WHOLE SYSTEM EARTH - THE FUTURE

THE "FAR" REPORT

By: J. H. Bombardier

A policy-oriented research report containing some future histories for Washington State, 1970-1992, developed using the Field Anomaly Relaxation (FAR) method.

This report reflects upon work accomplished spring quarter, 1973, by an Evergreen State College Group Contract during the 1972-73 school year.

The Evergreen State College

1974

PREFACE

This report represents an attempt to relate the 72-73 "Whole System Earth - The Future" group contract's development of the FAR methodology, a policy-oriented research aid, in producing some holistic projects for the State of Washington in the next twenty-odd years. Putting together this report fulfills part of my individual contract with Lynn Patterson for summer quarter 1973. The group contract members involved with its development were: Allan Hart

Marsali Hansen

Debbie Dick

Harold Dick

Steve Matsen

Fred Albert

Jim Bombardier

Lynn Patterson (member of the faculty)

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May 1, 1974

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I. WHOLE SYSTEM EARTH -- THE FUTURE

The Group Contract

The catalogue description of this group contract states; "this contract is designed to examine trends (and those who make it their business to study trends) in energy, economic, political, social, communication, and other systems and their implications". Most of fall quarter was spent reading background material. At the end of winter quarter we commited ourselves to expressing our new knowledge to others in some communicative form. We chose as our synergizing tool, the FAR method, a pattern model for social forecasting. Our use and results of the FAR method will be shown following a presentation of some of the educational ground we covered in our group contract.

FALL QUARTER

A major emphasis of the group at the start of the year was to share backgrounds and perspectives as we developed a common knowledge base about our "Whole System Earth". The topics covered in our seminars and with guest speakers consisted of: the future of education, behavior modification, temporary systems in industry, population forecasting, the biological future of man, techniques for involving citizens in future planning, and planning in other countries. We used the Delphi[1] technique to help generate viable input into curriculum planning at TESC. Another project the group dealt with during this quarter was the development of a plan for involving part-time winter quarter students in our study of the future. A weekly "creative writing workshop" was formed during this quarter. In addition, three of us went to a conference at Battelle on future human resources utilization.

WINTER QUARTER

The group interaction somewhat abated second quarter as we became involved in internships and individual projects. Examples of these were an Expo 74 report, a research project on education, use of media and prison systems, the resource situation and international relations, alternative transportation systems, consumer/producer relations, an overview of regional R&D, computer applications and social service delivery, and community access video. Other projects related to local government and urban planning, an analysis of information systems, internship with Seattle Opportunities Industrial Center, a study of Organizational Development, a study of law and justice, and a juvenile services study. We had project sharing on Monday mornings and on Fridays we discussed current issues and events and their

application for future planning. The group was able to view the following 10 "Future's" films during this quarter: City; Coping with the 20 hour week; Introduction to Holography; Mass-transit: Up, Up, and Away; The mind of man; Photography and the City; Privacy: Can you buy it; Sociology: Doing what comes naturally; Technology: Catastrophe or Commitment; and View of America from the 23 Century. The group participating in the "creative sociology" (aka creative writing) workshop studied the influence of culture on man and man's relation to himself. When they weren't doing that they were having fun writing.

SPRING QUARTER

The development of the FAR took most of the group's energy during this quarter. The rest was directed into project presentations and the continuing "creative sociology" workshops which bore fruit as a booklet titled, "What to do in Olympia on a Rainy Day".

II. THE FAR METHOD

BACKGROUND/POLICY-ORIENTED RESEARCH

Much has been said in the literature about the need for better socio-economic decision-making processes. A succinct needs assessment of this nature is provided by Ralph R. Widner, Director of the Academy for Contemporary Problems, who says: "To combine research with action in our social affairs--an urgently important matter at this juncture in human affairs--requires the coupling of our social decision-making apparatus with the technical capabilities which can be provided by many of the social sciences."[2]

These are five different catagories of those "technical capabilities":

1. Science/cause-effect relationships
2. Trend extrapolation
3. Forecasting
4. System analysis
5. Whole-body projections

In dealing with decisions affecting our complex systems, much insight is needed beyond that of physical laws governing cause-effect relationships. Trend extrapolation and forecasting are similar methods in that they seek to isolate subsystems whose interrelationships can be described explicitly. System analysis

appropriately developed for the physics and engineering professions. This analysis of physical systems can be described as one in which the equations of state within such a system, and even the selection of relevant variables within it, depend critically on the character of the whole including its boundary conditions. When one brings the social animal "man" into an analysis, the equations of state are combined with Gestalt appreciations in the development of Whole-body projections. The tools listed in catagories 2-5 are all basically considered predictions and as such are aptly described by Bertrand de Jouvenel; "What is important to emphasize is that the effort of analysis required in the analogical method is commendable and conducive to progress, even though practical solutions may remain uncertain owing to the complexity of real situations".[3]

The FAR method, in combining several research tasks, provides a pattern model for social forecasting. The development of these projections, as described by Dr. Russell Rhyne (the prime developer of the method), are "targeted on geographic areas differing widely in size, providing mutually enriching contexts for use by executives and planners in business and government--worldwide, world regional, national state and/or local".[4] This tool addresses another of Ralph Widners' needs of applying social intelligence to decision making. To quote;"Our pressing need is to discover arrangements by means of which the researcher can dramatically increase his ability to assist and the user can rapidly raise his competence to employ such assistance".[5]

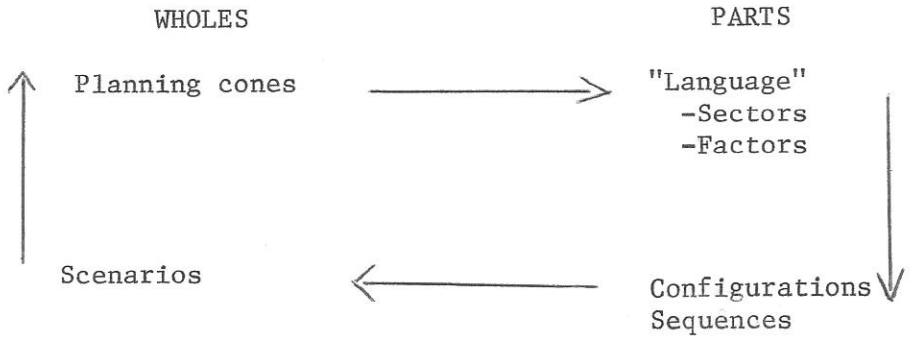
DESCRIPTION

The different research tasks of the FAR method, in providing a balance between appreciation of wholes and analysis of parts, follow a general sequence so as to build comprehension of hypothetical social situations. The approach as it was developed emphasized "the description of plausible, nonnormative, internally consistent, alternative patterns of world wide, politico-military relations".[6] The initial report of this effort was entitled, "Contingent U.S. Patterns (CUSP), 1970-2000, An Exemplary Application of FARM," by R.F. Rhyne (Johnson Research Associates Report RM 69-3; December 1969). This work was done in conjunction with the Stanford Research Institute's Educational Policy Research Center in support of policy formulation by the U.S. Office of Education.

The following is a formalized description of the basic FAR method to which I will add bracketed comments on the structure developed by our group.

FIGURE 1

The Basic FAR Cycle



The basic FAR cycle is illustrated in figure 1. It consists of basically four steps which are to be repeated as often as desired.

The first step is the development of a planning cone which is a "first cut" at the visualization and ordering of the initial ideas concerning the general content of the problem. (We had decided to look at the future of Washington State over the next 20-25 years so we acquired video equipment and observed while everyone did a 3-5 minute extemporaneous description of the future history of our state. See appendix (a)). The first time that the first step is undertaken a list of descriptors is developed which consists of all the terms which the planner or research team thinks germane.

The list of descriptors and their groups can also lead into step two. What is needed in step two is "a manipulable set of categories such that all plausible conditions within each of a small number of key societal dimensions or aspects may be designated."[7]

These main societal dimensions are called sectors. They represent the structural variables of the pattern concept describing the relevant system of concern. (We developed 7 primary and 5 secondary sectors. See appendix (b)).

Alternative conditions within each sector are called factors. (We developed, along with our factors, sets of 20-30 indicators of the sectors which we elaborated into factor/indicator matricies and heuristic maps. See appendix (c). The

factors were nicknamed and short descriptions were written about them. See appendix (d). Dr. Rhyne suggests limiting the number of sectors and factors to about six. A rule of thumb might be to include seven, plus or minus two, since psychological testing tells us that the range of information bits capable of comprehension at the same time by the human mind ranges from five to nine.

Step three is the most mechanical of the operations in the FAR cycle. A square matrix is constructed using the full roster of sectors and factors along the vertical and horizontal sides. For each of the squares within that matrix the question is then asked -- For an assumed pattern of external events, (we chose "Moderated Growth, Evolutionary Value Change) as our CUSP; see appendix (e)), would these two factors seem to fit concurrently within any plausible situation within the field of projection? Once the matrix of pairs has been completed the next step is to select all of the full configurations for which none of the contributory pairs were given a negative or implausible rating. These remaining configurations become the basis of outlining lines of development and the elaboration of scenarios. (We worked our first matrix down to eleven possible sets of futures, see appendix (g), and this didn't give us a broad enough base for scenario generation so we revised the factor descriptions, see appendix (h), and reworked the matrix. See appendix (i)).

Step four and one merge or overlap to some extent because each is concerned with an appreciation of the overall pattern concept of the social system. But step four in particular seeks to generate scenarios which describe and illustrate alternative lines of development within the planning cone. As Dr. Rhyne describes it: "The flow of societal change within one scenario should assume a kind of autonomy somewhat as the characters of a good novel take the narrative out of the hands of the author."[8]

CHRONOLOGY

In the latter part of February, winter quarter 73, our group contract discussed the possibility of synergizing and sharing our perspectives through a project in the coming quarter. During February 26 - March 8, Debbie and Harold Dick attended a special course being offered by the Systems Science Doctoral Program of Portland State University. It was titled "Introduction to Holistic Futures Projections," and was being taught by Dr. Russell Rhyne. The Dicks' felt that the FAR method

could be developed by our group contract, and on March 15 they presented this idea and what was accomplished at the Portland State University course to us. We decided that their suggestion was a good one which we could use, so we set the first FAR meeting for April 9.

At this meeting the group decided to develop a set of holistic scenarios for Washington State. The time frame we attached was 1970-1992. We took the following day and video taped the groups' gut feeling projections of the future. They ranged from "much the same" to "cataclysmic collapse", and from "societal utopia" to "social stagnation". The rest of the first week was spent generating our 7 primary and 5 secondary sectors. During the next two weeks we defined indicators of our primary sectors and initially described our factors for the indicator/factor matrix and heuristic maps. By this time we had decided to use as our national pattern, CUSP II "Moderated Growth, Evolutionary Value Change." The second two weeks of May were spent compromising on the matrix interaction of our factors. We had a flip-chart copy of the matrix which the group went over square by square. By the end of the second week we finished the matrix and came up with ~~eleven~~ ten possible sets of futures.

The group felt that the factor descriptions needed possible modification and re-write to allow for more factor combinations for our CUSP II assumption. Following the factor modification, the matrix was looked at again, and our final set of factor combinations was generated. From these sets of alternative futures, the individuals in the group picked from 3-7 combinations and wrote their scenarios. (See appendix (j)). The group also put together a conglomerate scenario, (see appendix (k) which was read in a video tape production about the future. This video tape and copies of our scenarios were presented for the "All-School Festival" on May 31, 1973.

Some critiques and evaluations of our process, academic environment, and group make-up of the FAR have been collected throughout this past summer and have been included in the Appendices.

APPENDIX A

This appendix consists of three video tapes which have been included with this report in TESC library. The information they contain represents the first step in our FAR development. Each member of the group gave 3-5 minute extemporaneous verbal descriptions of the future of Washington State. It is valuable in terms of an analysis of the FAR method to compare these descriptions to the scenarios produced by the group members.

APPENDIX B

Primary and Secondary Sectors

In our generation of the primary and secondary sectors we tried to limit our primary sectors to 6-8 because subsequent manipulations are affected geometrically. In selecting these sectors, "Skeletal significance rather than comprehensive coverage is the main point." This skeletal significance should represent a core structure from which many different conditions could be represented. It is interesting to note as to the process that on the day we developed and chose sectors, an Urban Studies professor representing a graduate school in Oregon sat in on our discussion. He was the initiator of the sector "Ekistics," which he described briefly as demography and land-use planning. He was not present at any of the subsequent sessions and our agreement on the narration of this sector had its problems without his input and clarification. In the October, 73, Futures I read the following: "Caution is required so that the nickname does not become a definition divorced from the narration."[10] Gary Gappert in discussing his work with alternative urban futures at the University of Wisconsin-Milwaukee was describing his experience with the FAR method.

PRIMARY AND SECONDARY SECTORS FOR WASHINGTON STATE

PRIMARY

Governance

Networks

Resources

Social Values

Economic Structure

Ekistics (demography and community development)

Environmental Quality

SECONDARY

Institutions

Trade

Agribusiness/Industry

Population

Technology

APPENDIX C

Indicator/Factor Matrices
and
Heuristic Maps

The matrices consist of correlations between a comprehensive set of indicators of each sector and the factors (1329 alternative plausible conditions). We denoted change in the different combinations by the following 5 arrow configurations: ↑ up a lot, ↓ down a lot, ↗ up a little, ↘ down a little, and → stay the same (status quo). It is helpful when referring to these combinations for the coexistence matrix and scenario generation, to determine consistently whether these are representative of a point in time or a trend. We worked through 1127 of the combinations as a group (we didn't complete the Networks and Economic Structure matrices). We also developed heuristic maps of our "Social Values" and "Ekistics" factors to help provide better perception of our field of alternatives. A legend is provided to help relate the letters and numbers used to the factor descriptions and their nicknames.

LEGEND

Governance
G-1 Status quo
G-2 Popular authority
G-3 Corporate control
G-4 Participatory democracy
G-5 Dictator (non-elected)
G-6 Bureaucracy
G-7 Anarchy
G-8 Technocracy

Ekistics
I-1 Status quo (some growth, weak planning, suburban sprawl)
I-2 Low growth, strong planning, concentrated urban areas
I-3 Low growth, weak planning, concentrated urban areas
I-4 High growth, weak planning, concentrated urban areas
I-5 High growth, strong planning, concentrated urban areas
I-6 High growth, strong planning, suburban sprawl

Economic Structure
S-1 Status quo (cyclical advancement and recession)
S-2 Prosperous expanding free enterprise
S-3 Slow growth stagnant free enterprise
S-4 Low growth successful free enterprise
S-5 Depression
S-6 Low growth successful government control
S-7 War type high growth economy

Networks
N-1 Status quo
N-2 High density urban cores, low technology, low resources
N-3 Megalopolis, low technology, high resources
N-4 Small urban core, high technology, high resources
N-5 Small urban core, high technology, low resources
N-6 Megalopolis, high technology, low resources
N-7 High density urban cores, high technology, low resources

Environmental Quality
E-1 Status quo
E-2 Super agency, good quality
E-3 Super agency, poor quality
E-4 Eight or more regional or local agencies, good quality
E-5 Eight or more regional or local agencies, poor quality
E-6 No control, worst case, poor quality
E-7 Voluntary control, good quality

Resources
R-1 Status quo (high availability, low efficiency)
R-2 High availability, high efficiency
R-3 Medium availability and efficiency
R-4 Low availability, high efficiency
R-5 Low availability, low efficiency
R-6 Prolonged crisis

Social Values
V-1 thru 6 have no short nicknames. Please refer to the factor descriptions.

