 44 | 35 | 61 | 60 | 34 | 37 | 31 | 29 | 01 | 45 | 40 | 27 | 12 |
| 45 | -11 | -05 | -21 | -09 | 10 | -06 | -09 | -05 | 15 | 25 | 19 | 19 |
| 46 | 17 | 34 | 28 | 24 | 11 | 08 | 10 | -04 | 16 | 18 | 16 | 07 |
| 47 | 03 | 16 | 16 | 16 | 07 | 17 | 16 | -00 | 25 | 10 | -08 | 01 |
| 48 | -09 | -01 | 14 | -02 | 08 | 16 | 15 | 04 | 27 | 22 | 01 | -19 |
| 49 | 00 | 19 | 03 | 22 | 08 | 07 | -04 | 17 | 25 | 30 | 29 | 26 |
| 50 | 04 | 21 | 06 | 05 | 01 | 10 | 05 | 07 | 14 | 27 | 11 | 17 |
| 51 | 23 | 48 | 38 | 34 | 23 | 11 | 02 | 06 | 05 | 33 | 31 | 22 |
| 52 | 06 | 10 | 14 | 19 | 11 | 12 | 02 | 02 | 16 | 16 | 12 | 07 |
| 53 | -15 | -00 | 14 | 03 | 24 | -23 | -23 | -25 | -15 | -13 | 08 | -22 |
| 54 | -05 | 27 | 03 | 14 | 18 | 02 | -06 | 01 | 19 | 62 | 23 | 22 |
| 55 | -25 | -04 | -01 | 01 | 18 | 12 | 04 | 10 | -04 | 10 | 04 | 12 |
| 56 | -07 | -28 | -24 | -15 | -12 | -37 | 40 | -06 | -21 | -32 | 05 | -23 |
| 57 | 08 | -16 | 02 | -00 | -09 | 10 | 11 | -06 | -19 | -27 | -37 | -05 |
| 58 | 13 | 27 | 13 | 24 | 01 | 25 | -04 | -08 | 19 | 27 | 31 | 34 |

Table 4 (Appendix A) (cont'd.)

| | Official Residence Ratio
(Office) | Transport Facility Access
(Transix) | Land Oriented Conservation
(Landconsori) | Credit Orientation (Leader)
(Creditori) | Risk Orientation (Leader)
(Riskori) | Occupational Mobility
(Leader) (Occupmobi) | Agricultural Adoption
(Agadopt) | Bicycles (Bicy) | Electric Pump (Elecpump) | Oil Engine Index (Oilengi) | Grain Mill Index (Grainm) | Monthly Magazine Rate (Mag) | Machine Index (Machine) |
|----|--------------------------------------|--|---|--|--|---|------------------------------------|-----------------|--------------------------|----------------------------|---------------------------|-----------------------------|-------------------------|
| | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 38 | --- | | | | | | | | | | | | |
| 39 | 04 | --- | | | | | | | | | | | |
| 40 | 10 | 07 | --- | | | | | | | | | | |
| 41 | 10 | 10 | 17 | --- | | | | | | | | | |
| 42 | 04 | -09 | 02 | -03 | --- | | | | | | | | |
| 43 | 05 | 08 | -01 | 20 | 32 | --- | | | | | | | |
| 44 | 09 | 27 | -09 | 20 | -06 | -01 | --- | | | | | | |
| 45 | 12 | 35 | -14 | -20 | 08 | 11 | 04 | --- | | | | | |
| 46 | 05 | 14 | 00 | 14 | -16 | -06 | 39 | -11 | --- | | | | |
| 47 | 11 | 01 | 01 | 18 | -08 | -10 | 23 | -05 | 20 | --- | | | |
| 48 | 16 | 06 | -07 | 10 | 11 | -01 | 15 | 30 | 07 | 03 | --- | | |
| 49 | 13 | 24 | 05 | -09 | 04 | 18 | 26 | 44 | 11 | 16 | 09 | --- | |
| 50 | 06 | 19 | 07 | 17 | -11 | 04 | 23 | 03 | 57 | 61 | 06 | 20 | --- |
| 51 | 06 | 34 | 20 | 24 | -25 | -04 | 47 | -04 | 60 | 14 | 04 | 23 | 44 |
| 52 | -02 | 12 | 10 | -03 | 02 | -08 | 29 | 13 | 25 | 06 | 06 | 22 | 20 |
| 53 | -13 | -13 | -03 | -11 | -15 | -30 | -03 | 02 | 06 | -07 | 15 | -18 | -13 |
| 54 | 20 | 33 | -07 | 05 | -03 | 06 | 23 | 23 | 08 | 03 | 21 | 33 | 17 |
| 55 | 02 | 04 | -00 | 12 | 08 | 02 | -08 | 15 | -07 | -06 | 21 | 06 | -05 |
| 56 | -15 | -13 | -02 | -16 | 05 | 01 | -35 | -05 | -18 | -20 | -04 | -22 | -12 |
| 57 | 04 | -14 | 12 | 18 | -20 | -22 | -23 | -43 | -11 | 03 | -21 | -31 | -09 |
| 58 | 05 | 39 | -04 | 03 | -13 | -07 | 28 | 04 | 20 | 09 | 14 | 18 | 15 |

Table 4 (Appendix A) (cont'd.)

| | 51
Availability of Electricity
(Elec) | 52
Tax (Tax) | 53
Cattle Wealth Index (Catt) | 54
Institution Scale
(Instigut) | 55
Village Store Items (Visgut) | 56
Caste Status (Leader) (Caste) | 57
Persons Per Radio (Radio) | 58
Institution Proximity Scale
(Instprox) |
|----|---|-----------------|----------------------------------|---------------------------------------|------------------------------------|-------------------------------------|---------------------------------|---|
| 51 | --- | | | | | | | |
| 52 | 32 | --- | | | | | | |
| 53 | -00 | -03 | --- | | | | | |
| 54 | 20 | 14 | -13 | --- | | | | |
| 55 | 03 | -10 | -03 | 11 | --- | | | |
| 56 | -20 | -14 | 07 | -19 | -15 | --- | | |
| 57 | -10 | -23 | -11 | -15 | 05 | -05 | --- | |
| 58 | 39 | 10 | -09 | 36 | 09 | -04 | 01 | --- |

Table 5 (Appendix A): R Factor Structure and Percent of Variance Explained.

| Factor structure | Percent of variance explained among the 58 variables | Increment in the percent of variance |
|------------------|--|--------------------------------------|
| Two | 23% | |
| Three | 29% | 6% |
| Four | 33% | 4% |
| Five | 39% | 6% |
| Six | 42% | 3% |
| Seven | 45% | 3% |
| Eight | 50% | 5% |
| Nine | 51% | 1% |
| Ten | 55% | 4% |
| Eleven | 57% | 2% |

Table 7 (Appendix A): Communality of Variables in Eleven-Factor Solution.

| *Communality Values | Number
of
Variables |
|---------------------|---------------------------|
| .305 | 1 |
| .331 to .406 | 5 |
| .421 to .506 | 7 |
| .511 to .612 | 22 |
| .617 to .692 | 13 |
| .709 to .787 | 7 |
| .858 | 1 |
| .913 | 1 |

*Proportion of variance of each variable involved in the factor space, i.e., the proportion of a variable's total variance that is accounted for by the factors (eleven factors in the present case) and is the sum of the squared loadings for a variable across all factors.

Table 8 (Appendix A): Alphabetical List of Variables Used in Factor Analysis of Village Development Dimensions.

| Code Name | Code Number | Variable Name |
|-------------|-------------|--|
| Agadopt | #44 | Agricultural Adoption |
| Aglada | #24 | Agricultural Extension Officer Rating |
| Agladb | #22 | Block Development Officer's Rating |
| Agocxf | # 9 | Agricultural Occupation Index (Female) |
| Agocxm | # 8 | Agricultural Occupation Index (Male) |
| Bicy | #45 | Bicycle Index |
| Birth | #20 | Crude Birth Rate |
| Caste | #56 | Caste Status (Leader) |
| Catman | #27 | Cattle and Manure Adoption |
| Catt | #53 | Cattle Wealth Index |
| Changenorms | #32 | Change Norm Index (Leader) |
| Cinedist | #37 | Cinema Facility Distance |
| Creditori | #41 | Credit Orientation (Leader) |
| Danix | # 6 | Draught Animal Index |
| Ecorient | #33 | Economic Orientation (Leaders) |
| Elec | #51 | Availability of Electricity |
| Elecpump | #46 | Electric Pump |
| Emp | #31 | Empathy Index (Leader) |
| Grainm | #48 | Grain Mill Index |
| Hfpladp | #23 | Physician's Rating of Village Health and Family Planning Development |
| Hifem | #18 | Females with High School Grade Education |
| Him | #17 | Males with High School Grade Education |
| Imple | #26 | Implement Adoption Scale |
| Infmart | #19 | Infant Mortality |
| Instigut | #54 | Institution Scale |
| Instprox | #58 | Institution Proximity |
| Landconsori | #56 | Land Oriented Conservatism |
| Libac | #36 | Library Facility Distance |
| Litem | #11 | Male Literacy |

Table 8 (Appendix A) (cont'd.)

| | | |
|-----------|-----|--|
| Litfem | #12 | Female Literacy |
| Lo | # 5 | Land Ownership |
| Machine | #50 | Machine Index |
| Mag | #49 | Magazine Rate |
| Midem | #15 | Males with Middle Grade Education |
| Midfem | #16 | Females with Middle Grade Education |
| MLr | # 1 | Man-land Ratio |
| Mucix | # 7 | Multiple Crop Index |
| Nv | # 3 | National Voting |
| Occupmobi | #43 | Occupational Mobility (Leader) |
| Oilengi | #47 | Oil Engine Index |
| Office | #38 | Officers Residing in Village |
| Plantpro | #28 | Plant Protection Adoption |
| Postac | #35 | Postal Accessibility |
| Pp | # 2 | Political Parties |
| Primef | #14 | Females with Primary Grade |
| Primem | #13 | Males with Primary Grade |
| Prize | #29 | Village Progress Index |
| Pv | # 4 | Panchayat Voting |
| Radio | #57 | Persons Per Radio |
| Riskori | #42 | Risk Orientation (Leader) |
| Sac | #34 | Sacred-Secular Values Index (Leader) |
| Sedgut | #25 | Seed Adoption Scale |
| Sedix | #30 | Seed Distribution Index |
| Tax | #52 | Tax rate |
| Tenix | #10 | Ratio of Agricultural Laborers to
Cultivators |
| Transix | #39 | Transportation Facility Index |
| Visgut | #55 | Village Store Items |
| Wfp | #21 | Women Practicing Family Planning
Methods |

Table 36 (Appendix A): Inter-correlation of 100 Villages as Variables with Respect to 57 Development Indicators

| Name of Village Sample | Nervada (AP)* | Kowluru (AP) | Vengalampalle (AP) | Peapally (AP) | Talla G. Padu (AP) | Amakathadu (AP) | Konidyalu (AP) | Nagatoor (AP) | 80 Bannur (AP) | Molkalla (AP) | Vempally (AP) | Kamanapalli (AP) | Kistapur (AP) |
|------------------------|------------------|--------------|--------------------|---------------|--------------------|-----------------|----------------|---------------|----------------|---------------|---------------|------------------|---------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | |
| 1 | --- | | | | | | | | | | | | |
| 2 | .15 ^a | --- | | | | | | | | | | | |
| 3 | -.03 | .23 | --- | | | | | | | | | | |
| 4 | .29 | .01 | .11 | --- | | | | | | | | | |
| 5 | .12 | .89 | .22 | .02 | --- | | | | | | | | |
| 6 | -.06 | -.06 | .07 | .02 | .49 | --- | | | | | | | |
| 7 | -.01 | .20 | .10 | .17 | .07 | -.11 | --- | | | | | | |
| 8 | .17 | .34 | .26 | .17 | -.14 | -.22 | .21 | --- | | | | | |
| 9 | .14 | .48 | .16 | -.07 | -.09 | -.19 | .35 | .35 | --- | | | | |
| 10 | .02 | .02 | -.02 | .11 | -.18 | .05 | .40 | .32 | .16 | --- | | | |
| 11 | .12 | -.08 | .30 | .20 | .24 | .40 | .15 | -.03 | -.06 | .32 | --- | | |
| 12 | -.02 | -.06 | .03 | -.03 | .18 | .20 | .05 | .09 | .01 | .13 | .06 | --- | |
| 13 | -.13 | -.01 | .15 | -.10 | -.03 | .03 | -.03 | -.04 | -.03 | .23 | .06 | .46 | --- |
| 14 | -.23 | .31 | .39 | -.07 | .03 | -.01 | .01 | .05 | .11 | -.05 | .10 | .19 | .14 |
| 15 | -.37 | -.01 | .28 | -.17 | .16 | -.10 | .12 | -.08 | -.06 | .08 | .18 | .23 | .16 |
| 16 | -.16 | -.00 | .12 | -.13 | .38 | .41 | -.14 | -.26 | -.25 | .00 | .23 | .41 | .04 |
| 17 | -.22 | -.04 | .05 | -.28 | .35 | .28 | -.05 | -.13 | -.08 | .06 | .29 | .23 | -.07 |
| 18 | -.04 | -.07 | .23 | .25 | -.22 | .05 | .06 | .27 | -.02 | .26 | .11 | -.07 | .12 |
| 19 | -.01 | .08 | .20 | .09 | -.18 | -.10 | .38 | .49 | .28 | .48 | .19 | .32 | .28 |
| 20 | -.14 | -.02 | .06 | -.00 | -.12 | -.04 | .20 | .08 | .16 | .17 | .02 | .17 | .06 |
| 21 | .26 | .18 | .17 | .17 | .14 | .25 | -.00 | .12 | -.08 | .04 | .03 | -.14 | .12 |
| 22 | .32 | .11 | -.06 | .34 | .11 | .01 | .04 | .16 | .14 | .03 | .07 | .01 | -.06 |
| 23 | .24 | .26 | .29 | .34 | .21 | .05 | .03 | .29 | .15 | -.19 | -.01 | -.05 | .05 |
| 24 | .26 | .18 | -.15 | .38 | -.09 | .04 | .16 | .17 | .07 | -.10 | -.12 | -.05 | -.14 |
| 25 | .38 | -.02 | -.01 | .27 | .02 | .02 | -.06 | .07 | .12 | -.05 | .05 | -.10 | -.16 |
| 26 | .08 | -.24 | -.24 | -.01 | .16 | .39 | .02 | -.12 | -.15 | .00 | .11 | .01 | -.04 |
| 27 | .15 | .15 | .06 | .17 | -.14 | -.08 | .08 | .19 | .22 | -.06 | -.15 | -.00 | -.10 |
| 28 | .15 | .21 | .05 | .32 | -.10 | -.04 | -.06 | .23 | -.08 | .11 | -.05 | -.00 | .07 |
| 29 | .27 | .32 | .21 | .28 | -.10 | -.33 | .33 | .48 | .26 | .05 | -.16 | -.02 | .03 |
| 30 | .31 | .06 | .05 | .29 | -.12 | -.07 | .02 | .27 | .06 | -.11 | .12 | -.21 | -.13 |

*AP = Andhra Pradesh; M = Maharashtra; WB = West Bengal

^aDecimals omitted for correlations: read 14 as 0.14

Table 36 (Appendix A) (cont'd.)

| | Name of Village Sample | | | | | | | | | | | | |
|----|------------------------|--------------|--------------------|---------------|--------------------|-----------------|----------------|---------------|----------------|---------------|---------------|------------------|---------------|
| | Nervada (AP) | Kowluru (AP) | Vengalampalle (AP) | Peapally (AP) | Talla G. Padu (AP) | Anakathadu (AP) | Konidyalu (AP) | Nagatoor (AP) | 80 Bannur (AP) | Molkalla (AP) | Vempally (AP) | Kamanapalli (AP) | Kistapur (AP) |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 31 | .35 | .10 | .03 | .30 | .01 | -.02 | .05 | .22 | .10 | .06 | -.03 | .04 | .08 |
| 32 | .14 | .34 | -.07 | .03 | -.01 | -.14 | .12 | .14 | .14 | -.03 | -.17 | -.05 | -.07 |
| 33 | .31 | .10 | .08 | .38 | -.15 | -.15 | .03 | .18 | -.05 | -.05 | -.06 | -.03 | -.07 |
| 34 | -.02 | .05 | .19 | -.14 | .07 | .19 | -.19 | -.05 | .24 | -.09 | .17 | .14 | .17 |
| 35 | .11 | -.26 | -.27 | -.07 | .05 | .18 | -.01 | -.28 | -.20 | .10 | .11 | .08 | .12 |
| 36 | .01 | -.13 | -.10 | -.04 | -.06 | .15 | .10 | -.27 | -.08 | .22 | .15 | -.00 | .07 |
| 37 | .05 | .01 | -.02 | .34 | -.01 | -.05 | -.18 | -.09 | -.23 | -.40 | -.19 | -.13 | -.19 |
| 38 | -.04 | -.18 | .12 | .02 | .15 | .12 | -.20 | -.17 | -.13 | -.24 | .16 | .15 | .07 |
| 39 | -.12 | -.27 | -.03 | .23 | -.08 | .20 | -.29 | -.10 | -.30 | .02 | -.07 | -.10 | .07 |
| 40 | .06 | -.18 | -.10 | .11 | .03 | .18 | -.36 | -.11 | -.23 | -.06 | .17 | -.02 | -.01 |
| 41 | .14 | -.18 | -.05 | -.00 | .10 | .15 | -.36 | -.21 | -.18 | -.06 | .21 | .00 | .12 |
| 42 | -.10 | -.01 | .02 | -.14 | .19 | .09 | -.18 | -.19 | -.30 | -.15 | .10 | -.10 | .08 |
| 43 | -.14 | -.30 | -.12 | -.27 | .22 | .37 | -.20 | -.27 | -.35 | -.19 | .37 | .02 | -.03 |
| 44 | -.21 | -.17 | -.17 | -.28 | .04 | .12 | -.05 | -.42 | -.19 | -.03 | .05 | -.02 | .02 |
| 45 | -.01 | -.17 | -.17 | -.37 | .14 | .06 | -.13 | -.12 | -.09 | -.14 | .00 | -.08 | -.08 |
| 46 | -.06 | .08 | -.13 | -.26 | -.08 | -.15 | -.05 | -.04 | .14 | -.08 | -.20 | -.20 | -.12 |
| 47 | .03 | -.14 | -.22 | -.21 | .04 | -.08 | -.06 | .08 | .07 | -.09 | -.32 | -.11 | .01 |
| 48 | .14 | -.12 | -.16 | -.28 | .08 | .10 | -.24 | -.15 | -.02 | -.21 | .03 | .10 | -.01 |
| 49 | .02 | .04 | -.02 | .10 | -.12 | -.09 | .04 | .18 | -.11 | .02 | -.13 | .17 | .05 |
| 50 | .14 | -.10 | -.19 | -.01 | -.16 | -.11 | -.01 | .16 | -.02 | -.08 | -.15 | -.15 | -.24 |
| 51 | .10 | -.03 | -.02 | .08 | -.22 | .08 | .12 | .42 | .22 | .22 | -.08 | .01 | .01 |
| 52 | -.19 | -.14 | -.13 | -.16 | -.06 | .00 | -.06 | -.13 | -.02 | -.03 | .13 | -.00 | .06 |
| 53 | -.04 | -.17 | -.04 | .09 | -.05 | .05 | .12 | .33 | .05 | .33 | .00 | .07 | -.08 |
| 54 | -.08 | -.06 | -.26 | -.16 | -.09 | -.18 | .05 | .04 | .11 | -.16 | -.36 | -.03 | .11 |
| 55 | .04 | -.20 | -.02 | .08 | -.22 | -.07 | -.09 | .21 | .10 | .34 | -.04 | -.01 | .01 |
| 56 | -.03 | -.32 | -.05 | -.09 | -.02 | .28 | -.16 | -.19 | -.04 | .16 | .09 | .18 | .08 |
| 57 | .02 | -.07 | .14 | .03 | .12 | .21 | -.00 | .05 | .10 | .06 | -.06 | .26 | .04 |
| 58 | -.13 | -.45 | .06 | -.17 | .25 | .32 | -.09 | -.27 | -.18 | .01 | .09 | .20 | .09 |
| 59 | -.21 | -.35 | .19 | -.08 | .21 | .21 | -.06 | -.34 | -.28 | .07 | .08 | .17 | .15 |
| 60 | .06 | -.23 | -.28 | -.06 | -.08 | .02 | -.29 | -.14 | -.03 | -.04 | -.06 | -.06 | -.06 |
| 61 | .15 | .01 | .12 | -.07 | .07 | .09 | -.16 | -.01 | -.02 | .07 | .22 | .08 | .23 |
| 62 | -.11 | .06 | .18 | -.06 | -.06 | -.04 | -.08 | .23 | .01 | -.06 | -.20 | -.03 | -.11 |
| 63 | .24 | .04 | .01 | -.06 | -.22 | -.17 | .01 | .13 | .08 | .07 | -.12 | -.03 | -.18 |
| 64 | -.19 | .10 | .22 | -.15 | -.15 | -.05 | -.00 | .19 | .14 | .07 | -.14 | .05 | .14 |
| 65 | -.15 | .05 | .26 | -.15 | .19 | .22 | -.11 | .06 | -.00 | .02 | .18 | .06 | .10 |

Table 36 (Appendix A) (cont'd.)

| | Name of Village Sample | | | | | | | | | | | | |
|-----|------------------------|--------------|--------------------|---------------|--------------------|-----------------|----------------|---------------|----------------|---------------|---------------|------------------|---------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| | Nervada (AP) | Kowluru (AP) | Vengalampalle (AP) | Peapally (AP) | Talla G. Padu (AP) | Anakathadu (AP) | Konidyalu (AP) | Nagatoor (AP) | 80 Bannur (AP) | Molkalla (AP) | Vempally (AP) | Kananapalli (AP) | Kistapur (AP) |
| 66 | -.03 | -.20 | -.01 | -.20 | .13 | .23 | -.14 | -.31 | -.06 | .02 | .09 | .00 | .02 |
| 67 | -.34 | -.32 | -.11 | -.29 | .12 | .24 | -.17 | -.26 | -.13 | .02 | -.04 | .34 | .01 |
| 68 | -.13 | -.24 | -.35 | -.23 | -.11 | -.01 | -.21 | -.19 | -.17 | -.26 | -.42 | .12 | .05 |
| 69 | -.05 | -.02 | -.03 | -.11 | -.35 | -.29 | .30 | -.07 | .27 | .15 | -.07 | -.33 | -.07 |
| 70 | -.08 | -.09 | -.01 | .10 | -.14 | -.09 | -.07 | -.19 | .00 | -.12 | .09 | .21 | .21 |
| 71 | -.02 | .29 | -.22 | .03 | .00 | -.12 | .11 | .14 | .14 | -.13 | -.49 | .12 | -.09 |
| 72 | -.28 | -.21 | -.10 | -.20 | .13 | .07 | -.04 | -.17 | -.11 | -.30 | -.22 | -.09 | -.23 |
| 73 | -.13 | .19 | -.11 | -.12 | -.19 | .03 | -.02 | -.17 | .07 | -.06 | -.03 | .07 | -.15 |
| 74 | -.15 | -.08 | -.03 | -.16 | .10 | -.18 | -.17 | -.22 | -.13 | -.19 | -.05 | -.26 | -.23 |
| 75 | -.32 | .03 | .12 | -.14 | .15 | -.03 | -.02 | -.25 | -.17 | -.14 | -.06 | .02 | .14 |
| 76 | -.37 | .14 | .08 | -.33 | -.15 | -.30 | -.02 | -.12 | -.01 | -.08 | -.03 | -.17 | .03 |
| 77 | -.26 | -.10 | -.05 | -.23 | -.03 | .04 | -.21 | -.05 | -.12 | -.19 | .05 | .06 | -.18 |
| 78 | -.26 | -.04 | -.11 | -.21 | -.22 | -.15 | -.23 | -.09 | -.01 | -.16 | -.06 | -.06 | -.04 |
| 79 | .16 | -.04 | -.05 | .20 | -.20 | -.32 | .09 | -.08 | -.05 | -.09 | .08 | -.16 | .07 |
| 80 | -.16 | -.10 | -.34 | -.20 | -.00 | .18 | -.05 | -.16 | -.04 | -.01 | .04 | -.11 | -.12 |
| 81 | .08 | -.02 | -.18 | .16 | -.23 | -.20 | .02 | -.12 | -.04 | -.13 | -.20 | -.10 | .04 |
| 82 | -.07 | -.03 | -.09 | -.09 | -.07 | -.29 | .01 | -.15 | -.15 | -.15 | -.14 | -.30 | -.24 |
| 83 | -.19 | -.21 | -.13 | -.08 | .15 | .05 | -.05 | -.19 | -.29 | -.19 | -.46 | -.14 | -.14 |
| 84 | -.08 | -.23 | -.07 | -.15 | .40 | .03 | -.06 | -.43 | -.28 | -.25 | -.03 | .07 | .12 |
| 85 | .00 | -.18 | -.09 | -.09 | -.15 | -.07 | -.08 | -.17 | -.04 | -.13 | -.11 | -.06 | .22 |
| 86 | -.12 | -.30 | -.05 | -.13 | -.17 | -.15 | -.17 | -.29 | -.25 | -.01 | -.17 | -.12 | .13 |
| 87 | -.14 | -.13 | -.03 | -.18 | .14 | .17 | -.16 | -.23 | -.10 | -.15 | .18 | -.07 | -.20 |
| 88 | -.09 | -.18 | -.05 | -.25 | .06 | -.14 | -.06 | -.38 | -.24 | -.35 | -.22 | -.17 | -.02 |
| 89 | -.16 | -.01 | -.19 | -.13 | .11 | .16 | -.01 | -.18 | -.18 | .06 | .08 | -.12 | -.25 |
| 90 | .03 | .03 | -.11 | -.19 | .07 | -.04 | -.12 | -.11 | -.16 | -.13 | -.13 | -.18 | -.18 |
| 91 | .07 | .08 | -.11 | .09 | -.07 | -.07 | .05 | .12 | -.06 | .11 | .04 | -.43 | -.28 |
| 92 | .06 | .20 | -.10 | -.01 | -.16 | -.17 | -.05 | -.02 | .08 | -.08 | -.25 | -.21 | -.25 |
| 93 | -.17 | .19 | -.11 | -.16 | -.10 | -.06 | .05 | -.10 | -.07 | .06 | .06 | -.21 | -.22 |
| 94 | -.07 | -.06 | -.24 | -.09 | .03 | -.03 | -.10 | -.34 | -.18 | -.29 | -.03 | -.07 | -.18 |
| 95 | -.23 | .20 | .03 | -.00 | -.27 | -.33 | .08 | .03 | .11 | -.14 | -.27 | .01 | .10 |
| 96 | -.02 | .06 | -.10 | .24 | -.28 | -.30 | -.23 | -.09 | -.01 | -.19 | -.29 | -.09 | -.08 |
| 97 | -.07 | -.32 | -.24 | -.17 | .06 | .05 | -.14 | -.06 | -.24 | -.12 | -.05 | .11 | -.11 |
| 98 | -.02 | -.05 | -.19 | -.09 | .17 | .04 | -.03 | -.21 | -.05 | -.04 | -.16 | -.11 | -.24 |
| 99 | -.21 | -.02 | -.09 | .06 | -.22 | -.10 | -.03 | -.01 | -.06 | -.12 | -.30 | -.19 | -.25 |
| 100 | -.11 | -.11 | .10 | .07 | .08 | .17 | .06 | -.15 | -.08 | -.06 | .16 | -.09 | -.29 |

Table 36 (Appendix A) (cont'd.)

| Name of Village Sample | | | | | | | | | | | | | |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| Monkapur (AP) | | | | | | | | | | | | | |
| Nagalkonda (AP) | | | | | | | | | | | | | |
| Dasnapur (AP) | | | | | | | | | | | | | |
| Wadagoan (AP) | | | | | | | | | | | | | |
| Dingapur (AP) | | | | | | | | | | | | | |
| Indhanapalli (AP) | | | | | | | | | | | | | |
| Murimadugu (AP) | | | | | | | | | | | | | |
| Y. V. Lanka (AP) | | | | | | | | | | | | | |
| Navarasapuram (AP) | | | | | | | | | | | | | |
| Ilakaparru (AP) | | | | | | | | | | | | | |
| Sirigalapatti (AP) | | | | | | | | | | | | | |
| Dommeru (AP) | | | | | | | | | | | | | |
| I. Pangadi (AP) | | | | | | | | | | | | | |
| 14 | --- | | | | | | | | | | | | |
| 15 | .64 | --- | | | | | | | | | | | |
| 16 | .55 | .55 | --- | | | | | | | | | | |
| 17 | .44 | .64 | .76 | --- | | | | | | | | | |
| 18 | .08 | -.11 | -.19 | -.22 | --- | | | | | | | | |
| 19 | .11 | .11 | -.18 | -.04 | .51 | --- | | | | | | | |
| 20 | .04 | -.07 | -.12 | -.10 | .28 | .32 | --- | | | | | | |
| 21 | -.20 | -.35 | -.16 | -.10 | .10 | -.02 | -.11 | --- | | | | | |
| 22 | .03 | -.04 | .10 | .04 | -.05 | -.05 | .29 | .25 | --- | | | | |
| 23 | .14 | -.21 | -.16 | -.26 | .16 | -.03 | -.11 | .42 | .24 | --- | | | |
| 24 | -.13 | -.33 | -.10 | -.16 | .06 | -.02 | -.16 | .31 | .39 | .25 | --- | | |
| 25 | -.15 | -.23 | -.23 | -.17 | .11 | .07 | -.18 | .15 | .12 | .22 | .28 | --- | |
| 26 | -.36 | -.25 | -.13 | .03 | .06 | -.01 | -.20 | .21 | .24 | -.03 | .14 | .06 | --- |
| 27 | .08 | -.01 | -.13 | -.12 | .23 | .25 | -.02 | -.01 | .09 | .27 | .21 | .75 | -.06 |
| 28 | .04 | -.13 | -.10 | -.12 | .16 | .16 | -.17 | .29 | .25 | .12 | .27 | .39 | .04 |
| 29 | -.05 | -.19 | -.36 | -.17 | .13 | .24 | -.05 | .11 | .19 | .42 | .42 | .24 | .02 |
| 30 | -.22 | -.26 | -.25 | -.40 | .22 | -.00 | -.03 | .29 | .44 | .25 | .41 | .22 | .22 |
| 31 | -.10 | -.16 | -.12 | -.18 | .03 | .03 | -.26 | .38 | .43 | .27 | .52 | .35 | .40 |
| 32 | -.12 | -.19 | -.14 | -.01 | -.25 | -.13 | -.14 | .21 | .24 | .15 | .29 | .06 | -.06 |
| 33 | -.19 | -.31 | -.32 | -.19 | .13 | .06 | -.07 | -.01 | -.09 | .19 | .24 | .20 | -.07 |
| 34 | .00 | -.15 | .14 | -.13 | -.07 | -.14 | -.02 | -.23 | -.06 | .03 | -.14 | -.17 | -.14 |
| 35 | -.13 | .00 | .06 | -.00 | -.20 | -.22 | -.16 | .11 | -.13 | -.02 | -.10 | -.10 | .10 |
| 36 | -.01 | -.12 | .09 | -.13 | .08 | -.08 | -.09 | -.04 | -.13 | .00 | -.21 | -.17 | .07 |
| 37 | .03 | -.21 | -.15 | -.24 | -.08 | -.18 | -.13 | .05 | -.06 | .17 | .22 | -.04 | -.08 |
| 38 | -.33 | -.15 | -.10 | -.09 | -.07 | -.12 | -.17 | -.21 | -.26 | -.10 | -.09 | -.07 | -.12 |
| 39 | .05 | .03 | .19 | .02 | -.11 | .01 | -.16 | .13 | -.23 | .19 | .02 | -.11 | .01 |
| 40 | -.06 | .05 | .07 | .15 | .04 | .02 | -.19 | .05 | -.25 | .07 | .15 | .04 | .02 |
| 41 | -.29 | -.08 | -.09 | -.02 | .03 | -.11 | -.17 | .01 | -.24 | -.09 | -.02 | .03 | -.11 |
| 42 | -.31 | -.28 | -.09 | -.15 | -.09 | -.20 | -.09 | .03 | -.26 | -.18 | -.15 | -.09 | -.20 |
| 43 | -.17 | -.36 | -.18 | -.10 | -.06 | .18 | -.23 | -.24 | -.41 | -.30 | -.10 | -.06 | .18 |
| 44 | -.43 | -.50 | -.30 | -.44 | -.29 | -.12 | -.24 | -.24 | -.35 | -.17 | -.44 | -.29 | -.12 |
| 45 | .05 | -.19 | -.16 | -.17 | -.15 | .01 | -.28 | -.37 | -.22 | -.17 | -.17 | -.15 | .01 |
| 46 | -.12 | -.12 | -.17 | -.17 | -.06 | -.25 | -.07 | -.16 | -.08 | .04 | -.17 | -.06 | -.25 |
| 47 | .13 | .02 | .04 | -.15 | -.05 | -.05 | -.06 | -.13 | -.04 | -.04 | -.15 | -.05 | -.05 |
| 48 | -.02 | -.04 | .12 | .09 | -.12 | .04 | -.13 | .15 | .02 | -.01 | -.17 | -.08 | .03 |

Table 36 (Appendix A) (cont'd.)

| Name of Village Sample | Monkapur (AP) | Nagalkonda (AP) | Dasnapur (AP) | Wadagoan (AP) | Dingapur (AP) | Indhanapalli (AP) | Murimadugu (AP) | Y. V. Lanka (AP) | Navarasapuram (AP) | Ilakapattu (AP) | Sirigalapatti (AP) | Dommeru (AP) | I. Pangadi (AP) |
|------------------------|---------------|-----------------|---------------|---------------|---------------|-------------------|-----------------|------------------|--------------------|-----------------|--------------------|--------------|-----------------|
| | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 49 | -.05 | -.08 | -.03 | -.17 | .02 | .21 | .18 | -.09 | -.26 | -.04 | .16 | .02 | -.19 |
| 50 | -.31 | -.29 | -.27 | -.20 | .00 | -.08 | -.01 | -.02 | -.15 | -.08 | .14 | .08 | .07 |
| 51 | -.09 | -.27 | -.25 | -.25 | .45 | .23 | .22 | .21 | .06 | .22 | .22 | .03 | -.00 |
| 52 | -.15 | -.06 | .04 | -.07 | -.14 | -.15 | .16 | -.24 | -.14 | -.29 | -.29 | -.29 | -.21 |
| 53 | -.22 | -.05 | -.17 | -.11 | .44 | .52 | .40 | -.18 | -.19 | -.17 | -.17 | .08 | -.06 |
| 54 | -.24 | -.15 | -.25 | -.26 | -.03 | -.03 | .12 | -.05 | .02 | .04 | .01 | -.05 | .02 |
| 55 | -.05 | -.08 | -.22 | -.12 | .41 | .35 | .27 | -.03 | -.22 | .02 | -.05 | .16 | -.06 |
| 56 | -.04 | .04 | .14 | .15 | -.03 | -.02 | .10 | .04 | -.01 | -.25 | -.14 | -.05 | .32 |
| 57 | .16 | .01 | .13 | .12 | .06 | .07 | .12 | .14 | -.18 | .14 | .14 | .06 | -.00 |
| 58 | .01 | .28 | .29 | .32 | -.17 | -.06 | .02 | .05 | -.16 | -.23 | -.23 | -.02 | .09 |
| 59 | .17 | .46 | .44 | .22 | -.09 | -.13 | -.05 | -.17 | -.09 | -.28 | -.29 | -.13 | -.12 |
| 60 | -.22 | -.15 | .09 | -.03 | -.04 | -.14 | .06 | .01 | -.06 | -.15 | -.10 | .15 | .00 |
| 61 | .20 | .04 | .14 | .05 | .09 | .04 | .51 | -.11 | -.22 | .05 | -.33 | -.11 | -.23 |
| 62 | -.12 | -.31 | -.15 | -.26 | .15 | .10 | .13 | .14 | -.09 | .03 | -.05 | -.15 | -.23 |
| 63 | -.21 | -.22 | -.20 | -.16 | -.10 | .11 | .09 | -.01 | -.19 | -.14 | -.08 | .16 | -.08 |
| 64 | .11 | -.01 | -.16 | -.24 | .20 | .22 | .13 | -.10 | -.22 | -.09 | -.23 | -.04 | -.37 |
| 65 | .05 | .09 | .04 | .02 | .00 | .14 | .15 | -.05 | -.25 | -.19 | -.26 | .02 | -.15 |
| 66 | -.00 | .10 | .22 | .20 | -.01 | -.16 | .10 | -.05 | -.23 | -.33 | -.23 | .04 | -.23 |
| 67 | .00 | .10 | .37 | .27 | -.12 | -.11 | .34 | -.16 | -.30 | -.29 | -.29 | -.06 | -.15 |
| 68 | .08 | .00 | .09 | .06 | -.02 | -.16 | .18 | -.30 | -.23 | -.16 | -.08 | -.13 | .03 |
| 69 | -.22 | -.19 | -.33 | -.24 | -.04 | .01 | -.15 | -.13 | .06 | -.15 | .04 | -.05 | -.00 |
| 70 | .22 | -.03 | .11 | .04 | .05 | .29 | .02 | -.04 | .21 | .01 | .13 | -.01 | .03 |
| 71 | -.01 | -.19 | -.16 | -.24 | -.18 | -.03 | .18 | .10 | -.12 | .14 | .06 | .01 | -.19 |
| 72 | -.21 | .07 | -.09 | .08 | -.20 | -.19 | .01 | -.03 | -.21 | -.17 | .05 | -.00 | .21 |
| 73 | .22 | .21 | .19 | .23 | -.26 | -.13 | .13 | -.11 | .04 | -.24 | .02 | -.19 | .06 |
| 74 | -.06 | -.02 | -.08 | .06 | -.11 | -.14 | .09 | -.11 | -.18 | -.09 | -.29 | -.14 | -.10 |
| 75 | .31 | .31 | .32 | .31 | .04 | -.10 | .13 | -.08 | -.10 | -.14 | -.10 | -.12 | -.23 |
| 76 | .36 | .36 | .09 | .23 | -.14 | -.04 | .14 | -.23 | -.24 | -.06 | -.44 | -.20 | -.42 |
| 77 | .23 | .12 | .26 | .36 | -.13 | -.11 | -.03 | -.12 | -.03 | -.05 | -.23 | -.17 | -.09 |
| 78 | .24 | .20 | .13 | .20 | -.27 | -.14 | .01 | -.24 | -.05 | -.04 | -.34 | -.16 | -.24 |
| 79 | -.21 | -.18 | -.41 | -.38 | .01 | -.06 | -.29 | .05 | .06 | .22 | .17 | .22 | .08 |
| 80 | -.41 | -.25 | -.23 | .03 | -.15 | -.02 | .13 | -.01 | -.16 | -.28 | -.25 | -.16 | .35 |
| 81 | .14 | .17 | .09 | -.05 | -.06 | -.16 | -.08 | -.16 | .00 | .08 | .16 | -.11 | -.17 |
| 82 | -.11 | .12 | -.02 | .04 | -.30 | -.30 | -.13 | -.15 | -.24 | -.12 | -.01 | -.07 | -.03 |
| 83 | -.27 | -.16 | -.09 | -.15 | .01 | -.25 | .30 | .18 | -.23 | -.05 | .02 | -.02 | .19 |

Table 36 (Appendix A) (cont'd.)

| | Name of Village Sample | | | | | | | | | | | | |
|-----|------------------------|-----------------|---------------|---------------|---------------|-------------------|-----------------|------------------|--------------------|-----------------|--------------------|--------------|-----------------|
| | Monkapur (AP) | Nagalkonda (AP) | Dasnapur (AP) | Wadagoan (AP) | Dingapur (AP) | Indhanapalli (AP) | Murimadugu (AP) | Y. V. Lanka (AP) | Navarasapuram (AP) | Ilakapattu (AP) | Sirigalapatti (AP) | Dommeru (AP) | I. Pangadi (AP) |
| | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 84 | -.10 | .21 | .21 | .25 | -.35 | -.28 | -.08 | -.03 | -.01 | -.28 | -.15 | -.03 | .09 |
| 85 | -.01 | -.03 | -.06 | -.10 | .13 | -.02 | -.04 | .03 | .15 | -.15 | -.14 | .02 | .20 |
| 86 | .00 | .12 | .07 | -.01 | .25 | -.13 | .04 | -.01 | .16 | -.24 | -.17 | -.12 | .10 |
| 87 | .14 | .18 | .25 | .33 | -.20 | .04 | -.20 | -.12 | -.08 | -.24 | -.15 | -.08 | .17 |
| 88 | -.19 | .10 | -.09 | .06 | -.25 | -.30 | -.22 | -.04 | -.21 | -.19 | -.10 | -.09 | .14 |
| 89 | -.14 | -.04 | .02 | .05 | -.20 | -.16 | -.13 | -.11 | .10 | -.23 | -.16 | -.05 | .29 |
| 90 | -.08 | .11 | .10 | .24 | -.33 | -.27 | -.14 | .02 | -.03 | -.32 | -.23 | -.23 | .11 |
| 91 | -.35 | -.27 | -.32 | -.28 | .14 | -.09 | -.08 | .12 | .17 | -.06 | .11 | -.06 | .28 |
| 92 | -.06 | -.08 | -.15 | -.10 | -.09 | -.17 | -.20 | -.09 | .05 | -.13 | -.03 | -.20 | .23 |
| 93 | -.09 | .01 | -.00 | -.02 | .03 | -.09 | -.12 | -.13 | .17 | -.25 | .11 | -.14 | -.06 |
| 94 | -.13 | .02 | .04 | .12 | -.22 | -.27 | -.12 | -.07 | .12 | -.20 | -.01 | -.10 | .41 |
| 95 | .28 | .23 | -.11 | -.04 | -.07 | -.07 | -.05 | -.23 | -.01 | .21 | .08 | -.19 | -.37 |
| 96 | -.03 | -.20 | -.18 | -.38 | -.11 | -.26 | .07 | -.25 | -.05 | .12 | -.10 | -.07 | -.30 |
| 97 | -.01 | .13 | .24 | .42 | -.25 | -.20 | -.17 | .10 | -.27 | -.07 | -.08 | -.11 | .32 |
| 98 | -.15 | .03 | .14 | .27 | -.18 | -.34 | -.09 | -.09 | .04 | -.18 | .02 | -.06 | -.08 |
| 99 | -.19 | -.20 | -.12 | -.23 | .06 | -.22 | .04 | .09 | .01 | .06 | .27 | -.08 | -.13 |
| 100 | -.02 | .08 | .13 | .23 | -.25 | -.23 | -.18 | .18 | .18 | .04 | .25 | -.05 | .20 |

Table 36 (Appendix A) (cont'd.)

| Name of Village Sample | | | | | | | | | | | | | | |
|------------------------|----|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Purushottampalli (AP) | 27 | | | | | | | | | | | | | |
| Pandulaparru (AP) | 28 | | | | | | | | | | | | | |
| Polamuru (AP) | 29 | | | | | | | | | | | | | |
| Mamiduru (AP) | 30 | | | | | | | | | | | | | |
| Manchili (AP) | 31 | | | | | | | | | | | | | |
| Kanchumarru (AP) | 32 | | | | | | | | | | | | | |
| Mundhari B. K. (M) | 33 | | | | | | | | | | | | | |
| Boragoan (M) | 34 | | | | | | | | | | | | | |
| Devada K. D. (M) | 35 | | | | | | | | | | | | | |
| Nilaj B. K. (M) | 36 | | | | | | | | | | | | | |
| Kattipar (M) | 37 | | | | | | | | | | | | | |
| Nangapar (M) | 38 | | | | | | | | | | | | | |
| Kikripar (M) | 39 | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | |
|----|------|------|------|------|------|------|------|------|------|------|------|------|------|--|
| 27 | --- | | | | | | | | | | | | | |
| 28 | .36 | --- | | | | | | | | | | | | |
| 29 | .35 | .16 | --- | | | | | | | | | | | |
| 30 | .21 | .34 | .38 | --- | | | | | | | | | | |
| 31 | .29 | .46 | .50 | .54 | --- | | | | | | | | | |
| 32 | .28 | .47 | .29 | .35 | .32 | --- | | | | | | | | |
| 33 | .13 | .08 | .25 | .06 | .01 | .01 | --- | | | | | | | |
| 34 | -.25 | -.27 | -.21 | -.13 | -.37 | -.12 | .03 | --- | | | | | | |
| 35 | -.18 | -.22 | -.28 | -.26 | -.15 | -.17 | .01 | .05 | --- | | | | | |
| 36 | -.25 | -.25 | -.29 | -.20 | -.26 | -.16 | .14 | .21 | .48 | --- | | | | |
| 37 | -.13 | -.00 | .01 | -.02 | .01 | -.01 | .50 | .01 | -.06 | .04 | --- | | | |
| 38 | -.17 | -.21 | -.26 | -.24 | -.27 | -.16 | .11 | .51 | .12 | .24 | .19 | --- | | |
| 39 | -.16 | .13 | -.23 | -.03 | .01 | -.16 | .01 | .19 | .30 | .41 | .23 | .22 | --- | |
| 40 | -.19 | .05 | -.25 | .03 | -.03 | -.12 | -.11 | .35 | .05 | .24 | .16 | .34 | .62 | |
| 41 | -.17 | .01 | -.24 | -.05 | -.12 | -.14 | -.18 | .42 | .06 | .13 | .06 | .40 | .31 | |
| 42 | -.09 | .03 | -.26 | -.20 | -.30 | -.07 | -.10 | .28 | -.01 | .03 | -.01 | .32 | .14 | |
| 43 | -.23 | -.24 | -.41 | -.15 | -.31 | -.21 | -.24 | .38 | .23 | .12 | -.14 | .40 | .07 | |
| 44 | -.24 | -.24 | -.35 | -.38 | -.40 | -.14 | -.30 | .14 | .25 | .12 | -.04 | .16 | .06 | |
| 45 | -.28 | -.37 | -.22 | -.12 | -.25 | -.26 | -.25 | .18 | .38 | .29 | -.07 | .10 | .11 | |
| 46 | -.07 | -.16 | -.08 | .03 | -.36 | .04 | -.23 | .22 | -.06 | .17 | -.10 | -.05 | -.04 | |
| 47 | -.05 | -.13 | -.04 | -.01 | -.23 | -.20 | -.21 | -.03 | .14 | .02 | -.02 | -.25 | .11 | |
| 48 | -.14 | -.22 | -.25 | -.01 | -.19 | -.13 | .02 | .21 | .28 | .15 | -.03 | -.03 | -.01 | |
| 49 | .10 | .11 | .34 | -.02 | -.08 | .06 | .48 | .01 | -.03 | -.12 | .31 | -.08 | -.05 | |
| 50 | -.03 | -.02 | .17 | .21 | .05 | .14 | -.02 | -.15 | -.18 | -.02 | -.16 | -.12 | -.18 | |
| 51 | .06 | -.03 | .26 | .26 | .08 | -.06 | -.02 | .01 | .00 | -.01 | -.16 | -.40 | .11 | |
| 52 | -.23 | -.29 | -.32 | -.01 | -.43 | -.11 | -.21 | -.38 | .17 | .19 | -.17 | .18 | -.11 | |
| 53 | .27 | .06 | -.02 | .00 | -.15 | -.23 | .09 | -.12 | -.03 | -.10 | -.24 | -.17 | -.10 | |
| 54 | .14 | -.10 | .03 | .07 | -.04 | -.03 | .12 | -.05 | .06 | .04 | -.00 | .01 | .01 | |
| 55 | .12 | .16 | .06 | .04 | .02 | -.16 | -.03 | .09 | -.02 | .04 | -.15 | -.26 | .19 | |
| 56 | -.19 | -.22 | -.30 | -.13 | -.03 | -.27 | -.19 | .13 | .28 | .19 | -.21 | .03 | .26 | |
| 57 | -.03 | -.09 | -.12 | -.08 | -.02 | -.13 | -.06 | .05 | .06 | .03 | .03 | .07 | .09 | |
| 58 | -.11 | -.27 | -.33 | -.30 | -.09 | -.34 | -.26 | -.10 | .31 | .16 | -.09 | .19 | .21 | |
| 59 | -.10 | -.22 | -.27 | -.30 | -.02 | -.27 | -.21 | .06 | .22 | .18 | -.15 | .26 | .24 | |
| 60 | .01 | .00 | -.21 | .09 | .02 | -.19 | -.24 | -.05 | .14 | .05 | -.16 | .00 | .10 | |
| 61 | -.09 | -.19 | -.14 | -.01 | -.21 | -.24 | -.17 | .07 | .09 | .21 | -.14 | .08 | .08 | |
| 62 | -.07 | -.08 | .02 | .05 | -.15 | .04 | .10 | .10 | -.08 | .14 | .17 | -.02 | .07 | |

Table 36 (Appendix A) (cont'd.)

| Name of Village Sample | | | | | | | | | | | | | |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Purushottampalli (AP) | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
| Pandulaparru (AP) | | | | | | | | | | | | | |
| Polamuru (AP) | | | | | | | | | | | | | |
| Mamiduru (AP) | | | | | | | | | | | | | |
| Mandhili (AP) | | | | | | | | | | | | | |
| Kanchumarru (AP) | | | | | | | | | | | | | |
| Mundhari B. K. (M) | | | | | | | | | | | | | |
| Boragoan (M) | | | | | | | | | | | | | |
| Devada K. D. (M) | | | | | | | | | | | | | |
| Nilaj B. K. (M) | | | | | | | | | | | | | |
| Kattipar (M) | | | | | | | | | | | | | |
| Nangapar (M) | | | | | | | | | | | | | |
| Kikripar (M) | | | | | | | | | | | | | |
| 63 | .11 | -.00 | .03 | -.12 | -.06 | -.02 | -.03 | -.06 | -.04 | .08 | -.06 | -.11 | -.19 |
| 64 | .01 | -.04 | -.07 | -.15 | -.27 | -.12 | -.15 | .17 | -.12 | .09 | -.02 | .11 | .07 |
| 65 | -.02 | -.14 | -.39 | -.21 | -.26 | -.21 | -.22 | .08 | .00 | -.03 | -.07 | .14 | -.19 |
| 66 | -.08 | -.23 | -.41 | -.24 | -.38 | -.31 | -.36 | .19 | .20 | .13 | -.15 | .14 | -.04 |
| 67 | -.20 | -.32 | -.18 | -.24 | -.42 | -.25 | -.35 | .17 | .15 | .09 | -.19 | .09 | -.01 |
| 68 | .00 | -.22 | .13 | .08 | -.07 | -.21 | -.21 | -.05 | -.03 | -.10 | .12 | .04 | .12 |
| 69 | -.04 | -.17 | -.14 | -.05 | -.04 | -.17 | .20 | .04 | -.12 | .13 | .01 | -.04 | -.28 |
| 70 | -.06 | .12 | .09 | -.17 | .06 | -.12 | -.03 | .08 | -.09 | .09 | .09 | .06 | .09 |
| 71 | .14 | .16 | -.05 | .02 | -.15 | .06 | .07 | -.07 | .02 | -.24 | .12 | -.21 | -.13 |
| 72 | -.07 | -.06 | -.14 | -.04 | .08 | .03 | -.06 | -.11 | .03 | -.16 | .09 | -.09 | .06 |
| 73 | -.14 | -.03 | -.08 | -.14 | -.05 | .08 | -.08 | -.05 | -.07 | -.05 | -.06 | -.18 | -.01 |
| 74 | -.19 | -.15 | -.24 | -.33 | -.18 | -.03 | .01 | -.16 | -.17 | -.19 | .17 | -.09 | -.18 |
| 75 | -.08 | -.13 | -.24 | -.34 | -.20 | -.11 | -.18 | -.03 | -.09 | -.06 | -.05 | .06 | -.08 |
| 76 | -.00 | -.17 | -.35 | -.30 | -.40 | -.08 | -.18 | -.04 | -.15 | -.04 | -.03 | -.04 | -.09 |
| 77 | -.16 | -.24 | -.17 | -.24 | -.31 | -.18 | -.15 | .19 | -.13 | -.10 | .17 | .08 | .03 |
| 78 | -.06 | -.13 | .30 | .15 | -.28 | -.13 | -.25 | .11 | -.09 | -.14 | .03 | .01 | .09 |
| 79 | .10 | .16 | -.19 | -.05 | .16 | -.35 | .46 | -.12 | .03 | -.02 | .14 | .05 | -.22 |
| 80 | -.16 | -.22 | .05 | -.17 | -.09 | -.07 | -.18 | -.07 | -.04 | -.10 | -.02 | -.09 | -.13 |
| 81 | .02 | -.13 | .11 | -.19 | .04 | -.10 | -.05 | -.17 | .20 | -.10 | .24 | -.04 | .12 |
| 82 | -.08 | -.15 | -.00 | -.17 | -.01 | -.01 | -.07 | -.21 | .05 | -.06 | -.16 | .05 | -.07 |
| 83 | -.07 | -.01 | .00 | -.17 | .11 | -.05 | .05 | -.24 | .06 | .01 | .24 | -.00 | .17 |
| 84 | -.09 | -.03 | -.29 | -.25 | .00 | -.13 | -.19 | -.09 | .17 | -.05 | .01 | .16 | -.05 |
| 85 | -.11 | .04 | -.14 | -.27 | -.04 | -.17 | -.06 | .04 | -.01 | .09 | -.11 | -.05 | .15 |
| 86 | -.09 | -.06 | -.20 | -.12 | -.05 | -.22 | -.01 | -.09 | -.09 | .07 | -.04 | -.08 | .14 |
| 87 | -.12 | -.07 | -.29 | -.14 | -.02 | -.05 | -.12 | -.05 | -.05 | -.05 | .07 | -.12 | -.00 |
| 88 | -.10 | -.15 | -.14 | -.09 | -.01 | .02 | .10 | -.23 | .06 | -.08 | .10 | -.06 | -.27 |
| 89 | -.05 | .15 | -.05 | -.05 | -.09 | .27 | -.01 | -.20 | -.09 | -.14 | -.03 | -.13 | -.21 |
| 90 | -.19 | .03 | -.29 | -.02 | -.11 | .25 | -.05 | -.16 | -.05 | -.22 | .05 | .01 | -.23 |
| 91 | -.15 | -.02 | .12 | .18 | .11 | .07 | .19 | -.13 | -.02 | .13 | -.05 | -.09 | .00 |
| 92 | -.19 | -.15 | .09 | -.08 | .04 | .08 | .34 | -.04 | -.06 | .05 | .26 | .04 | -.09 |
| 93 | -.08 | -.07 | .03 | .08 | -.09 | .29 | .01 | .01 | -.28 | -.18 | -.04 | -.09 | -.35 |
| 94 | -.13 | .02 | -.13 | .10 | .07 | .03 | -.18 | -.04 | -.10 | -.17 | .07 | -.03 | -.24 |
| 95 | .10 | -.05 | .20 | -.03 | -.08 | .18 | .16 | .12 | -.21 | -.24 | .21 | -.17 | -.11 |
| 96 | .03 | .02 | -.00 | -.14 | -.23 | .10 | .37 | .17 | -.19 | .01 | .40 | .24 | .15 |