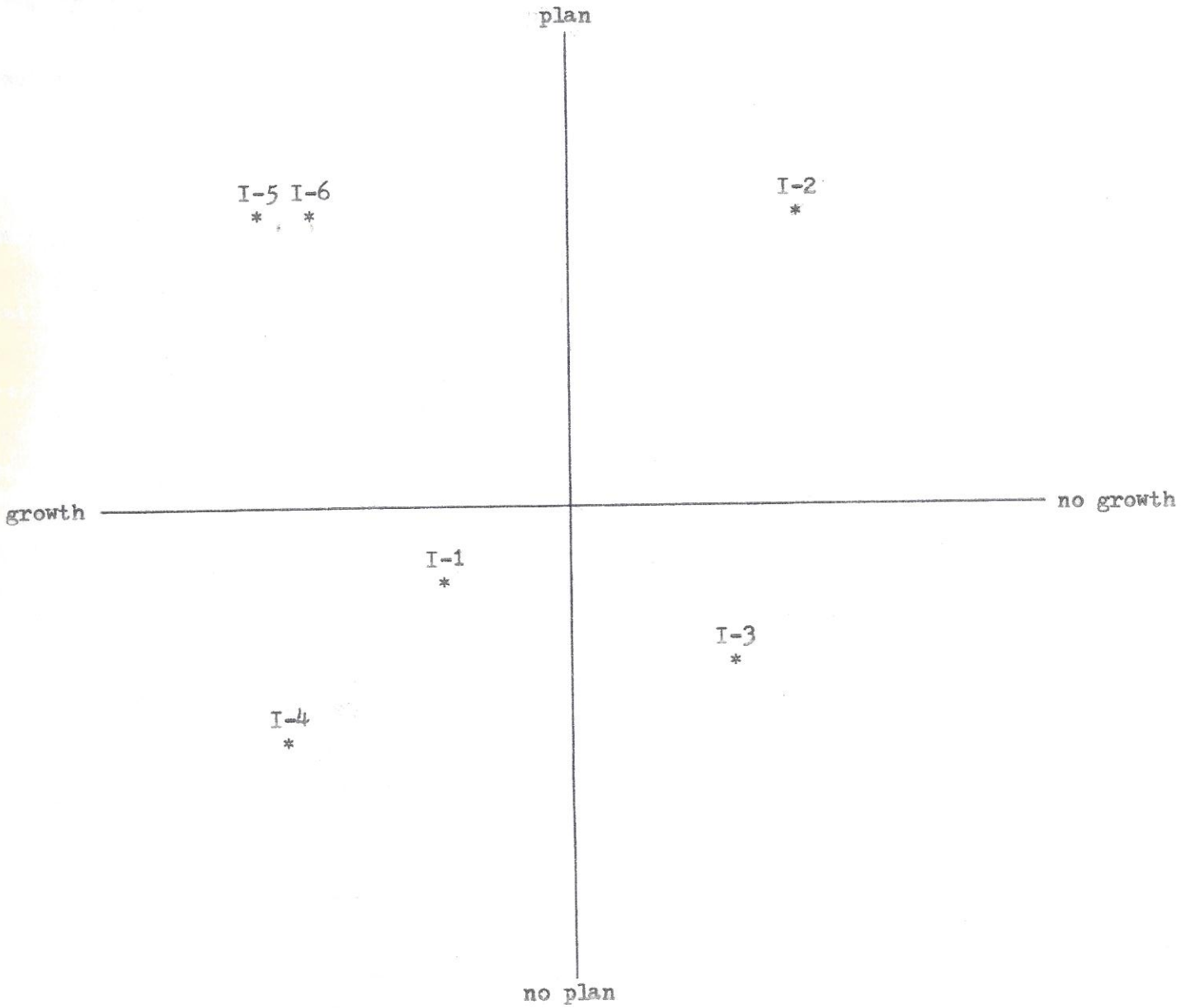
GOVERNANCE Indicator / Factor	Status Quo G-1	G-2	G-3	G-4	G-5	G-6	G-7	G-8
Plebecite	▷	▽	▽	△	▽	▷	▽	▷
Executive	▷	△	▷	▷	△	▷	▽	▷
Judicial	▷	▽ ▷	▷	▷	▽	▷	▽	▷
Legislative	▷	▽	▽ ▷	△ ▷	▽	▷	▽	▽ ▷
Bureaucracy	▷	▽	▷	▷	▷	△	▽	▽ ▷
Shadow (corp.) govt.	▷	▽	▽	▽	▽	▷	▽	▽ ▷
Police power	▷	△	▷	▽ ▷	△	▷	▽	▷
State	▷	△	△	△ ▷	▽ ▷	▷	▽	▽ ▷
Regional	▷	▽ ▷	△	△ ▷	▷	▷	▽	▽ ▷
County-city	▷	▽ ▷	▽ ▷	△	▽	▷	▽	▽ ▷
County	▷	▽ ▷	▽ ▷	▷	▽	▷	▽	▽ ▷
City	▷	▽ ▷	▽ ▷	△	▽	▷	▽	▽ ▷
Community	▷	▽ ▷	▽ ▷	△	▽	▷	▽	▽
Individual freedom	▷	▽	▽ ▷	△	▽	▷	▽	▽ ▷
Workable relation with social goals	▷	△	△ ▷	△	△	▽	▽	△
Party politics (1)	▷	△	△	▽	△	▷	▽	△ ▷
Party politics (2)	▷	▽	▽ ▷	▷	▽	▷	▽	▽ ▷
Party politics (3 or more)	▷	△ ▷	▽ ▷	△	▽	▷	▽	▽
Number of registered voters	▷	△ ▷	▽ ▷	△	▽	▷	▽	▷
Percentage voting	▷	△ ▷	▽ ▷	△	▽	▷	▽	▷

EKISTICS Indicator	actor	Status Quo I-1	I-2	I-3	I-4	I-5	I-6		
Land Use									
Urban-build up	2.6 %	▷	▽	▽	▽ ▷	▽ ▷	△ ▷		
Range-open land	24.4 %	▷	△ ▷	△ ▷	△ ▷	△ ▷	▽ ▷		
Cropland	19.3 %	▷	△ ▷	△ ▷	△ ▷	△ ▷	▽		
Forest & alpine	53.7 %	▷	△ ▷	△ ▷	△ ▷	△ ▷	▷		
Over 100 persons/ sq.mi.	13.3 %	▷	△ ▷	△ ▷	△	△	▷		
15-99.9 persons/ sq.mi.	40.7 %	▷	△ ▷	△ ▷	△ ▷	△ ▷	△		
0-14.9 persons/ sq.mi.	46.0 %	▷	▽ ▷	▽ ▷	▽	▽	▽		
Demography									
Male	49.2 %	▷	▷	▷	▽ ▷	▷	▷		
Female	50.8 %	▷	▷	▷	△ ▷	▷	▷		
Colorless	95.5 %	▷	▷	▷	▽ ▷	▽ ▷	▽ ▷		
Chicano	2.0 %	▷	▷	▷	▷	▷	▷		
Black	2.0 %	▷	▷	▷	△ ▷	△ ▷	△ ▷		
Indian	1.0 %	▷	▷	▷	▷	▷	▷		
Other	1.5 %	▷	▷	▷	▷	▷	▷		
Age									
0-17	34.2 %	▷	▷	△ ▷	△ ▷	▷	▷		
18-24	11.7 %	▷	▷	▽ ▷	△ ▷	△ ▷	△ ▷		
25-44	23.7 %	▷	▷	▷	△ ▷	△ ▷	△ ▷		

EKISTICS cont.		I-1	I-2	I-3	I-4	I-5	I-6		
Age cont. 45-64	20.8 %	▷	▷	▷	▽ ▷	▽ ▷	▽ ▷		
65-over	9.6 %	▷	▷	▷	▽ ▷	▽ ▷	▽ ▷		
Income									
Under $5,000	16.5 %	▷	▽ ▷	▷	▷	▽ ▷	▽ ▷		
$5,000-$9,999	30.4 %	▷	△ ▷	▷	▷	△ ▷	△ ▷		
$10,000-$14,999	30.2 %	▷	△ ▷	▷	▷	△ ▷	△ ▷		
$15,000-over	22.9 %	▷	▽ ▷	▷	▷	▽ ▷	▽ ▷		
Poverty level families	7.6 %	▷	▽ ▷	△ ▷	△ ▷	▽ ▷	▽ ▷		
Net population growth		▷	▷	▽ ▷	△ ▷	△ ▷	△ ▷		
Median age		▷	△ ▷	▷	▽ ▷	▷	▷		

EKISTICS

a heuristic map of the factors



ECONOMIC STRUCTURE Indicator	actor	Status Quo S-1	S-2	S-3	S-4	S-5	S-6	S-7
Consumption $1 bill. tax base (app.)		▷	△	△	▽	▽ ▷		
Property & excise $.18 bill.		▷	△	▽	△	△		
Business & occupation $.24 bill.		▷	△	▽ ▷	△ ▷	△ ▷		
Income $.00 bill.		▷	▷	▷	△	▷		
Other $.08 bill.		▷	△	▷	▷	▷		
State tax bite/personal income $115.33/$1,000		▷	▽ ▷	△ ▷	▷	△		
Personal income $13.6 bill.		▷	△	▷	▷	▽		
Employment 1.3 mill.		▷	△	▷	▷	▽		
Purchasing power		▷	▽ ▷	▽ ▷	△ ▷	▽		
Total population 3.4 mill.		▷	△	▷	▷	▷		
Labor force 1.4 mill.		▷	△ ▷	▽ ▷	△ ▷	▷		
Affam (ag. and forest products)		▷	△ ▷	▽ ▷	▷	▽ ▷		
Manufacturing and construction		▷	△	▽ ▷	▽ ▷	▽		
Trade		▷	△	▽ ▷	▷	▽		
Networks and utilities		▷	△	▷	△ ▷	▽		
Government		▷	▷	△ ▷	▽ ▷	△		
Services		▷	△	△ ▷	△	▽ ▷		
State revenue $4.1 bill.		▷	△	△ ▷	▷	▽ ▷		
Direct state taxes $1.6 bill.		▷	△	△	▽ ▷	▽ ▷		

NETWORKS Indicator	a c t o r	Status Quo N-1	N-2	N-3	N-4	N-5	N-6	N-7
Human Transportation		▷	▽ ▷	△ ▷				
Highways		▷	▽ ▷	△ ▷				
inner city		▷	▽ ▷	▽				
between city		▷	▽ ▷	▷				
long range		▷	▽ ▷	▷				
Private (auto)		▷	▽	▽ ▷				
Public (buses)		▷	△	△				
inner city		▷	△	△				
between city		▷	△ ▷	△ ▷				
long range		▷	△ ▷	△ ▷				
Ferry system		▷	▷	△ ▷				
Air lines		▷	▽ ▷	▽ ▷				
Rail - guidance		▷	▷	▷				
Rail - load		▷	△	△ ▷				
inner city		▷	▷	▷				
between city		▷	△	△				
long range		▷	△	△				
Bicycle		▷	△	△				
Data Transmission		▷	▽ ▷	△ ▷				
Para-psychology		▷	△ ▷	△ ▷				

NETWORKS cont.	N-1	N-2	N-3	N-4	N-5	N-6	N-7
Data Trans. cont. Telephone - public	△	▽△	△△				
Telephone - private	△	▽	▽				
Radio - AM - FM	△	△	△△				
Radio - short wave	△	△	△△				
Television - cable	△	▽△	△				
Television - general	△	▽△	△				
Postal service	△	△	△△				
public	△	△	△△				
private	△	▽	▽				
Facsimile transfer	△	△△	△				
Other	△	△	△				
Product Transmission	△	△	△△				
Pipelines	△	△	△				
Power lines	△	△	△△				
Highways (trucks)	△	▽△	△△				
Rail (train)	△	△△	△△				
Air freight	△	▽	▽				
Water freight	△	△	△				
Major ports	△	△△	△△				
Local shipping	△	△	△				
People to People	△	△	△				

ENVIRONMENTAL QUALITY Indicator	Factor	Status Quo E-1	E-2	E-3	E-4	E-5	E-6		
Air Pollution		▷	▽	△	▽ ▷	△	△		
State standards		▷	△ ▷	▷	▽	▽	▽		
Federal standards		▷	▷	▽ ▷	▽ ▷	▽ ▷	▽		
8 local agencies		▷	▽	▽	△	▷	▽		
Monitoring & enforcement puget sound & spokane		▷	▷	▷	▷	▽	▽		
Pulp & aluminum monitoring		▷	△ ▷	▷	▽	▽	▽		
Man hour/local		▷	▽	▽	△	▽ ▷	▽		
In compliance		▷	△	▽	△	▽	▽		
Order		▷	△	▽	△	▽	▽		
Restraining order		▷	▷	▽	▷	▽	▽		
Assurance		▷	△	△ ▷	△	▽	▽		
Variance		▷	▽	△	▽	△	▽		
Implementation date 7-1-75		▷	▷	▽ ▷	▷	▽ ▷	▽		
Coordination DNR-GD-DE		▷	△	△	▽	▽	▽		
Conservation DNR-GD		▷	△	▽ ▷	△ ▷	▽ ▷	▽		
Water Pollution		▷	▽	△	▽ ▷	△	△		
36% AA		▷	▷	▷	▷	▷	▽ ▷		
54% A		▷	▷	▽	△ ▷	▽	▽		
8% B		▷	▷	△	▷	△	△		
3% C		▷	▷	△ ▷	▽ ▷	△ ▷	△		

ENVIRONMENTAL QUALITY cont.	E-1	E-2	E-3	E-4	E-5	E-6		
Water Pollution cont. DE monitor	▷	△	▽ ▷	▽	▽	▽		
Compliance power	▷	△	▽ ▷	▽	▽	▽		
Fine collection	▷	△ ▷	▷	△	▷	▷		
Data collection	▷	△	▽ ▷	△	▽	▽		
Waste Methods								
Dumps	▷	▽	△ ▷	▽	△	△		
Sanitary fills	▷	▷	△	△ ▷	△	△		
Other	▷	△	▷	△	▽	▽		
46.4 pounds daily	▷	▽ ▷	△	▽ ▷	△	△		
Crisis/effects	▷	▽ ▷	▷	▷	△	△		
Forest fire	▷	▽ ▷	▷	▷	△ ▷	△		
Earthquake	▷	▽ ▷	△	▽ ▷	△	△		
Oil spills	▷	▽ ▷	△	▽ ▷	△	△		
Climate	▷	▽ ▷	△	▷	△	△		

RESOURCES Indicator	actor	Status Quo R-1	R-2	R-3	R-4	R-5	R-6		
Power									
Renewable									
hydro		▷	△	▷	▽	▷	▽		
wood		▷	▽	▷	△	△	△		
animal waste		▷	▷	▷	△	▷	△ ▷		
wind		▷	▷	△ ▷	△ ▷	▷	△ ▷		
thermal (geo.)		▷	△ ▷	△ ▷	△ ▷	▷	▽ ▷		
Non-renewable									
— nuclear fission		▷	△ ▷	△ ▷	△ ▷	▷	▽		
— nuclear fusion		▷	△ ▷	△ ▷	△	▷	▽		
— coal		▷	▷	▷	▽ ▷	△	△		
— petroleum		▷	▽	▽ ▷	▽	▽	▽		
natural gas		▷	▷	▽ ▷	▽	▽	▽		
— shale oil		▷	▷	△ ▷	△ ▷	△	▷		
Material									
Non-renewable									
— portland cement		▷	△ ▷	▷	▽ ▷	▽ ▷	▽		
sand and gravel		▷	△ ▷	▷	▽ ▷	▷	△ ▷		
stone		▷	▷	▷	△ ▷	▷	△ ▷		
lead		▷	▷	▽ ▷	▽	▽	▽		

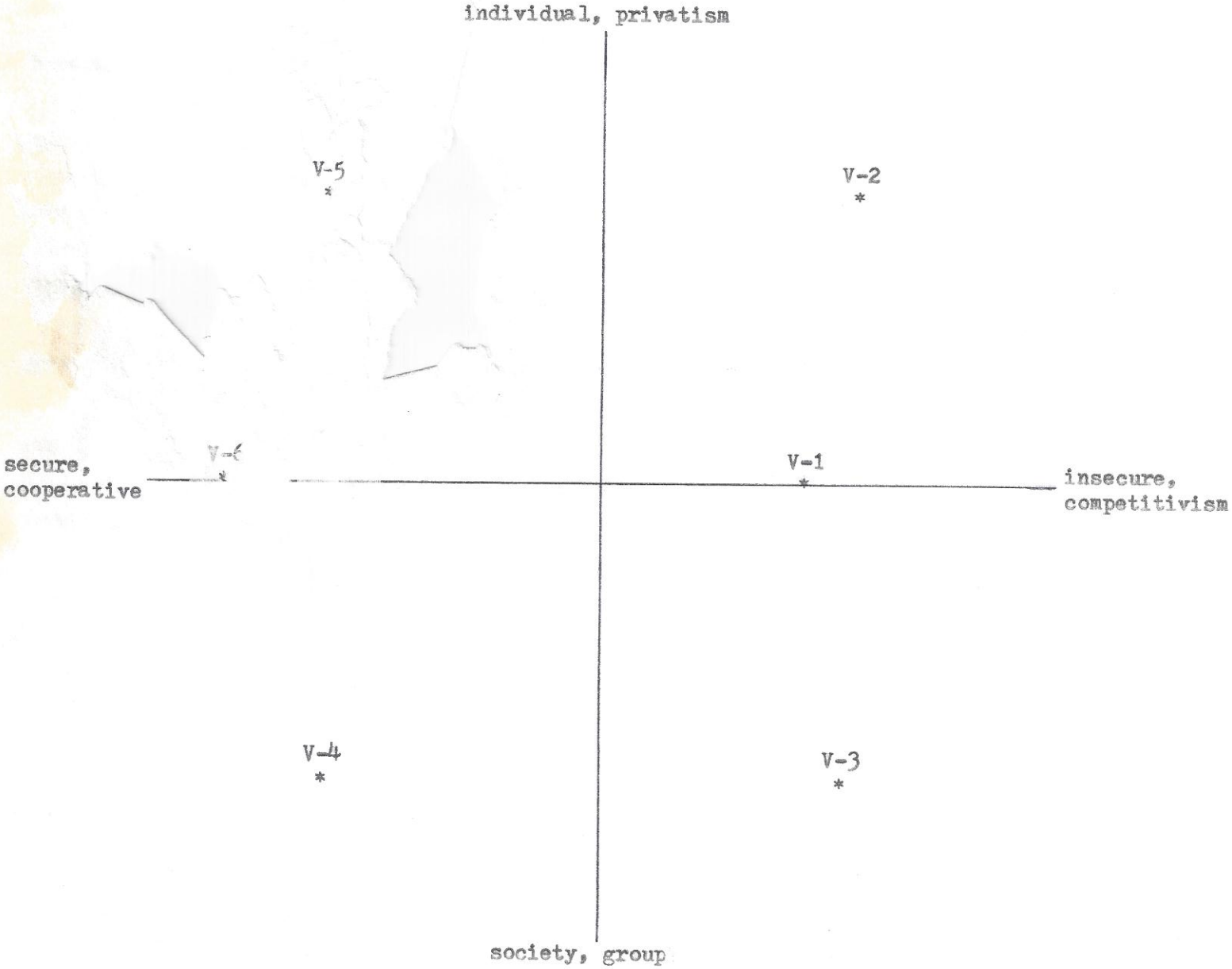
RESOURCES cont.	R-1	R-2	R-3	R-4	R-5	R-6		
Material cont. zinc	▷	△ ▷	▷	▽	▽	▽		
coal	▷	△ ▷	▷	▽	▷	▽		
petroleum	▷	▷	▽ ▷	▽	▽	▽		
minerals	▷	△ ▷	▽ ▷	▽	▽	▽		
Renewable								
timber	▷	▷	▷	▽ ▷	▽ ▷	▽ ▷		
agricultural products	▷	△	△ ▷	▷	▽ ▷	▽		
fish	▷	△	▷	▷	▽	▽		
Human								
White	▷	△	▷	△	▽	▽		
Blue	▷	▽ ▷	▷	▽	△	△		
Service	▷	▽ ▷	▽ ▷	▽	▽ ▷	▽		
Unemployed	▷	▽	△ ▷	▽	△	▽		
Underemployed	▷	▽	△ ▷	△ ▷	△	△		
Students	▷	△	△ ▷	▷	▽	▽		

SOCIAL VALUES / Indicator / Factor	Status Quo V-1	V-2	V-3	V-4	V-5	V-6		
Monogamy	▷	▷	▽	▽ ▷	▷	▷		
Nuclear family	▷	△ ▷	▽	▽	▽ ▷	▽ ▷		
Worship of youth	▷	△ ▷	▷	▽	▽	▽		
Number of children	▷	▷	△ ▷	▷	▷	▷		
Woman in the home	▷	△ ▷	▽ ▷	▽	▽	▽		
Provincialism	▷	△ ▷	△	△ ▷	▽ ▷	▽		
Pluralism	▷	▽	▽ ▷	△ ▷	▽ ▷	△		
Regional chauvanism	▷	△ ▷	△ ▷	▽ ▷	▽ ▷	▽		
Group identity	▷	▽	△	△	▽ ▷	△ ▷		
Life-quality of	▷	▽ ▷	▽ ▷	△	△	△ ▷		
Equality	▷	▽ ▷	△ ▷	△	△ ▷	△		
Honesty	▷	▽ ▷	▷	△	△ ▷	△ ▷		
Respect for environment	▷	▽	▽ ▷	△ ▷	△ ▷	△ ▷		
Education (learning)	▷	▷	▷	△ ▷	△ ▷	△ ▷		
Commitment to ideals	▷	▽ ▷	△ ▷	△ ▷	▷	△ ▷		
Religion	▷	△ ▷	▽ ▷	▽ ▷	▷	▷		
Mental health	▷	▽ ▷	▽ ▷	△ ▷	△	△		
Change	▷	▷	▽ ▷	△ ▷	▽ ▷	▷		
Individualism	▷	△	▽	▽	△	▽ ▷		
Personal space	▷	△	▽ ▷	▽	△ ▷	▷		

SOCIAL VALUES cont.	V-1	V-2	V-3	V-4	V-5	V-6		
Mobility								
Leisure								
Modesty								
Time sense (scheduling)								
Work ethic								
Efficiency								
Throw-away economy								
Growth ethic								
Law and order								
Frontierism								
Property								
Free enterprise								
Sexual freedom								
Cleanliness								
Life at any cost								
Sexual preoccupation								
Consumption of cocoa								

SOCIAL VALUES

a heuristic map of the factors



APPENDIX D

Original Factor Descriptions

As with choosing sectors, we limited ourselves to 6-8 factors for each sector. These were generated trying to cover all plausible alternative conditions within that sector. They were nicknamed and numbered, followed by short descriptions which were revised later in our development.