Table 36 (Appendix A) (cont'd.)

| Name of Village Sample | | | | | | | | | | | | | |
|------------------------|-----------------------|-------------------|---------------|---------------|---------------|------------------|--------------------|--------------|------------------|-----------------|--------------|--------------|--------------|
| | Purushottampalli (AP) | Pandulaparru (AP) | Polamuru (AP) | Mamiduru (AP) | Manchili (AP) | Kanchumarru (AP) | Mundhari B. K. (M) | Boragoan (M) | Devada K. D. (M) | Nilaj B. K. (M) | Kattipar (M) | Nangapar (M) | Kikripar (M) |
| | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
| 97 | -.15 | -.11 | -.30 | -.04 | .09 | -.10 | -.18 | -.23 | .10 | -.02 | -.10 | -.08 | .00 |
| 98 | -.07 | -.12 | -.09 | -.12 | .04 | .17 | -.24 | -.15 | -.07 | -.30 | -.09 | -.04 | -.17 |
| 99 | .04 | .08 | .07 | .10 | -.00 | .22 | .14 | .12 | -.05 | -.10 | .21 | -.00 | .01 |
| 100 | -.16 | .04 | -.03 | .13 | .21 | .18 | -.08 | -.08 | -.07 | -.15 | .09 | -.03 | .08 |

Table 36 (Appendix A) (cont'd.)

| Name of Village | Malai (M) | Rajegaon (M) | Satona (M) | Sejagaon (M) | Kohka (M) | Yeoti (M) | Wanoja (M) | Pimpalkhuti (M) | Sheli (M) | Hatala (M) | Mulwa (M) | Pophali (M) | Bar (M) |
|-----------------|-----------|--------------|------------|--------------|-----------|-----------|------------|-----------------|-----------|------------|-----------|-------------|---------|
| 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | |
| 40 | --- | | | | | | | | | | | | |
| 41 | .54 | --- | | | | | | | | | | | |
| 42 | .24 | .55 | --- | | | | | | | | | | |
| 43 | .36 | .53 | .53 | --- | | | | | | | | | |
| 44 | .11 | .37 | .40 | .51 | --- | | | | | | | | |
| 45 | .21 | .14 | -.04 | .28 | .06 | --- | | | | | | | |
| 46 | .09 | .05 | .04 | .02 | .10 | .55 | --- | | | | | | |
| 47 | .02 | -.12 | -.10 | -.06 | -.08 | .46 | .42 | --- | | | | | |
| 48 | .08 | .10 | .03 | .26 | .10 | .48 | .29 | .37 | --- | | | | |
| 49 | .00 | .05 | .03 | .08 | .11 | .04 | .19 | .19 | .00 | --- | | | |
| 50 | -.23 | -.26 | -.20 | -.11 | -.21 | -.02 | .05 | .18 | -.07 | .13 | --- | | |
| 51 | -.01 | -.17 | -.19 | -.19 | -.38 | .14 | .22 | .49 | .16 | .27 | .25 | --- | |
| 52 | .04 | .26 | .10 | .33 | .25 | .32 | .34 | .14 | .19 | .15 | -.01 | .04 | --- |
| 53 | -.18 | -.10 | -.15 | -.10 | -.03 | .01 | .15 | .23 | -.05 | .20 | .14 | .37 | .20 |
| 54 | -.23 | -.20 | -.20 | -.18 | -.11 | .15 | .23 | .24 | .09 | -.07 | .07 | .10 | .15 |
| 55 | .23 | .02 | -.31 | -.08 | .01 | .06 | .12 | .34 | -.07 | .31 | .11 | .41 | -.04 |
| 56 | .25 | .02 | -.32 | .03 | -.09 | .30 | .04 | .06 | .14 | -.13 | -.15 | .18 | .08 |
| 57 | .33 | .11 | .01 | .07 | -.07 | .09 | -.06 | -.02 | .10 | -.11 | -.15 | .18 | -.01 |
| 58 | .14 | .00 | -.25 | .13 | .07 | .49 | .11 | .25 | .18 | -.09 | -.07 | .00 | .01 |
| 59 | .17 | .07 | -.04 | .06 | .13 | .26 | .08 | .15 | .06 | -.06 | -.19 | -.06 | .16 |
| 60 | .11 | .16 | -.11 | .05 | .08 | .10 | .06 | .23 | .20 | .02 | -.03 | .04 | .22 |
| 61 | .14 | .34 | .05 | .08 | .22 | .16 | .14 | .01 | .19 | .08 | -.17 | .08 | .29 |
| 62 | -.08 | -.08 | -.05 | -.11 | -.17 | .05 | .15 | .17 | .11 | .05 | .04 | .18 | .25 |
| 63 | .02 | -.04 | -.24 | -.07 | .07 | .18 | .25 | .19 | .12 | .41 | .05 | .11 | .10 |
| 64 | -.02 | .25 | .18 | .00 | -.02 | .14 | .31 | .19 | .08 | .05 | -.24 | .12 | .17 |
| 65 | -.02 | .22 | .07 | .22 | .05 | .30 | .22 | .09 | .13 | .04 | -.18 | -.04 | .30 |
| 66 | .16 | .38 | .21 | .33 | .19 | .44 | .33 | .31 | .29 | .11 | -.18 | -.03 | .41 |
| 67 | .12 | .11 | .07 | .28 | .29 | .26 | .16 | .20 | .29 | .03 | -.10 | .01 | .42 |
| 68 | .02 | .18 | .27 | .20 | .30 | -.01 | .02 | .23 | .06 | .16 | .10 | .06 | .01 |
| 69 | -.29 | -.16 | -.10 | -.18 | .03 | -.24 | .02 | -.15 | -.15 | -.22 | .14 | -.14 | -.02 |
| 70 | .12 | .19 | .16 | .04 | -.06 | -.18 | -.17 | -.22 | -.13 | -.17 | -.14 | -.16 | -.07 |
| 71 | -.28 | -.14 | -.15 | -.16 | .06 | -.01 | .06 | .16 | .07 | .17 | -.03 | -.03 | .05 |
| 72 | -.00 | .02 | -.19 | .15 | .20 | .15 | .03 | -.01 | .04 | .03 | .06 | -.19 | -.07 |
| 73 | .03 | -.13 | -.18 | -.16 | .08 | -.06 | -.02 | -.17 | -.17 | .10 | -.05 | -.12 | -.01 |
| 74 | -.22 | -.05 | .14 | -.04 | .21 | .06 | .12 | -.01 | -.02 | -.19 | -.01 | -.39 | -.05 |
| 75 | -.05 | .00 | .25 | -.01 | -.03 | .02 | -.05 | -.22 | -.19 | -.05 | -.41 | -.29 | -.02 |

Table 36 (Appendix A) (cont'd.)

| Name of Village | Malai (M) | Rajegaon (M) | Satona (M) | Sejagaon (M) | Kohka (M) | Yeoti (M) | Wanoja (M) | Pimpalkhuti (M) | Sheli (M) | Hatala (M) | Mulwa (M) | Pophali (M) | Bar (M) |
|-----------------|-----------|--------------|------------|--------------|-----------|-----------|------------|-----------------|-----------|------------|-----------|-------------|---------|
| 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | |
| 76 | -.12 | -.10 | .26 | -.07 | .17 | -.07 | .04 | -.12 | -.14 | -.07 | -.22 | -.24 | .04 |
| 77 | .11 | -.08 | .23 | .23 | .06 | .01 | -.10 | -.09 | .09 | -.22 | -.05 | -.13 | -.10 |
| 78 | .07 | .01 | .06 | .05 | .31 | .01 | .03 | .02 | .02 | .02 | -.12 | -.17 | .03 |
| 79 | -.23 | -.14 | -.07 | -.07 | -.12 | -.30 | -.22 | -.31 | -.19 | -.08 | .22 | -.14 | -.18 |
| 80 | -.10 | -.16 | -.11 | .12 | .10 | .05 | .03 | .07 | .04 | -.09 | .06 | -.05 | .04 |
| 81 | .02 | .25 | .11 | .00 | .28 | -.12 | -.17 | .10 | -.09 | .01 | .02 | .02 | -.12 |
| 82 | -.13 | -.01 | .03 | -.02 | .26 | .06 | -.05 | -.13 | -.23 | .25 | .10 | -.15 | -.03 |
| 83 | -.19 | -.20 | -.02 | -.05 | -.03 | .12 | .03 | .13 | -.07 | -.09 | .23 | .08 | -.29 |
| 84 | -.06 | .11 | .19 | .17 | .16 | .17 | -.08 | -.10 | -.06 | -.07 | -.27 | -.55 | .07 |
| 85 | -.08 | .06 | -.05 | -.11 | -.09 | .01 | -.02 | .00 | -.14 | -.18 | -.08 | -.01 | -.14 |
| 86 | -.13 | -.04 | .08 | -.14 | -.09 | -.06 | .02 | .06 | -.14 | -.25 | .02 | -.07 | -.07 |
| 87 | .04 | .02 | .25 | .24 | .17 | .03 | -.04 | -.22 | .49 | -.12 | -.06 | -.19 | -.06 |
| 88 | -.25 | -.14 | .09 | .03 | .20 | .00 | -.09 | -.15 | -.14 | -.14 | .10 | -.30 | .12 |
| 89 | -.23 | -.17 | .11 | -.01 | .11 | -.24 | -.07 | -.13 | -.10 | -.18 | .16 | -.24 | -.15 |
| 90 | -.14 | -.17 | .06 | -.07 | .11 | -.06 | -.15 | -.14 | -.05 | .19 | .15 | -.32 | .06 |
| 91 | -.15 | -.13 | -.11 | -.10 | -.21 | -.03 | .00 | -.17 | -.22 | -.24 | .14 | .05 | .00 |
| 92 | -.24 | -.29 | -.23 | -.32 | -.16 | -.18 | -.19 | -.16 | -.07 | -.22 | .35 | -.15 | -.21 |
| 93 | -.16 | .02 | .08 | .05 | .03 | -.19 | .11 | -.28 | -.13 | -.20 | .02 | -.13 | .11 |
| 94 | -.00 | .01 | -.05 | .27 | .26 | .02 | .06 | -.01 | .07 | -.10 | .14 | -.30 | .13 |
| 95 | -.12 | -.18 | -.03 | -.30 | .06 | -.41 | -.22 | -.08 | -.28 | -.00 | .05 | -.07 | -.03 |
| 96 | .06 | -.02 | .04 | -.20 | .11 | -.42 | -.06 | -.08 | -.23 | .01 | .28 | -.22 | .06 |
| 97 | .00 | -.19 | -.07 | -.04 | -.10 | .02 | -.30 | -.05 | .03 | -.21 | -.01 | -.11 | -.01 |
| 98 | -.17 | .11 | .11 | -.00 | .18 | -.15 | -.18 | -.06 | -.14 | -.13 | -.00 | -.23 | .12 |
| 99 | .01 | -.18 | -.05 | .00 | -.01 | -.15 | .01 | -.06 | -.09 | -.04 | .10 | .06 | -.00 |
| 100 | .08 | -.19 | -.20 | .05 | .03 | -.14 | -.23 | -.27 | -.17 | -.20 | .01 | -.11 | -.16 |

Table 36 (Appendix A) (cont'd.)

| Name of Village | Singad (M) | Dabhadi (M) | Isapur (M) | Nagsevadi (M) | Hatgad (M) | Kakudmunda (M) | Hanumantnal (M) | Khed (M) | Bhatwadi (M) | Pachumbi (M) | Bambcade (M) | Jalihal (M) | Girgaon (M) |
|-----------------|------------|-------------|------------|---------------|------------|----------------|-----------------|----------|--------------|--------------|--------------|-------------|-------------|
| 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | |
| 53 | --- | | | | | | | | | | | | |
| 54 | .16 | --- | | | | | | | | | | | |
| 55 | .54 | -.12 | --- | | | | | | | | | | |
| 56 | .11 | .10 | .17 | --- | | | | | | | | | |
| 57 | .05 | -.05 | .09 | .38 | --- | | | | | | | | |
| 58 | .10 | .08 | .15 | .62 | .26 | --- | | | | | | | |
| 59 | .10 | .02 | .08 | .51 | .11 | .08 | --- | | | | | | |
| 60 | .14 | .25 | .19 | .22 | .05 | .08 | .02 | --- | | | | | |
| 61 | .26 | -.05 | .28 | .08 | .18 | .06 | .04 | .39 | --- | | | | |
| 62 | .20 | .27 | -.11 | .03 | .13 | -.10 | .05 | .29 | .09 | --- | | | |
| 63 | .14 | .03 | .24 | .10 | .05 | .05 | .01 | .35 | .22 | .39 | --- | | |
| 64 | .13 | .11 | .00 | -.01 | .15 | .03 | .12 | .34 | .24 | .57 | .36 | --- | |
| 65 | .20 | .04 | .01 | .13 | .15 | .29 | .30 | .35 | .39 | .38 | .44 | .62 | --- |
| 66 | .01 | -.08 | .08 | .14 | .23 | .38 | .36 | .37 | .31 | .06 | .30 | .44 | .51 |
| 67 | .13 | -.08 | .12 | .19 | .31 | .33 | .36 | .31 | .33 | .17 | .14 | .19 | .38 |
| 68 | .01 | .17 | -.06 | .16 | .07 | .19 | .12 | .22 | .04 | .07 | .05 | .09 | -.00 |
| 69 | -.14 | .04 | -.20 | -.16 | .23 | -.23 | -.14 | -.05 | -.30 | .15 | .16 | .07 | -.09 |
| 70 | -.31 | -.27 | -.19 | -.04 | .07 | -.14 | .20 | -.25 | -.14 | -.18 | -.31 | -.15 | -.25 |
| 71 | .05 | .25 | .02 | -.20 | .12 | -.18 | -.24 | .04 | .01 | .01 | .06 | .09 | .01 |
| 72 | -.02 | .24 | .01 | .08 | .11 | .19 | -.00 | .21 | -.06 | .05 | .03 | .02 | .04 |
| 73 | -.22 | -.14 | -.05 | .20 | -.01 | -.10 | -.10 | -.14 | -.07 | -.18 | -.09 | -.25 | -.33 |
| 74 | -.07 | -.03 | -.16 | -.24 | -.22 | -.12 | -.20 | .08 | .04 | .16 | -.06 | .04 | -.07 |
| 75 | -.17 | .01 | -.23 | .06 | .11 | .07 | .14 | -.16 | -.04 | -.10 | -.24 | .01 | .00 |
| 76 | -.13 | -.06 | -.17 | -.17 | -.18 | -.16 | -.06 | -.21 | .08 | -.08 | -.10 | .04 | -.06 |
| 77 | -.21 | -.26 | -.24 | .01 | -.03 | -.07 | -.12 | -.19 | -.19 | .01 | -.16 | -.06 | -.11 |
| 78 | -.17 | .03 | -.19 | -.18 | -.05 | -.19 | -.10 | -.14 | .02 | -.18 | .01 | -.04 | -.09 |
| 79 | -.14 | -.18 | -.27 | .03 | -.16 | -.33 | -.28 | -.27 | -.35 | -.27 | -.17 | -.27 | -.35 |
| 80 | -.05 | .04 | .10 | .12 | -.09 | .32 | -.01 | .13 | -.12 | .03 | .10 | -.05 | -.04 |
| 81 | .02 | -.12 | -.12 | -.03 | .00 | -.17 | .04 | -.12 | -.03 | -.21 | -.13 | -.05 | -.16 |
| 82 | -.15 | -.03 | -.09 | -.00 | -.12 | .03 | .05 | -.02 | -.09 | -.18 | -.01 | -.25 | -.23 |
| 83 | .08 | -.29 | .01 | .17 | -.01 | .09 | .21 | -.05 | -.24 | -.03 | -.18 | -.07 | -.11 |
| 84 | -.55 | .07 | -.22 | -.01 | -.30 | -.07 | .19 | -.01 | -.09 | -.30 | -.19 | -.19 | .00 |
| 85 | -.01 | -.14 | -.16 | .05 | .03 | .28 | .08 | -.19 | -.23 | -.32 | -.29 | -.13 | -.25 |
| 86 | -.07 | -.07 | -.11 | .10 | -.12 | .16 | .22 | -.07 | -.19 | -.07 | -.34 | -.08 | -.27 |
| 87 | -.19 | -.06 | -.15 | -.10 | -.28 | .01 | .03 | -.07 | -.05 | -.09 | -.16 | -.15 | -.05 |

Table 36 (Appendix A) (cont'd.)

| Name of Village | Singad (M) | Dabhadi (M) | Isapur (M) | Nagsevadi (M) | Hatgad (M) | Kakudmunda (M) | Hanumantnal (M) | Khed (M) | Bhatwadi (M) | Pachumbi (M) | Bamcade (M) | Jalihal (M) | Girgaon (M) |
|-----------------|------------|-------------|------------|---------------|------------|----------------|-----------------|----------|--------------|--------------|-------------|-------------|-------------|
| | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 |
| 88 | -.30 | .12 | -.11 | .01 | -.27 | -.15 | -.07 | -.14 | -.23 | -.04 | -.07 | -.25 | -.15 |
| 89 | -.24 | -.15 | -.10 | -.13 | -.27 | -.15 | -.08 | -.11 | -.23 | -.11 | -.11 | -.24 | -.02 |
| 90 | -.32 | .06 | -.05 | .01 | -.30 | .11 | .03 | .02 | -.13 | -.01 | .01 | -.24 | -.07 |
| 91 | .05 | .00 | .10 | .11 | -.08 | .09 | -.17 | .05 | -.11 | .09 | -.19 | -.07 | -.16 |
| 92 | -.15 | -.21 | -.16 | -.00 | -.14 | .11 | -.07 | -.11 | -.20 | -.08 | -.13 | -.21 | -.33 |
| 93 | -.13 | .11 | -.03 | -.13 | -.21 | -.22 | -.09 | -.22 | -.18 | -.01 | -.26 | -.04 | -.11 |
| 94 | -.30 | .13 | -.23 | -.11 | -.09 | -.02 | -.01 | -.16 | -.19 | -.36 | -.09 | -.40 | -.20 |
| 95 | -.07 | -.03 | -.17 | .06 | -.06 | -.42 | -.19 | -.17 | -.18 | .05 | -.06 | .01 | -.22 |
| 96 | -.22 | .06 | -.18 | .02 | -.07 | -.25 | -.16 | .07 | -.08 | .12 | .03 | -.01 | -.22 |
| 97 | -.11 | -.01 | -.14 | -.02 | -.28 | .14 | -.12 | .06 | -.11 | -.06 | -.19 | -.36 | -.31 |
| 98 | -.23 | .12 | -.06 | -.14 | -.18 | -.24 | -.06 | .03 | -.09 | -.03 | -.15 | -.08 | -.15 |
| 99 | .06 | -.00 | -.02 | .18 | -.01 | -.24 | -.14 | -.00 | -.25 | .27 | -.08 | .03 | -.24 |
| 100 | -.11 | -.16 | -.20 | -.19 | -.02 | .00 | -.03 | -.06 | -.23 | -.04 | -.16 | -.27 | -.25 |

Table 36 (Appendix A) (cont'd.)

| Name of Village | Khandol (M) | Pandozar (M) | Matish (WB) | Kismatdapat (WB) | Laskarpur (WB) | Beltara (WB) | Gobindpur (WB) | Tilna (WB) | Mamudpur (WB) | Karanji (WB) | Kesabpur (WB) | Jarail (WB) | Chakadpara (WB) |
|-----------------|-------------|--------------|-------------|------------------|----------------|--------------|----------------|------------|---------------|--------------|---------------|-------------|-----------------|
| 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | |
| 66 | --- | | | | | | | | | | | | |
| 67 | .59 | --- | | | | | | | | | | | |
| 68 | .10 | .17 | --- | | | | | | | | | | |
| 69 | -.12 | -.14 | -.03 | --- | | | | | | | | | |
| 70 | -.17 | -.02 | .08 | .06 | --- | | | | | | | | |
| 71 | .01 | .16 | .10 | -.14 | -.01 | --- | | | | | | | |
| 72 | .13 | .10 | .05 | -.06 | -.30 | .12 | --- | | | | | | |
| 73 | -.12 | -.04 | -.07 | -.18 | .19 | .08 | .15 | --- | | | | | |
| 74 | .02 | .09 | .07 | .20 | .01 | .08 | .10 | -.01 | --- | | | | |
| 75 | .17 | .04 | .11 | -.07 | .21 | .02 | .08 | .23 | .13 | --- | | | |
| 76 | -.06 | -.04 | .07 | .10 | .27 | .05 | -.19 | .25 | .23 | .53 | --- | | |
| 77 | -.08 | .16 | .16 | -.04 | .41 | -.03 | -.12 | .21 | .14 | .31 | .55 | --- | |
| 78 | -.09 | .02 | .15 | -.02 | .33 | .15 | -.08 | .29 | .17 | .12 | .64 | .63 | --- |
| 79 | -.37 | -.48 | -.30 | .38 | .06 | -.09 | -.05 | -.18 | .08 | -.12 | -.00 | -.15 | -.06 |
| 80 | -.05 | .06 | .26 | .20 | -.06 | -.01 | .08 | .07 | .17 | .06 | .19 | .25 | .13 |
| 81 | -.01 | -.19 | .40 | -.01 | .15 | .09 | -.05 | -.00 | -.16 | -.09 | .10 | -.02 | .21 |
| 82 | -.19 | -.26 | .18 | .04 | -.01 | -.00 | .11 | .18 | .12 | .18 | .26 | -.06 | .13 |
| 83 | -.13 | .01 | .25 | -.10 | -.11 | .18 | .32 | -.14 | .04 | .12 | -.10 | .04 | -.08 |
| 84 | .23 | .11 | .06 | -.11 | .22 | .03 | .25 | .06 | .19 | .54 | .23 | .11 | .14 |
| 85 | -.13 | -.28 | .08 | -.05 | .38 | .05 | -.18 | .24 | -.02 | .27 | .19 | .19 | .24 |
| 86 | -.06 | -.11 | .24 | .05 | .28 | -.22 | -.11 | .11 | .23 | .26 | .14 | .13 | .09 |
| 87 | -.03 | .05 | -.01 | -.06 | .02 | -.23 | .12 | .08 | .12 | -.03 | .10 | .24 | .11 |
| 88 | -.12 | -.11 | -.03 | -.16 | -.04 | -.04 | .20 | .18 | .34 | .04 | .21 | -.01 | .07 |
| 89 | -.16 | -.11 | -.11 | -.24 | -.00 | -.01 | .04 | .11 | .33 | -.00 | .08 | .18 | .05 |
| 90 | -.03 | -.01 | -.09 | -.17 | -.27 | -.01 | .06 | .13 | .19 | -.21 | .18 | .15 | -.05 |
| 91 | -.33 | -.38 | -.27 | .10 | -.16 | -.19 | .05 | .07 | .05 | .01 | -.16 | -.10 | -.29 |
| 92 | -.34 | -.32 | -.01 | .26 | -.19 | -.00 | .03 | .21 | .08 | -.04 | -.01 | -.00 | -.10 |
| 93 | -.10 | -.06 | -.21 | .39 | -.05 | -.10 | .08 | .09 | .17 | .10 | .09 | .09 | -.07 |
| 94 | -.04 | .02 | .10 | -.06 | .14 | .04 | .18 | .24 | .06 | -.17 | -.12 | .06 | .13 |
| 95 | -.20 | -.06 | .01 | .27 | -.00 | .17 | -.00 | .14 | .12 | .06 | .32 | .06 | .20 |
| 96 | -.19 | -.01 | .18 | .14 | .09 | .22 | -.18 | .09 | .21 | -.14 | .11 | .15 | .26 |
| 97 | -.14 | .08 | .07 | -.11 | .28 | -.11 | .10 | .36 | .02 | .25 | .24 | .46 | .25 |
| 98 | .27 | .19 | .06 | .09 | -.18 | .07 | .25 | .09 | .28 | .20 | .00 | -.01 | -.05 |
| 99 | -.12 | .04 | -.11 | .05 | -.22 | .14 | .34 | -.07 | .05 | -.14 | -.18 | .06 | .01 |
| 100 | -.22 | -.04 | -.37 | -.01 | -.07 | -.21 | .26 | .34 | .08 | -.17 | -.17 | .13 | -.01 |

Table 36 (Appendix A) (cont'd.)

| Name of Village | Ahmedpur (WB) | Kurumsha (WB) | Uttar - B - Gram (WB) | Markola (WB) | Amdole (WB) | Harishpur (WB) | Lakshmidanga (WB) | Malparadantura (WB) | M - Bhagaband (WB) | Jindharpore (WB) | Nindaspur (WB) | Tangsuli-Moul (WB) | Khano (WB) |
|-----------------|---------------|---------------|-----------------------|--------------|-------------|----------------|-------------------|---------------------|--------------------|------------------|----------------|--------------------|------------|
| 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | |
| 79 | --- | | | | | | | | | | | | |
| 80 | -.09 | --- | | | | | | | | | | | |
| 81 | .07 | -.08 | --- | | | | | | | | | | |
| 82 | .18 | .16 | .25 | --- | | | | | | | | | |
| 83 | -.03 | .15 | .02 | .23 | --- | | | | | | | | |
| 84 | -.08 | .11 | -.06 | .13 | .24 | --- | | | | | | | |
| 85 | .08 | .02 | .08 | .15 | .30 | .24 | --- | | | | | | |
| 86 | .02 | -.01 | .06 | .12 | .32 | .30 | .69 | --- | | | | | |
| 87 | -.04 | .13 | -.20 | .04 | .05 | .13 | -.07 | -.03 | --- | | | | |
| 88 | .27 | -.02 | .05 | .32 | .20 | .40 | .10 | .23 | .11 | --- | | | |
| 89 | .18 | .30 | -.19 | -.01 | .09 | .06 | .00 | .02 | .23 | .08 | --- | | |
| 90 | .04 | .39 | -.12 | .25 | .03 | .19 | -.07 | .02 | .13 | .33 | .39 | --- | |
| 91 | .17 | .19 | -.17 | .28 | .26 | -.04 | .24 | .29 | .01 | .08 | .11 | .14 | --- |
| 92 | .23 | .29 | .08 | .27 | .23 | -.12 | .17 | .20 | .14 | .11 | .20 | .39 | .49 |
| 93 | .30 | .10 | -.02 | .04 | -.02 | -.10 | -.05 | .09 | .03 | .12 | .42 | .18 | .38 |
| 94 | .09 | .13 | .19 | .09 | .12 | .15 | .14 | .21 | .11 | .24 | .23 | .09 | .05 |
| 95 | .31 | -.14 | .37 | -.03 | -.29 | -.18 | -.25 | -.13 | -.22 | .25 | .06 | .09 | -.22 |
| 96 | .24 | -.04 | .16 | .06 | -.03 | -.20 | .03 | .07 | -.15 | .03 | .14 | .11 | -.02 |
| 97 | -.12 | .11 | -.11 | .16 | .03 | .34 | .17 | .20 | .23 | .36 | .18 | .35 | .09 |
| 98 | .02 | .04 | .21 | .17 | .03 | .20 | -.14 | -.02 | .03 | .33 | .21 | .28 | .04 |
| 99 | .18 | -.18 | -.01 | -.09 | .26 | -.16 | -.15 | .07 | -.10 | .05 | .00 | -.07 | .22 |
| 100 | .11 | -.15 | -.05 | -.02 | .06 | -.06 | -.08 | -.02 | .12 | .23 | .19 | .03 | .21 |

Table 36 (Appendix A) (cont'd.)

| Name of Village | Hitta (WB) | Bhuri (WB) | Bhunpur Nerwal (WB) | Noada (WB) | Deasa (WB) | Selut (WB) | Beluti (WB) | Akalpoush (WB) | Singa (WB) |
|-----------------|------------|------------|---------------------|------------|------------|------------|-------------|----------------|------------|
| 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | |
| 92 | --- | | | | | | | | |
| 93 | .26 | --- | | | | | | | |
| 94 | .24 | .24 | --- | | | | | | |
| 95 | .12 | .25 | -.06 | --- | | | | | |
| 96 | .30 | .00 | .07 | .44 | --- | | | | |
| 97 | .04 | -.09 | .08 | -.03 | -.09 | --- | | | |
| 98 | .14 | .41 | .17 | .32 | .11 | .19 | --- | | |
| 99 | .06 | .32 | .06 | .28 | .31 | -.15 | .24 | --- | |
| 100 | .08 | .28 | .30 | .16 | -.03 | .24 | .25 | .44 | --- |

Table 37A (Appendix A): Q Factor Analysis of 100 Villages (Results of Six Orthogonal Rotations)

| Orthogonal Factor
Rotation # | ID# | Name of Village Sample # | | | | | | |
|---------------------------------|-----|--------------------------|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 |
| # I | 03 | Nervada (AP)* | + | - | - | - | - | - |
| | 04 | Kowluru (AP) | - | + | + | + | + | + |
| | 05 | Vengalampalle (AP) | + | + | + | + | + | + |
| # II | 06 | Peapally (AP) | + | + | + | + | + | + |
| | 07 | Talla G Padu (AP) | + | + | + | + | + | + |
| | 08 | Amakathadu (AP) | + | + | + | + | + | + |
| # III | 09 | Kondiyala (AP) | + | + | + | + | + | + |
| | 10 | Nagatoor (AP) | + | + | + | + | + | + |
| | 12 | 80 Barnur (AP) | + | + | + | + | + | + |
| # IV | 13 | Molkalla (AP) | + | + | + | + | + | + |
| | 14 | Vempally (AP) | + | + | + | + | + | + |
| | 15 | Kamanapalli (AP) | + | + | + | + | + | + |
| # V | 16 | Kistapur (AP) | + | + | + | + | + | + |
| | 17 | Monkapur (AP) | + | + | + | + | + | + |
| | 18 | Nagalkonda (AP) | + | + | + | + | + | + |
| # VI | 19 | Dasnapur (AP) | + | + | + | + | + | + |
| | 20 | Wadagoan (AP) | + | + | + | + | + | + |
| | 21 | Dingapur (AP) | + | + | + | + | + | + |
| # VII | 23 | Indhanapalli (AP) | + | + | + | + | + | + |
| | 24 | Murimadugu (AP) | + | + | + | + | + | + |

Note: Hi positive association of a village with a factor is indicated by a plus (+) sign; hi negative association is indicated by a minus (-) sign.

* AP = Andhra Pradesh; M = Maharashtra; WB = West Bengal

Table 37A (Appendix A) (cont'd.)

| ID# | Name of Village Sample # | Orthogonal Factor Rotation # | | | | | | |
|-----|--------------------------|------------------------------|----------|----------|----------|----------|----------|----------|
| | | | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | |
| | | | # IV | | | | | |
| | | | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | |
| | | | # V | | | | | |
| | | | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Factor 6 |
| 03 | Nervada (AP)* | | + | | | + | | |
| 04 | Kowluru (AP) | | | - | | | | - |
| 05 | Vengalampalle (AP) | | | + | | + | | |
| 06 | Peapally (AP) | | + | | | + | | |
| 07 | Talla G Padu (AP) | | | + | | + | | |
| 08 | Amakathadu (AP) | | | + | | + | | |
| 09 | Konidyalu (AP) | | | | - | | | - |
| 10 | Nagatoor (AP) | | | - | | | | - |
| 12 | 80 Bannur (AP) | | | - | | | | - |
| 13 | Molkalla (AP) | | | | - | | | - |
| 14 | Vempally (AP) | | | + | | + | | |
| 15 | Kamanapalli (AP) | | | + | | + | | |
| 16 | Kistapur (AP) | | | + | | | - | |
| 17 | Monkapur (AP) | | | + | | + | | |
| 18 | Nagalkonda (AP) | | | + | | + | | |
| 19 | Dasnapur (AP) | | | + | | + | | |
| 20 | Wadagoan (AP) | | | + | | + | | |
| 21 | Dingapur (AP) | | | | - | | | - |
| 23 | Indhanapalli (AP) | | | | | - | | - |
| 24 | Murtimadugu (AP) | | | | - | | | - |

Note: Hi positive association of a village with a factor is indicated by a plus (+) sign; hi negative association is indicated by a minus (-) sign.

* AP = Andhra Pradesh; M = Maharashtra; WB = West Bengal

279

Note: Hi positive association of a village with a factor is indicated by a plus (+) sign; hi negative association is indicated by a minus (-) sign.

*AP = Andhra Pradesh; M = Maharashtra; WB = West Bengal

Table 37A (Appendix A) (cont'd.)

| ID# | Name of Village | Sample # | Orthogonal Factor Rotation # | 280 | | | |
|-----|-----------------------|----------|------------------------------|-----|---|----------|----------|
| | | | | # | I | Factor 1 | Factor 2 |
| 25 | Y.V. Lanka (AP)* | 21 | | | + | | |
| 26 | Navarasapuram (AP) | 22 | | | + | | |
| 27 | Ilakapattu (AP) | 23 | | | + | | |
| 28 | Sirigalapatti (AP) | 24 | | | + | | |
| 29 | Dommeru (AP) | 25 | | | + | | |
| 30 | I. Pangadi (AP) | 26 | | | + | | |
| 31 | Purushottampalli (AP) | 27 | | | + | | |
| 32 | Pandulapattu (AP) | 28 | | | + | | |
| 33 | Polamuru (AP) | 29 | | | + | | |
| 34 | Mamiduru (AP) | 30 | | | + | | |
| 35 | Manchilli (AP) | 31 | | | + | | |
| 36 | Kanchumattu (AP) | 32 | | | + | | |
| 37 | Mundhara B.K. (M) | 33 | | | + | | |
| 38 | Boragan (M) | 34 | | | + | | |
| 39 | Devada K.D. (M) | 35 | | | + | | |
| 40 | Nilaj B.K. (M) | 36 | | | + | | |
| 41 | Kattipar (M) | 37 | | | + | | |
| 42 | Nangapar (M) | 38 | | | + | | |
| 43 | Kikripar (M) | 39 | | | + | | |
| 44 | Malai (M) | 40 | | | + | | |

Note: Hi positive association of a village with a factor is indicated by a plus (+) sign; hi negative association is indicated by a minus (-) sign.

* AP = Andhra Pradesh; M = Maharashtra; WB = West Bengal

Table 37A (Appendix A) (cont'd.)

| ID# | Name of Village Sample # | Orthogonal Factor Rotation # | 182 | | | | | |
|-----|--------------------------|------------------------------|-----|--|--|--|--|--|
| 25 | Y. V. Lanka (AP)* | | + | | | | | |
| 26 | Navarasapuram (AP) | | + | | | | | |
| 27 | Ilakapattu (AP) | | + | | | | | |
| 28 | Sirigalapatti (AP) | | + | | | | | |
| 29 | Dommeru (AP) | | + | | | | | |
| 30 | I. Pangadi (AP) | | + | | | | | |
| 31 | Purusshotampalli (AP) | | + | | | | | |
| 32 | Pandulapattu (AP) | | + | | | | | |
| 33 | Polamuru (AP) | | + | | | | | |
| 34 | Mamiduru (AP) | | + | | | | | |
| 35 | Manchili (AP) | | + | | | | | |
| 36 | Kanchumattu (AP) | | + | | | | | |
| 37 | Mundhary B.K. (M) | | | | | | | |
| 38 | Boragoan (M) | | | | | | | |
| 39 | Devada K.D. (M) | | | | | | | |
| 40 | Nilaj B.K. (M) | | | | | | | |
| 41 | Kattipar (M) | | | | | | | |
| 42 | Nangapar (M) | | | | | | | |
| 43 | Kikkipar (M) | | | | | | | |
| 44 | Malai (M) | | | | | | | |

Note: Hi positive association of a village with a factor is indicated by a plus (+) sign; hi negative association is indicated by a minus (-) sign.

*AP = Andhra Pradesh; M = Maharashtra; WB = West Bengal

Table 37A (Appendix A) (cont'd.)

| Orthogonal Factor
Rotation # | ID# | Name of Village
Sample # | 282 | | | | | | |
|---------------------------------|-----|-----------------------------|----------|----------|----------|----------|----------|----------|----------|
| | | | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Factor 6 | Factor 7 |
| | 25 | Y.V. Lanka (AP)* | + | + | | | | | |
| | 26 | Navarasapuram (AP) | + | + | | | | | |
| | 27 | Ilakaparru (AP) | + | + | | | | | |
| | 28 | Sirigalapatti (AP) | + | + | | | | | |
| | 29 | Dommeru (AP) | + | + | | | | | |
| | 30 | I. Pangadi (AP) | | | | + | | | |
| | 31 | Purushottampalli (AP) | + | + | | | | | |
| | 32 | Pandulaparru (AP) | + | + | | | | | |
| | 33 | Polamuru (AP) | + | + | | | | | |
| | 34 | Mamiduru (AP) | + | + | | | | | |
| | 35 | Manchilli (AP) | + | + | | | | | |
| | 36 | Kanchumarru (AP) | | | | - | | | |
| | 37 | Mundharru B.K. (M) | | | | | | | |
| | 38 | Boregoan (M) | | | | + | | | |
| | 39 | Devada K.D. (M) | | | | + | | | |
| | 40 | Nilaj B.K. (M) | | | | + | | | |
| | 41 | Kattipar (M) | | | | + | | | |
| | 42 | Nangapar (M) | | | | + | | | |
| | 43 | Kikripar (M) | | | | + | | | |
| | 44 | Malai (M) | | | | + | | | |

Note: Hi positive association of a village with a factor is indicated by a plus (+) sign; hi negative association is indicated by a minus (-) sign.

*

AP = Andhra Pradesh; M = Maharashtra; WB = West Bengal

Table 37A (Appendix A) (cont'd.)

| Sample # | Name of Village | ID# | Orthogonal Factor
Rotation # | | | | |
|----------|-----------------|-----|---------------------------------|-----|----------|----------|----------|
| | | | | # I | Factor 1 | Factor 2 | Factor 3 |
| 41 | Rajegaon (M)* | 45 | | + | | | |
| 42 | Satona (M) | 46 | | + | | | |
| 43 | Sejagaon (M) | 47 | | + | | | |
| 44 | Kohka (M) | 48 | | + | | | |
| 45 | Yeoti (M) | 49 | | + | | | |
| 46 | Wanoja (M) | 50 | | + | | | |
| 47 | Pimpalkhuti (M) | 51 | | | | | |
| 48 | Sheli (M) | 52 | | + | | | |
| 49 | Hatala (M) | 53 | | | | | |
| 50 | Mulwa (M) | 54 | | + | | | |
| 51 | Pophali (M) | 55 | | | | | |
| 52 | Bar (M) | 56 | | + | | | |
| 53 | Singad (M) | 57 | | | | | |
| 54 | Dabhadi (M) | 59 | | | | | |
| 55 | Isapur (M) | 60 | | | | | |
| 56 | Nagsevani (M) | 61 | | + | | | |
| 57 | Hatgad (M) | 62 | | + | | | |
| 58 | Kakudmunda (M) | 63 | | + | | | |
| 59 | Hanumanthal (M) | 64 | | + | | | |
| 60 | Khed (M) | 65 | | + | | | |

283

Note: Hi positive association of a village with a factor is indicated by a plus (+) sign; hi negative association is indicated by a minus (-) sign.

*AP = Andhra Pradesh; M = Maharashtra; WB = West Bengal

Table 37A (Appendix A) (cont'd.)

| Orthogonal Factor
Rotation # | ID# | Name of Village
Sample # | | | | | | |
|---------------------------------|-----|-----------------------------|----------|----------|----------|----------|----------|----------|
| | | | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Factor 6 |
| # IV | 45 | Rajegaon (M)* | | + | | | | |
| | 46 | Satona (M) | | + | | | | |
| | 47 | Sejagaon (M) | | | + | | | |
| | 48 | Kohka (M) | | | | | | |
| | 49 | Yeoti (M) | | + | | | | |
| # V | 50 | Wanoja (M) | | | + | | | |
| | 51 | Pimpalkhuti (M) | | | | | | |
| | 52 | Sheli (M) | | + | | + | | |
| | 53 | Hatala (M) | | | | + | | |
| | 54 | Mulwa (M) | | | | | | |
| | 55 | Pophali (M) | | | | | | |
| | 56 | Bar (M) | | | | + | | |
| | 57 | Singad (M) | | | | | | |
| | 59 | Dabhadi (M) | | | | | + | |
| | 60 | Isapur (M) | | | | | | |
| | 61 | Nagsevani (M) | | | | + | | |
| | 62 | Hatgad (M) | | | | + | | + |
| | 63 | Kakudmunda (M) | | | | + | | |
| | 64 | Hannumantal (M) | | | | + | | |
| | 65 | Khed (M) | | | | | + | |

Note: Hi positive association of a village with a factor is indicated by a plus (+) sign; hi negative association is indicated by a minus (-) sign.

*AP = Andhra Pradesh; M = Maharashtra; WB = West Bengal

Table 37A (Appendix A) (cont'd.)

| ID# | Name of Village Sample # | Orthogonal Factor Rotation # | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Factor 6 | Factor 7 |
|-----|--------------------------|------------------------------|----------|----------|----------|----------|----------|----------|----------|
| 45 | Rajegaon (M)* | | | | | | + | | |
| 46 | Satona (M) | | | | | | + | | |
| 47 | Sejagaon (M) | | | | | | + | | |
| 48 | Kohka (M) | | | | | | | | |
| 49 | Yeoti (M) | | | | | | + | | |
| 50 | Wanoja (M) | | | | | | | + | |
| 51 | Pimpalkhuti (M) | | | | | | | | + |
| 52 | Sheli (M) | | | | | | | + | |
| 53 | Hatala (M) | | | | | | | + | |
| 54 | Mulwa (M) | | | | | | | | |
| 55 | Pophali (M) | | | | | | | | |
| 56 | Bar (M) | | | | | | | + | |
| 57 | Singad (M) | | | | | | | | |
| 59 | Dabhadi (M) | | | | | | | | + |
| 60 | Isapur (M) | | | | | | | | |
| 61 | Nagsevadi (M) | | | | | | | + | |
| 62 | Hatgad (M) | | | | | | | + | |
| 63 | Kakudmunda (M) | | | | | | | | + |
| 64 | Hannumantnal (M) | | | | | | | | + |
| 65 | Khed (M) | | | | | | | | + |

285

Note: Hi positive association of a village with a factor is indicated by a plus (+) sign; hi negative association is indicated by a minus (-) sign.

* AP = Andhra Pradesh; M = Maharashtra; WB = West Bengal

Table 37A (Appendix A) (cont'd.)

| Orthogonal Factor
Rotation # | ID# | Name of Village | Sample # | 286 | | | | | | | | | | | |
|---------------------------------|-----|------------------|----------|-----------------|-----------------|------------------|------------------|------------------|-------------------|-------------------|-------------------|-------------------|--|--|--|
| | | | | Factor 1
I | Factor 2
I | Factor 1
II | Factor 2
II | Factor 3
II | Factor 1
III | Factor 2
III | Factor 3
III | Factor 4
III | | | |
| | 66 | Bhatwadi (M)* | 61 | + | | + | | | | | | | | | |
| | 67 | Pachumbi (M) | 62 | | | + | | | | | | | | | |
| | 68 | Bambcade (M) | 63 | | | + | | | | | | | | | |
| | 69 | Jalihal (M) | 64 | | | + | | | | | | | | | |
| | 70 | Girgaon (M) | 65 | + | | | + | | | | | | | | |
| | 71 | Khandhol (M) | 66 | + | | + | | | | | | | | | |
| | 72 | Pandozar (M) | 67 | + | | | | | | | | | | | |
| | 74 | Matish (WB) | 68 | + | | | | | | | | | | | |
| | 75 | Kismatdapat (WB) | 69 | | | | | | | | | | | | |
| | 76 | Laskarpur (WB) | 70 | | | + | | | | | | | | | |
| | 77 | Belara (WB) | 71 | | | | | | | | | | | | |
| | 78 | Gobindpur (WB) | 72 | | | + | | | | | | | | | |
| | 79 | Tilna (WB) | 73 | | | + | | | | | | | | | |
| | 80 | Mamudpur (WB) | 74 | | | + | | | | | | | | | |
| | 81 | Karanji (WB) | 75 | | | + | | | | | | | | | |
| | 82 | Kesabpur (WB) | 76 | | | + | | | | | | | | | |
| | 83 | Jarail (WB) | 77 | | | + | | | | | | | | | |
| | 84 | Chakadpara (WB) | 78 | | | + | | | | | | | | | |
| | 85 | Ahmedpur (WB) | 79 | | | | | | | | | | | | |
| | 86 | Kurmusha (WB) | 80 | | | + | | | | | | | | | |

Note: Hi positive association of a village with a factor is indicated by a plus (+) sign; hi negative association is indicated by a minus (-) sign.

* AP = Andhra Pradesh; M = Maharashtra; WB = West Bengal

Table 37A (Appendix A) (cont'd.)

| ID# | Orthogonal Factor
Rotation # | Name of Village Sample # |
|-----|---------------------------------|--------------------------|
| 66 | Factor 1 | Bhatwadi (M)* |
| 67 | Factor 2 | Pachumbi (M) |
| 68 | Factor 3 | Bambade (M) |
| 69 | Factor 4 | Jalihal (M) |
| 70 | Factor 5 | Girgaon (M) |
| 71 | Factor 1 | Khandhol (M) |
| 72 | Factor 2 | Pandozar (M) |
| 74 | Factor 3 | Matish (WB) |
| 75 | Factor 4 | Kismatdapat (WB) |
| 76 | Factor 5 | Laskarpur (WB) |
| 77 | Factor 1 | Belara (WB) |
| 78 | Factor 2 | Gobindpur (WB) |
| 79 | Factor 3 | Tilna (WB) |
| 80 | Factor 4 | Mamudpur (WB) |
| 81 | Factor 5 | Karanji (WB) |
| 82 | Factor 1 | Kesabpur (WB) |
| 83 | Factor 2 | Jarail (WB) |
| 84 | Factor 3 | Chakadpara (WB) |
| 85 | Factor 4 | Ahmedpur (WB) |
| 86 | Factor 5 | Kurumsa (WB) |

Note: Hi positive association of a village with a factor is indicated by a plus (+) sign; hi negative association is indicated by a minus (-) sign.

* AP = Andhra Pradesh; M = Maharashtra; WB = West Bengal

Table 37A (Appendix A) (cont'd.)

| ID# | Name of Village | Sample # | Orthogonal Factor
Rotation # | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Factor 6 | Factor 7 |
|-----|------------------|----------|---------------------------------|----------|----------|----------|----------|----------|----------|----------|
| 66 | Bhatwadi (M)* | 61 | | + | | | | | | |
| 67 | Pachumbi (M) | 62 | | + | | | | | | |
| 68 | Bambade (M) | 63 | | + | | | | | | |
| 69 | Jalihal (M) | 64 | | + | | | | | | |
| 70 | Girgaon (M) | 65 | | + | | | | | | |
| 71 | Khandol (M) | 66 | | + | | | | | | |
| 72 | Pandozar (M) | 67 | | + | | | | | | |
| 74 | Matish (WB) | 68 | | + | | | | | | |
| 75 | Kismatdapat (WB) | 69 | | | | | | | | |
| 76 | Laskarpur (WB) | 70 | | | | | | | | |
| 77 | Beltara (WB) | 71 | | | | | | | | |
| 78 | Gobindpur (WB) | 72 | | + | | | | | | |
| 79 | Tilna (WB) | 73 | | | | | | | | |
| 80 | Mamudpur (WB) | 74 | | + | | | | | | |
| 81 | Karanji (WB) | 75 | | | | | | | | |
| 82 | Kesabpur (WB) | 76 | | | | | | | | |
| 83 | Jarail (WB) | 77 | | | | | | | | |
| 84 | Chakadpara (WB) | 78 | | | | | | | | |
| 85 | Ahmedpur (WB) | 79 | | | | | | | | |
| 86 | Kurumsha (WB) | 80 | | | | | | | | |

288

#VI

Note: Hi positive association of a village with a factor is indicated by a plus (+) sign; hi negative association is indicated by a minus (-) sign.

* AP = Andhra Pradesh; M = Maharashtra; WB = West Bengal

Table 37A (Appendix A) (cont'd.)

| Orthogonal Factor
Rotation # | ID# | Name of Village
Sample # | 682 | | | | | | | | |
|---------------------------------|-----|-----------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--|
| | | | Factor 1
Factor 2 | Factor 1
Factor 2 | Factor 1
Factor 2 | Factor 1
Factor 2 | Factor 1
Factor 2 | Factor 1
Factor 2 | Factor 1
Factor 2 | Factor 1
Factor 2 | |
| # I | 87 | Uttar - B - Gram (WB)* 81 | + | | | | | | | | |
| | 88 | Markola (WB) | + | | | | | | | | |
| | 89 | Andole (WB) | + | | | | | | | | |
| | 90 | Harishpur (WB) | + | | | | | | | | |
| # II | 91 | Lakshmidanga (WB) | + | | | | | | | | |
| | 92 | Malparadantura (WB) | + | | | | | | | | |
| | 93 | M - Bhagaband (WB) | + | | | | | | | | |
| | 94 | Jindharipore (WB) | + | | | | | | | | |
| # III | 95 | Nindaspur (WB) | + | | | | | | | | |
| | 96 | Tangsuli-Moul (WB) | + | | | | | | | | |
| | 97 | Khano (WB) | | | | | | | | | |
| | 98 | Hitta (WB) | | | | | | | | | |
| # IV | 99 | Bhuri (WB) | + | | | | | | | | |
| | 100 | Bhunpur Nerval (WB) | + | | | | | | | | |
| | 101 | Noada (WB) | | | | | | | | | |
| | 102 | Deasa (WB) | | | | | | | | | |
| # V | 103 | Selut (WB) | + | | | | | | | | |
| | 104 | Beluti (WB) | + | | | | | | | | |
| | 107 | Akalpoush (WB) | | | | | | | | | |
| | 108 | Singa (WB) | + | | | | | | | | |

Note: Hi positive association of a village with a factor is indicated by a plus (+) sign; hi negative association is indicated by a minus (-) sign.

* AP = Andhra Pradesh; M = Maharashtra; WB = West Bengal

Table 37A (Appendix A) (cont'd.)

| Orthogonal Factor
Rotation # | ID# | Name of Village
Sample # | | | | | | | | | | | | |
|---------------------------------|-----|-----------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|
| | | | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Factor 6 | |
| # IV | 87 | Uttar - B - Gram (WB) * 81 | - | | | | | | | | | | | |
| | 88 | Markola (WB) | + | | | | | | + | | | | | |
| | 89 | Amdole (WB) | | | | | | | | | | | + | |
| | 90 | Harishpur (WB) | + | | | | | | + | | | | | |
| | 91 | Lakshmidanga (WB) | + | | | | | | | | | | | |
| # V | 92 | Malparadantura (WB) | + | | | | | | | | | | | |
| | 93 | M - Bhagband (WB) | + | | | | | | + | | | | | |
| | 94 | Jindharpore (WB) | + | | | | | | + | | | | | |
| | 95 | Nimdaspur (WB) | + | | | | | | + | | | | | |
| | 96 | Tanguli-Moul (WB) | + | | | | | | + | | | | | |
| # V | 97 | Khano (WB) | | | | | | | | | | | | |
| | 98 | Hitta (WB) | + | | | | | | | | | | | |
| | 99 | Bhuri (WB) | | | | | | | + | | | | | |
| | 100 | Bhurnpur Nerval (WB) | + | | | | | | + | | | | | |
| | 101 | Noda (WB) | | | | | | | | | | | | |
| # IV | 102 | Deasa (WB) | | | | | | | | | | | | |
| | 103 | Selut (WB) | + | | | | | | | | | | | |
| | 104 | Beluti (WB) | + | | | | | | + | | | | | |
| | 107 | Akalpoush (WB) | | | | | | | | | | | | |
| | 108 | Singa (WB) | + | | | | | | + | | | | | |

290

Note: Hi positive association of a village with a factor is indicated by a plus (+) sign; hi negative association is indicated by a minus (-) sign.

* AP = Andhra Pradesh; M = Maharashtra; WB = West Bengal

Table 37A (Appendix A) (cont'd.)

| #ID | Name of Village Sample # | Orthogonal Factor Rotation # | 267 | | | | | | |
|-----|---------------------------|------------------------------|----------|----------|----------|----------|----------|----------|----------|
| | | | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Factor 6 | Factor 7 |
| 87 | Uttar - B - Gram (WB)* 81 | 88 | + | | | | | + | |
| 88 | Markola (WB) | 89 | | + | | | | | |
| 89 | Amdole (WB) | 90 | | | + | | | | |
| 90 | Harishpur (WB) | 91 | + | | | | | | |
| 91 | Lakshmidanga (WB) | 92 | | | | | | - | |
| 92 | Malparadantura (WB) | 93 | | | | | | - | |
| 93 | M - Bhagaband (WB) | 94 | | | | | | | |
| 94 | Jindharpore (WB) | 95 | + | | | | | | |
| 95 | Nindaspur (WB) | 96 | + | | | | | | |
| 96 | Tanguli-Moul (WB) | 97 | | | - | | | | |
| 91 | Khamo (WB) | 98 | | | - | | | | |
| 92 | Hitta (WB) | 99 | | | | | | | - |
| 93 | Bhuri (WB) | 100 | + | | | | | | |
| 94 | Bhumpur Nermal (WB) | 101 | | | | | - | | |
| 96 | Deasa (WB) | 102 | | | - | | | | |
| 97 | Selut (WB) | 103 | + | | | | | | |
| 98 | Beluti (WB) | 104 | + | | | | | | |
| 99 | Akalpoush (WB) | 107 | | | - | | | | |
| 100 | Singa (WB) | 108 | + | | | | | | |

Note: Hi positive association of a village with a factor is indicated by a plus (+) sign; hi negative association is indicated by a minus (-) sign.