GOVERNANCE

G-1 Status Quo
Balance between executive, legislative and judicial processes in the state. Fairly high coordination and consolidation of state agencies. Many local and state referendums and increasing demand for community control on specific planning issues. High degree of lobbying and corporate influence on legislative process -- to the point of stalling the decision-making process. Almost exclusively two-party system with some small degree of participation in communist, socialist, peace parties, etc. High degree of participation in voting especially in state and local issues.

G-2 Popular Authority
A situation in which a popularly elected chief executive assumes more and more power over decision-making, legislative and judicial processes with the consent of the people. Powers are centralized in the executive branch of state government.

G-3 Corporate Control
A situation in which corporate powers essentially control, through campaign contributions, lobbying and direct pressure on elected officials, the decision-making process. Large corporations, including international businesses and corporate coalitions, plan and execute land use and growth oriented procedures beneficial to industrial growth and beyond the control of the legislative process.

G-4 Participatory Democracy
A situation in which issues are decided by direct and frequent referendums to the people. Use of cable TV for direct referendum -- two-way cable systems allow immediate feedback of citizens. Local community control on local issues. More representation of more groups in all decision-making.

G-5 Dictator (non-elected)
A situation in which a national change establishes a dictatorial government at the federal level. The power of the federal dictatorship subsumes the power and authority of state and local governments.

G-6 Bureaucracy
A proliferation of "bureaus" of government, each with delegated authority to deal with specific aspects of policy-making, planning and government. Other elements of government continue to function but the agencies which are established to carry out the will of decision-makers are fragmented and accountability and locatability for particular responsibilities is low.

G-7 Anarchy
A situation in which government at all levels is disbanded.

G-8 Technocracy
Policy-making is in the hands of scientists, technologists, and planners. Thank-tanks study and recommend strategy in all issues. Governmental institutions continue to function but decisions are in essence mandated by dictates of "science." A wide use of social and economic indicators in managing society -- social goals are established and the managers monitor our progress toward these goals. Regional and local planning and decision-making are sacrificed for more comprehensive state and national goals.

EKISTICS

I-1 Status Quo: Some growth, weak planning, suburban sprawl

Economic and population growth beginning after the Boeing cutbacks. Planning is disorganized, non-comprehensive, and politically weak.

I-2 Low growth, strong planning, concentrated urban areas

Low growth rates in population and the economy, combined with adequate comprehensive planning keeps cities from using new space outside its boundaries; what growth does occur consists of filling in unused spaces within present boundaries. Economy planned, fairer distribution of income.

I-3 Low growth, weak planning, concentrated urban areas

As above except that lack of planning leaves quality of urban life low. Current maldistribution of benefits of society.

I-4 High growth, weak planning, concentrated urban areas

Economy booms, bringing more people to the state and particularly the cities, which have become the preferred place to live, with many high-rise apartments and restored areas (e.g. Pioneer Square). Weak planning leaves effective decision-making to the relatively few with large financial resources and gains to be made.

I-5 High growth, strong planning, concentrated urban areas

As above, with additional planning regulating certain aspects of growth such as location and types of industries, housing, the environment, and distribution of income and benefits.

I-6 High growth, strong planning, suburban sprawl

This situation would probably be transitional from one of high growth, weak planning, suburban sprawl to the same with strong planning and concentrated urban. It would take time for planning to achieve curtailment of sprawl. It could also occur if we all went crazy.

I-7 Indians take over.

ECONOMIC STRUCTURE

E1 Continued cyclical advancement and recession with consequent loss of confidence in regulated free enterprise system.

E2 High energy, high consumption economy with very limited government intervention. Very low unemployment, high personal and corporate income and a reduction in tax bite due to productivity gains.

E3 A service oriented society in which productivity gains are negligible and the government section has been expanded to take up the slack. Problems of maldistribution of resources, income, inequitable tax structures and lack of confidence are chronic but there is some growth.

E4 Entails a recognition of conscience (social) by the business community and a reorientation of the growth ethic. Little or no increase in government regulation implies self policing of the business community.

E5 Chronic depression brought on by a total rejection of faith in the preceeding economic system. People have come to accept a society where problems are always present.

E6 Resembles E4 with social change, value shifts, etc. However, these changes are pushed onto the business community by an expanded government bureaucracy. People are satisfied with the economic base and structure and have in general, rejected the consumption ethic.

E7 Artificially stimulated economy through major project orientation or actual warfare. Very tight governmental controls successfully introduced, but allowing high resource consumption.

Networks (Communication and Transportation)

N1 The beginnings of a megalopolis from Vancouver, B.C. to Olympia or Portland stressing private transportation (auto) with public transportation, in some cases, deteriorating and an increase in the amount and types of data transmission. A fairly high advancing technology running on increasingly limited resources.

N2 High density large urban centers (e.g. Seattle, Tacoma, Spokane) with limited surrounding suburbs. A maintainance system rather than an expansion or improvement of networks due to low advances in technology with a consequent conversion from private to public transit. Product transmission and data transmission have priority over human transport for limited resources.

N3 A large megalopolis from Vancouver, B.C. to Olympia or Portland and possibly around the Tri-Cities and Spokane in Eastern Washington. A maintainance system as far as existing networks due to lack of resources; also, little advancement in priorities on public transit.

N4 Many small urban cores about the size of Olympia or Bremerton surrounded by mostly rural land. A high level of technology with correspondingly high levels of resources, thus allowing for a high living standard with many choices of private and public transportation. An increase in high technology communications systems.

N5 Many small urban cores about the size of Olympia or Bremerton surrounded by mostly rural land. A high technology and low resources situation causing efficiency to be stressed in technological development. Less choice of type of transit leading to short range mass public transit. Also, a large increase in low energy type data transmission seems likely.

N6 A large megalopolis from Vancouver, B.C. to Olympia or Portland and possibly around the Tri-Cities and Spokane in Eastern Washington. A high technology-low resource situation leading to efficient use of resources through technological advancement. Medium range mass rapid transit is stressed over private transport for moving people between the suburbs and the businesses. There would also probably be an increase in low energy data transfer.

N7 High density large urban centers (e.g. Seattle, Tacoma, Spokane) with limited suburbs. A high technology-low resource situation. Efficient use of resources through technological advancement is again stressed. Short range rapid transit systems most prevalent with major limitations on private transport, especially the auto. Also, low energy data transmission stressed.

ENVIRONMENTAL QUALITY

1. A state Super-Agency with powers of the DNR, DG, and DE. With standards and enforcement consistently high, compliance and conservatism would follow. Technology of assessment and containment widespread.

2. A state Super-Agency with powers of the DNR, DG, and DE with low standards and enforcement reflected by a general lack of concern and deterioration of the environment. Monitoring and containment of technology inadequate.

3. Eight or more local agencies exerting authority in a rigid manner. A high degree of technology available for monitoring and containment. A visible lack of coordination in arresting traveling pollutants but a high level of enforcement and standards.

4. Eight or more local agencies exerting little authority with little available means of monitoring or containing technology. Few state regulations all bringing an increase in pollution.

5. Low coordination on a state level with selected high standards and enforcement. Business-minded state agencies with their own jurisdictions and conflicting rules.

6. No control.

RESOURCES

R1 The status quo is a future where resources are plentiful but technology is wasteful; machines and products are built and break down frequently.

R2 R2 is a future where resources are plentiful and technology is efficient, machines, products, and resources are used to their greatest potential.

R3 R3 is a future where resources are scarce but available and technological efficiency has increased slightly leaving plenty of room for improvement.

R4 R4 is a future where resources are scarce and technology is efficient, machines, products, and resources are used to their greatest potential.

R5 R5 is a future where resources are scarce and technology is wasteful, machines and products are built to break down frequently.

R6 R6 is a situation of prolonged crisis where all previous planning and regulation have been abandoned, inter-state communication is limited, and technological advancements have been delayed. Resources are primative and minimal.

SOCIAL VALUES

V-1 SQ is an insecure, competitive society; persons loyalty is divided between the self and society.

V-2 Is a very competitive, insecure society; persons are individualistic and wish to be private. There is much tension.

V-3 Is a group oriented society, but it is highly competitive between groups. The person loses his identity to the group. There is much tension between groups.

V-4 Is a society where persons identify highly with the entire society. The level of cooperation is also very high.

V-5 Is a society where while persons are secure and cooperative with one another, they are individualistic and do not identify themselves in terms of the entire group.

V-6 Is a highly cooperative society where persons both identify with the entire society and also value individuality.

APPENDIX E

CUSP II "Moderated Growth, Evolutionary Value Change"

This Contingent U.S. Pattern was the assumed pattern of national events that we used in our development. It was taken directly from a publication of Patterns and Systems International (formerly Johnson Research Associates), titled "Contingent U.S. Patterns, Results through 1972," RM 72-1.

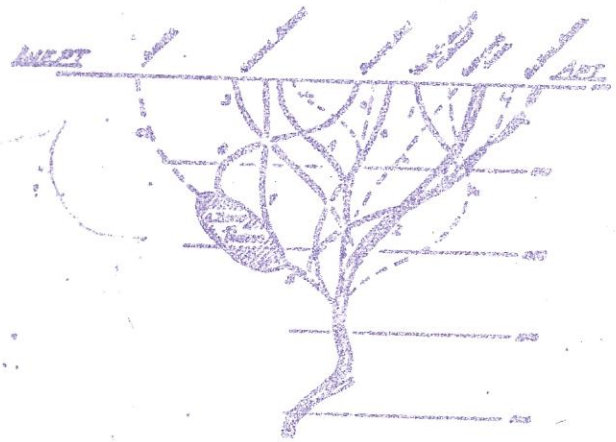
CUSP Scenario II: Moderated Growth, Evolutionary Value Change.

This is a line in which the values of liberal democracy are tried and found to be sufficient, with component evolutions in values but without the revolutionary changes assumed for Scenario I. Apparent signs of deep-running revolution of values in the late 1960s and early 1970s proved to be misleading. Economic recovery in the mid 1970s, and social maturation built upon previous legislative advances; and the way was opened for decades of gradual, substantial achievement. Resurgent issues of national security helped national confluence during the 1980s. Rates of technological innovation were high, but growth of production slowed gradually under the pressures of resource exhaustion, pollution control, and consumer satiety. Consonant trends away from "potlatch" displays of conspicuous consumption gradually redefined the American norm from 1990 on. Material evidence of success still was valued, but lasting fineness became much more highly valued than newness. The higher rates of expenditure of stored fuels has been partially offset by a shift from petroleum to coal and uranium, but ecological prices have been paid, and future issues remain to be faced after 2,000 A.D.

Variant IIa: Uninhibited Growth

This is a continued high-growth variant (assumed to be possible because of an early energy breakthrough) which closely matches those obtained by extrapolation of growth curves (technological change, consumption, population) established during the past few decades. In it, a major energy breakthrough results in a potential relief of Third World subsistence problems, an effectively unlimited outlet for the qualified youth of the developed nations, and a means of "burning through" most ecological problems -- by synthesizing needed elements, volatilizing wastes, colonizing planets, etc. This is an extremely Faustian scenario; given the assumption of redundant power availability by about 1985, it is considered to be both technically and socio-ecologically plausible. It is placed outside the set of primary projections because that basic assumption seems so dubious.

CUSP SCENARIO II: MODERATED GROWTH, EVOLUTIONARY VALUE CHANGE.



CUSPs: A "Faustian" Tree

1972: (001) ACTIVES 3 2 3,4 1 2 2 2 — UPMOD 3 3,5 3,5 4 4

1975: (020) ACTIVES 3 2 4 1 2 2 2 — UPMOD 2 3 5 4 4

1985: (113) ACTIVES 2 2 1,5 1 1 2 2 — UPMOD 2 3 4 4 4

1990: (123) ACTIVES 5 4 5 1 1 2,5 2 — UPMOD 2 3 5 4 3

2000: (520) ACTIVES 3 5 5 1 1 5 2 — UPMOD 4 2 5 6 4

Variant IIa: Uninhibited Growth

1975: (020)

1985: (120) ACTIVES 5 2 5 1 1 2 2 — UPMOD 2 3 5 4 3

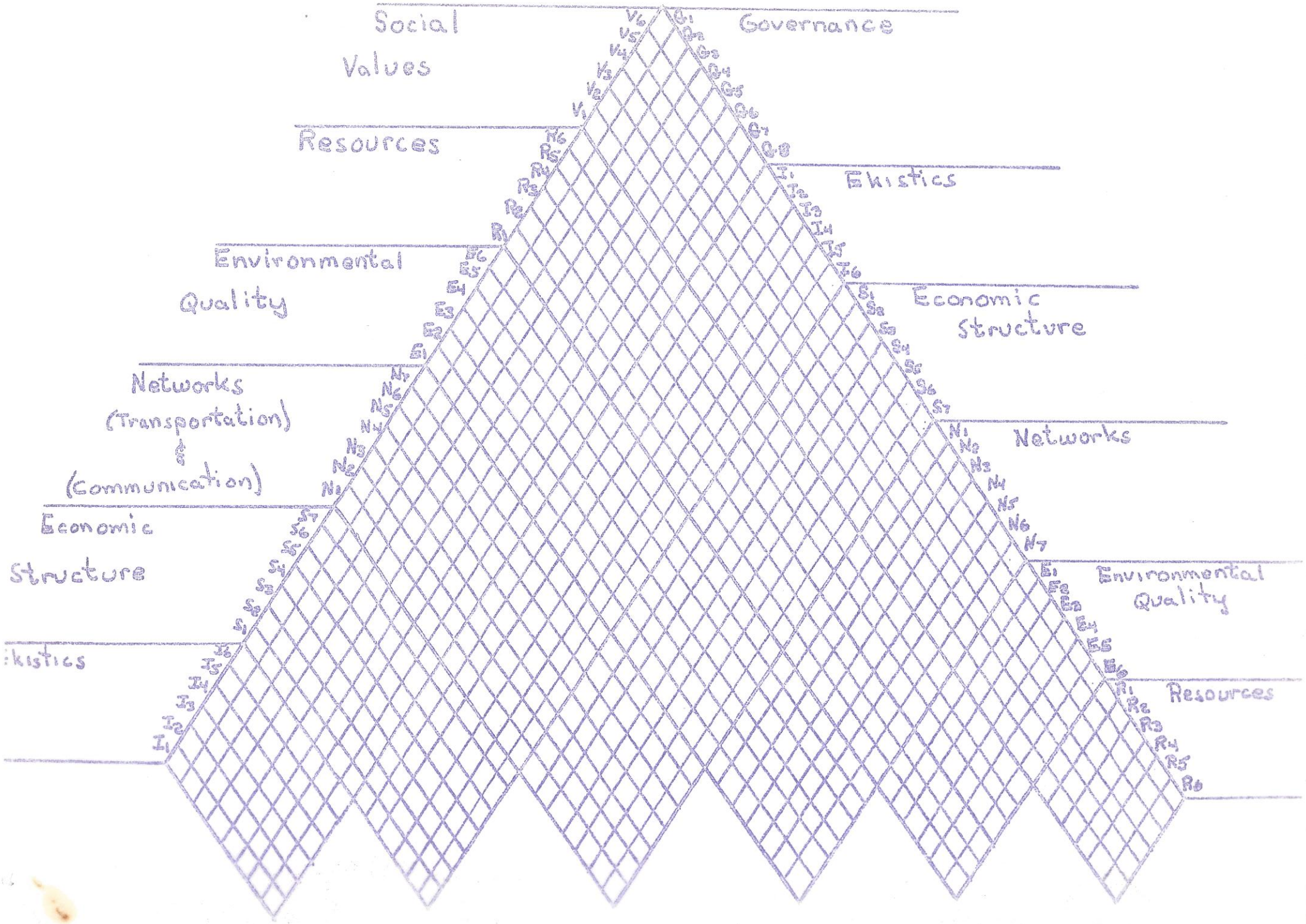
1995: (122) ACTIVES 5 4 5 1 1 1 2 — UPMOD 2 2 5 4 3

2000: (220) ACTIVES 3,5 2 5 1 1 1 2 — UPMOD 2 2 5 4 1

APPENDIX F

Our Matrix

The matrix manipulation represented the most mechanical operation of the FAR cycle. Our coexistence matrix was set up showing interaction between all the sectors and factors, representing 3,726,144 sets of alternative factor combinations. We chose as our assumed pattern of external events, CUSP II, and then asked, for each square of the matrix, if the two factors could fit concurrently within any plausible situation, within the field of projection. The matrix manipulation process is a highly efficient filter that "is intended not to derive alternative future conditions but rather to direct the analysts' attention toward a full array of interesting and potentially significant alternatives."[11] The first time we went through the matrix we eliminated all but 11 plausible sets of futures. After revising our factor descriptions we were able to expand our possible futures to 35 with the matrix.