* AP = Andhra Pradesh; M = Maharashtra; WB = West Bengal

APPENDIX B

Operationalization and Measurement Procedures of Variables

Note: Letter symbols preceding the questions
indicate the following:

V = Village Information Schedule

VL = Village Leader Schedule

VLW = Village Level Worker Schedule

AEO = Agriculture Extension Officer Schedule

BDO = Block Development Officer Schedule

Data Location (Data Loc.)

Data Loc: 5¹:42, ² 43, ³ 44⁴
(decimal after 42)

Variable #1: Man-land ratio (Mlr #1)
Density of Population Per Acre

The population of village was divided by net area sown and area sown more than once.

The population of village was obtained from the District Census Handbook, 1961. Net area sown and area sown more than once were obtained from the Block Development Office. The data refer to 1966.

Mean 1.75

S.D. 1.95

Skewness .03

¹Card number

²Column number

³Column number

⁴Column number
(India Diffusion Project Data
Phase I, Project #731)

Note: Variables #1 through #81 are based on Phase I data (Project #731).
Variables #82 through #97 are based on Phase II data (Project #732).

Variable #2: Political parties in the village (Pp #2)

This variable is constructed from the following questions asked of the village Panchayat President.

The questions:

| | |
|--|------------------------|
| V #91A Are there any political parties in the village? | |
| No ____ Yes ____ (IF YES, ASK:) | |
| V #91B What are their names? | Who are their leaders? |
| Names _____ | Leaders _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

Scoring procedure: 0 = No political party in the village
 1 = One political party in the village
 2 = Two political parties in the village
 3 = Three or more political parties in the village

Descriptive statistics:

| Political party score | Village frequency | Percent |
|-----------------------|-------------------|---------|
| 0 | 42 | 38.89 |
| 1 | 28 | 25.93 |
| 2 | 30 | 27.78 |
| 3 | 8 | 7.42 |
| Total ... N = 108 | | |

Mean 1.06

S.D. 1.06

Skewness .81

Variable #3: Percent voting in national election, 1967 (Nv #3)

This variable is constructed on the following question asked of the village panchayat president.

The question:

V #130 Would you give me your best estimate of the percentage of voters who voted in the last NATIONAL elections (1967)?

_____ %

Descriptive statistics:

| Percent voted in
national election | Village
frequency | Percent |
|---------------------------------------|----------------------|---------|
| 2 | 1 | .93 |
| 5 | 1 | .93 |
| 20 | 2 | 1.85 |
| 32 | 2 | 1.85 |
| 35 | 1 | .93 |
| 38 | 2 | 1.85 |
| 40 | 1 | .93 |
| 50 | 7 | 6.48 |
| 52 | 1 | .93 |
| 55 | 1 | .93 |
| 60 | 13 | 12.04 |
| 66 | 1 | .93 |
| 68 | 1 | .93 |
| 70 | 7 | 6.48 |
| 75 | 15 | 13.89 |
| 78 | 4 | 3.70 |
| 80 | 18 | 16.67 |
| 85 | 8 | 7.41 |
| 87 | 1 | .93 |
| 88 | 2 | 1.85 |
| 89 | 1 | .93 |
| 90 | 9 | 8.33 |
| 92 | 2 | 1.85 |
| 95 | 3 | 2.78 |
| 97 | 2 | 1.85 |
| 98 | 2 | 1.85 |

Total ... N = 108

Mean = 71.31

S.D. = 19.34

Skewness = -1.31

Data loc:8:46,47

Variable #4: Percent voting in panchayat (local government)
election (Pv #4)

This variable is based on the following question asked of
the village Panchayat President.

The question:

V #131 What percentage of eligible voters voted in the
village Panchayat election last year (1966)?
_____ %

Descriptive statistics:

| Percent voted in
Panchayat (local govt.)
election | Village
frequency | Percent |
|---|----------------------|---------|
| 00 | 1 | .93 |
| 40 | 1 | .93 |
| 45 | 1 | .93 |
| 50 | 2 | 1.85 |
| 52 | 1 | .93 |
| 65 | 1 | .93 |
| 70 | 2 | 1.85 |
| 72 | 1 | .93 |
| 75 | 5 | 4.63 |
| 77 | 1 | .93 |
| 80 | 11 | 10.19 |
| 85 | 4 | 3.70 |
| 87 | 1 | .93 |
| 88 | 1 | .93 |
| 90 | 10 | 9.26 |
| 92 | 1 | .93 |
| 95 | 11 | 10.19 |
| 96 | 2 | 1.85 |
| 97 | 2 | 1.85 |
| 98 | 45 | 41.67 |

N-NA = 104

Missing values ... NA = 4

Total ... N = 108

Mean = 88.39

S.D. = 15.09

Skewness = -2.78

Data loc:9:13,14

Variable #5: Percent of village cultivable land owned by the top ten cultivators in the village (Lo #5)

The question:

| | | |
|--|-------|-------|
| V #139 Would you please give me the names of the ten biggest land-owners who live in the village and the number of acres that each owns? | | |
| | Name | Acres |
| 1 | ..... | _____ |
| 2 | ..... | _____ |
| 3 | ..... | _____ |
| 4 | ..... | _____ |
| 5 | ..... | _____ |
| 6 | ..... | _____ |
| 7 | ..... | _____ |
| 8 | ..... | _____ |
| 9 | ..... | _____ |
| 10 | ..... | _____ |

Scoring procedure:

The extent of land owned by the number of persons was summed. This sum was divided by the number of land-owners for which there was information; this figure was multiplied by 10 and was divided by the net area sown in the village, and expressed as percent.

Descriptive statistics:

| Percent of land owned by
the top 10 cultivators | Village
frequency |
|--|----------------------|
| 01 - 10 | 6 |
| 11 - 20 | 27 |
| 21 - 30 | 24 |
| 31 - 40 | 18 |
| 41 - 50 | 7 |
| 51 - 60 | 6 |
| 61 - 70 | 7 |
| 71 - 80 | 1 |
| 81 - 90 | 3 |
| 91 - 100 | 6 |

N-NA = 103

Missing values ... NA = 5

Total ... N = 108

Mean = 35.50

S.D. = 23.49

Skewness = 1.18

Variable #6: Draught animal index (Danix #6)

It is the ratio of bullocks (draught animals) to total cattle population of the village.

The question:

| |
|---|
| <p>V #142 What is the cattle population of this village?</p> <p>Buffaloes _____</p> <p>Cows _____</p> <p>Bullocks _____</p> |
|---|

Scoring procedure:

The figures given for buffaloes, cows, and bullocks were summed. This figure was divided into number of bullocks and expressed as percent.

Descriptive statistics:

| Percent of bullocks to
total cattle population | Village
frequency |
|---|----------------------|
| 01 - 20 | 10 |
| 21 - 30 | 12 |
| 31 - 40 | 26 |
| 41 - 50 | 15 |
| 51 - 60 | 17 |
| 61 - 70 | 11 |
| 71 - 80 | 5 |
| 81 - 90 | 1 |
| | N-NA = <u>97</u> |
| Missing values ... | NA = 11 |
| Total ... | N = <u>108</u> |

Mean = 42.94

S.D. = 15.79

Skewness = .13

Data loc:9:17,18

Variable #7: Multiple crop index (Mucix #7)

It is the extent of land sown twice or more. Percent of land under more than one crop in a year (Multi-crop).

The questions:

V #143 What is the net area sown last year (1966)?

V #144 What is the area sown more than once last year (1966)?

Scoring procedure:

Area sown more than once was divided by the net area sown and expressed as percent.

Descriptive statistics:

| Percent of area under
more than one crop | Village
frequency |
|---|----------------------|
| 00 - 00 | 15 |
| 01 - 10 | 34 |
| 11 - 20 | 14 |
| 21 - 30 | 8 |
| 31 - 40 | 6 |
| 41 - 50 | 2 |
| 51 - 60 | 1 |
| 61 - 70 | 2 |
| 71 - 80 | 4 |
| 81 - 90 | 4 |
| 91 - 100 | 1 |
| | N-NA = 91 |
| Missing values ... NA = | 17 |
| Total ... N | 108 |

Mean = 19.43

S.D. = 1.95

Skewness = 1.60

Data loc:9:21,22

Variable #8: Male agricultural occupation index (Agocxm #8)

This is the proportion of workers engaged in agricultural occupation out of the total workers (male) in the village.

The questions:

| | | |
|---------|--|-------|
| V #171A | How many workers (males) are in the village? | _____ |
| V #172 | How many are cultivators (self-employed male farmers)? | _____ |
| V #173 | How many are agricultural laborers (males)? | _____ |

Scoring procedure:

Cultivators and agricultural laborers were summed.
This sum was divided by total male workers in the village and expressed as percent.

Descriptive statistics:

| Percentage of male agricultural workers to total male workers in village | Village frequency |
|--|-------------------|
| 01 - 10 | 1 |
| 11 - 20 | 2 |
| 21 - 30 | 1 |
| 31 - 40 | 0 |
| 41 - 50 | 3 |
| 51 - 60 | 9 |
| 61 - 70 | 10 |
| 71 - 80 | 21 |
| 81 - 90 | 34 |
| 91 - 100 | 26 |
| N-NA = <u>107</u> | |
| Missing values ... NA = | 1 |
| Total ... N = | <u>108</u> |

Mean = 78.18

S.D. = 17.69

Skewness = -1.74

Data loc:9:23,24

Variable #9: Female agricultural occupation index (Agocxf #9)

This is the proportion of female workers engaged in agricultural occupation out of the total female workers in the village.

The questions:

| | | |
|---------|--|-------|
| V #171B | How many female workers are in the village? | _____ |
| V #172B | How many are cultivators (self-employed female farmers)? | _____ |
| V #173B | How many are agricultural female laborers? | _____ |

Scoring procedure:

Cultivators and agricultural laborers were summed.
This sum was divided by total female workers in the village, and expressed as percent.

Descriptive statistics:

| | |
|--|-------------------|
| Percentage of female agricultural workers to total female workers in the village | Village frequency |
|--|-------------------|

| | |
|----------|----|
| 00 - 00 | 6 |
| 01 - 10 | 3 |
| 11 - 20 | 2 |
| 21 - 30 | 2 |
| 31 - 40 | 2 |
| 41 - 50 | 4 |
| 51 - 60 | 7 |
| 61 - 70 | 5 |
| 71 - 80 | 9 |
| 81 - 90 | 22 |
| 90 - 100 | 44 |

N-NA = 106

Missing values ... NA = 2

Total ... N = 108

Mean = 74.61

S.D. = 29.37

Skewness = -1.43

Variable #10: Tenure index (Tenix #10)

This gives the number of agricultural laborers for each self-employed cultivator.

The questions:

V #172 How many cultivators are in the village? _____

V #173 How many agricultural laborers are in
in the village? _____

Scoring procedure:

Total number of agricultural laborers was divided
by the number of cultivators.

Descriptive statistics:

N = 108

Mean = 0.72

S.D. = 0.59

Skewness = 0.86

Variable #11: Male literacy (Litem #11)

This gives the number of males who reported that they could read and write expressed as percent to total males in the village.

The questions:

V #182A How many males are literate according to 1961
Census enumeration in this village?

V #183A What is the total number of males in the 1961
Census?

Scoring procedure:

The figure for literate males was divided by the figure for total males, and expressed as percent.

| Percent of literate
males to total males | Village
frequency |
|---|----------------------|
|---|----------------------|

| | |
|---------|----|
| 1 - 10 | 10 |
| 11 - 20 | 21 |
| 21 - 30 | 19 |
| 31 - 40 | 33 |
| 41 - 50 | 21 |
| 51 - 60 | 3 |

N-NA = 107

Missing values ... NA = 1

Total ... N = 108

Mean = 29.17

S.D. = 12.64

Skewness = -0.07

Variable #12: Female literacy (Litfem #12)

This gives the number of females who reported that could read and write expressed as percent to total females in the village.

The questions:

V #182B How many females are literate according to 1961 Census enumeration in this village?

V #183B What is the total number of females in the 1961 Census?

Scoring procedure:

The figure for literate females was divided by the figure for total females and expressed as percent.

| Percent of literate
females to total females | Village
frequency |
|---|----------------------|
|---|----------------------|

| | |
|---------|----|
| 00 - 00 | 5 |
| 1 - 10 | 60 |
| 11 - 20 | 32 |
| 21 - 30 | 9 |
| 31 - 40 | 1 |

N-NA = 107

Missing values ... NA = 1

Total ... N = 108

Mean = 9.69

S.D. = 7.48

Skewness = 0.77

Variable #13: Boys' primary education index (Primem #13)

This gives the number of boys in the village who attend school up to the 5th grade.

The questions:

- V #184A Would you tell me the number of boys from this village who are actually attending school in primary (1 to 5) grades? _____
- V #183A What is the total number of persons enumerated (male) in the village in 1961 Census? _____

Scoring procedure:

Total number of boys attending primary school is divided by the total number of males enumerated in 1961 Census, and expressed as percent.

Descriptive statistics:

| Ratio of boys in primary school to total male population (in percent) | Village frequency |
|---|-------------------|
| 00 - 00 | 1 |
| 1 - 10 | 50 |
| 11 - 20 | 47 |
| 21 - 30 | 6 |
| 31 - 40 | 1 |
| 41 - 50 | 1 |
| | N-NA = <u>107</u> |
| Missing values ... NA = | 1 |
| Total ... N = | <u>108</u> |

Mean = 11.86

S.D. = 7.57

Skewness = 2.01

Data loc:9:39,40

Variable #14: Girls' primary education index (Primef #14)

This gives the number of girls in the village who attend school up to 5th grade.

The Questions:

- V #184B Would you tell me the number of girls from this village who are actually attending school in primary (1 to 5) grades? _____
- V #183B What is the total number of persons enumerated (females) in 1961 Census in the village? _____

Scoring procedure:

Total number of girls attending primary school was divided by the total number of females enumerated in 1961 Census and expressed as percent.

Descriptive statistics:

| Ratio of girls in primary
school to total female
population (in percent) | Village
frequency |
|--|----------------------|
| 00 - 00 | 1 |
| 01 - 10 | 82 |
| 11 - 20 | 12 |
| 21 - 30 | 1 |
| 31 - 40 | 1 |

N-NA = 105

Missing values ... NA = 3

Total ... N = 108

Mean = 5.87

S.D. = 5.49

Skewness = 2.35

Data loc:9:41,42

Variable #15: Boys' middle school education index (Midem #15)

This gives the number of boys in the village who attend school 6 to 8th grade.

The questions:

- V #185A Would you tell me the number of boys from this village who are actually attending middle school (6 to 8) grades? _____
- V #183A What is the total number of persons (males) enumerated in the village in 1961 Census? _____

Scoring procedure:

The figure for number of boys attending middle school is divided by the total number of males enumerated in 1961 Census, and expressed as percent.

Descriptive statistics:

| Ratio of boys in middle
school to total male
population of the village
(percent) | Village
frequency |
|---|----------------------|
| 00 - 00 | 37 |
| 01 - 10 | 60 |
| 11 - 20 | 4 |
| | N-NA = <u>104</u> |
| Missing values ... | NA = 4 |
| Total ... | N = <u>108</u> |

Mean = 3.07

S.D. = 4.11

Skewness = 1.97

Data loc:9:43,44

Variable #16: Girls' middle school education index (Midfem #16)

This gives the number of girls in the village who attend school 6 to 8th grade.

The questions:

| | | |
|---------|---|-------|
| V #185B | Would you tell me the number of girls from this village who are actually attending middle school (6 to 8) grades? | _____ |
| V #183B | What is the total number of persons (females) enumerated in the village in 1961 Census? | _____ |

Scoring procedure:

The figure for number of girls attending middle school is divided by the total number of females enumerated in 1961 Census in the village, expressed as percent.

Descriptive statistics:

Ratio of girls in middle school to total female population of the village (percent)

Village frequency

00 - 00

41

01 - 10

53

11- 20

4

N-NA = 98

Missing values ... NA = 10

Total ... N = 108

Mean = 2.68

S.D. = 3.76

Skewness = 1.95

Variable #17: Boys' high school education index (Him #17)

This gives the number of boys in the village who attend high school (9 to 12 years).

The questions:

V #186A Would you tell me the number of boys from this village who are actually attending high school (9 to 12 years)? _____

V #183A What is the total number of persons (males) enumerated in the village in 1961 Census? _____

Scoring procedure:

The figure for number of boys attending high school is divided by the total number of males enumerated in 1961 Census, and expressed as percent.

Descriptive statistics:

Ratio of boys in high school
to total male population of
the village (percent)

Village
frequency

| | |
|---------|----|
| 00 - 00 | 58 |
| 01 - 04 | 41 |
| 05 - 09 | 5 |

N-NA = 104

Missing values ... NA = 4

Total ... N = 108

Mean = 0.99

S.D. = 1.63

Skewness = 2.51

Data loc:9:47,48

Variable #18: Girls' high school education index (Hifem #18)

This gives the number of girls in the village who attend high school (9 to 12 years).

The questions:

| | | |
|---------|---|-------|
| V #186B | Would you tell me the number of girls from this village who are actually attending high school (9 to 12 years)? | _____ |
| V #183B | What is the total number of persons (females) enumerated in the village in 1961 Census? | _____ |

Scoring procedure:

The figure for number of girls attending high school is divided by the total number of females enumerated in 1961 Census, and expressed as percent.

Descriptive statistics:

| | |
|---|----------------------|
| Ratio of girls in high school
to total female population
of the village (percent) | Village
frequency |
| 00 - 00 | 91 |
| 01 - 04 | 12 |
| | N-NA = <u>103</u> |
| Missing values ... | NA = 5 |
| Total ... | N = <u>108</u> |

Mean = 0.25

S.D. = 0.65

Skewness = 4.5

Data loc:9:61,62

Variable #19: Infant mortality rate (Infmart #19)

It gives the number of children under one year died in 1966 as a proportion of children born.

The questions:

How many children were born in this village in 1966? _____

How many children less than one year old died in this village in 1966? _____

Scoring procedure:

Number of children under one year died divided by number of children born and expressed per hundred.

Descriptive statistics:

| Infant mortality measure
(per 100) | Village
frequency |
|---------------------------------------|----------------------|
| 00 - 00 | 22 |
| 01 - 10 | 40 |
| 11 - 20 | 27 |
| 21 - 30 | 5 |
| 31 - 40 | 4 |
| 41 - 50 | 1 |
| | N-NA = 99 |
| Missing values ... | NA = 9 |
| Total ... | N = 108 |

Mean = 9.45

S.D. = 9.19

Skewness = 1.61

Variable #20: Crude birth rate (Birth #20)

The questions:

How many children were born in this village
in 1966? _____

What is the total number of persons enumerated
in 1961 Census? _____

Scoring procedure:

$$\frac{\text{Number of born children multiplied by 1000}}{\text{Population of village}} = \text{Expressed in nearest integers}$$

Descriptive statistics:

| Birth rate (per
thousand persons) | Village
frequency |
|--------------------------------------|----------------------|
| 00 - 00 | 1 |
| 01 - 10 | 12 |
| 11 - 20 | 16 |
| 21 - 30 | 23 |
| 31 - 40 | 17 |
| 41 - 50 | 10 |
| 51 - 60 | 5 |
| 61 - 70 | 2 |
| 71 - 80 | 1 |
| 81 - 90 | 1 |
| 91 - 100 | 1 |

Total N = 108

Mean = 29.90

S.D. = 16.29

Skewness = 1.06

Variable #22: Village agricultural development (Agladb #22)

Rating by the block development officer on a seven-step ladder.

The questions:

| | |
|---|---|
| BDO #16 to #19 Here is a ladder of seven steps.
Suppose on the top step of the ladder is the village in your block in which the Community Development programs in agriculture have been MOST successful....and on the bottom step of the ladder is the village in your block in which these programs have been LEAST successful.

Where on this ladder would you place Village #1, #2, #3, and #4? | 7 |
| | 6 |
| | 5 |
| | 4 |
| | 3 |
| | 2 |
| | 1 |

Scoring procedure:

| |
|--|
| If the village is marked below first step then score = 0 |
| " " on the first step then score = 1 |
| " " on the second step then score = 2 |
| " " on the third step then score = 3 |
| " " on the fourth step then score = 4 |
| " " on the fifth step then score = 5 |
| " " on the sixth step then score = 6 |
| " " on the seventh step then score = 7 |

Descriptive statistics:

| Development rating | Village frequency | Percent |
|--------------------|-------------------|---------|
| 1 | 12 | 11.11 |
| 2 | 10 | 9.26 |
| 3 | 20 | 18.52 |
| 4 | 18 | 16.67 |
| 5 | 15 | 13.89 |
| 6 | 11 | 10.19 |
| 7 | 10 | 9.26 |
| N-NA = 96 | | |
| Missing values ... | NA = 12 | 11.11 |
| Total ... N = 108 | | |

Mean = 3.93

S.D. = 1.71

Skewness = 1.83

Data loc:11:23

Variable #23: Village health and family planning development (Hfpladp #23)

Rating by the block development officer on a seven-step ladder.

The questions:

| | |
|---|---|
| BDO #20 to #23 Here is a ladder of seven steps.
Suppose on the top step of the ladder is the village in your block in which the Community Development programs in health and family planning have been MOST successfuland on the bottom step of the ladder is the village in your block in which these programs have been LEAST successful.

Where on this ladder would you place Village #1, #2, #3, and #4? | 7 |
| | 6 |
| | 5 |
| | 4 |
| | 3 |
| | 2 |
| | 1 |

Scoring procedure:

If the village is marked below first step then score = 0
 " " on the first step then score = 1
 " " on the second step then score = 2
 " " on the third step then score = 3
 " " on the fourth step then score = 4
 " " on the fifth step then score = 5
 " " on the sixth step then score = 6
 " " on the seventh step then score = 7

Descriptive statistics:

| Health and family planning development rating | Village frequency | Percent |
|---|-------------------|---------|
| 0 | 2 | 1.85 |
| 1 | 26 | 24.07 |
| 2 | 12 | 11.11 |
| 3 | 14 | 12.96 |
| 4 | 15 | 13.89 |
| 5 | 8 | 7.41 |
| 6 | 6 | 5.56 |
| 7 | 7 | 6.48 |

N-NA = 90
 Missing values ... NA = 18
 Total ... N = 108

Mean = 3.06

S.D. = 1.79

Skewness = 0.49

Variable #24: Village agricultural development (Aglada #24)

Rating by the Agricultural Extension Officer on a seven-step ladder.

The questions:

| | |
|--|---|
| AEO #26 to #29: Here is a ladder of seven steps.
Suppose on the top step of the ladder is the village in your block in which the Community Development programs in agriculture have been MOST successful....and on the bottom step of the ladder is the village in your block in which these programs have been LEAST successful.

Where on this ladder would you place Village #1, #2, #3, and #4? | 7 |
| | 6 |
| | 5 |
| | 4 |
| | 3 |
| | 2 |
| | 1 |

Scoring procedure:

| |
|--|
| If the village is marked below first step then score = 0 |
| " " on the first step then score = 1 |
| " " on the second step then score = 2 |
| " " on the third step then score = 3 |
| " " on the fourth step then score = 4 |
| " " on the fifth step then score = 5 |
| " " on the sixth step then score = 6 |
| " " on the seventh step then score = 7 |

Descriptive statistics:

| Agricultural development rating | Village frequency | Percent |
|---------------------------------|-------------------|---------|
| 0 | 0 | 0 |
| 1 | 9 | 8.33 |
| 2 | 11 | 10.19 |
| 3 | 18 | 16.67 |
| 4 | 30 | 27.78 |
| 5 | 13 | 12.04 |
| 6 | 14 | 12.96 |
| 7 | 13 | 12.04 |

N = 108

Mean = 4.14

S.D. = 1.75

Skewness = -0.005

Variable #25: Improved seed utilization index (Sedgut #25)

This gives the percentage of cultivators who bought improved seeds for food and cash crops.

The question:

| | | |
|---|-------|---|
| VLW #87 What percentage of cultivators growing two major food crops and one major cash crop bought improved seeds for the last cropping season from official sources like the Community Development organization? | | |
| Food crop..... | _____ | % |
| Food crop..... | _____ | % |
| Cash crop..... | _____ | % |

Scoring procedure:

Villages where no farmers bought improved seeds for food and cash crops scored as 0

Villages where 10% or more of the farmers bought improved seed for 1st food crop only scored as 1

Villages where 10% or more of the farmers bought improved seed for 1st and 2nd food crops only scored as 2

Villages where 10% or more of the farmers bought improved seed for 1st food crop, 2nd food crop, and a cash crop scored as 3

Descriptive statistics:

| Improved seed utilization score | Village frequency | Percent |
|---------------------------------|-------------------|---------|
| 0 | 63 | 39.81 |
| 1 | 27 | 25.00 |
| 2 | 20 | 18.52 |
| 3 | 18 | 16.67 |

N = 108

Mean = 1.12

S.D. = 1.11

Skewness = 0.49

Variable #26: Agricultural implement utilization index (Imple #26)

This gives the percentage of cultivators in a given village using the most recommended agricultural implements.

The questions:

| | | |
|----------|--|------------------|
| VLW #123 | What three implements are most recommended for this village? | |
| | | Implement 1..... |
| | | Implement 2..... |
| | | Implement 3..... |
| VLW #125 | What percentage of the cultivators is using them? | |
| | Implement 1..... | _____ % using |
| | Implement 2..... | _____ % using |
| | Implement 3..... | _____ % using |

Scoring procedure:

Villages where no farmers used any of the recommended agricultural implements .. scored as 0

Villages where 1% or more of the cultivators used the 1st recommended implement scored as 1

Villages where 1% or more of the cultivators used 1st and 2nd recommended implement scored as 2

Villages where 20% or more of the cultivators used 1st, 2nd, and 3rd recommended implement scored as 3

Descriptive statistics:

| Implement utilization score | Village frequency | Percent |
|-----------------------------|-------------------|---------|
| 0 | 16 | 14.81 |
| 1 | 19 | 17.59 |
| 2 | 48 | 44.44 |
| 3 | 25 | 23.15 |

N = 108

Mean = 1.19

S.D. = 1.82

Skewness = 1.02

Variable #27: Cattle and manure adoption index (Catman #27)

This gives the location of the village measured in terms of the number of compost pits dug, percentage of cultivators using green manure, number of poultry birds supplied to the village, number of improved cattle supplied to the village and number of artificial or improved natural inseminations.

The questions:

| | | |
|----------|--|-------|
| VLW #130 | How many compost pits have been dug so far in this village? | _____ |
| VLW #128 | What percentage of the cultivators of this village is using green manure on their fields? | _____ |
| VLW #132 | How many improved birds have been supplied to this village during the last 5 years? | _____ |
| VLW #126 | How many heads of improved cattle have been supplied by development agencies to this village so far? | _____ |
| VLW #134 | How many artificial inseminations have been administered? | _____ |
| VLW #135 | How many cows have been inseminated by improved bulls in a natural way? | _____ |

Scoring procedure:

Villages where no manure
and cattle adoption scored 0

Villages where one or more compost
pits are dug scored 1

Villages where one or more compost
pits are dug and 10% or more of
the cultivators are using green
manure scored 2

Villages where one or more compost
pits are dug, 10% or more of the
cultivators are using green manure,
and 1 or more poultry birds are
supplied scored 3

Variable #27 (cont'd.)

Villages where one or more compost pits are dug, 10% or more of the cultivators are using green manure, 1 or more poultry birds are supplied, and 1 or more improved cattle are supplied scored 4

Village where one or more compost pits are dug, 10% or more of the cultivators are using green manure, 1 or more poultry birds are supplied, and 1 or more improved cattle are supplied, and 20 or more artificial inseminations or improved natural inseminations scored 5

Descriptive statistics:

| Cattle and manure
adoption score | Village
frequency | Percent |
|-------------------------------------|----------------------|---------|
| 0 | 6 | 5.56 |
| 1 | 28 | 25.93 |
| 2 | 27 | 25.00 |
| 3 | 27 | 25.00 |
| 4 | 17 | 15.74 |
| 5 | 3 | 2.78 |

N = 108

Mean = 2.28

S.D. = 1.24

Skewness = 0.13

Variable #28: Plant protection adoption (Plantpro #28)

This gives the location of the village in terms of the number of acres under seed treatment.

The question:

| | | |
|---|----------------|-------------|
| VLW #137 How many acres were treated with plant protection measures last year for each of the two major food crops and one major cash crop? | | |
| | Food crop..... | _____ acres |
| Seed Treatment | Food crop..... | _____ acres |
| | Cash crop..... | _____ acres |

Scoring procedure:

Villages with no seed treatment for
for any crop score 0

Villages with 50 acres or more of seed
treated for 1st food crop score 1

Villages with 50 acres or more of seed
treated for 1st food crop and 5 acres
or more of seed treated for 2nd food
crop score 2

Villages with 50 acres or more of seed
treated for 1st food crop, 5 acres or
more seed treated for 2nd food crop,
and 1 acre or more of seed treated for
cash crop score 3

Descriptive statistics:

| Plant protection
score | Village
frequency | Percent |
|---------------------------|----------------------|---------|
| 0 | 64 | 59.26 |
| 1 | 22 | 20.37 |
| 2 | 18 | 16.67 |
| 3 | 4 | 3.70 |

N = 108

Mean = 0.65

S.D. = 0.88

Skewness = 1.07

Variable #29: Village progress index (Prize #29)

This refers to the receipt of certificate or prize by a village from outside agency as mark of progress.

The question:

VLW #189 Has this village ever received a certificate or prize as a progressive village?

No _____ Yes _____

Scoring procedure:

If the village has no certificate
or prize score 0

If the village has a certificate or
prize score 1

Descriptive statistics:

| Progress score | Village frequency | Percent |
|-------------------------|-------------------|---------|
| 0 | 88 | 81.48 |
| 1 | 19 | 17.60 |
| N-NA = 107 | | |
| Missing values ... NA = | 1 | .93 |
| Total ... N = 108 | | |

Mean = 0.18

S.D. = 0.38

Skewness = 3.40

Variable #30: Seed distribution index (Sedix #30)

This gives improved seed rate as a percentage of the standard recommended seed rate for the food crop in the village.

The questions:

| | | |
|------------------|---|-----------------|
| VLW #86 | How much improved seed was distributed in this village last cropping season by the Community Development organization and other sources for the two major food crops and one major cash crop? | |
| | Food crop..... | _____ Kilograms |
| | Food crop..... | _____ Kilograms |
| | Cash crop..... | _____ Kilograms |
| VLW #145 to #155 | Food crop..... | _____ Acres |
|  | ..... | _____ Acres |
|  | ..... | _____ Acres |
|  | ..... | _____ Acres |

Scoring procedure:

Divide acreage for first crop for which there was complete information reported, into Kilograms of seed distributed for that crop, and express this Kilogram per acre figure as percent of recommended seeding rate,

| | |
|------------------------|------------|
| | N-NA = 102 |
| Missing value ... NA = | 6 |
| Total... N = | <u>108</u> |

Mean = 0.28

S.D. = 0.54

Skewness = 3.63

Variable #31: Empathy index of village leaders (Emp #31)

This gives the villages with leaders who take different roles and suggested specific action.

The questions:

- VL #87 If you were the Block Development Officer of this block, what program of agriculture would you make or conduct?
- VL #88 If you were president of the panchyat here in your village, what would you do in the next year?
- VL #89 If you were an average cultivator, what would you do to improve your income?

Scoring procedure:

For each question in each village the percentage of leaders who took role and suggested specific action was calculated. The number of leaders in each village was 8. This percentage was summed across all the three questions and an average was calculated and scored as follows:

| | | | |
|-----------------------|---------|-------|-------------|
| If the percentage was | 00 - 09 | score | 0 |
| " | " | " | 10 - 19 |
| " | " | " | 20 - 29 |
| " | " | " | 30 - 39 |
| " | " | " | 40 - 49 |
| " | " | " | 50 - 59 |
| " | " | " | 60 - 69 |
| " | " | " | 70 - 79 |
| " | " | " | 80 and more |
| | | | 8 |

Descriptive statistics:

| Leader empathy score | Village frequency | Percent |
|----------------------|-------------------|---------|
| 00 | 00 | 00 |
| 01 | 00 | 00 |
| 02 | 01 | .93 |
| 03 | 02 | 1.85 |
| 04 | 05 | 4.63 |
| 05 | 09 | 8.33 |
| 06 | 15 | 13.89 |
| 07 | 48 | 44.44 |
| 08 | 28 | 25.93 |

N = 108

Mean = 6.69

S.D. = 1.26

Skewness = -.92

Data loc:34:20,21

Variable #32: Index of favorableness toward new programs or changes
(Change norm #32)

This gives the degree of acceptance of norms favorable to change.

The questions:

VL # 47 What is your opinion on improved agricultural practices and programs to promote them?

Very favorable _____ Favorable _____ Unfavorable _____
Very unfavorable _____ Do not know _____

VL # 48 What is your opinion on health practices and programs to promote them? Would you say

Very favorable _____ Favorable _____ Unfavorable _____
Very unfavorable _____ Do not know _____

VL # 49 What is your opinion on family planning practices and programs to promote them? Would you say

Very favorable _____ Favorable _____ Unfavorable _____
Very unfavorable _____

VL # 72 Suppose that a man in the village would have an operation in order to keep from having any more children. What would you say that people would think of him?

VL # 73 Would most people encourage or discourage a housewife who tried to learn how to read and write?

Encourage _____ Not care _____ Discourage _____

Do not know _____

VL #109 I have talked with a cultivator who used a new type of plough that is quite profitable for him. However, in order to get the plough repaired, he had to break the jajman's relationship with the village blacksmith. This still troubled him a bit. Did he do right, or wrong, in buying and using the new plough? Why do you think so?

Right _____ Wrong _____

Variable #32 (cont'd.)

Scoring procedure:

For responses to Questions #47, 48, 49 the scoring procedures was as follows:

| | |
|------------------|---------|
| Very unfavorable | score 0 |
| Unfavorable | score 1 |
| Favorable | score 2 |
| Very favorable | score 3 |

The responses to Question #72 were scored as follows:

| | |
|---|---------|
| All disapprove--general disapproval | score 1 |
| Most disapprove, minority favor | score 2 |
| Some approve; some don't, evenly divided | score 3 |
| Most approve; minority do not | score 4 |
| General approval; people welcome it all encourage | score 5 |

In each village, leaders numbering 8 were interviewed. For each question an average score was computed for each village based on 8 responses. The score was rounded to the nearest whole number.

The responses to Question #73 were scored as follows:

| | |
|------------|---------|
| Discourage | score 0 |
| Not care | score 1 |
| Encourage | score 2 |

In each village, 8 leaders were interviewed. Percentage of leaders who would encourage housewives to learn to read and write was computed for each village. Each village was assigned a score based on this percentage according to the following procedure:

| | | | | | | |
|------------------------------------|---|---|----|----|----|---------|
| If a village had 0 or less than 1% | | leaders who would encourage housewives to learn to read and write | .. | .. | .. | score 0 |
| " | " | 1 to 10% | .. | .. | .. | score 1 |
| " | " | 11 to 20% | .. | .. | .. | score 2 |
| " | " | 21 to 30% | .. | .. | .. | score 3 |
| " | " | 31 to 40% | .. | .. | .. | score 4 |
| " | " | 41 to 50% | .. | .. | .. | score 5 |
| " | " | 51 to 60% | .. | .. | .. | score 6 |
| " | " | 61 to 70% | .. | .. | .. | score 7 |
| " | " | 71 to 80% | .. | .. | .. | score 8 |
| " | " | 81 and more | .. | .. | .. | score 9 |

Variable #32 (cont'd.)

The responses to Question #109 were scored as follows:

| | |
|--------------------|---------|
| No or wrong | score 0 |
| Conditional answer | score 1 |
| Yes or right | score 2 |

In each village, 8 leaders were interviewed. Percentage of leaders who said yes or right was computed to each of 108 villages. Each village was assigned a score based on this percentage according to the following procedure:

If the village had a percentage of leaders who said yes or right to Question #109

| | | |
|---------|-------------|---------|
| ranging | 0 to 9 | score 0 |
| " | 10 to 19 | score 1 |
| " | 20 to 29 | score 2 |
| " | 30 to 39 | score 3 |
| " | 40 to 49 | score 4 |
| " | 50 to 59 | score 5 |
| " | 60 to 69 | score 6 |
| " | 70 to 79 | score 7 |
| " | 80 to 89 | score 8 |
| " | 90 and more | score 9 |

To obtain an index of favorableness toward new programs for each village, the score for each of the questions (#47, 48, 49, 72, 73, and 109) was summed to give a composite score on favorableness toward new programs.

Descriptive statistics:

| Composite score
on favorableness
toward new programs | Village
frequency | Percent |
|--|----------------------|---------|
| 08 | 1 | .93 |
| 09 | 1 | .93 |
| 12 | 3 | 2.78 |
| 13 | 4 | 3.70 |
| 14 | 1 | .93 |
| 15 | 3 | 2.78 |
| 16 | 4 | 3.70 |
| 17 | 4 | 3.70 |
| 18 | 8 | 7.41 |

Variable #32 (cont'd.)

| | | |
|----|----|-------|
| 19 | 6 | 5.56 |
| 20 | 17 | 15.74 |
| 21 | 7 | 6.48 |
| 22 | 11 | 10.19 |
| 23 | 8 | 7.41 |
| 24 | 11 | 10.19 |
| 25 | 5 | 4.63 |
| 26 | 7 | 6.48 |
| 27 | 7 | 6.48 |

N = 108

Mean = 20.62

S.D. = 4.17

Skewness = -.63

Variable #33: Leaders' economic orientation index (Ecorient #33)

This gives belief orientations of village leaders with reference to choosing alternatives in investment decisions, job decisions, and career changes.

The questions:

- | | | |
|---------|--|-----------------------|
| VL #105 | Some time ago I met a cultivator who saw good possibilities to increase his income by establishing a fruit orchard. In order to do this he needed more capital. The only way to get this capital was to sell an acre of land that he had rented to somebody else. This he did. Did he do right or wrong? | No _____
Yes _____ |
| VL #106 | Suppose it is profitable for a cultivator with money to start a dairy operation. Should a cultivator who would have to borrow most of the money start such an operation? | No _____
Yes _____ |
| VL #107 | If you had an opportunity to double your income by selling your farm and investing in another business, would you do it? | No _____
Yes _____ |
| VL #108 | If you are offered a job in a city which would give you about double the income as you now receive, would you move to that city? | No _____
Yes _____ |

Scoring procedure:

In each village 8 leaders were interviewed. For each village the percentage of leaders who responded "yes" to Questions #105, #106, #107, #108 was computed each separately.

Variable #33 (cont'd.)

| | | | |
|---|-------------|-------|---|
| If the percentage of leaders in a village | | | |
| ranged | 0 to 9 | score | 0 |
| " | 10 to 19 | score | 1 |
| " | 20 to 29 | score | 2 |
| " | 30 to 39 | score | 3 |
| " | 40 to 49 | score | 4 |
| " | 50 to 59 | score | 5 |
| " | 60 to 69 | score | 6 |
| " | 70 to 79 | score | 7 |
| " | 80 to 89 | score | 8 |
| " | 90 and more | score | 9 |

These scores were summed for each village across questions #105, 106, 107, 108 making a composite score indicating the village leader's economic orientation.

Descriptive statistics:

| Village leader
economic orientation
score | Village
frequency | Percent |
|---|----------------------|---------|
| 06 | 1 | .93 |
| 08 | 2 | 1.85 |
| 09 | 4 | 3.70 |
| 11 | 5 | 4.63 |
| 13 | 6 | 5.56 |
| 14 | 7 | 6.48 |
| 15 | 12 | 11.11 |
| 16 | 11 | 10.19 |
| 17 | 8 | 7.41 |
| 18 | 7 | 6.48 |
| 19 | 17 | 15.74 |
| 20 | 7 | 6.48 |
| 21 | 2 | 1.85 |
| 22 | 7 | 6.48 |
| 23 | 4 | 3.70 |
| 24 | 4 | 3.70 |
| 25 | 1 | .93 |
| 26 | 1 | .93 |
| 28 | 1 | .93 |
| 30 | 1 | .93 |

N = 108

Mean = 17.25

S.D. = 4.36

Skewness = 0.02

Variable #34: Sacred-secular index (Sac #34)

This gives the psychological tendency of the leaders underlying the behavior patterns to be rational and use of science-technology based justifications.

The questions:

VL # 97 When a member of your family fell seriously ill last time, did you go to the temple and take a vow?

No _____
Yes _____

VL # 98 Can evil spirits cause disease?

No _____
Yes _____

VL # 99 Have you made sacrifice to prevent sickness?

No _____
Yes _____

VL #100 Should Harijans be allowed to draw water from all wells in the village?

No _____
Yes _____

VL #101 Should Harijans and other children take meals together in school?

No _____
Yes _____

VL #102 If your son wanted to marry a lower caste girl would you allow it?

No _____
Yes _____

VL #103 Do you think Harijans should be allowed to worship in all temples of the village?

No _____
Yes _____

VL #104 In your opinion, is an illiterate village Brahmin superior to a lower caste B.A. or M.A.?

No _____
Yes _____

Variable #34 (cont'd.)

Scoring procedure:

Responses to Questions #97, #98, #99, and #104 were scored as follows:

| | | |
|-----|-------|---|
| No | score | 1 |
| Yes | score | 0 |

Responses to Questions #100, #101, #102, and #103 were scored as follows:

| | | |
|-----|-------|---|
| Yes | score | 1 |
| No | score | 0 |

These scores were summed across all the 8 questions and across all the eight leaders in each village, and an average score per leader in each village was computed, and rounded to the nearest whole number.

| Average sacred
secular leader
score | Village
frequency | Percent |
|---|----------------------|---------|
| 2 | 3 | 2.78 |
| 3 | 5 | 4.63 |
| 4 | 7 | 6.48 |
| 5 | 31 | 28.70 |
| 6 | 39 | 36.11 |
| 7 | 20 | 18.52 |
| 8 | 3 | 2.78 |
| N = 108 | | |

Mean = 5.57

S.D. = 1.23

Skewness = -.75

Variable #35: Postal accessibility (Postac #35)

This gives the physical distance between the village and the postal facility.

The question:

V #34 How far is the post office facility from the village?
_____ miles

Scoring procedure:

| | | |
|------------------|-------|---|
| 10 miles or over | score | 0 |
| 5 to 9.9 miles | score | 1 |
| 1 to 4.9 miles | score | 2 |
| Under 1 mile | score | 3 |
| In village | score | 4 |

Descriptive statistics:

| Postal accessibility
score | Village
frequency | Percent |
|-------------------------------|----------------------|---------|
| 0 | 2 | 1.85 |
| 1 | 6 | 5.56 |
| 2 | 43 | 39.81 |
| 3 | 14 | 12.96 |
| 4 | 43 | 39.81 |

N = 108

Mean = 2.83

S.D. = 1.06

Skewness = -0.29

Variable #36: Library accessibility (Libac #36)

This gives the distance of library facility from the village.

The question:

V #46 How far is the library facility available to this village?

_____miles

Scoring procedure:

| | | |
|------------------|-------|---|
| 10 miles or over | score | 0 |
| 5 to 9.9 miles | score | 1 |
| 1 to 4.9 miles | score | 2 |
| Under one mile | score | 3 |
| In village | score | 4 |

Descriptive statistics:

| Library accessibility score | Village frequency | Percent |
|-----------------------------|-------------------|---------|
| 0 | 8 | 7.41 |
| 1 | 13 | 12.04 |
| 2 | 29 | 26.85 |
| 3 | 8 | 7.41 |
| 4 | 44 | 40.74 |
| N-NA = 102 | | |
| Missing data ... NA = | 6 | 5.56 |
| Total.. N = 108 | | |

Mean = 2.68

S.D. = 1.31

Skewness = -0.44

Variable #37: Access to cinema (Cinedist #37)

This gives the distance between the village and the location of the cinema house.

The question:

| |
|---|
| <p>V #56 How far is the cinema facility available to this village?</p> <p style="text-align: right;">_____miles</p> |
|---|

Scoring procedure:

| | | |
|-------------------|-------|---|
| 10 miles and more | score | 0 |
| 5 to 9.9 miles | score | 1 |
| 1 to 4.9 miles | score | 2 |
| Under 1 mile | score | 3 |
| In village | score | 4 |

Descriptive statistics:

| Cinema accessibility score | Village frequency | Percent |
|----------------------------|-------------------|---------|
| 0 | 52 | 48.15 |
| 1 | 32 | 29.63 |
| 2 | 20 | 18.51 |
| 3 | 0 | 00.00 |
| 4 | 4 | 3.70 |

N = 108

Mean = 0.81

S.D. = 0.98

Skewness = 1.31

Data loc:34:56,57
(Decimal point between 56 and 57)

Variable #38: Official residence ratio (Office #38)

This gives the number of officials residing in village per 1000 population.

The question:

VLW #200 How many government officials reside in this village? _____

V #183 What is the total number of persons enumerated in this village in 1961: _____

Scoring procedure:

For each village, the figure for number of officials was divided by the total number of persons enumerated and multiplied by 1000.

Rate of officials
residing in the
village per
1000 persons

Village
frequency

| | |
|---------|----|
| 00 - 02 | 91 |
| 03 - 05 | 31 |
| 06 - 08 | 19 |
| 09 - 11 | 5 |
| 12 - 14 | 4 |
| 20 - 22 | 0 |
| 23 - 25 | 4 |
| 26 - 28 | 1 |
| 29 - 61 | 0 |
| 62 - 64 | 2 |

N-NA = 97

Missing values ... NA = 11

Total ... N = 108

Mean = 6.6

S.D. = 9.18

Skewness = 4.19

Variable #39: Index of access to transport facilities (Transix #39)

This gives the degree of accessibility to different modes of transport available to the village.

The questions:

| | | |
|------|--|-------------|
| V #7 | How far is this village from the nearest all-weather road? | _____ miles |
| V #8 | How far from the nearest bus station or stop? | _____ miles |
| V #9 | How far from the nearest railway station? | _____ miles |

Scoring procedure:

Responses to each of the Questions #7, #8, and #9 were scored as follows:

| | | |
|-------------------|-------|---|
| 10 miles and over | score | 0 |
| 5 to 9.9 miles | score | 1 |
| 1 to 4.9 miles | score | 2 |
| Under 1 mile | score | 3 |
| In village | score | 4 |

The scores for the three questions were summed for each village to obtain a composite score of access to transport facilities.

Descriptive statistics:

| Access to transport facilities score | Village frequency | Percent |
|--------------------------------------|-------------------|---------|
| 00 | 1 | .93 |
| 01 | 2 | 1.85 |
| 02 | 6 | 5.56 |
| 03 | 9 | 8.33 |
| 04 | 23 | 21.30 |
| 05 | 11 | 10.19 |
| 06 | 20 | 18.52 |
| 07 | 9 | 8.33 |
| 08 | 14 | 12.96 |
| 09 | 7 | 6.48 |
| 10 | 4 | 3.70 |
| 12 | 1 | .93 |

N-NA = 107

Missing value ... NA = 1

Total... N = 108

Mean = 5.59

S.D. = 2.31

Skewness = .16

Variable #40: Land-oriented conservatism of leaders (Land consori #40)

This gives the percentage of village leaders who are inclined

The question:

V #105 Some time ago I met a cultivator who saw good possibilities to increase his income by establishing a fruit orchard. In order to do this he needed more capital. The only way to get this capital was to sell an acre of land that he had rented to somebody else. This he did. Did he do right or wrong?

No _____
Yes _____

Scoring procedure:

In each village eight leaders were interviewed. The percentage of leaders in each village who said "Yes" to Question #107 was computed.

| | | | |
|----------------------|-------------|-------|---|
| If the percentage is | 0 to 9 | score | 0 |
| " | 10 to 19 | score | 1 |
| " | 20 to 29 | score | 2 |
| " | 30 to 39 | score | 3 |
| " | 40 to 49 | score | 4 |
| " | 50 to 59 | score | 5 |
| " | 60 to 69 | score | 6 |
| " | 70 to 79 | score | 7 |
| " | 80 to 89 | score | 8 |
| " | 90 and more | score | 9 |

Descriptive statistics:

| Land-oriented
conservatism
score | Village
frequency | Percent |
|--|----------------------|---------|
| 0 | 2 | 1.85 |
| 1 | 1 | .93 |
| 2 | 11 | 10.19 |
| 3 | 9 | 8.33 |
| 4 | 0 | 0.00 |
| 5 | 23 | 21.30 |
| 6 | 19 | 17.59 |
| 7 | 20 | 18.52 |
| 8 | 16 | 14.81 |
| 9 | 7 | 6.48 |
| | N = 108 | |

Mean = 5.65

S.D. = 2.17

Skewness = -0.70

Variable #41: Credit-risk orientation (Creditori #41)

This gives a measure of the propensity of the leader in borrowing and investing.

The question:

V #106 Suppose it is profitable for a cultivator with money to start a dairy operation. Should a cultivator who would have to borrow most of the money start such an operation?

No _____

Yes _____

Scoring procedure:

In each village eight leaders were interviewed. The percentage of leaders in each village who said yes to Question #106 was computed and rounded to the nearest whole number.

| | | |
|----------------------|-------------|---------|
| If the percentage is | 0 to 9 | score 0 |
| " | 10 to 19 | score 1 |
| " | 20 to 29 | score 2 |
| " | 30 to 39 | score 3 |
| " | 40 to 49 | score 4 |
| " | 50 to 59 | score 5 |
| " | 60 to 69 | score 6 |
| " | 70 to 79 | score 7 |
| " | 80 to 89 | score 8 |
| " | 90 and more | score 9 |

Descriptive statistics:

| Credit-risk orientation
score of leaders | Village
frequency | Percent |
|---|----------------------|------------------|
| 0 | 0 | 0 |
| 1 | 1 | .93 |
| 2 | 3 | 2.78 |
| 3 | 6 | 5.56 |
| 4 | 2 | 1.85 |
| 5 | 12 | 11.11 |
| 6 | 22 | 20.37 |
| 7 | 27 | 25.00 |
| 8 | 19 | 17.59 |
| 9 | 16 | 14.81 |
| | N = 108 | |
| Mean = 6.57 | S.D. = 1.82 | Skewness = -1.08 |

Variable #42: Land-risk orientation of leaders (Riskori #42)

This gives the percentage of village leaders who are inclined to risk landed assets in favor of higher income from other sources.

The question:

V #107 If you had an opportunity to double your income by selling your farm and investing in another business, would you do it?

No _____
Yes _____

Scoring procedure:

In each village eight leaders were interviewed. The percentage of leaders in each village who said "Yes" to Question #105 was computed and rounded to the nearest whole number.

| | | |
|----------------------|-------------|---------|
| If the percentage is | 0 to 9 | score 0 |
| " | 10 to 19 | score 1 |
| " | 20 to 29 | score 2 |
| " | 30 to 39 | score 3 |
| " | 40 to 49 | score 4 |
| " | 50 to 59 | score 5 |
| " | 60 to 69 | score 6 |
| " | 70 to 79 | score 7 |
| " | 80 to 89 | score 8 |
| " | 90 and more | score 9 |

Descriptive statistics:

| Land-risk orientation
score of leaders | Village
frequency | Percent |
|---|----------------------|---------|
| 0 | 17 | 15.74 |
| 1 | 25 | 23.15 |
| 2 | 25 | 23.15 |
| 3 | 14 | 12.96 |
| 4 | 5 | 4.63 |
| 5 | 13 | 12.04 |
| 6 | 8 | 7.41 |
| 7 | 1 | .93 |
| 8 | 0 | .00 |
| 9 | 0 | .00 |

N = 108

Mean = 2.38

S.D. = 1.88

Skewness = .61

Variable #43: Occupational mobility-risk orientation (Occupmobi #43)

This gives a measure of the tendency of the village leaders to shift occupation giving more income.

The question:

V #108 If you are offered a job in a city which would give you about double the income as you now receive, would you move to that city?

No _____
Yes _____

Scoring procedure:

In each village eight leaders were interviewed. The percentage of leaders who said "Yes" to the question #108 above was computed and rounded to the nearest whole number.

| | | |
|----------------------------|-------------|---------|
| If the percentage range is | 0 to 9 | score 0 |
| " | 10 to 19 | score 1 |
| " | 20 to 29 | score 2 |
| " | 30 to 39 | score 3 |
| " | 40 to 49 | score 4 |
| " | 50 to 59 | score 5 |
| " | 60 to 69 | score 6 |
| " | 70 to 79 | score 7 |
| " | 80 to 89 | score 8 |
| " | 90 and more | score 9 |

Descriptive statistics:

| Occupational mobility
orientation score | Village
frequency | Percent |
|--|----------------------|---------|
| 0 | 11 | 10.19 |
| 1 | 18 | 16.67 |
| 2 | 31 | 28.70 |
| 3 | 19 | 17.59 |
| 4 | 10 | 9.26 |
| 5 | 13 | 12.04 |
| 6 | 5 | 4.63 |
| 7 | 0 | 0 |
| 8 | 1 | .93 |
| 9 | 0 | 0 |

N = 108

Mean = 2.59

S.D. = 1.71

Skewness = .55

Variable #44: Agricultural adoption index (Agadopt #44)

This is a measure of prevalent practices related to agriculture in the village.

The questions:

VL #32 Do you (leader) use chemical fertilizer?

Yes _____
No _____

Scoring procedure:

If the leaders using fertilizer in a village number

0 to 5 score 0
6 score 1
7 score 2
8 score 3

VL #34 Do you (leader) use green manure?

Yes _____
No _____

Scoring procedure:

If the leaders using green manure number

0 to 2 score 0
3 to 4 score 2
5 and more score 3

VL #36 Do you (leader) use new implements?

Yes _____
No _____

Scoring procedure:

If the leaders using new implements in the village number

0 to 1 score 0
2 to 4 score 2
5 and more score 3

Variable #44 (cont'd.)

VL #40 Do you (leader) use improved seeds?

Yes _____

No _____

Scoring procedure:

In the village, if the leaders using improved seeds number

0 to 3 score 0

4 to 5 score 1

6 score 2

7 and more score 3

VL #42 Do you (leader) use pesticides?

Yes _____

No _____

Scoring procedure:

If the leaders using pesticides in the village number

0 to 3 score 0

4 and 5 score 1

6 score 2

7 and more score 3

VL #44 Do you (leader) use new breeds of cattle?