Social
Values
Governance
Resources
Ekistics
Environmental
Quality
Economic
Structure
Networks
(Transportation)
&
(Communication)
Networks
Economic
Structure
Environmental
Quality
Ekistics
Resources

APPENDIX G

Eleven Possible Futures for CUSP II

G1, I1, S1, N1, E1, R1, V1,
Status Quo

G1 Status Quo
Balance between executive, legislative, and judicial processes in the state. Fairly high coordination and consolidation of state agencies. Many local and state referendums and increasing demand for community control on specific planning issues. High degree of lobbying and corporate influence on legislative process -- to the point of stalling the decision-making process. Almost exclusively two-party system with some small degree of participation in communist, socialist, peace parties, etc. High degree of participation in voting, especially in state and local issues.

I1 Status Quo
Some growth, weak planning, suburban sprawl. Economic and population growth beginning after the Boeing cutbacks. Planning is disorganized, non-comprehensive, and politically weak.

S1 Continued cyclical advancement and recession with consequent loss of confidence in regulated free enterprise system.

N1 The beginnings of a megalopolis from Vancouver, B.C. to Olympia or Portland stressing private transportation (auto) with public transportation, in some cases, deteriorating and an increase in the amount and types of data transmission. A fairly high advancing technology running on increasingly limited resources.

E1 Low coordination on a state level with selected high standards and enforcement. Business-minded state agencies with their own jurisdiction and conflicting rules.

R1 The status quo is a future where resources are plentiful but technology is wasteful: machines and products are built and break down frequently.

V1 Status quo is an insecure, competitive society: persons loyalty is divided between the self and society.

G1, I1, S7, N1, E1, R3, V3

G1 Status Quo
Balance between executive, legislative, and judicial processes in the state. Fairly high coordination and consolidation of state agencies. Many local and state referendums and increasing demand for community control on specific planning issues. High degree of lobbying and corporate influence on legislative process to the point of stalling with decision-making process. Almost exclusively two-party system with some small degree of participation in communist, socialist, peace parties, etc. High degree of participation in voting especially in state and local issues.

I1 Status Quo
Some growth, weak planning, suburban sprawl. Economic and population growth beginning after the Boeing cutbacks. Planning in disorganized, non-comprehensive, and politically weak.

S7 Artifically stimulated economy through major project (man on Mars) orientation of actual warfare. Very tight governmental controls successfully introduced, but allowing high resource consumption.

N1 The beginnings of a megalopolis from Vancouver, B.C. to POlympia or Portland stressing private transportation (auto) with public transportation, in some cases, deteriorating and an increase in the amount and types of data transmission. A fairly high advancing technology running on increasingly limited resources.

E1 Low coordination on a state level with selected high standards and enforcement. Business-minded state agencies with their own jurisdiction and conflicting rules.

R3 A future where resources are scarce but available and technological efficiency has increased slightly leaving plenty of room for improvement.

V3 Is a group oriented society, but is highly competitive between groups. The person loses his identity to the group. There is much tension between groups.

G4, I2, S6, N4, E4, R2, V3

G4 Participatory Democracy
A situation in which issues are decided by direct and frequent referendums to the people. Use of cable TV for direct referendum -- two way-cable systems allow immediate feedback of citizens. Local community control on local issues. More representation of more groups in all decision-making.

I2 Low growth, strong planning, concentrated urban areas. Low growth rates in population and the economy, combined with adequate comprehensive planning keeps cities from using new space outside its boundaries: what growth does occur consists of filling in unused spaces within present boundaries. Economy planned, fairer distribution of income.

S6 Resembles S4 with social change, value shifts, etc. However, these changes are pushed onto the business community by an expanded government bureaucracy. People are satisfied with the economic base and structure and have in general rejected the consumption ethic.

N4 Many small urban cores about the size of Olympia or Bremerton surrounded by mostly rural land. A high level of technology with correspondingly high levels of resources; thus allowing for a high living standard with many choices of private and public transportation. An increase in high technology communication systems.

E4 Eight or more local agencies exerting authority in a rigid manner. A high degree of technology available for monitoring and containment. A visible lack of coordination in arresting traveling pollutants, but a high level of enforcement and standards.

R2 A future where resources are plentiful and technology is efficient; machines, products, and resources are used to their greatest potential.

V3 A group-oriented society, but it is highly competitive between groups. The person loses his identity to the group. There is much tension between groups.

G4, I2, S6, N5, E4, R4, V3

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G4, I2, S6, N7, E4, R4, V3

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E4 Eight or more local agencies exerting authority in a rigid manner. A high degree of technology available for monitoring and containment. A visible lack of coordination in arresting traveling pollutants, but a high level of enforcement and standards.

R4 A future where resources are scarce and technology is efficient; machines, products, and resources are used to their greatest potential.

V3 A group-oriented society but it is highly competitive between groups. The person loses his identity to the group. There is much tension between groups.

G8, I2, S6, N4, E2, R2, V4

G8 Technocracy
Policy-making is in the hands of scientists, technologists, and planners. Think-tanks study and recommend strategy in all issues. Governmental institutions continue to function but decisions are in essence mandated by dictates of "science." A wide use of social and economic indicators in managing society -- social goals are established and the managers monitor our progress toward these goals. Regional and local planning and decision-making are sacrificed for more rational state and national goals.

I2 Low growth, strong planning, concentrated urban areas. Low growth rates in population and the economy, combined with adequate comprehensive planning keeps cities from using new space outside its boundaries; what growth does occur consists of filling in unused spaces within present boundaries. Economy planned, fairer distribution of income.

S6 Resembles S4 with social change, value shifts, etc. However, these changes are pushed onto the business community by an expanded government bureaucracy. People are satisfied with the economic base and structure and have in general rejected the consumption ethic.

N4 Many small urban cores about the size of Olympia or Bremerton surrounded by mostly rural land. A high level of technology with correspondingly high levels of resources; thus allowing for a high living standard with many choices of private and public transportation. An increase in high technology communications systems.

E2 A state Super-Agency with powers of the DNR, DG, DE. With standards and enforcement consistently high, compliance and conservation would follow. Technology of assessment and containment widespread.

R2 A future where resources are plentiful and technology is efficient; machines, products, and resources are used to their greatest potential.

V4 Is a society where persons identify highly with the entire society. The level of cooperation is also very high.

G8, I2, S6, N4, E2, R2, V6

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Policy-making is in the hands of scientists, technologists, and planners. Think-tanks study and recommend strategy in all issues. Governmental institutions continue to function but decisions are in essence mandated by dictates of "science." A wide use of social and economic indicators in managing society -- social goals are established and the managers monitor our progress toward these goals. Regional and local planning and decision-making are sacrificed for more rational state and national goals.

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S6 Resembles S4 with social change, value shifts, etc. However, these changes are pushed onto the business community by an expanded government bureaucracy. People are satisfied with the economic base and structure and have in general rejected the consumption ethic.

N4 Many small urban cores about the size of Olympia or Bremerton surrounded by mostly rural land. A high level of technology with correspondingly high levels of resources; thus allowing for a high living standard with many choices of private and public transportation. An increase in high technology communications systems.

E2 A state Super-Agency with powers of the DNR, DG, DE. With standards and enforcement consistently high, compliance and conservation would follow. Technology of assessment and containment widespread.

R2 A future where resources are plentiful and technology is efficient; machines, products, and resources are used to their greatest potential.

V6 Is a highly cooperative society where persons identify both with the entire society and also value individuality.

G8, I2, S6, N5, E2, R4, V4

G8 Technocracy
Policy-making is in the hands of scientists, technologists, and planners. Think-tanks study and recommend strategy in all issues. Governmental institutions continue to function but decisions are in essence mandated by dictates of "science." A wide use of social and economic indicators in managing society -- social goals are established and the managers monitor our progress toward these goals. Regional and local planning and decision-making are sacrificed for more rational state and national goals.

I2 Low growth, strong planning, concentrated urban areas. Low growth rates in population and the economy, combined with adequate comprehensive planning keeps cities from using new space outside its boundaries; what growth does occur consists of filling in unused spaces within present boundaries. Economy planned, fairer distribution of income.

S6 Resembles S4 with social change, value shifts, etc. However, these changes are pushed onto the business community by an expanded government bureaucracy. People are satisfied with the economic base and structure and have in general rejected the consumption ethic.

N5 Many small urban cores about the size of Olympia or Bremerton surrounded by mostly rural land. A high technology and low resources situation causing efficiency to be stressed in technological development. Less choice of type of transit leading to short range mass public transit. Also, a large increase in low energy type data transmission seems likely.

E2 A state Super-Agency with powers of the DNR, DG, DE. With standards and enforcement consistently high, compliance and conservation would follow. Technology of assessment and containment widespread.

R4 Is a future where resources are scarce and technology is efficient; machines, products, and resources are used to their greatest potential.

V4 Is a society where persons identify highly with the entire society. The level of cooperation is also very high.

G8, I2, S6, N5, E2, R4, V6

G8 Technocracy
Policy-making is in the hands of scientists, technologists, and planners. Think-tanks study and recommend strategy in all issues. Governmental institutions continue to function but decisions are in essence mandated by dictates of "science." A wide use of social and economic indicators in managing society -- social goals are established and the managers monitor our progress toward these goals. Regional and local planning and decision-making are sacrificed for more rational state and national goals.

I2 Low growth, strong planning, concentrated urban areas. Low growth rates in population and the economy, combined with adequate comprehensive planning keeps cities from using new space outside its boundaries; what growth does occur consists of filling in unused spaces within present boundaries. Economy planned,fairer distribution of income.

S6 Resembles S4 with social change, value shifts, etc. However, these changes are pushed onto the business community by an expanded government bureaucracy. People are satisfied with the economic base and structure and have in general rejected the consumption ethic.

N5 Many small urban cores about the size of Olympia or Bremerton surrounded by mostly rural land. A high technology and low resources situation causing efficiency to be stressed in technological development. Less choice of type of transit leading to short range mass public transit. Also, a large increase in low energy data transmission seems likely.

E2 A state Super-Agency with powers of the DNR, DG, DE. With standards and enforcement consistently high, compliance and conservation would follow. Technology of assessment and containment widespread.

R4 Is a future where resources are scarce and technology is efficient; machines, products, and resources are used to their greatest potential.

V6 Is a highly cooperative society where persons both identify with the entire society and also value individuality.

G8, I2, S6, N7, E2, R4, V4

G8 Technocracy
Policy-making is in the hands of scientists, technologists, and planners. Think-tanks study and recommend strategy in all issues. Governmental institutions continue to function but decisions are in essence mandated by dictates of "science." A wide use of social and economic indicators in managing society -- social goals are established and the managers monitor our progress toward these goals. Regional and local planning and decision-making are sacrificed for more rational state and national goals.

I2 Low growth, strong planning, concentrated urban areas. Low growth rates in population and the economy, combined with adequate comprehensive planning keeps cities from using new space outside its boundaries; what growth does occur consists of filling in unused spaces within present boundaries. Economy planned, fairer distribution of income.

S6 Resembles S4 with social change, value shifts, etc. However, these changes are pushed onto the business community by an expanded government bureaucracy. People are satisfied with the economic base and structure and have in general, rejected the consumption ethic.

N7 High density large urban centers (e.g. Seattle, Tacoma, Spokane) with limited suburbs. A high technology-low resource situation. Efficient use of resources through technological advancement is again stressed. Short range rapid transit systems most prevalent with major limitations on private transport, especially the auto. Also, low energy data transmission stressed.

E2 A state Super-Agency with powers of the DNR, DG, DE. With standards and enforcement consistently high, compliance and conservation would follow. Technology of assessment and containment widespread.

R4 Is a future where resources are scarce and technology is efficient; machines, products, and resources are used to their greatest potential.

V4 Is a society where persons identify highly with the entire society. The level of cooperation is also very high.

APPENDIX H

Modified Factor Descriptions

GOVERNANCE

G1 Status Quo
Balance between executive, legislative, and judicial processes in the state. Fairly low coordination and consolidation of state agencies with high level of bureaucracy. Many local and state referendums and increasing demand for community control on specific planning issues. High degree of lobbying and corporate influence on legislative process. Almost exclusive two-party system with some small degree of participation in communist, socialist, peace parties, etc. Moderate participation in voting especially in state and local issues. Individual effectiveness is low.

G2 Popular Authority
A situation in which a popularly elected chief executive assumes more and more power over decision-making, legislative and judicial processes with the consent of the people. Powers are centralized in the executive branch of the government.

G3 Corporate Control
A situation in which corporate powers essentially control, through campaign contributions, lobbying and direct pressure on elected officials, the decision-making process. Large corporations, including international businesses and corporate coalitions, plan and execute land use and growth oriented procedures beneficial to indistrial growth beyond the control of the legislative process.

G4 Participatory Democracy
A situation in which issues are decided by direct and frequent referendums to the people. Use of cable TV for direct referendum -- two-way cable systems allow immediate feedback of citizens. Local community control on local issues. More representation of more groups in all decision-making.

G5 Dictator (non-elected)
A situation in which a national change establishes a dictatorial government at the federal level. The power of the federal dictatorship subsumes the power and authority of state and local governments.

G6 Bureaucracy
A proliferation of "bureaus" of government, each with delegated authority to deal with specific aspects of policy-making, planning and government. Other elements of government continue to function but the agencies which are established to carry out the will of decision-makers are fragmented and accountability and locatability for particular responsibilities is low.

G7 Anarchy
A situation in which government at all levels is disbanded.

G8 Technocracy
Policy-making is in the hands of scientists, technologists, and planners. Think-tanks study and recommend strategy in all issues. Governmental institutions continue to function but decisions are in essence mandated by dictates of "science." A wide use of social and economic indicators in managing society -- social goals are established and the managers monitor our progress toward these goals. Regional and local planning and decision-making are sacrificed for more comprehensive state and national goals.

EKISTICS DESCRIPTORS

I-1 STATUS QUO: Some growth, weak planning, suburban sprawl
Economic and population growth beginning after the Boeing cutbacks. Planning is disorganized, non-comprehensive, and politically weak.

I-2 Low growth, strong planning, concentrated urban areas
Movement into urban centers, increase in amount of high density land, increase in range, crop and forest lands, income distribution evens out, decrease in poverty level families, zero population growth, well coordinated, strong, comprehensive planning that stresses continuing growth into urban areas, low economic growth -- growth in terms of redistribution.

I-3 Low growth, weak planning, concentrated urban areas
Movement into urban areas, amount of high density land increased, increase in range, crop and forest lands, non-effective planning, no change (from status quo) in income distribution; however, low economic growth causes some increase in the number of poverty level families.

I-4 High growth, weak planning, concentrated urban areas
High growth, movement to urban areas, weak planning, increase in poverty level families.

I-5 High growth, strong planning, concentrated urban areas
Movement into urban areas, amount of high density land increases, small increase of range, crop and forest lands, strong planning, more even income distribution, fewer poverty level families, slight population increase.

I-6 High growth, strong planning, suburban sprawl
High growth, movement to suburbs, strong planning, increase of urban land use, fairer income distribution, decrease in poverty level families.

INDIANS TAKE OVER: If there is anything worth taking.

ECONOMIC STRUCTURE & PERFORMANCE

The manner and effectiveness of the system of distribution of "goods and services." The interplay of public and private sectors.

S1 Cyclical advancement and recession
Full employment goals with actual unemployment ranging from 4 to 8 percent. Continuous decline in purchasing power and increase in tax bite. The cycles have only a minor effect on the service industry with the government sector expanding, during the recessive phase, to provide subsistence for the unemployed. There are no major structural changes to the economy. S.Q.1970- Beginning of recovery from recessive phase.

S2 Prosperous expanding free enterprise
High consumption production economy with limited government intervention. Increase in levels of employment and productivity with corresponding decline in purchasing power and tax bite.

S3 Slow growth stagnant free enterprise
A service oriented society in which productivity gains are negligible. Moderate growth is experienced economically because of expanded governmental control of the economy. There is a decrease in international trade because of the high cost of American products. Problems of maldistribution of resources, income, inequitable tax structures and lack of confidence are chronic.

S4 Low growth successful free enterprise
Entails a recognition of social conscience by the business community resulting in a reorientation of the growth ethic from quantity to quality. The business community polices itself. While the overall tax load remains stable, the load is redistributed through tax reform.

S5 Depression
Chronic depression brought on by a total rejection of faith in and collapse of the preceeding economic system. The government maintains a major proportion of the populous at subsistence levels.

S6 Low growth successful government control
The government induces a reorientation of the growth ethic in the business community through massive legislation and strict controls. The stress is placed on quality rather than quantity. There is a large increase in government bureaucracy to enforce the controls.

S7 War type high growth economy
Artifically stimulated economy through war or major project orientation. Large percentage of the GSP directly supports the effort. As needed, economic controls are freely applied.

COMMUNICATIONS AND TRANSPORTATION NETWORKS

The modes of human travel, the methods by which they communicate over a distance and the methods by which goods and services are transported to their destinations.

N-1 STATUS QUO
The beginnings of a megalopolis from Vancouver B.C. to Olympia or Portland. Human transportation primarily based on the private auto. In the public sector airlines provide a major part of intermediate and long-range transport (i.e. Seattle-Spokane, Seattle-N.Y. City). Limited bus systems provide another part of intermediate and short-range transport (Greyhound, Metro). Data transmission -- the telephone and postal service provide the major two-way data transmitters, although facimile transfer is becoming more widely used. Radio and broadcast TV are the major sources of one-way transmission of mostly entertainment. Cable TV is beginning to be wide spread with two-way cable TV in the experimental stage. Product transmission -- relies on mostly trucking, rail, ships and barges and pipelines, any of which can be long, intermediate and short range. New types of transmission are being developed through technology but they are mostly in the experimental stage and not being put to widespread use.

N-2 High density urban cores, low technology, low resource
Human transportation in the urban cores is almost entirely public (bus) with private transportation being restricted to outlying areas. Railways and airlines tend to dominate city to city and long-range travel. Data transmission is limited under peak load conditions due to poor facilities. Decline of air and truck product transport is balanced by increase of rail and water transport due to concentration of consuming public.

N-3 Low technology, low resource, megalopolis
Increase in highway network due to moderate density urban sprawl. The auto has been restricted from the inner city but is in general used elsewhere. Airlines still dominate long-range travel with railways taking over much of the between-city travel. There is a large amount of data transmission, with only minor changes in methods of transmission from the status quo. The transmission of products is having difficulty meeting demand. All systems are operating at close to peak capacity with frequent overloads.

N-4 Small urban core, high technology, high resources
There are many options available in human transport. Although the auto is in major use, public transit systems exist that directly compete. Use of other systems is also widespread. There is a large amount of data transmission, with two-way cable TV playing a major part in citizen participation in decision-making. Also facimile transfer and other new developed systems are in use. Pipelines, trucking, rail and shipping still dominate product transmission with a great diversity of products available to the consumer.

N-5 Small urban core, high technology, low resources
Human transmission is primarily public with the major portion inter-city. Between city transit is somewhat limited with bus and rail providing a major portion. Long-range is mostly by auto, rail, or airline and mostly for special occasions. The amount of data transmission is large with the telephone being widely used for other types of data transfer with community TV also widespread. Product transmission would rely mainly on rail, water, freight, and pipelines. Many products would be finished near or in the small urban cores. Local business would be stressed.

N-6 Megalopolis, high technology, low resources
There is an increase in highways as a result of the population increase. The

auto has been blocked off from the inner city but it is still used elsewhere. Public transit provides inner city transit but drops off progressively as one gets farther out. Data transmission is large with existing telephone lines being used for other types of transfer. TV broadcast and radio is widespread. Product transmission is having difficulty meeting demand with most existing systems running at close to capacity.

N-7 High density urban cores, high technology, low resources
Human transport in urban cores is almost entirely public with private transport being limited to the outlying areas. Railway and airlines dominate between city and long-range travel. Data transmission is large with facimile transfer, telephone and broadcast TV being the major systems. Product transmission is primarily based on rail and water with limited trucking.

ENVIRONMENTAL QUALITY

E1 Status Quo

One State Agency with high standards and selected enforcement when dealing with other state agencies which have conflicting jurisdiction. A fairly high enforcement when dealing with the private sector, reflecting an emphasis on the private sector. An increasing effectiveness of monitoring and enforcement procedures.

E2 Super Agency Good Quality

A State Agency with the combined powers of the DNR, GD, and DE. Standards and enforcement consistently high, with advances in technology of assessment and containment widespread. Pollution low and conservation high.

E3 Super Agency Poor Quality

A State Agency with the combined powers of the DNR, GD, and DE. Low standards and lack of enforcement reflected by a lack of concern for the environment by the public. Inadequate types and amounts of monitoring and containment resulting in increasing pollution.

E4 Eight or more regional or local agencies Good Quality

Eight or more regional or local agencies exerting authority in a rigid manner (fines). An advanced technology for monitoring and containment available and adequate for the enforcement of regional standards. Although a visible lack of coordination between regional authorities in the containment of traveling pollutants, the level of enforcement and standards is high and consistent between agencies, resulting in adequate control of all pollutants.

E5 Eight or more regional agencies Poor Quality

Eight or more regional agencies exerting little, if any, enforcement of standards, reflecting inadequate amounts and types of monitoring and containment technology. Low standards at either the regional or state level, resulting in ineffective control of pollution.

E6 No Control Worst Case Poor Quality

No standards, no controlling agencies either regional or state resulting in a total disregard for the environment.

E7 Voluntary Control Good Quality

Environmental consciousness in the public and private sectors. No standards, no controlling agencies but voluntary compliance and containment.

RESOURCES DESCRIPTORS

R-1 STATUS QUO: High availability, low efficiency
Resources are abundant but technological efficiency is low. Resources are consumed as if there were no limit, producing the desired effect with greater than minimal effort, expense and waste.

R-2 High availability, high efficiency
Abundant resources and high technological efficiency. The desired effect is produced with minimal effort, expense and waste. Resources are used to their greatest potential.

R-3 Medium availability and efficiency
Resources are increasingly not available, technological efficiency is improving. There is a decrease in the use of resources which are nonrenewable or show a decline in availability in the status quo.

R-4 Low availability, high efficiency
Resources are increasingly scarce but technological efficiency has increased greatly. Great increase in use of renewable resources, with parallel decrease in use of nonrenewable ones.

R-5 Low efficiency, low availability
Resources are scarce but technological efficiency is low. Resources showing any finite limit are showing notable decrease in usage.

R-6 Prolonged crisis
Previous planning and regulation have been abandoned, interstate communication is limited, and technological advancements have been delayed. Resources are primitive and minimal.

SOCIAL VALUES DESCRIPTORS

V-1 STATUS QUO: (see graph)
An insecure, competitive society with high value on home and family. Persons loyalty divided between the self and society. Leisure, mobility, growth and property are also highly valued.

V-2 A
A very competitive, insecure society; growth, property and free enterprise are highly valued. Persons are individualistic and wish to be private. The value of the quality of life, equality and honesty has decreased. There is an increase in mobility and the value of leisure.

V-3 B
A group oriented society with much competition between groups. The values of mental health, change, individualism and personal space decrease. The person sacrifices his identity to the group.

V-4 C
Persons identify highly with the total society. The value of monogamy and the nuclear family decrease. There is an increase in the values of the quality of life, honesty, equality, respect of the environment and learning. There is much cooperation. Growth, law and order, and free enterprise values decrease.

V-5 D
A cooperative, but individualistic society. Provincialism, pluralism, group identity, mobility and leisure values decrease. There is an increase in the value of equality, honesty, respect for the environment and efficiency. Growth and a throw-away economy are less valued.

V-6 E
A cooperative society where persons identify equally with the group and themselves. There is an increase in the values of learning, honesty, commitment to ideals, mental health, pluralism and equality. The value of a throw-away economy, growth, law and order, regional chauvanism, women in the home and the worship of youth decrease.

APPENDIX I

Final Factor Combinations for CUSP II

Possible Factor Combinations:

G1,I1,S1,N1,E1,R1,V1

G1,I1,S1,N1,E1,R3,V3

G1,I1,S1,N1,E1,R3,V6

G1,I1,S1,N1,E1,R4,V3

G1,I1,S1,N1,E1,R4,V6

G1,I1,S1,N1,E3,R3,V3

G1,I1,S1,N1,E3,R3,V6

G1,I1,S1,N1,E3,R4,V3

G1,I1,S1,N1,E3,R4,V6

G1,I1,S1,N6,E1,R4,V3

G1,I1,S1,N6,E1,R4,V6

G1,I1,S1,N6,E3,R3,V3

G1,I1,S1,N6,E3,R3,V6

G1,I1,S1,N6,E3,R4,V3

G1,I1,S1,N6,E3,R4,V6

G1,I1,S7,N1,E1,R3,V3

G1,I1,S7,N1,E1,R3,V6

G4,I2,S6,N4,E4,R2,V3

G4I2,S6,N5,E4,R4,V3

G4,I2,S6,N6,E1,R3,V3

G4,I2,S6,N6,E1,R3,V6

G4,I2,S6,N6,E1,R4,V3

G4,I2,S6,N6,E1,R4,V6

G4,I2,S6,N6,E4,R3,V3

G4,I2,S6,N6,E4,R4,V3

G4,I2,S6,N7,E4,R3,V3

G4,I2,S6,N7,E4,R4,V3

G8,I2,S6,N4,E2,R2,V4

G8,I2,S6,N4,E2,R2,V6

G8,I2,S6N5,E2,R4,V4

G8,I2,S6,N5,E2,R4,V6

G8,I2,S6,N6,E1,R3,V3

G8,I2,S6,N6E1,R3,V6

G8,I2,S6,N6,E2,R4,V4

G8,I2,S6,N6,E2,R4,V6

APPENDIX J

The Group's Scenarios

"It is not creative minds that produce revolutions, but the obstinate conservatism of established authority. It is the blank refusal to accept the idea of an orderly evolution towards new things that gives a revolutionary quality to every constructive proposal."[12]

H. G. Wells

HISTORY OF THE FUTURE, 1970-1992, STATE OF WASHINGTON BY ALLAN HART

With the censuring of the President in late 1973, old patterns in the United States began to change. The speaker of the House assumed a major portion of control, and he spear-headed a movement of reform, albeit neglecting some essential governmental reform. This development, however, left people looking towards state and local governments for response.

By 1975, a number of crises had come to the fore. Most significantly among these was that of resources, and the society began to exhibit more ingenuity in the realm of technological efficiency and was making real gains, though there was a long way to go. During this period, the sluggishness of the economy was of major concern, with distribution of income and resources, inequitable tax structures, and general lack of faith being prevailing difficulties. Adding to the problems was the continuing developments of megolopoli as unscrupulous speculators capitalized on a drive by the middle class to try to escape these problems by moving away from city centers. Environmental problems continued only somewhat abated as the new super-agency stumbled in its own quagmire. However, in the face of these problems, the society mobilizes itself to confront them; people realistically assess the degree of solidification necessary to move beyond the point of disintegration.

1980 sees some new, progressive developments. The need for strong, coordinated planning is recognized and planning is beginning to be a strong force against further megolopolization and for urban core development. Partially through the work of these planners, government takes more control of the economy with emphasis upon success without growth; although this is just the beginning of a slow process. Technology continues to advance particularly in the area of efficiency, and consequently the resource situation grows less critical. As planning and other sorts of community activity develop their natural centers, the weak super-agency for policing the environment gradually gives way as local agencies take command. Solutions to some of the pressing problems are taking hold, and the emphasis among the people upon identification with the whole society decreases and some of the older values with respect to the individual return, although noticeably and permanently altered.

After another five years, planning is working well and this gives the concept and practice additional strength. This leads to two other significant developments: first, the state super-agency for environmental control is abandoned altogether, with control in the hands of local agencies whose effectiveness is high; second, other types of decisions begin to be made at local or regional level as the individual's effectiveness rises, and governance can thus be described more and more as participatory democracy. Efficiency continues to rise with consequent lessening of resource problems. What turns out to have been a pendulum swing towards individualism, albeit extremely cooperative, is at its peak and there are rumblings of further change.

By 1990, governance is virtually a participatory democracy. The government has achieved a high degree of success with a managed, low growth economy. Reorganization of the large urban cores is under way due to complaints about insufficient popular control; the move is towards smaller urban cores within the old megalopolis. The technology is now assessed to be at near peak efficiency. Reflecting this drive, among others, the society is seeking a balance between individualism and effective group coherency.

As Shirley Chisholm is swept into office of President in 1992, physically a bit frail but her mind still very sharp, the move towards small urban cores is almost complete, and the society is settling down with equal identification with the self and society.

WE WON!!!

Possible Future 1970-1992 CUSP Moderate Growth, Evolutionary Value Change

For Washington State
1970 - Status Quo

This future is one in which the Pacific Coast continues with its sprawl, becoming a megalopolis. It demands even more resources with technology barely keeping up. The mood of the population is that the individual has little influence and competing groups are the only way to have influence on decision making (citizen's group lobbying).

Between 1975-1980, these groups and the decreasing resources cause government to begin serious planning on a state-wide level. State goals begin to be clearly articulated and a state plan is shaped, covering, at first, mostly economics but later both social and ecological goals. With good management these plans begin to pan out. The public gains more security; trending away from pressure groups, when things begin to work. With all this good planning there still needs to be some hard work in implementing and monitoring these plans.

Between 1980-1986, the decreasing levels of resources, with limited technological advance have caused the deterioration of the megalopolis systems. A massive plan for rejuvenating the cities is introduced as a way to entice people back into more distinct population centers. And by 1986 a large number of people have relocated in the cities, where their needs can be better and more efficiently met.

By 1992 the technocracy has pretty much settled in; drawing on the whole society for information. The use of planning pervades the society. With the limited resources, growth is not highly stressed -- recycling is the rule. A state super agency with high standards and enforcement is keeping pollution within accepted (standards) limits. The population is mostly concentrated in urban cores where social and individual needs may be more easily met. People have an overall societal identification, but also retain an individual integrity.

1970 - G1, I1, S1, N1, E1, R1, V1
1975 - G1, I1, S1, N1, E1, R3, V3
1980 - G1, 8, I1, S1, 6, E1, R3, 4, V3
1986 - G8, I1, 2, S1, 6, N6, 7, E1, 2, R4, V3, 6
1992 - G8, I2, S6, N6, 7, E2, R4, V6

Debbie Dick

CUSP SCENARIO II: MODERATED GROWTH/EVOLUTIONARY CHANGE

1975-80

Following a major scandal at the federal level of administration and an increasing mistrust of government's ability to deal honestly and unbiasedly with problems facing the nation and the states, governance structure trends more and more toward a participatory democracy. Increasing numbers of referendum and more people clamoring to be involved at some level in goal-setting and decision-making. Many groups forming around issues. Seattle citizens continue Seattle 2000 plans and expand participation base. Washington 2000 project involving citizens all over the state in information exchange and discussion of goals for Washington toward the year 2000. Public interest lobbying groups gain support and consumer and ecology groups forming coalitions which include the Washington Environmental Council, Sierra Club and Anti-Freeway groups. The 1976 Bicentennial planning and the Expo '74 planning have brought together other forces for "quality of life" planning and have provided a base for developing elaborate communication systems within the state. Fewer regional concerns -- more state-wide concerns and state plans allowing for regional variation -- but "planned variation" in the state's economy, urban development, and industrial development. Citizen coalitions cross age and institutional boundaries but class and education boundaries remain between people. Values shifting towards greater society orientation -- a necessity to deal with quality of life issues. This is demonstrated through greater willingness for taxpayers to vote for expensive quality of life measures. But income levels remain fairly high and people are willing to contribute a larger portion of incomes to assuring a good environment for all. Much state and civic pride: Washington is still a good place to live and we're going to keep it that way. Measures are introduced to inhibit massive migration into the state. Energy costs go up and new citizens are expected to have a healthy bank account before moving into the area. In 1976 a new governor is elected. A progressive Republican much like Governor Dan but bringing with him many fresh new appointees. Many state departments reorganized. Service occupations and "ecology" occupations shoot up in numbers and in status. More federal guidelines on air and water standards require a tightening up of state agency for environmental control. Also more federal money is available for housing and urban transportation development. All this money is concentrated in cities in an effort to forestall a growing megalopolis. Small cities are encouraged to develop and refurbish themselves. Incentives in form of tax reliefs are given to business and industries in effort to get them to locate in newly developing urban cores and to encourage decentralization of cities, services and redistribution of population. We have friends in D.C. Jackson, Evans, Magnuson who are in powerful positions to bring federal grants and contracts to the state -- especially contracts which deal with innovative urban development schemes and low/moderated growth economy.

There is little economic growth given the quality of life decisions being made by taxpayers. However, ocean shorelines and other shorelines chopped up with ugly little developments with little or no water/sewer planning before strong measures enforced to prevent such developments. Some industrial development is occurring -- specifically, trade with the Orient is up 100% by 1980 and much land and industry in Washington being bought by Japanese and Hong Kong businessmen. The ports at Everett and Bellingham have been expanded and oil refineries are being built and operated in the northern part of the state. These are to refine oil from Prudo bay and hence are viewed as rather short term (10-year) operations. Tankers -- super tankers -- are operating in Puget Sound with stringent watchdogging and controls. Strict measures have been introduced to control further expansion of polluting industries and to prevent further deterioration of shorelines and other aspects of Washington's natural environment.

Resources are lower and lower in availability. Gas and oil are in restricted supply. Alternatives constantly being discussed -- more coal being used in plants -- Ross Dam is raised -- and three nuclear power plants are under construction in the state -- two on Hood Canal. Yet many life style changes have actually cut down on the consumption of energy -- many through legislation and public pressure. People are recycling and using less energy. Measures requiring better housing insulation have cut down on heating costs and more restrictions on the use of automobile have cut down on oil and gas consumption and also aided the development and use of transit systems. Investment in new technologies is encouraged through legislation and federal monies for research and experimentation.

1980-85

The way is set for a controlled economy, further decentralizing of businesses and industries and the development of quality urban centers with good housing and transportation systems. Five years of investment in that direction begins to pay off. It becomes "fashionable" to live in the city. It also becomes cheaper. Strip development is curtailed. People are still using autos, but for longer trips. More transportation systems being developed. Expo and Bicentennial pointed the way in terms of communication systems -- now the state is heavily invested in elaborate home and institution networks for home education and other information exchange. Citizen channels for cable broadcast are available and becoming heavily used for centering discussion on issues.

Environmental quality is being watchdogged by a super agency which stringently enforces federal and state standards. It is an offense to all society to litter, pollute, build bad things, expend energy in a needless way and people begin watch-dogging their own communities, neighbors, etc. People cooperate on the whole with these standards and their enforcement because they wanted the high standards and want a high quality of life. There is still a need for more manpower in the super agency, but since cooperation is high, constant monitoring is not at this time a problem. Resources are still short in availability but there is more and more efficiency in their use so people don't feel the pinch so much. Also, a gradual change of lifestyles in the previous ten years have helped people to accommodate slowly to using less, recycling more. Seattle is a fantastic city, large and densely populated in its core -- much like San Francisco. There are stylish apartments downtown core -- the market area has been totally refurbished with tasteful land-scaping, brick sidewalks and trees -- an extension of the redevelopment of the Pioneer Square area. A rapid transit system opens during the early 80's -- one designed to centralize the population and discourage further suburban sprawl. Cars are banned from the downtown commercial area. All wires are underground. People make less money but live better in a cosmopolitan, beautiful city. Seattle learned a lot from the mistakes of other urban cities twenty years earlier -- and took advantage of federal money to develop in a comfortable way.

1985-90

People have become complacent with the direction of Washington society. Things are looking good. Goals are set. The economy is under control and planning is strong. People now seek managers for the society -- and trend toward a sort of technocracy at the state level. Want agencies and cross agency task force/think tanks to keep things on the right road -- monitor resource use and depletion and see if we are achieving our goals. Fewer and fewer cars used in urban areas -- good transportation and communication systems. Value shifts slightly from all society orientation to new concern with individual development, actualization -- we don't have to be

professional citizens all the time now watchdogging the government -- we can relax, go to school and think about ourselves too. More energy in that direction. So by 1990 a highly technocratic managed society, low growth, urban concentration, few cars, high data transmission, low resources but efficient use, a super environmental agency really doing itssjob and a cooperative citizenry turning slowly to self-interests once again.