Yes _____

No _____

Scoring procedure:

In the village, if the leaders using new breeds of cattle number

0 score 0

1 and more score 3

VLW #87 What percentage of cultivators growing two major food crops and one cash crop in the village bought improved seeds for the last cropping season from official sources like the community development organization?

_____ % cultivators First food crop _____

_____ % cultivators Second food crop _____

_____ % cultivators Cash crop _____

Variable #44 (cont'd.)

VLW #87 (cont'd.)

Scoring procedure:

In the village, if the percent of cultivators buying improved seed (First food crop)

| | | | |
|-------|-------------|-------|---|
| range | 0 to 9 | score | 0 |
| " | 10 to 24 | score | 2 |
| " | 25 and more | score | 3 |

improved seed (Second crop)

score same as in first food crop

improved seed (Cash crop)

score same as in first food crop

VLW #123 What three implements are most recommended for this village?

| | |
|-------------|-------|
| implement 1 | ..... |
| implement 2 | ..... |
| implement 3 | ..... |

VLW #125 What percentage of the cultivators is using them?

percentage _____

Scoring procedure:

In the village, if the percent of cultivators using first implement

| | | | |
|-------|-------------|-------|---|
| range | 0 | score | 0 |
| " | 1 to 19 | score | 2 |
| " | 20 and more | score | 3 |

second implement

score same as in first implement

Variable #44 (cont'd.)

VLW #126 How many heads of improved cattle have been supplied by development agencies to this village so far? _____ Heads

Scoring procedure:

In the village, if the number of improved cattle
 is 0 score 0
 " one or more score 3

VLW #128 What percentage of the cultivators of this village is using green manure on their fields? _____ % cultivators

Scoring procedure:

In the village, if the percentage of cultivators using green manure

| | | |
|-------|-------------|---------|
| range | 0 to 9 | score 0 |
| " | 10 to 49 | score 2 |
| " | 50 and more | score 3 |

VLW #130 How many compost pits have been dug so far in this village _____

Scoring procedure:

In the village, if the number of compost pits dug
 is 0 score 0
 " 1 to 9 score 1
 " 10 to 89 score 2
 " 90 and more score 3

VLW #134 What is the number of artificial inseminations administered in this village? _____

VLW #135 How many cows were inseminated by improved bulls in a natural way? _____

Variable #44 (cont'd.)

VLW #134-135 (cont'd.)

Scoring procedure:

For each village a total figure of artificial inseminations and natural improved bull services were computed.

If the number (total) in the village

| | | |
|----|-------------|---------|
| is | 0 | score 0 |
| " | 1 to 19 | score 2 |
| " | 20 and more | score 3 |

VLW #137 How many acres were treated with plant protection measures last year for each of the two major food crops and one major cash crop?

| | | |
|-----------------------|-------|-------|
| First food crop | _____ | acres |
| Second food crop..... | _____ | acres |
| Cash crop | _____ | acres |

Scoring procedure:

In the village, if the acres of First food crop seed treated

| | | |
|-------|------------------|---------|
| range | 0 to 99 acres | score 0 |
| " | 100 to 499 acres | score 2 |
| " | 500 and more | score 3 |

In the village, if the acres of Second food crop seed treated

| | | |
|-------|---------------|---------|
| range | 0 to 49 acres | score 0 |
| " | 50 and more | score 3 |

Scoring procedure:

For each village, 17 items based on the questions mentioned (see pages) were the basis for constructing the agricultural adoption index of the village. Scores on each item for each of the villages were summed to give a composite score of agricultural adoption index

Descriptive statistics

| Agricultural adoption score | Village frequency |
|-----------------------------|-------------------|
| 00 - 09 | 12 |
| 10 - 19 | 28 |
| 20 - 29 | 40 |
| 30 - 39 | 21 |
| 40 - 49 | 7 |
| 50 - 51 | 0 |

N = 108

Mean = 22.92

S.D. = 9.80

Skewness = -0.06

Variable #45: Bicycle index (Bicy #45)

This gives the number of bicycles in the village per 10,000 population.

The question:

| | | |
|-------|--|----------------|
| V #70 | How many bicycles are there in this village? | _____ bicycles |
| V#183 | What is the total number of persons enumerated in this village in 1961 census? | _____ |

Scoring procedure:

Total number of bicycles in the village were divided by the total population and multiplied by 10,000.

N = 108 Mean = 20.08 S.D. = 205.13 Skewness = 2.04

Variable #46: Electric pump index (Elecump #46)

This gives the number of electric pumps per 10,000 population.

The question

VLW #178 How many electric pumps are in operation in this village? _____

VLW #183 What is the total number of persons enumerated in this village in 1961? _____

Scoring procedure:

Total number of electric pumps was divided by the total population in the village and the ration is expressed as rate per thousand.

Descriptive statistics:

| Number of electric
pumps per thousand
persons | Village
frequency | Percent |
|---|----------------------|---------|
| 00 | 73 | 67.59 |
| 04 | 1 | .93 |
| 06 | 1 | .93 |
| 10 | 1 | .93 |
| 12 | 1 | .93 |
| 17 | 1 | .93 |
| 21 | 2 | 1.85 |
| 23 | 1 | .93 |
| 26 | 1 | .93 |
| 28 | 1 | .93 |
| 31 | 1 | .93 |
| 34 | 2 | 1.85 |
| 39 | 1 | .93 |
| 47 | 1 | .93 |
| 64 | 1 | .93 |
| 76 | 1 | .93 |
| 83 | 1 | .93 |
| 98 or more | 1 | .03 |
| N-NA = _____ | | |
| Missing value ... NA = | | 11.11 |
| NA = 108 | | |

Mean = 10.16

S.D. = 22.72

Skewness = 2.67

Variable #47: Oil engine index (Oilengi #47)

This gives the number of oil engines per 1000 persons.

The question:

| | | |
|----------|---|-------|
| VLW #180 | How many oil engines, such as pumps are there in use in this village? | _____ |
| VLW #183 | What is the total number of persons enumerated in this village in 1961? | _____ |

Scoring procedure:

Total number of oil engines in the village was divided by the total number of persons in the village and the ratio was expressed as a rate per thousand persons.

Descriptive statistics:

| Number of oil engines
in the village
per 1000 persons | Village
frequency |
|---|----------------------|
| 00 | 56 |
| 01 to 09 | 13 |
| 10 to 19 | 11 |
| 20 to 29 | 9 |
| 30 to 39 | 6 |
| 40 to 49 | 3 |
| 50 to 59 | 2 |
| 60 to 69 | 2 |
| 70 to 79 | 1 |
| 80 to 89 | 0 |
| 90 to 98 | 3 |

| | |
|------------------------|-------------------|
| | N-NA = <u>106</u> |
| Missing values ...NA = | 2 |
| | N = <u>108</u> |

Mean = 13.22

S.D. = 21.52

Skewness = 2.24

Variable #48: Grain mill index (Grainm #48)

This gives the number of grain mills per thousand population.

The question:

VLW #180 How many grain mills are there in this village?

VLW #183 Total number of persons enumerated
What is the total number of persons enumerated
in the village in 1961 census?

_____persons

Scoring procedure:

Total number of grain mills in the village were divided and expressed as a rate per thousand.

Descriptive statistics:

| Number of grain mills
per thousand persons | Village
frequency |
|---|----------------------|
| 00 - 00 | 65 |
| 01 - 11 | 23 |
| 12 - 22 | 13 |
| 23 - 33 | 4 |
| 89 | 1 |
| N-NA = <u>106</u> | |
| Missing values ...NA = | 2 |
| N = <u>108</u> | |

Mean = 5.35

S.D. = 10.8

Skewness = 4.64

Variable #49: Magazine index (Mag #49)

This gives the number of monthly magazines per thousand population.

The question:

V # 78 How many copies of magazines and news papers are received regularly in this village?

V #183 What is the total number of persons enumerated in this village?

Scoring procedure:

The total number of magazines and newspapers received in the village was divided by the total number of persons in the village and rate was expressed per thousand.

Descriptive statistics:

N = 108

Mean = 58

S.D. = 89.36

Skewness = 3.65

Variable #50: Machine index (Machine #50)

This gives the sum of the number of electric pumps, oil engines and grain mills in the village.

The question:

| | | |
|----------|---|-------|
| VLW #178 | How many electric pumps are in operation in this village? | _____ |
| VLW #179 | How many oil engines, such as pumps are there in use in this village? | _____ |
| VLW #180 | How many grain mills are there in this village? | _____ |

Scoring procedure:

The number of machines mentioned in response to each of the above questions were summed across all the three.

Descriptive statistics:

| Number of machines | Village frequency |
|--------------------|-------------------|
| 00 | 34 |
| 01 to 05 | 38 |
| 06 to 10 | 8 |
| 11 to 15 | 4 |
| 16 to 20 | 4 |
| 21 to 25 | 3 |
| 91 to 98 | 2 |

N-NA = _____
 Missing values ... NA = _____
 N = 108

Mean = 5.73

S.D. = 13.36

Skewness = 5.15

Variable #51: Availability of electricity (Elec #51)

This gives the presence or absence of electricity in the village.

The question:

VLW #190 Is there electricity in this village?

Yes _____

No _____

Scoring procedure:

If the response is "No" score 0

If the response is "Yes" score 1

Descriptive statistics:

| Electricity
score | Village
frequency | Percent |
|----------------------|----------------------|---------|
| 0 | | 73.15 |
| 1 | | 25.93 |

N =108

Mode = 0

Variable #52: Percent of families paying Rs 10 (approximately \$1.50) or more (Tax #52)

The question:

V #129 How many families were taxed in the village?

| Range of tax | Number of families |
|--------------|--------------------|
| | |
| | |
| | |

Scoring procedure:

Percent of families who paid rupees 10 or more taxes was calculated for each village.

Descriptive statistics:

| Percent of families paying Rs 10 or more | Village frequency |
|--|-------------------|
|--|-------------------|

00

01 to 05

06 to 10

11 to 15

16 to 20

21 to 25

31 to 35

36 to 50

N-NA = _____

Missing values ...NA =

N = 108

Mean = 4.76

S.D. = 7.36

Skewness = 3.24

Variable #53: Cattle index (Catt #53)

This gives the number of cattle per 100 population.

The question:

V #142 What is the cattle population of this village?

V #183 What is the total number of persons enumerated
in 1961 census?

Scoring procedure:

The figure for cattle was expressed as the number per 100 population.

Descriptive statistics:

| Number of cattle
per 100 of village
population | Village
frequency |
|--|----------------------|
| 00 | 5 |
| 10 to 19 | 7 |
| 20 to 29 | 9 |
| 30 to 39 | 26 |
| 40 to 49 | 15 |
| 50 to 59 | 9 |
| 60 to 69 | 11 |
| 70 to 79 | 5 |
| 80 to 89 | 4 |
| 90 and more | 12 |

N-NA = 103

Missing value ... NA = 5

N = 108

Mean = 49.53

S.D. = 27.12

Skewness = 0.36

Data loc:38:13,14

Variable #54: Institutional development of the village (Instigut #54)

This gives the measure of the degree of operation of educational, health and other service institutions of the village.

The question:

| | | |
|--------|---|-------|
| V # 12 | How far is this village from the nearest high school? | _____ |
| V # 28 | How far is this village from the nearest co-operative society? | _____ |
| V # 30 | How far is this village from godown facilities for seeds and fertilizers? | _____ |
| V # 32 | How far is this village from the location of youth club? | _____ |
| V # 34 | How far is this village from the location of Post Office | _____ |
| V # 42 | How far is this village from the location of the Panchyat headquarters? | _____ |
| V # 50 | How far is this village from the repair shop for bicycles? | _____ |
| V # 65 | How far is this village from a retail market? | _____ |
| V # 66 | How far is this village from the location of a temple, church, or mosque? | _____ |
| V #121 | Do the stores in the village stock and sell groceries? | _____ |

Scoring procedure:

If the facility was available in the village or within one mile distance of the village it was scored 1

If the facility was absent in the village or beyond one mile it was scored 0

Variable #54 (cont'd.)

The facilities were assigned the following scores on a Gutman scale:

| Institution | Position on the Gutman scale |
|----------------------|------------------------------|
| Panchyat | 1 |
| Temples | 2 |
| Village store | 3 |
| Co-operative society | 4 |
| Youth club | 5 |
| Post Office | 6 |
| Retail market | 7 |
| Godown | 8 |
| Bicycle repair shop | 9 |
| High school | 10 |

If a village had a high school it was assigned score 10. That meant that it had all the nine other institutional facilities for the village.

Descriptive statistics:

| Institutional development score | Village frequency | Percent |
|---------------------------------|-------------------|---------|
| 01 | 2 | 1.85 |
| 02 | 2 | 1.85 |
| 03 | 5 | 4.63 |
| 04 | 6 | 5.56 |
| 05 | 22 | 20.37 |
| 06 | 11 | 10.19 |
| 07 | 22 | 20.37 |
| 08 | 8 | 7.41 |
| 09 | 15 | 13.89 |
| 10 | 15 | 13.89 |

N = 108

Mean = 6.70

S.D. = 2.25

Skewness = -0.26

Variable #55: Village store items (Visgut #55)

This measures the degree to which the village stores sell different articles of consumption.

The question:

V #121 Do the stores in this village stock the following items?

| | | |
|-----------------------------|-------|-------|
| Cigarettes | ..... | ..... |
| Metal pots and pans | ..... | ..... |
| Torch light and accessories | ..... | ..... |
| Paper and stationery | ..... | ..... |
| Clothing | ..... | ..... |
| Shoes | ..... | ..... |
| Cosmetics | ..... | ..... |
| Agricultural implements | ..... | ..... |
| Biscuits | ..... | ..... |
| Insecticides | ..... | ..... |
| Common medicines | ..... | ..... |

Scoring procedure:

Seven of the above items were positioned into a Guttman scale ranging from 0 to 7.

Descriptive statistics:

| Village store
score | Village
frequency | Percent |
|------------------------|----------------------|---------|
| 0 | 15 | 13.89 |
| 1 | 9 | 8.33 |
| 2 | 13 | 12.04 |
| 3 | 15 | 13.89 |
| 4 | 10 | 9.26 |
| 5 | 13 | 12.04 |
| 6 | 0 | 00.00 |
| 7 | 12 | 20.37 |
| N = 108 | | |

Mean = 3.75

S.D. = 2.43

Skewness = -0.10

Variable #56: Caste status of the village leaders (Caste #56)

This gives the locus of the caste status occupied by the village leaders in traditional hierarchy of the caste system in the village.

The question:

V #6 What is your caste? _____

Scoring procedure:

| | |
|--|---------|
| Mainly upper caste (Brahmin, Khatriya, and Vaisya | score 1 |
| Mainly lower caste (cultivator and artisan castes) | score 2 |
| Mainly scheduled caste | score 3 |
| Mainly tribals | score 4 |
| Mainly minority religious groups (Muslim, christian) | score 5 |

Descriptive statistics:

| Leader caste rank
score | Village
frequency | Percent |
|----------------------------|----------------------|---------|
| 1 | 31 | 28.70 |
| 2 | 54 | 50.00 |
| 3 | 1 | .93 |
| 4 | 6 | 5.56 |
| 5 | 10 | 9.26 |
| | N-NA = 102 | |
| Missing values ...NA = | 6 | 5.56 |
| | N = 108 | |

Mean = 2.11

S.D. = 1.16

Skewness = 0.83

Data loc: 38:40,41,42

Variable #57: Number of persons per one working radio (Radio #57)

The question:

V # 71 How many radios would you say are in working order?

V #183 What is the total number of persons enumerated
in 1961 census?

Scoring procedure:

Total number of persons were divided by the total number of
radios and expressed as number of persons per one radio to
the nearest whole number.

N = 108

Mean = 404

S.D. = 330.25

Skewness = 0.83

Variable #58: Institutional proximity (Instprox 358)

This gives a measure of the distance within which some institutional facilities are available to the village.

The question:

- | | | |
|-------|--|-------|
| V #26 | How far is the village from the location of veterinary stock-men or veterinary dispensary? | _____ |
| V #28 | How far is the village from the location of co-operative society? | _____ |
| V #30 | How far is the village from godown facilities for seeds and fertilizers? | _____ |
| V #40 | How far is the village from the location of VLW headquarters? | _____ |
| V #42 | How far is the village from village Panchyat headquarters? | _____ |
| V #44 | How far is the village from the location of Block headquarters? | _____ |

Scoring procedure:

- | | |
|--|---------|
| If the veterinary dispensary is in the village or less than five miles | score 1 |
| five and more than five miles | score 0 |
| If the co-operative society is in the village | score 1 |
| not in the village | score 0 |
| If the Godown facilities are in the village or less than five miles | score 1 |
| five and more than five miles | score 0 |
| If the VLW headquarters is in the village | score 1 |
| if not in the village | score 0 |

Variable #58 (cont'd.)

| | |
|---|---------|
| If the village Panchyat headquarters is in the village | score 1 |
| if not in the village | score 0 |
| If the Block headquarters is in the village or less than five miles | score 1 |
| five and more than five miles | score 0 |

For each village sum the score across all the six items.

Descriptive statistics:

| Institutional proximity
score | Village
frequency | Percent |
|----------------------------------|----------------------|---------|
| 0 | 11 | 10.19 |
| 1 | 17 | 15.74 |
| 2 | 20 | 18.52 |
| 3 | 6 | 5.56 |
| 4 | 10 | 9.26 |
| 5 | 23 | 21.30 |
| 6 | 21 | 19.44 |
| N = 108 | | |

Mean = 3.30

S.D. = 2.08

Skewness = -0.11

Variable #60. Agricultural Extension Officer's visit to the village

This gives the frequency of visits by the Agricultural Extension Officer.

The question:

| | |
|--|-----------|
| AEO #22 During the past six months how often have you (AEO) visited the following four villages? | |
| Name of village | How often |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

Scoring procedure:

Number of visits made to the village were actually coded into the respective numbers.

Descriptive statistics:

| Number of
visits by the
AEO | Village
frequency |
|-----------------------------------|----------------------|
| 00 | 15 |
| 01 to 05 | 45 |
| 06 to 10 | 19 |
| 11 to 20 | 12 |
| 21 to 30 | 8 |
| 31 to 50 | 2 |
| 51 to 90 | 4 |
| N-NA = 105 | |
| Missing values ...NA = 3 | |
| N = 108 | |

Mean = 10.13

S.D. = 24.54

Skewness = 1.20

Variable #61: Percent of VLW's time spent in the village

The question:

VLW #57 and #67 Would you please estimate the proportion of your (VLW's) time you worked espically for this village last year?

Percent of time _____ Village I
Percent of time _____ Village II

Scoring procedure:

| | code |
|---------------|-------|
| 0 % | 0 |
| 1 % | 1 |
| 2 % | 2 |
| | |
| .. | .. |
| .. | .. |
| 98 % and more | 98 |

Descriptive statistics:

| Percent of time spent | Village frequency | Percent |
|-----------------------|-------------------|---------|
| 2 | 1 | .93 |
| 4 | 2 | 1.85 |
| 5 | 4 | 3.70 |
| 7 | 2 | 1.85 |
| 8 | 3 | 2.78 |
| 9 | 1 | .93 |
| 10 | 13 | 12.04 |
| 12 | 1 | .93 |
| 13 | 1 | .93 |
| 15 | 8 | 7.41 |
| 20 | 9 | 8.33 |
| 23 | 1 | .93 |
| 24 | 1 | .93 |

Variable #61 (cont'd.)

| Percent of time spent | Village
frequency | Percent |
|-----------------------|----------------------|---------|
| 25 | 14 | 12.96 |
| 30 | 11 | 10.19 |
| 33 | 1 | .93 |
| 35 | 2 | 1.85 |
| 40 | 8 | 7.41 |
| 48 | 1 | .93 |
| 50 | 5 | 4.63 |
| 52 | 1 | .93 |
| 60 | 5 | 4.63 |
| 65 | 1 | .93 |
| 70 | 3 | 2.78 |
| 75 | 2 | 1.85 |
| 80 | 1 | .93 |
| 90 | 1 | .93 |
| 98 | 5 | 4.63 |

 N = 108

Mean = 31.47

S.D. = 24.54

Skewness = 1.19

Variable #62: Village Level Workers' visit to the village

This gives the frequency of visits by the VLW.

The question:

| | |
|---|-------------------|
| VLW #58 and #68 How often have you (VLW) visited the following villages during the last six months? | |
| Name of village | How often visited |
| _____ | _____ |
| _____ | _____ |

Scoring procedure:

Number of visits made to the village were coded actually and divided by 10.

Descriptive statistics:

| Number of visits by
the VLW | Village
frequency | Percent |
|--------------------------------|----------------------|---------|
| 1 | 11 | 10.19 |
| 2 | 18 | 16.67 |
| 3 | 8 | 7.40 |
| 4 | 7 | 6.48 |
| 5 | 4 | 3.70 |
| 7 | 1 | .93 |
| 8 | 2 | 1.85 |
| 10 | 2 | 1.85 |
| 12 | 4 | 3.70 |
| 15 | 1 | .93 |
| 18 | 5 | 4.63 |
| 20 | 1 | .93 |
| 24 | 1 | .93 |
| 25 | 1 | .93 |
| 30 | 2 | 1.85 |
| 36 | 1 | .93 |
| 50 | 1 | .93 |
| 72 | 1 | .93 |
| 98 | 37 | 34.26 |
| N = 108 | | 100.00 |

Mean = 38.22

S.D. = 43.53

Skewness .59

Variable #63: VLW demonstrations held on all crops

The question:

| VLW #60 and #70 How many demonstrations on each crop have been held in village? | | | |
|---|--------------------------|------------|--------------------------|
| Village I | | Village II | |
| Crop | Number of demonstrations | Crop | Number of demonstrations |
| | | | |
| | | | |
| | | | |

Scoring procedure:

Number of demonstrations held across all crops in the village was summed.

Descriptive statistics:

| Total number of demonstrations held (all crops) | Village frequency | Percent |
|---|-------------------|---------|
| 0 | 21 | 19.44 |
| 1 | 15 | 13.89 |
| 2 | 17 | 15.74 |
| 3 | 10 | 9.26 |
| 4 | 5 | 4.63 |
| 5 | 8 | 7.41 |
| 6 | 5 | 4.63 |
| 7 | 2 | 1.85 |
| 8 | 3 | 2.78 |
| 10 | 1 | .93 |
| 11 | 2 | 1.85 |
| 12 | 1 | .93 |
| 13 | 1 | .93 |
| 14 | 1 | .93 |
| 16 | 2 | 1.65 |
| 17 | 1 | .93 |
| 20 | 2 | 1.85 |
| 23 | 2 | 1.85 |
| 24 | 1 | .93 |
| 26 | 1 | .93 |
| 28 | 1 | .93 |
| 30 | 2 | 1.85 |
| 41 | 1 | .93 |
| 80 | 2 | 1.85 |
| 99 | 1 | .93 |

N-NA = 107

Missing value ... NA = 1

N = 108

Mean = 7.76

S.D. = 14.56

Skewness 3.66

Variable #64: Leader visit to Block headquarters

The question:

VL #20 During the past six months, how many times have you
(Leader) visited Block headquarters?

_____ Number of times visited

Scoring procedure:

Eight village leaders were interviewed in each village. Based on the responses from them an average number of visits is computed and rounded to whole number.

Descriptive statistics:

| Leader Block visit
score | Village
frequency | Percent |
|-----------------------------|----------------------|---------|
| 0 | 2 | 1.85 |
| 1 | 3 | 2.78 |
| 2 | 10 | 9.26 |
| 3 | 8 | 7.41 |
| 4 | 7 | 6.48 |
| 5 | 1 | .93 |
| 6 | 7 | 6.48 |
| 7 | 4 | 3.70 |
| 8 | 3 | 2.78 |
| 9 | 2 | 1.85 |
| 10 | 4 | 3.70 |
| 12 | 1 | .93 |
| 13 | 1 | .93 |
| 14 | 1 | .93 |
| 15 | 6 | 5.56 |
| 16 | 1 | .93 |
| 17 | 2 | 1.85 |
| 18 | 2 | 1.85 |

Variable #64 (cont'd.)

| Leader Block visit
score | Village
frequency | Percent |
|-----------------------------|----------------------|---------|
| 19 | 2 | 1.85 |
| 21 | 3 | 2.78 |
| 22 | 5 | 4.63 |
| 23 | 1 | .93 |
| 24 | 3 | 2.78 |
| 26 | 6 | 5.56 |
| 27 | 1 | .93 |
| 29 | 5 | 4.63 |
| 30 | 3 | 2.78 |
| 31 | 2 | 1.85 |
| 33 | 1 | .93 |
| 36 | 1 | .93 |
| 40 | 1 | .93 |
| 41 | 2 | 1.85 |
| 47 | 1 | .93 |
| 49 | 1 | .93 |
| 52 | 2 | 1.85 |
| 53 | 1 | .93 |
| 55 | 1 | .93 |
| 58 | 1 | .93 |
| 59 | 1 | .93 |

N = 108

Mean = 16.62

S.D. = 14.67

Skewness = 1.07

Data loc:17:24,25

Variable #65: Leader visit to District headquarters

The question:

VL #21 During the past six months, how many times have you
(Leader) visited District headquarters?

_____ Number of times

Scoring procedure:

Eight village leaders were interviewed in each village.

Average number of times visiting district headquarters is
computed and rounded to the nearest whole number.

Descriptive statistics:

| Leader District head-
quarters visit score | Village
frequency | Percent |
|---|----------------------|---------|
| 0 | 17 | 15.74 |
| 1 | 18 | 16.67 |
| 2 | 21 | 19.44 |
| 3 | 11 | 10.19 |
| 4 | 8 | 7.41 |
| 5 | 7 | 6.48 |
| 6 | 1 | .93 |
| 7 | 2 | 1.85 |
| 8 | 1 | .93 |
| 9 | 3 | 2.78 |
| 12 | 2 | 1.85 |
| 13 | 2 | 1.85 |
| 14 | 3 | 2.78 |
| 15 | 1 | .93 |
| 17 | 2 | 1.85 |
| 19 | 1 | .93 |
| 21 | 1 | .93 |
| 22 | 2 | 1.85 |
| 23 | 3 | 2.78 |
| 27 | 1 | .93 |
| 43 | 1 | .93 |

N = 108

Mean = 5.36

S.D. = 7.36

Skewness = 2.31

Data loc:18:18

Variable #66: Leader talk with the VLW

This gives a measure of the communication contact strength of the village through the village leader talking to the village level worker (VLW), a development functionary.

Variable #71: Leader talk with the BDO

Data loc:18:23

This gives a measure of the communication contact strength of the village through the village leader talking to the block development officer (BDO), the chief development functionary.

Variable #72: Leader talk with the AEO

Data loc:18:24

This gives a measure of the communication contact strength of the village through the village leader talking to the agricultural extension officer (AEO), the subject matter specialist in agriculture.

Variable #75: Leader talk with the Vet. Doc.

Data loc:18:14

This gives a measure of the communication contact strength of the village through the village leader talking to the Veterinary Doctor (Vet. Doc.)

The question:

VL #74, #79, #80, #83 How many times have you talked with the development personnel in the past year?