G^1	I^1	S^1	N^1	E^1	R^1	V^1
$G^1 \rightarrow G^4$	I^1	$S^1 \rightarrow S^6$	N^1	E^1	$R^1 \rightarrow R^3$	$V^1 \rightarrow V^4$
$G^1 \rightarrow G^4$	$I^1 \rightarrow I^2$	S^6	$N^1 \rightarrow N^4$?	$E^1 \rightarrow E^2$	$R^3 \rightarrow R^4$	V^4
$G^4 \rightarrow G^8$	I^2	S^6	$N^4 \rightarrow N^5$	E^2 ?	R^4 ?	$V^4 \rightarrow V^6$?
G^8	I^2	S^6	N^5	E^2	R^4	V^6

THE FUTURE BY MARSALI HANSEN

1975. People are participating in governance through referendums and initiatives, primarily on local issues. There is a lot of public participation in local planning. The petroleum shortage of '73 kept people home during that summer. Being around the neighborhood made them realize the importance of their own living environment, especially when they couldn't leave. The negative population growth figures are beginning to effect peoples' concepts of building plans, but only slightly and primarily on the governmental level. State and federal funding for institutions has slowed down. The Alaska pipeline has been ok'd and preparation is being made. Seattle, Tacoma and Everett are expanding as ports for the oil tankers. Refineries are being built in the outlying communities- There is a migration to these urban centers from the outlying communities, primarily from the eastern and far western sides of the state. Public transportation improved in quality during the "energy crisis" of the early seventies. Mass transit especially in the cities formed a reasonable alternative to the automobile. Actual communications were just as poor except for the press. Telephone rates continued to increase but not noticeably enough for complaints. The press receives a shot in the arm following the Watergate affair and the days of "yellow journalism" appear to have passed.

Unemployment has decreased because of the development of the ports. Capitalism and private enterprise is flourishing. The oil companies are eating up the profits. The price of gas which rose steeply during the summer of '73 is still high. The number of dealers has decreased sharply, but those still in business are flourishing. Though people's behavior has changed somewhat, to compensate for the petroleum shortage, car pools, etc., the general populace is continuously awaiting the promised influx of petroleum. As for the consumption of other resources it continues as if there were no real problem. Other leisure activities have taken the place of traveling. Sailboats and gliders have increased in popularity. The pleasures of the fireplace have become widespread. Detroit has produced a diesel auto and respect for the environment has become secondary to financial survival. The Department of Ecology has slackened its restruction with "an awareness of the extenuating circumstances" of the energy crisis. Food prices continue to rise with the move toward a more technological society and less farm labor available.

1980. Petrol? Where? The Alaskan pipeline is in full swing but prices remain high. Dan Evans is no longer governor. He has been replaced by Slade Gorton. Evans is now a senator replacing Magnuson who left because of health reasons. Washington is looking up even more than during the great days of Boeing. Economically trends remain as in 1975. Population continues to move toward the cities, people simply can't afford to live in the outlying districts. Now however the problem is not a lack of fuel but the high cost. But people are making it and so recreation can be afforded. Interest in planning continues at the local level; people are beginning to see they can be effective and are reaching out with more and more initiatives. However, popular control has dropped off on the environmental level. The diesel and the rotary engine have become popular. People are turning to coal and the combination with refineries has made the air unbreathable. But being able to leave, keeps people quiet. Public transportation in the city center is still improving and cars have been banned in downtown Seattle. Pollution control devices are once more being considered for automobiles. People are getting slightly edgy because of the high cost of petrol. They are finding that if they work together in small groups they can survive. These groups which originated over "clear up the neighborhood" parties, continue for political effectiveness in planning. Developments formed for the influx of population during the move toward the urban centers have produced groups of individuals who must live in the cities. The pollution has caused them to organize behind local referendums. It was these referendums which caused the ban of autos in Seattle.

1985. The oil from Alaska is beginning to dwindle. Suddenly the U.S. is looking toward the near east again for oil. At the same time U.S. currency on the foreign market drops. There is a decreased influx of unrenewable resources. To compensate strong competition breaks out among groups of individuals. The word goes out "buy America!" but people aren't really buying anything. Garbage dumps become gold mines. Massive corporations are suddenly hogtied, they have no resources with which to operate. Oil refineries are still operating but are laying off workers. However, people are working in groups trying to survive.

Meanwhile the smog has gotten so bad the emphesema strikes the Puget Sound region. One thousand people die within the year. Smog alerts are frequent in Tacoma and Everett. Block by block automobiles are banned. Energy cooperatives present the increased use of coal through conservation ahd sharing of other energy sources. The Department of Ecology collagses. But individuals in eight scattered areas around the state make use of its resources. Educational systems slow down in the arts and increase energy in the sciences. Petroleum companies push full speed toward discovery of new sources of energy. Competition is cut throat, for survival rather than growth. People are scared, population figures remain the same. Transportation for pleasure decreased but the flow of information is high. An almost underground communication network forms. People are involved in governance but through initiative and referendums. There is an almost total disregard of the present structure. Things need to be done.

1992. Nuclear power has come into effect. Petroleum from Alaska has slowed to a dribble. Tar sands and oil shales also produce a minor amount. Electricity is almost nonexistent. Personal transportation is minimal for long distances. Tacoma and Everett have also finally banned the automobile. The Tacoma Smelter was shut down in the late '80's. The skies are blue again over the Puget Sound. People are relaxing knowing that there are enough resources to survive. All resources possible are recycled. Cooperate involvement in environmental improvement has increased. But the powers are with the people. They are very aware where the solutions to the major difficulties came from. Knowing the control they have, they aren't ready to relinquish it. Cooperation among groups, however, increases gradually as larger ecological districts are formed for the continued improvement of the environment. Buy American is now possible though not as frequent since technological efficiency has increased. Communication of data has proved advantageous. Pollution has decreased to such a level that a new ecologically sound form in communication is once again reinstated into society. Drums replace Ma Bell as being an untappable form of communication. Meat is hard to come by due to the large amount of resources needed to produce it. Dairy products gain in popularity replacing meat as the staple protein. The Olympia Peninsula slowly becomes a game preserve as people are forced to leave due to lack of transportation. Communication with the rest of the U.S. has been cut back. Trade with other nations has decreased along with America's poorer image. Seattle and Tacoma revert back to population and inner-state trading centers. Popular opinion in Washington and the problems of other states cut down in interstate communication. A gradual relaxation coupled with a slight anxiety of future difficulties yet to face keeps the population continually active in public affairs.

POSSIBLE FUTURE FOR WASHINGTON STATE UNDER CUSP PATTERN II
Moderate Value Shift, Government Induced by Harold Dick

This is a situation in which present trends toward self-government through the use of plebicites accelerates and becomes dominant within the state of Washington by about 1980. Along with peoples new-found ability to have an important say in their own future has come a control of the excesses of the business community.

Present signs of resource depletion become acute by 1980; also tipping the scales toward a consistent land use and long-term planning policy. Such controls are used to first (by 1985) stop the continued expansion of the megalopolises existing in eastern and western Washington, and then (by 1990) reverse the expansion to the point of concentrating the population in the large urban cores surrounding the old cities of Everett, Seattle, Tacoma, Longview, Vancouver, Spokane, and the Tri-Cities. All other population centers are strictly controlled as to size, area, population, and new construction.

Due to the inherent differences within the population ahd the differing requirements of the various regions and cities there is much devisiveness between competing groups; but people tend to feel much more secure than currently within their particular group. Such conditions lead us to a delayed resolution of the environmental questions and also lead us to using regional control agencies rather than a super agency. With continued emphasis on the service industry, we have attained a service and government-controlled economy.

By 1992 workable solutions for many of the current societal problems have been found and this is leading to a condition where people feel much freer to do and act as individuals than they have for the preceding 10-15 years. This sense of security may be false for many problems have been solved only temporarily or superficially and may explode if not watched carefully.

1970 - G1, I1, S1, N1, E1, R1, V1

1975 - G1, 4, I1, S1, N6, E1, 4, R3, V1, 3

1980 - G4, I1, 2, S1, 6, N6, 7, E4, R3, 4, V3

1986 - G4, I2, S6, N6, 7, E4, R4, V3

1992 - G4, I2, S6, N7, 4, E4, 2, R4, V3, 6

CUSP Scenario II
Moderated Growth, Evolutionary Value Change

Scenario Progression:

1970: Status Quo
1974: G1, I1, S1, N1-6, E1, R1-3, V1-3
1978: G1-4, I1, S1, N1-6, E1, R3, V3
1982: G1-4, I1-2, S1, N1-7, E1-4, R3-4, V3
1986: G4, I1-2, S1-6, N1-7, E4, R4, V3-6
1990: G4, I1-2, S6, N1-7, E4, R4, V6
1992: G4, I2, S6, N1-7, E4, R4, V6

Power to the People

Gasoline shortages, a rising concern for the environment, disgust with planned obsolescence, and a desire for a more livable city force the car owner to abandon the car as a sense of status and mobility. A clamor is raised, creating a public mood calling for a solution to transportation problems within the urban areas of Seattle, Tacoma, and Spokane, and developing solutions for some of the smaller cities, making public inner-city transit a priority. This is attempted, but is ineffectual, because citizen awareness and organization is weak. Public communication becomes a battlefield between business and private interests and the populace.

Dissatisfaction with corporate and government bureau lobbying (i.e., the Highway Department) leads the populace to demanding more participation and openness in the governing process. Working within organized citizen groups, transportation problems are showing improvement. Impetus for abandoning the car, especially inside urban areas, is strong with resources having established use priorities. A long, hard look at dwindling resources and their use is being taken. The move toward citizen involvement and awareness, makes group identity an essential. Personal concern and health suffer.

Deterioration of the quality of urban life brings citizen organization to bear on decision makers. Comprehensive planning allows a finger on sprawl. Public transit in urban areas is firmly established, with between-city travel increasingly dominated by rail and airlines. The elimination of highways as prime mover is under way. Rails and waterways move products. A highly efficient application of technology begins to allow society to run on low quantities of nonrenewable resources.

Awareness through and participation in the education process throughout one's life encourages group and social identity. Scrutiny of government practices in managing the environment and policing business brings a self-righteous, vigilante atmosphere. People demand control of monitoring and enforcement of locally threatening industries. The business community can only blush for its powers are waning.

By this time people have learned the value of organization and awareness in political terms. Referendum and initiative become decision making. Local issues are decided in the community. Public attitudes become priorities. Government controls on business and industry reorient the Growth Ethic and establish quality as essential. A cornerstone of participatory democracy is seen to be education. Renovation of education to be broad and interdisciplinary, emphasizing personalized approaches is underway. Stability is reinforced.

With the business community giving way to an imposed conscience, the Growth Ethic and the Waste Ethic gradually disappear from society. Corporate power and influence finally crumble without the reinforcing government structure. The value of individuality and personal choice can now be seen as compatible with cooperation in social matters. Conformity to norms diminishes. The value of participation is established and reinforced.

Zero-growth of low growth population and economics finally provides for comprehensive planning to limit urban areas and eliminate suburban sprawl. Through establishing social priorities, the cities are held desirable and worth taking of by their inhabitants.

Instead of being every part a sore, the cities become a source of pride and enjoyment. People's health increases in general. Crime decreases. The final shift of the make-up of and quality of the city was a landmark to future generations.

Steve Matsen

CUSP SCENARIO II BY MARDEA ERWIN

1970 - G1, I1, S1, N1, E1, R1, V1

1975 - G1, I1, S1, N6, E1, R3, V3

1980 - G1, I2, S6, N6, E4, R4, V3

1985 - G4, I2, S6, N7, E4, R4, V6

1990 - G4, I2, S4, N7- E2, R4, V6

1992 - G4, I2, S4, N7, E2, R4, V6

By 1975, people have realized that resources are not as available as they thought. However, there has been no stopping of the urban sprawl and a more extensive megalopolis has formed. Persons have begun to identify more with local groups. As they identify more in this way they begin to feel the need of having more control on local issues. By 1980 the way this has most greatly manifested itself is through environmental controls. Eight or more regional and/or local agencies set standards and control their areas. Stringent controls are even more valued because the resource situation has become one of low availability. This situation and the fact that local areas want control, has led to the beginnings of better planning. However, since efficiency has increased and some planning has begun, a crisis situation is being avoided. Firm controls have begun to be put on the business community.

By 1985, the trend to more comprehensive planning, low growth and concentrated urban areas is very solid. Low growth has been the policy for some years. Comprehensive planning is now finally beginning to make some effect. The confining of the population to urban cores is beginning. Persons are more and more demanding with more overall say in their governance system. The movement to high density urban cores in terms of networks has begun. People are also beginning to cooperate more between groups, but the tie to local areas is still strong.

By 1990, the movement toward a participatory democracy is a long way along. In doing this people more and more see common problems. They identify with larger groups, yet still value their own local areas. As they see how better total groups can sometimes work together and since the resources are on a low availability status, there is rapid movement to a super-agency with high controls and standards concerning the environment. Also, as people have more power to determine what goes on, their feelings of security increase and individualism begins to work along with and in cooperation with a group identity. Comprehensive planning is forcing the change to concentrated urban cores more and more. Another change occurring is that the business community has decided that it wants control of itself and is realizing its need for a social conscience. By 1992 all the things in 1990 have become more stabilized.

And we've all gone to look for America.

AN ALTERNATIVE FUTURE FOR WASHINGTON STATE 1970 - 1990

FACTOR COMBINATIONS

1970-74	G_1	I_1	S_7	N_1	E_1	R_1	V_1
1974-78	G_1	I_1	S_1	N_1	E_3	R_3	V_3
1978-82	G_8	I_2	S_6	N_6	E_1	R_3	V_3
1982-86	G_4	I_2	S_6	N_6	E_1	R_3	V_3
1986-90	G_4	I_2	S_6	N_6	E_4	R_4	V_6

1970 - 1974

The United States in the early 70s' was a country winding down an inflated "War-type" economy. Bureauracy ran rampant with the different branches showing more competition and graft than coordination and consolidation. Following strict Keynesian economics the inflation rate could be clearly seen as the run-a-way variety. High population mobility was seen in Washington following the Boeing cutbacks and as the measured unemployment rate hit 11 in 1971. This society is becoming increasingly insecure and competitive. The classical family and social structure is in a molting stage as evidenced by the rising divorce rate (over 50% in Calif.) and rampant individualism coupled with isolationism propogated in our institutions.

At this time Washingtons' population is dominant in a 50 mile wide corridor running from the Canadian border to Oregons', west of the Cascades, and representing 75% of the states' population. The remainder are in Eastern Washington with two dominant clusters; Spokane (gateway to the Midwest), and Yakima. The natural resources of Washington have been, and continue to be exploited heavily. Air pollution is a keenly experienced problem in this state with water pollution a close second. Only ~~one~~ two major oil spills have occured related to our costal refineries with their major use yet to be experienced. Environmental control is in its' infancy and losing ground in typical bureaucratic firefighting.

1974 - 1978

By 1974 the U.S. has effectively withdrawn from the imperialistic Indo-China war. The political system is undergoing convulsions as it exposes bourgeois politics. The winter of 74 marked the onset of the "Energy Crisis" which was a precondition to the "Depression of 75". As a result of the winter of 74 the state established an Environmental Super Agency to provide controls in response to evolving crisis situations. In late 1975, following keenly felt agricultural and resource shortages that drastically curtail production, comes another stockmarket collapse. The IMF kept procrastinating and we overspent ourselves into a brick wall.

The society at this point is becoming very insecure as evidenced by increased psychotic and criminal behavior. Food shortages fan the flames and unemployment skyrockets as our economy grinds to a halt. Conflict resolution is very poor in the public and private sectors as the wallowing factions massage the problems.

1978 - 1982

An observable shift in our "Governance" system takes place in the late 70s'. We have been forced to give up some freedoms to more comprehensive state and national decision-making, but have managed to put policy-making in a "Roman forum" of scientists, technologists, and planners. The depression conditions have crippled the suburban sprawl in this state and bolstered a denser urban core. Income distribution has evened out and what economic growth we do show is in terms of redistribution of wealth. This situation is fostered through massive legislation and repeal. Strict government controls [redacted] precondition a reorientation of the growth ethic, stress comprehensive planning, and a qualitative work ethic.

The incumbent "Technocracy" with its' extensive planning bureaucracy has initiated extensive changes in this state. With auto use restricted the cities were sectioned into culdesacs and all but the major routes were blocked off. Inner-city

transit is available but does not provide ties between, and to, some of the outlying areas. There is much integration and synergy seen in the use of our communication networks. Broadcast programming experiences some major shifts in emphasis as the demand for educational and information-oriented series is seen. Environmental quality stabilizes as our understanding and controls evolve. We still have pollution creating systems but they are on the decline.

1982 - 1986

A mixture of increased technological innovation and astounding methadological advancement in the social sciences paves the way for increased individual understanding and participation in our social processes during this period. As freer individual expression is "groked" in our daily lives the technocracy is able to facilitate an efficient as well as workable communication link between citizens and our public/private decision making processes. This may all sound very complicated but this peaceful, utopian society manages it all in only four years.

1986 - 1990

Environmental quality goes back into local hands for peak performance. Both population growth and density have stabalized and we are getting good at "doing more with less". This is a very cooperative society which seems to be maximizing its' social growth through mutually supportive individual and societal identity. Our economic system fosters a competition of ideals and a socialism of production.

Non-renewable resource utilization is low with the supply of many like Gold, Silver, Mercury, and Tin all but out. Renewable resources in Washington such as Energy, Timber, Aquaculture, and the use of our waterways have a proper perspective on them. Technology is increasingly effective and our transportation and communication systems are comfortable. Agricultural production is ethically organic and we distribute our excesses.