#74. Village level worker_____ (Number of times)

#79. Block Development officer_____ (Number of times)

#80. Agricultural Extension officer____ (Number of times)

#83. Veterinary Doctor_____ (Number of times)

Scoring procedure:

Responses to the foregoing questions were coded as follows for each of the eight leaders in the village:

Variables #66, #71, #72, #75 (cont'd.)

If the number of times
talked to is

| | | |
|-----------------------------|------|---|
| 00 | code | 0 |
| 1,2 | " | 1 |
| 3,4 | " | 2 |
| 5,6 | " | 3 |
| 7,8 | " | 4 |
| 9,10 | " | 5 |
| 11,12 | " | 6 |
| 13,24 | " | 7 |
| 25 or more | | 8 |
| Not available or Don't know | | 9 |

For each village an average score of the times talked to the development functionary was computed based on the coded responses of each of the eight village leaders in that village. These average coded numbers were further recoded as follows:

For responses to Question #74,

If the average talk score
for the village is

| | | |
|-----------------|------|---|
| 0 | code | 0 |
| 1 | " | 1 |
| 2 | " | 2 |
| 3 | " | 3 |
| 4 | " | 4 |
| 5 | " | 5 |
| 6 | " | 6 |
| 7 | " | 7 |
| 8 or more | | 8 |
| 9 Not available | | 9 |

For responses to Questions #79, #80, #83,

If the average talk score
for the village is

| | | | |
|---------------|---------|------|---|
| 0 | to .49 | code | 0 |
| 0-5 | to .99 | " | 1 |
| 1 | to 1.99 | " | 2 |
| 2 | to 2.99 | " | 3 |
| 3 | to 3.99 | " | 4 |
| 4 | to 4.99 | " | 5 |
| 5 | to 5.99 | " | 6 |
| 6 | to 6.99 | " | 7 |
| 7 or more | | " | 8 |
| Not available | | | 9 |

Variables #66, #71, #72, #75 (cont'd.)

Descriptive statistics:

| Leader-VLW
talk score | Village
frequency |
|--------------------------|----------------------|
| 0 | 0 |
| 1 | 17 |
| 2 | 29 |
| 3 | 15 |
| 4 | 23 |
| 5 | 12 |
| 6 | 7 |
| 7 | 4 |
| 8 | 1 |

N = 108

Mean = 3.24

S.D. = 1.7

Skewness = .55

Variable #71: Leader talk with the BDO

Descriptive statistics:

| Leader-BDO
talk score | Village
frequency |
|--------------------------|----------------------|
| 0 | 1 |
| 1 | 12 |
| 2 | 18 |
| 3 | 29 |
| 4 | 28 |
| 5 | 15 |
| 6 | 03 |
| 7 | 02 |
| 8 | 00 |

N = 108

Mean = 3.28

S.D. = 1.4

Skewness = .12

Variables #66, #71, #72, #75 (cont'd.)

Variable #72: Leader talk with the AEO

Descriptive statistics:

| Leader-AEO
talk score | Village
frequency |
|--------------------------|----------------------|
| 0 | 18 |
| 1 | 12 |
| 2 | 21 |
| 3 | 20 |
| 4 | 19 |
| 5 | 05 |
| 6 | 08 |
| 7 | 04 |
| 8 | 01 |

N = 108

Mean = 2.78

S.D. = 1.9

Skewness = .41

Variable #75: Leader talk with Vet. Doc.

Descriptive statistics:

| Leader-Vet. Doc.
talk score | Village
frequency |
|--------------------------------|----------------------|
| 0 | 21 |
| 1 | 15 |
| 2 | 24 |
| 3 | 22 |
| 4 | 14 |
| 5 | 07 |
| 6 | 02 |
| 7 | 02 |
| 8 | 00 |
| 9 (Not available) | <u>01</u> |

N-NA = 107

Missing values... NA = 1

N = 108

Mean = 2.36

S.D. = 1.8

Skewness = .72

Variable #79: Village leader's exposure to cinema

This gives measure of the visits made by the village leader to cinema.

The question:

VL #55 About how many times a year do you (Village leader) go to cinema? _____ Times per year

Scoring procedure:

Eight leaders in each village were interviewed. An average for the village leader was computed based on eight leaders visit (rounded to the nearest whole number). These average visits were recoded and frequency of villages showing that average were calculated.

If the average visit to cinema
by leaders in a village is

| | | |
|------------|------|---|
| 00 | code | 0 |
| 01 | " | 1 |
| 02 | " | 2 |
| 03 | " | 3 |
| 04 | " | 4 |
| 05, 06 | " | 5 |
| 07, 08 | " | 6 |
| 09, 10 | " | 7 |
| 11, 19 | " | 8 |
| 20 or more | | 9 |

Mean = 4.5

S.D. = 2.83

Skewness = .12

Variable #81: Village leader visit to urban centers

The question:

VL #22, #23, #24 During the past six months, how many times have you (Village leader) visited?

#22. Nearest town (over 10,000) _____ frequency of visits

#23. Nearest city (over 100,000) _____ frequency of visits

#24. Have you ever lived outside _____ in a town
 this village for more than _____ in a city
 a year continuously in a _____
 town or a city?

Scoring procedure:

For responses to Questions #22 and #23

In each village eight leaders were interviewed. Average number of visits made by leader was computed for each village and coded as follows:

If the average number of times
 by the village leaders
 in a given village is

| | | |
|------------|------|----|
| 00 | code | 00 |
| 01 | " | 01 |
| 02 | " | 02 |
| 03, 04 | " | 03 |
| 05 to 09 | " | 04 |
| 10 to 14 | " | 05 |
| 15 to 19 | " | 06 |
| 20 to 49 | " | 07 |
| 50 to 79 | " | 08 |
| 80 or more | " | 09 |

For responses to Question #24 percentage of leaders in each village who lived outside the village in a town or city was calculated and rounded to the nearest whole number and coded as follows:

| | | |
|--------------------|------|---|
| 0 or less than one | code | 0 |
| 1 to 10 | " | 1 |
| 11 to 20 | " | 2 |
| 21 to 30 | " | 3 |
| 31 to 40 | " | 4 |
| 41 to 50 | " | 5 |
| 51 to 60 | " | 6 |
| 61 to 70 | " | 7 |
| 71 to 80 | " | 8 |
| 81 or more | " | 9 |

Variable #81 (cont'd.)

By summing scores on average number of times village leaders visited the urban centers and the percentage of leaders living in an urban area for more than a year the following composite urban contact score is obtained:

| Village leader
urban contact
score | Village
frequency | Percent |
|--|----------------------|---------|
| 00 | 2 | 1.85 |
| 01 | 4 | 3.70 |
| 02 | 8 | 7.41 |
| 03 | 10 | 9.26 |
| 04 | 14 | 12.96 |
| 05 | 12 | 11.11 |
| 06 | 8 | 7.41 |
| 07 | 17 | 15.74 |
| 08 | 4 | 3.70 |
| 09 | 11 | 10.19 |
| 10 | 5 | 4.63 |
| 11 | 4 | 3.70 |
| 12 | 2 | 1.85 |
| 13 | 3 | 2.78 |
| 14 | 3 | 2.78 |
| 16 | 1 | .93 |

N = 108

Mean = 6.29

S.D. = 3.45

Skewness .51

Variable #82: Family size refers to the number of members related to the head by kinship ties, sharing food from a common kitchen, and shelter.

Variable #83: Education refers to the degree of a person's ability to read and write a letter with formal schooling. The variable was measured by asking actual school years completed and noting the actual grade, matriculate, first year college, B.A., M.A., etc.

Variable #84: Acres cultivated refers to the total extent of land cultivated by the respondent during the agricultural year of July to June, 1966. The total acreage cultivated includes all the land irrespective of tenancy relations and ownership rights, as declared by the respondent.

Variable #85: Total value of agricultural produce raised refers to the monetary value (at the appropriate market price) of the quantity of agricultural products.

Variable #86: Change agent knowledge is the degree of awareness of the extension workers. Operationally, an index of change agent knowledge was constructed by summing the scores on the responses to the following question.

"Do you know the names of any agricultural development workers who come to this village, or who are assigned to work here?" "How about health and family planning workers?"

The responses were coded as follows:

- 0 - No names or positions known
- 1 - One position (no name) or one name (no position) known
- 2 - One name (with position) known or two positions (without name) known
- 3 - One name (with position) known and one position (without name) known
- 4 - Two names (each with position) known

Variable #87: Social participation refers to the degree of behavior orientation of a person interacting with other persons in a group. Operationally, social participation was measured in terms of the degree of membership or offices held by a person in formal organizations like co-operatives, youth organizations, local political decision

Variable #87 (cont'd.)

making bodies like Panchyat (village council), religious and cultural organizations. The variable was measured by summing the scores assigned for membership.

Variable #88: Cosmopoliteness refers to the degree to which an individual is oriented outside of his system. Operationally this was measured by scoring the response to the question "Have you ever lived away from this village for more than one year?"

0 - No; 2 - Yes

Variable #89: Fragmentation index is an indicant of the extent of scattering of cultivating plots of land in non-contiguous places. The index was constructed based on the number of non-contiguous places at which land was cultivated.

Variable #90: Taxes paid refers to the value of local taxes like housing and property tax (excluding land tax) annually paid by the respondent.

Variable #91: Productive man work units are the estimated number of man days (hired as well as family) used in farm operations through the year. This was estimated by noting the number of man days spent in the production of crops.

Variable #92: Commercialization is the degree to which an individual is oriented to the market forces for his output disposal. Commercialization measure was obtained by dividing the value of total agricultural products sold by the value of total products raised.

Variable #93: Agricultural innovativeness is the degree to which an individual is relatively earlier in adopting new agricultural ideas than other members of his social system. Operationally, agricultural innovativeness was measured by asking the following question about each innovation and summing the scores across items as follows:

"Have you ever used ...

| | No | Yes |
|---|----|-----|
| (1) Ammonium sulphate? | 0 | 2 |
| (2) Superphosphate? | 0 | 2 |
| (3) Mixture? | 0 | 2 |
| (4) Insecticides for
plant protection? | 0 | 2 |

Variable #93 (cont'd.)

| | | |
|--|---|---|
| (5) Green manure? | 0 | 2 |
| (6) Cultivator or weeder? | 0 | 2 |
| (7) Improved breeding
of cattle? | 0 | 2 |
| (8) Animal inoculation? | 0 | 2 |
| (9) Rat poison? | 0 | 2 |
| (10) High yielding varieties
(Rice-Taichung Native I
IR 888; Jowar; Bajra;
Maize) | 0 | 2 |

The summed score could range from 0 through 20.

Variable #94: Political knowledgeability refers to the awareness of the individual about persons who are chief policy-makers in government. Operationally, the degree of political knowledgeability was measured by asking the following questions and summing the scores across three items.

"I would like to ask you now about a few people. I just want to know to what extent you are familiar with their names and who they are."

| | <u>Incorrect</u> | <u>Correct</u> |
|---|------------------|----------------|
| Who is the Prime Minister
of India? | 0 | 1 |
| Who is the Chief Minister
of your State? | 0 | 1 |
| Who is the Member of the
Legislative Assembly? | 0 | 1 |

Variable #95: Ritual caste status refers to the ranking of the respondent relative to other persons in the village according to the acceptability of drinking water and eating cooked food with them. If a person of caste A can accept cooked food and water from a person of caste B, but not vice versa, then caste B is ritually higher in rank than caste A. Operationally, ritual caste status was measured by rankings of individuals by key informants. A series of pictures of individuals were presented to the key informants, who were to arrange the pictures in the descending order according to who accepts cooked food from and/or drinks water. Each picture had cues to the ritual caste status of the person depicted in terms of his work surroundings, dress style, and sitting posture. Based on these rankings, four broad categories of ritual caste status were specified for the six villages. Thus, the ascending order of caste status was ranked from one (low) to four (high). Each respondent was then placed in his caste, and assigned the corresponding number of his caste.

Variable #96: Bullock power is the total number of bullocks or draught animals owned by the peasant.

Variable #97: Health innovativeness is the degree to which an individual is relatively earlier in adopting new health ideas than other members of his social system. Operationally, it was measured by asking the following question with reference to six health items. A unit-weighted index of trial was computed for each respondent to indicate his degree of innovativeness. The format of the question and the scoring procedure were as follows:

"Have you or has any member of your family ever tried:

| | No | Yes |
|---|----|-----|
| (1) Small pox prevention? | 0 | 2 |
| (2) Cholera prevention? | 0 | 2 |
| (3) Bed-bug prevention? | 0 | 2 |
| (4) Making drinking water safe? | 0 | 2 |
| (5) Malaria prevention (spray, net, pills)? | 0 | 2 |
| (6) Modern child birth practices (pre-and post-natal care, trained <u>dai</u> , clinic, hospitals, etc.)? | 0 | 2 |

BIBLIOGRAPHY

BIBLIOGRAPHY

- A. Raa. Se. A. R. Sethu Rama Rao. Sree Gurukathamrutha - A biography of Sri Shankaralinga Bhagavath Saraswathi Paramahamsaru. Bharamasagara, India, 1972.
- Abraham, M. Francis. "The Dynamics of Leadership in Village India." Unpublished Ph.D. dissertation, Department of Sociology, Michigan State University, 1970.
- Adelman, Irma, and Dalton, George (eds.). "A Factor Analysis of Modernization in Village India." Economic Development and Social Change, ed. G. Dalton (New York: The Natural History Press, 1971).
- Adelman, Irma, and Morris, Cynthia Taft. Society, Politics, and Economic Development. Baltimore: The John Hopkins University Press, 1967.
- Allen, Thomas J. "Communications in the Research and Development Laboratory." Technology Review, (October-November, 1967), 31-38.
- Allen, Thomas J., and Cohen, Stephen I. "Information Flow in Research and Development in Laboratories." Administrative Science Quarterly, No. 14 (March, 1969), 12-19.
- Amend, Edwin H. "Liaison Communication Roles of Professionals in a Research Dissemination Organization." Department of Communication, Michigan State University, 1970. (Mimeographed.)
- American Psychological Association. Project on Scientific Information Exchange in Psychology. Scientific Activity and Information Problems of Selected Psychologists: A Preliminary Survey, August, 1963.
- Appelbaum, Richard P. Theories of Social Change. Chicago: Markham Publishing Co., 1970.
- Ashby, Eric. "The Administrator: Bottleneck or Pump?" Daedalus, No. 11 (Spring, 1962).
- Ascroft, Joseph R. "Modernization and Communication: Controlling Environmental Change." Unpublished Ph.D. dissertation, Department of Communication, Michigan State University, 1969.
- Bavelas, A. "Communication Patterns in Task-Oriented Groups." Journal of Acoustic Society of America, No. 22 (1950), 725-730.
- Berlo, David K. "Human Communication." Department of Communication, Michigan State University, 1970. (Mimeographed.)

- Berlo, David K. et al. "An Analysis of the Communication Structure of the Office of Civil Defense." Department of Communication, Michigan State University, 1972. (Mimeographed.)
- Bertalanffy, von Ludwig. General System Theory. New York: George Braziller, 1968.
- Bhowmik, Dilip Kumar. "Differences in Heterophily and Communication Integration Between Modern and Traditional Indian Villages in Two Types of Dyadic Encounter." Unpublished Ph.D. dissertation, Department of Communication, Michigan State University, 1972.
- Black, C. E. The Dynamics of Modernization. New York: Harper and Row, 1966.
- Blake, Reed H. "An Investigation of the Composition of Interpersonal Communication Networks." Paper presented at the International Communication Association, Minneapolis, Minnesota (May, 1970). (Mimeographed.)
- Brown, Lester R. Seeds of Change. New York: Praeger Publishers, 1970.
- Carroll, Tom W., and Farace, R. Vincent. "Systems Analysis, Computer Simulation, and Survey Research: Applications to Social Research in Developing Countries." Department of Communication, Michigan State University, 1968. (Mimeographed.)
- Cherry, Colin. On Human Communication. Cambridge: Massachusetts Institute of Technology, 1966.
- Crittenden, John. "Dimensions of Modernization in the American States." American Political Science Review, Vol. LXI, No. 4 (December, 1967), 989-1001.
- Deutsch, Morton, and Krauss, Robert M. Theories in Social Psychology. New York: Basic Books, 1965.
- Doshi, S. L. "Non-clustered Tribal Village and Community Development." Human Organization, Vol. 28, No. 4 (1969), 297-302.
- Eisenstadt, S. N. Modernization: Protest and Change. Englewood Cliffs: Prentice Hall, 1966.
- Farace, Richard Vincent. "A Factor Analytic Investigation of the Relationship of Mass Communication to National Development." Unpublished Ph.D. dissertation, School of Journalism, University of Iowa, 1965.
- Farace, R. Vincent, and Morris, C.D.J. "Communication Systems and Higher Education: A Pilot Study in a Residence College." Paper presented at the National Society for the Study of Communication, Cleveland, Ohio (April, 1969). (Mimeographed.)

- Festinger, Leon, Schachter, Stanley, and Back, Kurt. Social Pressures in Informal Groups: A Study of Human Factors in Housing. Stanford, California: Stanford University Press, 1950.
- Firth, Raymond. We, the Tikopia. London: Allen and Unwin, 1936.
- Fliegel, Frederick C. et al. Agricultural Innovations in Indian Villages. Hyderabad, India: National Institute of Community Development, 1968.
- Frank, Howard, and Frisch, Ivan T. "Network Analysis." Scientific American, No. 223 (July, 1970), 94-103.
- Guimaraes, Litton L. "Communication Integration: A Review of the Literature and Some Emerging Hypotheses." Department of Communication, Michigan State University, 1970. (Mimeographed.)
- Guimaraes, Lytton Leite. "Communication Integration in Modern and Traditional Social Systems: A Comparative Analysis Across Twenty Communities of Minas Gerais, Brazil." Unpublished Ph.D. dissertation, Department of Communication, Michigan State University, 1972.
- Gusfield, Joseph K. "Tradition and Modernity: Misplaced Polarities in the Study of Social Change." American Journal of Sociology, Vol. 72 (1967).
- Hall, A. D., and Fagen, R. E. "Definition of System." Modern Systems Research for the Behavioral Scientist, ed. W. Buckley (Chicago: Aldine Publishing Company, 1968).
- Harbison, Frederick H., Maruhnic, Joan, and Resnick, Jane R. Quantitative Analyses of Modernization and Development. Princeton: Department of Economics, Princeton University, 1970.
- Harary, Frank and Havelock, Ronald G. "Anatomy of A Communication Arc." Unpublished paper, 1971. (Mimeographed.)
- Hare, Paul Alexander. Handbook of Small Group Research. New York: Free Press of Glencoe, 1962.
- Havelock, Ronald G. Planning for Innovation. Ann Arbor: Institute for Social Research, The University of Michigan, 1969.
- Holzinger, Karl J., and Harman, Harry H. Factor Analysis. Chicago: The University of Chicago Press, 1941.
- Hursh, Gerald D., Röling, Niels R., Kerr, Graham B. Innovation in Eastern Nigeria: Success and Failure of Agricultural Programs in 71 Villages of Eastern Nigeria. Diffusion of Innovations Research Report 8. East Lansing, Mich.: Department of Communication, Michigan State University, 1968.

- Jacobs, Milton, Farzanegan, Farhad, and Askenasy, Alexander R. "A Study of Key Communicators in Urban Thailand." Social Forces, No. 45 (December, 1966), 192-199.
- Jacob, Philip E., Teune, Henry, and Watts, Thomas. "Values, Leadership and Development: A Four-Nation Study." Social Science Information, Vol. VII, No. 2 (1968), 49-52.
- Jacobson, Eugene and Seshore, Stanley. "Communication Practices." The Journal of Social Issues, No. 7 (1951), 28-40.
- Katz, Fred E. "Social Participation and Social Structure." Social Forces, No. 45 (December, 1966), 199-210.
- Kuhn, Thomas S. The Structure of Scientific Revolutions. Chicago: The University of Chicago Press, 1970.
- Kumar, Krishna. "Education, Innovative Behavior and Individual Modernity in a Developing Society: An Attempt in Model Construction." Unpublished Ph.D. dissertation, Department of Sociology, Michigan State University, 1972.
- Lasswell, H. D. Propaganda, Communication, and Public Opinion, eds. B. C. Smith, H. D. Lasswell, and R. D. Casey (Princeton: Princeton University Press, 1946).
- Lazarsfeld, Paul F., Berelson, Bernard, and Gandet, Hazel. The People's Choice. New York: Columbia University Press, 1948.
- Leavitt, H. J. "Some Effects of Certain Communication Patterns on Group Performance." Journal of Abnormal Social Psychology, No. 46 (1951), 30-50.
- Lerner, Daniel. The Passing of Traditional Society. New York: The Free Press, 1956.
- Lerner, Daniel. "Toward A Communication Theory of Modernization." Communications and Political Development, ed. Lucian W. Pye (Princeton: Princeton University Press, 1963).
- Lewin, Kurt. Field Theory in Social Science, ed. D. Cartwright (New York: Harper and Brothers, 1951).
- Lin, Nan. "Innovative Methods for Studying Innovation in Education." Research Implications for Education Diffusion, Lansing: Michigan Department of Education, 1968.
- Lingoes, James C. "Recent Computational Advances in Nonmetric Methodology for the Behavioral Sciences." Paper presented at the International Symposium on Mathematical and Computational Methods in Social Sciences, held under the auspices of the International Computation Center, Rome, Italy (July, 4-6, 1966), 27.

- Lionberger, Herbert F., and Campbell, Rex R. The Potential of Interpersonal Communicative Networks for Message Transfer from Outside Information Sources. Columbia, Missouri: University of Missouri, Agricultural Experiment Station Research, Bulletin 842, 1963.
- Luykx, Nicolaas. "The Role of Rural Government in Agricultural Development." Comparative Administration Group, American Society for Public Administration, CAG occasional paper (Bloomington, April, 1964).
- MacDonald, Donald. "Communication and Communication Content in a Bureaucratic Setting." Unpublished Ph.D. dissertation, Department of Communication, Michigan State University, 1970.
- Mammata, Kavyaprakasha. Meerut, India: Sahitya Bhandar, 1960.
- Mayer, Adrian C. Caste and Kinship in Central India. Berkeley: University of California Press, 1960.
- McGranahan, Donald. "The Interrelations Between Social and Economic Development." Social Science Information, IX-6 (December, 1970), 61-77.
- Mellor, John W. "Toward a Theory of Agricultural Development." Agricultural Development and Economic Growth, eds. Herman M. Southworth and Bruce F. Johnston (Ithaca: Cornell University Press, 1967).
- Menzel, Herbert and Katz, Elihu. "Social Relation and Innovation in Medical Profession: The Epidemiology of a New Drug." Public Opinion Quarterly, No. 19 (1955-56), 337-352.
- Morris, William C. "The Information Influential Physician: The Knowledge Flow Process Among Medical Practitioners." Unpublished Ph.D. dissertation, Ann Arbor: The University of Michigan, 1970.
- Morris, Clyde D. J. "Information as a Construct in Human Communication Systems." Unpublished Ph.D. dissertation, Department of Communication, Michigan State University, 1968.
- Mujumdar, D. N. Caste and Communication in an Indian Village. Bombay: Asia Publishing House, 1958.
- Raju, K. S. Sripada. "Peasant Typology and Communication Behavior: A Factor Analytic Study in Six Indian Villages." Unpublished Masters Thesis, Department of Communication, Michigan State University, 1969.

- Rao, Y. V. Lakshmana. Communication and Development: A Study of Two Indian Villages. Minneapolis: University of Minnesota Press, 1966.
- Rao, Jaganmohan Lingamneni. "Communication and Modernization in Three Indian Villages, The Influence of Status Inconsistency." Unpublished Ph.D. dissertation, Department of Communication, Michigan State University, 1972.
- Rogers, Everett M. Diffusion of Innovations. New York: The Free Press, 1962.
- Rogers, Everett M. with F. Floyd Shoemaker. Communication of Innovations. New York: The Free Press, 1971.
- Rogers, Everett M. in association with Lynne Svenning. Modernization Among Peasants. New York: Holt, Rinehart and Winston, 1969.
- Rudolph, Lloyd I., and Rudolph, Susanne Hoeber. The Modernity of Tradition. Chicago: The University of Chicago Press, 1967.
- Rummel, Rudolph J. Applied Factor Analysis. Evanston: Northwestern University Press, 1970.
- Saxena, Anant P. "System Effects on Innovativeness Among Indian Farmers." Unpublished Ph.D. dissertation, Department of Communication, Michigan State University, 1968.
- Schramm, Wilbur. "Communication Development and the Development Process." Communications and Political Development, ed. L. W. Pye (Princeton: Princeton University Press, 1963).
- Schwartz, Donald F. "Liaison Communication Roles in a Formal Organization." Unpublished Ph.D. dissertation, East Lansing: Michigan State University, 1968.
- Sen, Lalit K. "The Concepts of Tradition and Modernity: A Re-Evaluation." A paper presented for the Second World Congress of Rural Sociology, Netherlands, 1968. (Mimeographed.)
- Shaw, Eugene Francis S.J. An Intra-India Analysis of Selected Communication-Development Variables. Ann Arbor: University of Michigan Microfilms, 1967.
- Shaw, Marvin E. "Communication Networks." Advances in Experimental Social Psychology, ed. L. Berkowitz (New York: Academic Press, 1967).
- Smith, Dennis R., and Hunt, Bob R. "A General Systems Model of Communication." A paper presented at the International Communication Association Convention, Minneapolis, Minnesota, 1970 (unpublished). (Mimeographed.)

- Smith, David, and Inkeles, Alex. "The OM Scale: A Comparative Socio-Psychological Measure of Individual Modernity." Sociometry, XXIX (December, 1966), 353-377.
- Spitzer, Stephen P., and Spitzer, Nancy S. "Diffusion of News of Kennedy and Oswald Deaths." The Kennedy Assassination and the American Public, eds. Bradley Greenberg and E. Parker (Stanford: Stanford University Press, 1965).
- Watzlawick, Paul et al. Pragmatics of Human Communication. New York: W. W. Norton and Company, 1967.
- Weiner, Myron. Modernization. New York: Basic Books, 1966.
- Weiss, R. S., and Jacobson, Eugene. "A Method for the Analysis of the Structure of Complex Organizations." American Sociological Review, No. 20 (December, 1955), 661-668.
- Wenrich, J. W. et al. "Informal Educators for Practicing Physicians." Journal of Medical Education (Winter, 1969).
- Wharton, Clifton R. "The Infrastructure for Agricultural Growth." Agricultural Development and Economic Growth, eds. M. Southworth and Bruce F. Johnston (Ithaca: Cornell University Press, 1967).
- Wharton, Clifton R. Subsistence Agriculture and Economic Development. Chicago: Aldine Publishing Co., 1969.
- Whitaker, C. Sylvester. The Politics of Tradition Continuity and Change in Northern Nigeria. Princeton: Princeton University Press, 1970.
- Wolf, Eric R. Peasants. Englewood Cliffs: Prentice-Hall, 1966.
- Yadav, Dharam P. "A Comparative Analysis of Communication Structure and Innovation Diffusion in Two Indian Villages." Unpublished Ph.D. dissertation, Department of Communication, Michigan State University, 1967.
- Young, Frank W., Spencer, Berkley A., and Flora, Jan L. "Differentiation and Solidarity in Agricultural Communities." Human Organization, Vol. 27, No. 4 (1968), 344-351.

MICHIGAN STATE UNIV. LIBRARIES



31293103834382