There it is! 20 years of "Moderated Growth, Evolutionary Value Change"

10/3/73 Tim Bombardier

APPENDIX K

The Conglomerate Scenario

CONGLOMERATE SCENARIO GISNERV CUSP II

1975 - N1-6-product transmission difficulties, limited urban mass transit
R3-medium availability and efficiency
V1-3-trend--group-oriented to competition
1980 - G1-4-trend towards participatory democracy
I1-2- " " low growth, strong plan, urban cores
E1-4- " " eight good local agencies
R3-4- " " lower availability, higher efficiency
1985 - S1-6- " " low growth successful governmental control
N1-7- " " urban cores, high technology, low resources
1990 - V3-6- " " group to individual (and more cooperation)
1994 - G4-participatory democracy
I2-low growth, strong planning, concentrated urban areas
S6-government controlled, successful economy
N7-dense urban cores, high technology, low resources
E4-eight strong local agencies
R4-low resources, high technology
V3-6-still moving to a cooperative society with a balance between group and individual

The late sixties and early seventies saw two crucial developments in U.S.and Washington's history. One was widespread criticism of the establishment; the other was the serious depletion of resources, particularly oil. Furthermore, blatant corruption in the Nixon administration encouraged greater popular participation in public decision-making.

In 1975, these features of the society were clear. Being ill prepared for the energy shortage, the state of Washington found itself with limited resources becoming ever more so because of their inefficient technological use. This caused particular problems in the movement of people and goods. The people, counteracting the sense of powerlessness of the '60's, began to form issue-centered groups and associations; these groups began to compete for influence and voice.

In spite of this competitiveness, however, their overall influence on governmental decision-making was clear by 1980. Strong, community-oriented planning began to grow, with a movement (born of necessity) to centralize and make dense the urban core, limiting both economic and physical growth. This sort of efficiency move characterized developments surrounding the use of resources; thus, although scarcity continued, it presented less of a problem due to technological advances. Environmental quality also began to improve as local control agencies grew in power.

The mid-80's saw further governmental control of the economy, particularly of growth, and this change was on the whole being successfully arranged. The trend towards higher density urban cores, functioning on increasingly efficient technology, continued. Interest groups continued to hold and vie for power.

The new decade was ushered in with people feeling more sure about the outcome of their efforts. Decision-making was in the hands of people directly affected, and solutions to the resource, technology, economic, and urban problems had a high degree of success.

In the early part of the decade, a new concern emerged for the individual -- now freed more from pressing societal problems -- and his personal growth. Small group associations remained highly valued, but only in their functional place beside personal concerns. Education grew in demand.

APPENDIX L

This appendix consists of two video tapes which have been included with this report in TESC library. On these tapes we read our conglomerate scenario and presented fantacies of what "Community Access Video" would look like in 1992. A script of these tapes is provided here.

FOR THE ALL-SCHOOL FESTIVAL May 31, 1973 THE FUTURE OF WASHINGTON 1992
(Script of Video tape)

"They all laughed at Christopher Columbus when he said the world was round.
They all laughed when Edison recorded sound.
They all laughed at Wilbur and his brother, When they said that man could fly.
They told Marconi Wireless was a phoney; It's the same old cry...

But Ho, Ho, Ho! Who's got the last laugh now?

They all laughed at Rockefeller Center, Now they're fighting to get in.
They all laughed at Whitney and his cotton gin.
They all laughed at Fulton and his steamboat, Hersey and his choc'late bar.
For and his Lizzie Kept the laughters busy; That's how people are...

But Ho, Ho, Ho! Who's got the last laugh now?"

George and Ira Gershwin

COMMUNITY CABLE TV

Reading of composite scenario GISNREV

We are now simulating what a public access cable TV system might look like. (In 1992.)

Welcome to Public Access Television, Channel 71, bringing you discussion of events and issues of concern to Puget Sound citizens.

Good morning, here is the news of the day. A new nuclear power plant, the eighth in the Puget Sound area, was commemorated today near Hoodsport. Governor Mark Scott and his wife and children were on hand for the ribbon-cutting ceremony. The Dixie Lee Ray College for the study of Nuclear Ecology released an updated environmental impact statement today noting that the number of tropical plant and animal life in the area should increase markedly in the next ten years because of the new plants.

Several new Seattle-wide citizen review bodies are forming. Citizens are urged to volunteer or recommend fellow-citizens to serve on these bodies. The three most important new bodies are: first, the body to review the city charter; second, the body to evaluate the citizen data bank control board's effectiveness in protecting citizen privacy and access to the data bank; and third, the body to review the city's criminal code in view of drastically reduced crime rates and outmoded values implicit in some of the codes.

Community crime prevention squads are seen as responsible for the reduction in crime in the past ten years. Since the decentralization of the Seattle-King County police force and the localizing of the court system, communities have assumed more and more responsibility toward their neighborhood law enforcement problems. The results have been astounding.

The Sandy Hill school for public broadcasting today announced a new class for citizens wishing to learn techniques in public access broadcasting to begin July 1. The new session, to run six weeks, is open to all people. The school hopes once again to draw from a wide variety of communities and to continue to expand the growing number of citizens taking advantage of the ten public access channels in the Puget Sound area. To get more information about the session, tune in to channel 75 and key-in for program number 30-04-92. You will be instructed on the program procedure for enrolling formally in the course and given times to key-in for full course participation.

We will now have a public service announcement.

The Rehabilitation Center for Non-Victim Crimes has a warning, exemplified by this story: Lester Malcolm was caught Tuesday night in a cyclone fence while trying to escape from the compound around the Budd Inlet Oil and Gas Co-op. Malcolm, owner of the struggling Jackson's Marina was asked what he was after there. He replied, "My sister needed oil for her old furnace. I told her she ought to get rid of the damn thing. Hell, hardly anyone's got one anymore. I'd of given her some, but I just can't put my hands on it now. And I'm supposed to be able to sell it. I don't know how long I'll last. I just couldn't ask for it, I couldn't. They wouldn't have given me any anyway."

Lester Malcolm is now serving a six-month sentence for destroying public property, possessing public utilities and assaulting an officer. The Rehabilitation Center hopes to be able to establish a release program for these kinds of victimless crimes, but public sentiment concerning sporadic crime against public properties and utilities is vehement.

Now back to the rest of the news. The Fairgreen College, long a holdout in inter-scholastic sports, has at last entered the foray and challenged other Washington schools to vie with them in the first annual Washington State sex derby. Working on a National Science Foundation grant, several students under the direction of Professor Robert Flushing, have discovered a biochemical compound which allows people to stimulate seminal fluid regeneration and sex hormones which stave off fatigue. Although still officially under wraps, students have worked day and night in the Fairgreen science lab producing samples of the compound to try out with fellow students. They report incredible success and are eager for another school to take on the challenge.

The Dr. Pat Smith Neighborhood Health Collectives Association announced today phenon-menal outreach success in its fifth year report. A National Public Health survey shows that Seattle tops the nation in preventative health care programs and especially in its special outreach programs for women. Seattle residents miss fewer days of work because of illness than residents of any other city in the country -- and the kinds of illnesses common in Seattle are less serious and of shorter duration than elsewhere. "Most of Seattle's success," the report noted, "can be traced to the early efforts of the Group Health program of Puget Sound and these last five years to the institutionalization of community-centered health programs funded by the state and the city and known as the Pat Smith Health Collectives. These consumer-oriented programs have drastically increased the number of individuals involved in health care programs."

The City's annual summer art and concert series began at noon today in the Pike Street Market area. All the sidewalk restaurants and cafes officially opened for the summer season and luncheon strollers from all over the business district arrived in the area to hear the Seattle Symphony orchestra which will be playing for an hour every other day during the summer. Interspersed with the symphony program will be musical shows, evening holographic film festivals, ballet, and light festivals against the summer night skies. Community-sponsored programs will run daily throughout the city with community schools and community arts councils presenting various participant events.

The Flo Ware School for Social Action announced today a new research program for citizens interested in the leisure problems of the underemployed. The study hopes to explore lifestyles of those in our society who are employed fewer than twenty hours per week and to recommend possible leisure program needs which might be funded by the city or state. This advanced educational alternative is available to any citizen and is accredited for use of educational coupon vouchers. The complete study, one year, quarter-time involvement, would require the use of 10 of the allowable 30 coupons per year. Tune in to channel 75 and key-in for program number 30-05-92 for more information.

The rest of the program will be the presentation of citizen issues and announcements.

My fellow Washingtonians, I come to you from the east side of our fair state. As you know in the mid-'70's an environmental data communications center was established in Spokane. It has been the information from this center that has helped people in this state learn how to better use their limited resources. Gathering new information and keeping abreast with what is happening in all environmental areas is a constant job. As a representative of the research department I ask anyone who has any information on new developments to let us know. Help us help you by contacting EDC 4509.

Hello, fellow citizens. I'm a member of the local chapter of the Preservation of Pigeons League. We feel that the city pigeons are an endangered species. Due to the decrease of smog, the cleaning up of the parks, the banning of automobiles in downtown areas, and the general lack of noises, the number of our fine feathered friends have decreased greatly. Unlike his cousin the dove, the pigeon does not flourish on the peaceful stillness of our urban centers. Rather he prefers the noises, the smells, and the riotous congestion of our cities of years past. My proposal is to make such an asylum possible especially for pigeons in a corner of the Weedland Park Zoo. The pigeon has been with us through the worst of times. Can we desert him now?

Good morning, fellow citizens. I represent the Socio-Economic Managers Association, and I wish to discuss with you the need for some changes in our work patterns. As you know, the nature of our work has changed considerably since the mid-'70's: more people work in their own homes via tele-communications systems; others work in semi-independent goal-setting teams; and there are fewer and fewer large central agencies and businesses. Furthermore, with the end of personal transportation in our cities, we depend upon scheduled public transit and walking. Nevertheless, our movement beyond rigid work schedules, so difficult to maintain in a society where we are becoming otherwise more time-flexible because of the necessity to put less severe strain on our systems, has been slow and cautious. The SEMA proposes that all possible work be measured on a task rather than hourly basis. We recommend a citizens commission to draw up guidelines and note possible exceptions. We feel that this step is highly necessary to allow greater freedom for workers to seek job satisfaction and personal fulfillment in work; and to take the last severe load off our transit and communications system. Thank you.

And now another Public Service Announcement: Saturday marks the day of the third anniversary of the Greater Olympia Civic Center located on the west bank of Capitol Lake. The Center has had a difficult time making it, but hopes to generate some support by bringing the Lenny Bruce Deuce to town. Mixing flavors of the late sixties and early seventies, this versatile troupe will seem like your neighbors as they involve you in the flow of their material. They stimulate memories of the rebels, and those who did their own thing. Help support your community by participating in three hours of fine entertainment. By recreating the reckless abandon of thrillseekers and the risk-taking of dedicated persons, The Deuce Troupe shows the individual capabilities for success and achievement. A night of music, drama and dance and a chance to support your Civic Center.

My fellow citizens I come to you from the outer edge of our urban core to bring to your minds a severe problem that we are all faced with. As you know, our cities have reversed their earlier trends in the '70's and '80's of becoming an ever enlarging megalopolis to more and more concentrated urban centers. While this was done through comprehensive planning, one area left out (or at least forgotten) was the areas between our cities, which have now become abandoned. As someone who is faced with living near these unsightly ruins, I ask your consideration of my proposal. I ask that these areas be allowed to return to a more "natural" state and that they need help in doing so. As you know we have machines capable of recycling all the concrete, lumber and glass. Not only would this make available some resources that are just rotting away, it

would begin the steps to help this state regain its beauty. At this point in time this is only my proposal. As you know it must have support of many people and more detailed planning must be done before it can be voted upon. I ask you please to let me know your interest through my computer hookup number X834ACD. Thank you.

I'm here to announce the Grand Opening of Alinsky Park in the central district of Seattle. This park has been recently reclaimed from abandoned buildings along Empire Way. As you know explosions shook the area during the late 1980's. Now through community interaction, individuals have organized work parties and reclaimed this area for a park. Ceremonies will begin at 2:00 in the afternoon with Lesley Bacon speaking on behalf of the dedication committee. Sports events following the introductory speeches will include brick throwing, cop dodging, and the can't bust 'em sprint. Scholarships to the Jerry Rubin Did It Institute will be awarded the winners. There will be free dope and ice cream for the children.

I'm Lu Borgia. Following a year of research sponsored by Phyllis Lamphere Fellowships for the study of the impact of social value change on governance structure, I have the following report to make: The decrease in the number of single monogomous households and the steady rise in the number of older people in our population have both had their impact on our governance and decision-making structure. I'd like to briefly discuss these impacts and suggest some action that might be taken to deal with the effects. The decrease in monogomous homes has been accompanied by a lower divorce rate, more single parents, and in general a healthier, more group-oriented series of human relationships. With this relative increase in the number of human relationships upon which one can draw for security, the old nuclear family-indebtedness security basis upon which one made decisions in the voting booth has gone. Voting patterns have become more and more unpredictable among younger living groups and the basis upon which people make decisions harder to predict. On the other hand, with the increase in the number of people over 50 in our society, more and more of our bureaucrats and persons in positions of authority tend to fall into the 50-60 year age bracket. These people are conservative, nuclear family oriented and tend to make policy decisions often at odds with the current value trends. These two trends, though not yet severely problematic, could lead to a schism in our governance system in which the younger citizens make erratic decisions and older citizens in authority positions de facto run the society. This problem should be studied and discussed publicly. Two possible solutions could be thought of seriously. First, younger voters must continue to receive training in the responsibilities of citizenship; and second, we should seriously consider lowering the retirement age for public authorities to 45 and encourage younger people to move into these positions. Older public servants should be encouraged to move into other service occupations, leisure programs, or to utilize their severely under-utilized educational vouchers for retraining, research and pursuit of the philosophical life. For more discussion of this issue with me, the author of the study, tune in to channel 71 and key-in to program 30-09-73. Thank you.

Ahem, hello my friends, dear me, yes, I'd like to discuss with you a problem of resource depletion. Is that right? Resource depletion? Yes, well I just received my Masters degree in Third World Economics, at my age! And it's all sort of new, the words I mean. Now as I was saying, we are all aware of the severity of this problem. America is suffering from a substantial lack of resources. Yes and we must find new ways to deal with it. Well I propose we take each case individually. No two people are alike and neither are any two resources. Ahem! Yes well, the resource I wanted to talk to you about came to my mind the other day at breakfast. I was just sitting down for my morning cup of cocoa when I realiced I had made coffee instead. Now I don't drink coffee, it's bad for the heart you know, I drink cocoa. I have never been so astonished in my life. I'm sure I pushed the right button on the machine! Never can trust a machine I always say. So where was I? Yes, so I went

and I did some research on the consumption of cocoa in the year 1992 in the state of Washington. That's what I learned in school, how to do research. (The tape ends and she is cut off--now returning...) What? A break in the tape? Well you can never trust these I say, never can trust a machine. Well where was I, yes research. What I found was that Washington doesn't grow cocoa. I also found that cocoa comes from the cacao bean which is grown near the coca plant in South America and Cuba, Cuba I say. Ahem, cocaine comes from coca, cocaine is a narcotic. So I said to myself we must keep all American children from becoming Communist drug addicts, and stop all consumption of cocoa immediately. Thank you.

Hello, my name is Carol Jensen and I have a special announcement for everyone who has a tele-communications bank. And now doesn't include everyone? Does your TC ever go on the blink, make strange noises, talk back or simply go blank? Well now the thing to do is to call me, Carol Jensen, your friendly TC repair person. And now I have invented a new device to, if not prevent trouble, at least speed up the time to repair your valuable friend (for after all what does one do without it?). Just let me know and I will come and install free an electrostatic reactor, which at the hint of any kind of trouble will set off an alarm in my home. I will then come as soon as possible and repair your TC. I ask you now, what could be better? Let me know if you are interested at CJK3308L. Thank you so much.

The Greater Olympia area will officially open its new monorail transit system today. Service is generated from downtown to Lacey, Tumwater and the Westside. The system is comparable to those already in use in the larger cities. Citizens in those larger cities have shown a favorable response. Civic groups in the Greater Olympia area have wholeheartedly endorsed the project. The route through Tumwater begins at the Airport, runs by the Tumwater Co-op Center and the Capitol. The Lacey route beings south in Tanglewild and runs near the waterfront. The Westside route begins at Mud Bay making a swing near the College and then goes by the Civic Center. The terminal is on 6th Avenue. Bicycle paths and pedestrian walks are being completed to each stop. There are parking lots at the end of each line. Bus service extends to Shelton, Delphi Valley, Tenino, Yelm and Fort Lewis. Check the end-of-the-line terminals for the schedules. People movers are now under consideration for downtown Olympia. All comments are welcomed.

My name is Pristine Pureheart, and I represent the Citizens for Popular Morality. I would like to talk to you about the crackpot artists in Kent. All through the difficult '70's and '80's, this crew of <u>individualists</u>, whose only claim to group affiliation has been its mutual support of its alienation from our society's struggles, did nothing but create so-called "art" which bore no relevance to the times. It wasted resources and squandered time. These short-hairs have been allowed to exist too long. Therefore, we of the Citizens for Popular Morality suggest that they either be drafted into recycling work, where help is badly needed, or else be given free one-way passage to the Los Angeles ruins.

Warren Magnuson, a brilliant politician in the '60's and '70's and still mentally alert, has become the first person in this state to have all his internal organs replaced by machines. Yesterday the former senator underwent his seventh major surgery in the past fifteen years. His automatic heart which was installed in 1978 has kept him alive and healthy throughout the degeneration of his other organs. He is one of the first persons to have a mechanical liver and pancreas. The operation yesterday installed a mechanical section of his large intestine. He is doing fine as of today. As man's body becomes more and more mechanical, the questions of life and death and morality are once again an issue. The Community Health Co-op in Tri-City 3 is having regular community discussions on such issues. They ask for any input you wish to contribute. Join their discussions on channel 52.

And now we conclude our channel 71 Public Access Television Broadcast. In order to keep up-to-date on events and issues, we need your participation. Any issues you wish to discuss, contact us.

APPENDIX M

Critiques and Evaluations

A VIEW OF THE FARM FROM COOL WATERS:
A Critique of the Field Anomaly Relaxation Method and Our Use of It.

I have one overriding criticism of the FARM, related not to our own performance with it, but to the basis of the method. It seemed to me that as we drew to a close with the first CUSP -- right about the time I was too tired of it to tolerate another day -- we really began to see how biased the thing is. Many of the other CUSPs seemed absurd, many alternatives simply weren't there; and our own limitation as a group of individuals cut off many possibilities. Necessary though that was to make the task manageable, it is still important to question FARM's validity on those grounds.

My mind kept running back to Theobald: he, as a futurist, was really left out. His notion of guaranteed annual incomes, continuous education, and cybernation -- well, the closest CUSP available to these ideas was "imprudent welfarism." And he is anto-projectionist: he believes that one needs to envision (within reasonable constraints) the future one desires, figure out how to get there, and then get going. (The FARM might be one way to determine those reasonable constraints.) But the FARM doesn't even talk about or incorporate how specifically to arrive at a good future or avoid a bad one.

Given the bias we have to admit is in the method, how is it more valuable than pure imagination? Is it any more than mechanized (and thereby limited) creativity, at least in its end product?

As Marsali pointed out, however, it was a good exercise in non-linear thought and holistic scheming. For that it was really worth a great deal. And it was in this context that some possible future alternatives were seen. That too was worthwhile.

Based on our experience, it would be a good idea to explore different ways of working through a CUSP, especially when pairing descriptors on the matrix. We should brainstorm on meeting schedules, variations of group compositions, and good, quick ways to get breathes of fresh air. The process as we worked it became too routinized, putting a dull cover over a possibly interesting variety.

And though it was probably impossible in terms of the time we had (or didn't have), for our own education more CUSPs should have been done. I would like to have seen in more detail some of the less pleasant patterns.

Finally, I think we should consider more critically the use of the product. Academics are always coming up with information for decision-makers -- this idea is not new to the FARM. But how often is it used? To dissociate oneself from that question is to fall into an old academic trap of separating thought from action. Either decision-makers need to be in on the method when practiced, or practitioners need to make some decisions for themselves.

Allan Hart
June 5, 1973

CRITIQUE ON THE FAR METHOD

One of the first things I see about the FAR is that the group who uses it needs to understand whether persons within the group are "authorities" on certain subjects or not. I think with our group we assumed certain people were authorities -- like Fred on environmental issues. Also I found that various persons assumed that they were authorities -- which often other members of the group did not recognize. This certainly led to much argument and in some cases resentment. I don't think people need to be authorities, however it would probably be wise to assign certain interest areas to certain persons and have them gain more knowledge in that area. While this would speed up the process, one would have to be careful not to cut others out from learning that knowledge. For that -- persons learning more about a lot of formerly unknown areas -- is one of the positive aspects I see of the method.

I think it is important to do more than one round. I think that after going through it once a group could do a much better job of actually developing reasonable futures once they'd gained the experience of working with this system. Also the first time through I think one of the biggest gains is simply a better understanding of what is happening now and the relationships of elements of our society and how they interact.

Another important aspect is that the group must decide to be dedicated to doing this. I think it is really hard work and it is easy to want to quit. Also I think people must either be able to be more open and honest about their feelings than we were or not work in such a concentrated time period. For our group it made us spend too much time together for the manner in which we relate to each other. Time concentration would not be such an issue if people are able to talk openly about their frustrations and anger. I don't think we were able to do this very often. This made a lot of the discussions a lot harder to deal with. It also wore down the energy of the members of the group sooner than necessary.

Not only does this method add depth to a person's understanding of what makes up a society, but I think it can also help a group better define goals for themselves. It would certainly give them a better idea of what their possibilities are.

One area of the FAR that could better be refined is the one dealing with cause and effect relationships in our society (or whatever a group would be looking at). While the method touches somewhat on this process, particularly in developing a history of the future, I think it needs to be always kept in mind, especially when writing scenarios. I found that when we wrote scenarios, often the cause of various effects was left unsaid. Too many unstated assumptions were made. I really think that this aspect of the method is highly important.

Another thing that I think is important is the one of the members' prejudices and biases. A group needs to be constantly aware of the implications of their statements. I think we did fairly well, however I don't think it was completely avoided. If a group is doing this just for themselves it is not as important. However, when a group does this for an outside group, it becomes highly important. It is too easy to develop an elitest attitude.

When groups decide to use this method they should be aware that it is not possible to get highly specific in dealing with details. I think when we began to eliminate pairs we were too picky. Also I think a group must be warned not to become too selective at first. I think all kinds of possibilities need to be looked at. A

group should not assume that something is not possible. At first, practicality should be avoided. In our group there was a tendency to forget imagination or at least to scoff at and ignore those who suggested it.

I liked the idea of taping our beginning thoughts on the future. I wish, however, that after we had written our scenarios we had listened to the tape. I think that hearing it would be a good way to start an evaluation process. I think it would be extremely helpful to see how we'd changed our ideas. We could better see what we'd learned and how and where the process had helped.

A beginning explanation of the process is extremely valuable and I think very important. However I think there also should be an outsider to guide the group -- not a participant in the process. I think the outsider should only listen except when the group either asks for assistance or if it is really going off in the wrong direction. I really stress the fact that if any of us should lead a group in the process, we should keep our mouths shut. A person with experience can often so thoroughly dominate a situation that the members of the group get stifled and the process then loses its validity for them.

I think it is necessary to be as distinct as possible in describing sectors. For us I think both ekistics and networks covered too broad an area. Networks often got described in terms of resources which made it hard to deal with. In ekistics the indicators did not react well with the factors, lessening the value and impact of this sector. I do think we finally came to a good separation and definition of economic structure and governance.

If you all put together a composite critique of FAR I sure would like to see it. Also I'll be glad to contribute when I can. I don't know for sure where I'll be this summer, but you can always contact me through my folks. The address is:

E. 4505 Frederick
Spokane, WA 99207

Phone:
(509) HU 3-3616

Have a groooovy summer!

Mardea

June 7, 1973

Field-Anamoly-Relaxation Method
Critical Analysis

The FAR method has proven itself to be a very useful tool for two purposes. One is its expressed design--to make for holistic, whole-body projections of the future. Through this method one can attempt to gauge implications, short-term or far-reaching, of trends in society, or particular part of that society. The method is not too deterministic, but can establish certain firm cause and effect relationships. In other words to achieve a certain goal or desired condition, there are some incidents or movements, action, that must accompany the goal. Also some conditions can be shown to be impossible by sheer inadequacies of motivation, or materials.

Creative stimulation and intuitive responses should be an integral aspect of the FAR, encouraging the wild speculation of science-fiction writers, and the hunches of gamblers. Including both a technical and creative basis, the method encompasses a wide range.

The other purpose--to generate an holistic approach. All sorts of relationships can be recognized by attempting to describe a society or segment of the society as a whole-body. Sometimes this will bring the realization that the actual relationship is more essential than the components, demonstrating dependency. The holistic view destroys linear developments and places interaction in an observable position. A general loosening of the thinking processes, especially those confining by way of cause and effect, is an essential to working through the method. Considering the subject chosen as a whole with all its interactions and each one of its parts with its own confining inner-relationships, lends to functional knowledge of social structures.

Reviewing what we knew of the method in the beginning, a clear understanding of the function of each step is essential before using that step. When undertaking to use the FAR, some consideration should be given to background in the chosen area and expectations. The ambitions of the project should not greatly exceec interest, abilities, and knowledge. Where a common knowledge base did not previously exist, the FAR can establish one, but the progression from step to step must be kept track of and followed. The method resembles a jig-saw puzzle in that a glimpse of the picture is taken at first, then the pieces are unhooked and scrambled and juggled and pieced back together. The difference is the method or technique (affectionately dubbed FARM or FART depending upon the mood) has pieces or globs that seem to be able to fit together in a number of different ways, each making a different picture. The malleable pieces have their advantages and disadvantages.

Field-Anamoly-Relaxation Method
Critical Analysis

Within the FAR the establishing of coexistent relationships is essential. Maintaining a consistency in establishing these relationships is done through concise breakdowns that provide specific and distinct differences. These breakdowns should be proscribed by generalities that are not too inclusive and certainly not redundant, but blanket the subject. The desire to view the subject entirely in terms of cause and effect arises when there is little interaction in terms of coexistence. The malleable pieces of the puzzle must provide the basis of this coexistence, as evidenced by a multitude of combinations that can possibly exist. Depth and concise, but general information in the pieces must be there in order to establish firm time frames and firm cause and effect progressions.

One of the fitst things to be aired should be each participants own views and biases. This gives insight into the strengths and weaknesses that can occur in the effort. The participants should keep these in mind so as to be able to stimulate creativity and encourage the development of information, rather than always accept opinions for sake of agreement. Getting hung up on detail and opinions is an easy pitfall in the FAR, especially when the interactions and trade-offs aren't comprehended.

Assembling and juggling the pieces around can be exciting and illuminating, with the participants drawing from their forged base of common knowledge. Allowing for the development of a picture by each menber encourages insight that may not have been brought-out previously. It can also allow for a consensus on alternatives for the future by way of asking each person for the most likely events in the future. If the basis of knowledge is commonly strong, then skeletal similarities will arise. Envisioning the future in terms of everday human activities may provide even different views to the participants of the effect some of their alternatives suggest.

Some suggestions IIwould make to insure the success of the efforts put forth through the FAR method would be to launder everyone's biases first and make sure their almost dry before attempting to put them back on, too uncomfortable and slippery when watered down. Consider the overall knowledge, interest, and abilities before getting too ambitious. Understand the steps and their purpose, beware when everyone begins to wonder what the hell it is we're talking about and why. Steep in the detailed work but remain flexible trying not to solely prove your point. Exult in the creative rush that lurks after the intense efforts of maniplation. There may be some opportunities for varied and in depth expression.

On the FARM,
Stephen Matsem

APPENDIX N

PSIs' description of the FAR method

WHOLE-BODY FUTURE PROJECTIONS

Using

FIELD ANOMALY RELAXATION (FAR) METHOD

* The appropriate role of policy support research is to enrich an individual decision maker's inner comprehensions of the physical and social environment that he affects; it is not to derive policy in his place.

* That role is appropriate because policy decisions usually are (and should be) based on Gestalt insights and not (wisely or often) on purely logical derivations. Such insights are founded upon gut-felt appreciations of contextual fields, present and future. The scopes of the fields to be comprehended are expanding as the world becomes more closely coupled and the changing times force more attention to the future.

* One research product -- whole-body future projections, tailored to particular policy fields -- can directly help to extend an executive's breadth of appreciation and also can help render confluent contributions of other kinds of research.

* FAR methods, described herein, provide iteratively refined, alternative, holistic projections of the kind needed -- avoiding the dilemma posed by the fact that reliable prediction is impossible for nearly all policy fields, and inviting commonsense client participation.

* Whole-body projections, targeted on geographic areas differing widely in size, provide mutually enriching contexts for use by executives and planners in business and government -- worldwide, world regional, national, and state or local.

PATTERNS AND SYSTEMS INTERNATIONAL
703 KNOLL DRIVE * SAN CARLOS, CALIFORNIA 94070 *
TELEPHONE: (415) 591-8103

The Need for Contextual Analysis

Contextual analysis--the investigation of relations between settings and the processes that may unfold and plans that may find fruitation within them--is one of several means through which research can help the decision maker, but in some respects it is primary among those means. Three aspects of the present scene combine to make context especially important now.

* Fewer and fewer human problems may safely be treated in isolation, as the world becomes more tightly coupled. This increases the breadth of the field of interactions which the decision maker should comprehend--a widening of the context to be grasped.

* Rapidity of change now precludes the assumption that the setting for plans will remain constant, with today's common sense still common and sensible tomorrow. Each planner somehow must complement his inner appreciation of the present with a similar feeling for plausible future differences--a deepening of the field to be comprehended, to match its lateral extension.

* The mainstream of policy research has been diverted from what it can do (offer illustrative anecdotes to enrich understanding) to something that exceeds its potentials (provide "scientific" answers to human policy questions). The thrust has been erroneous, and we therefore start from behind; renewed attention to context is needed.

Since logic (and therefore research) cannot definitely resolve the issues facing the policy maker, he must continue to use his implicit appreciations--the stuff of which intuition is made. If the patterns to be appreciated are wider and deeper than they were in the past, then there is a corresponding need for some kind of assistance to the decision maker who must achieve such appreciations. Contextual analysis responds directly to that need.

Research Support to Policy Formation

Policy research should seek to enhance, not to supplant, Gestalt decision, helping to expand executive comprehension of problems-within-situations so that the appreciations that are employed in common-sense, close-in decisions may be applied more broadly. This will put the researcher into much the same relation to the executive as that of a fighter's second to his man. Each must try to help another individual to ready himself so that his performance at some lonely moment of truth may approach its full potential.

Most existing kinds of research can be fitted to this task, but they will have their products changed somewhat if they address this goal in place of the more arrogant one of "telling the boss what he should do." In particular, if researchers seek to help an individual develop a better feel for the complex meld of risks and opportunities within a specific situation, decision makers and researchers alike will have to be more attentive to that situation than has usually been the case in the past.

Kinds of Research Aids

Science: exploration of cause/effect relations.

Trend Extrapolation: projection of one parameter at a time by mathematical or graphical extension of curves established by past experience.

Forecasting: designation of expected dates of occurrence of specified future events, such as inventions

Systems Analysis: solution of relations within models (or caricatures) of reality.

Whole-Body Projections: descriptions of alternative illustrative, plausible, coherent future patterns.

Bits of truth drawn from different wholes can be worse than useless. If the blind men in the fable had compared notes they finally might have drawn an elephant; but if each had, unknowingly, fondled a part of a different animal, their synthesis would have been monstrous. An executive builds his picture of each problem-within-a-situation using inputs from others; if the inputs are grounded in different contexts and if he is not told that fact, he too may make an unreal synthesis. Common descriptions of future operational settings are especially needed, since otherwise there is little chance that component analyses and plans will relate to and expose to executive comprehension any particular whole.

Whole-Body Projections of Future Patterns

Plans and policies that are to reach fruition in the future should be judged in relation to future settings, but (a real dilemma) no one can reliably predict the future. The PSI approach to contextual analysis avoids this dilemma in a commonsense way by turning to sets of illustrative, plausible, alternative lines of hypothetical future development. Such projections are possible, where prediction is not. They serve the prime purpose of policy research by helping the executive to feel his plan in each of several different shapes of things to come. To do so, they should be coherent, whole-body projections.

Each such projection should:

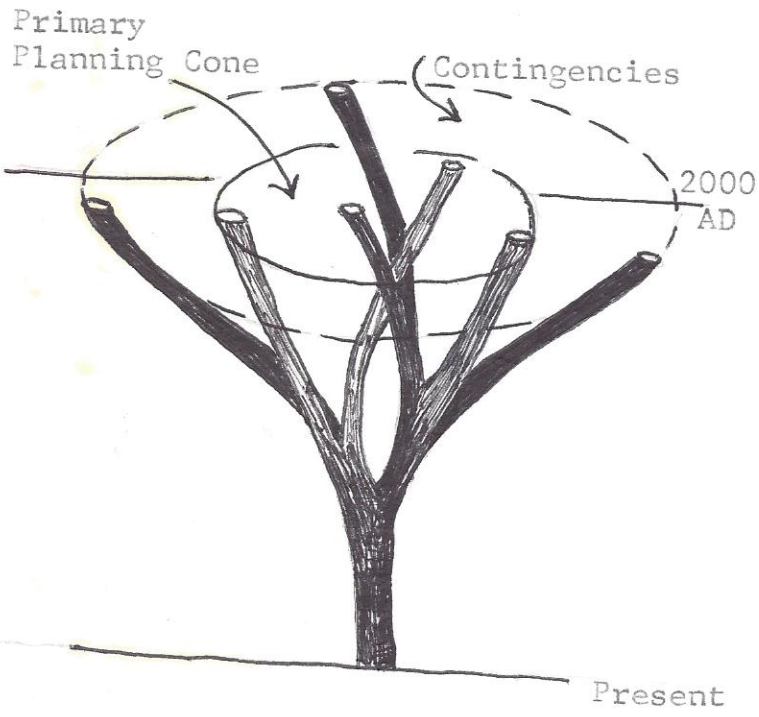


Figure 1: Seven Futures and a Planning Cone

* Resemble the present in two respects. Conditions at any given date should co-exist, even though uneasily; each such pattern should trail its own distinctive history behind it. Each "future," therefore, should be like a present-sized tube of relationships running out through the present from the past.

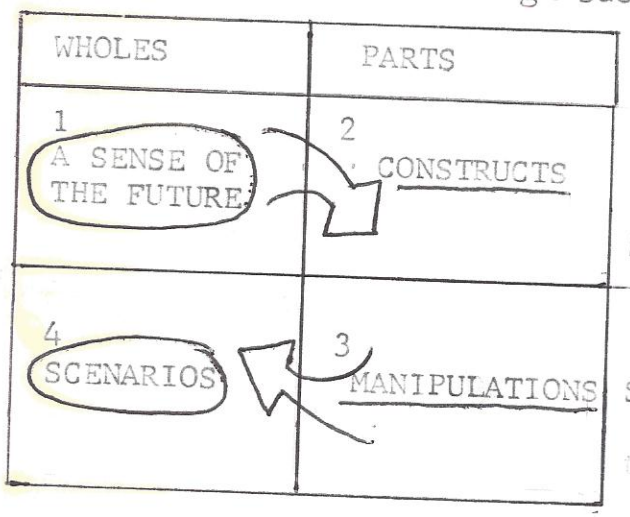
* Associate with other projections so as to define a "planning cone," a region within which one would hope to find the actual future when it comes around.

* Serve as a significant sample. The illustrative futures should be chosen out of a more inclusive set of alternatives, to help avoid simple oversights and to highlight selected policy issues.

* Invite commonsense critique. The method of projection should be such that its parts are not hidden from the intended user; the research process should be such as to invite en route participation by the prospective user.

FAR Futures--The Field Anomaly Relaxation Method of Projection

FAR methods extend to qualitative kinds of field research iterative methods of engineering such as the powerful relaxation method. Fields may be stress-strain patterns in a solid, or they may be social complexes. Anomalies--inconsistencies--are "relaxed" by adjusting them through sucessive courses through the field in question to increase internal consistency within each whole-body projection and within the "future tree" formed by a set of such projections. The method provides for morphological inspection of tens of thousands of nominally plausible alternative future conditions before selection of the few to be incorporated into illustrative projections. It matches the actual decision process through a judicious alternation between attention to parts and attention to wholes--using gestalt comprehension to help in selecting the parts to be analyzed and in understanding their interactions, using analysis of such parts to enhance the initial comprehension, and so on through successive cycles.

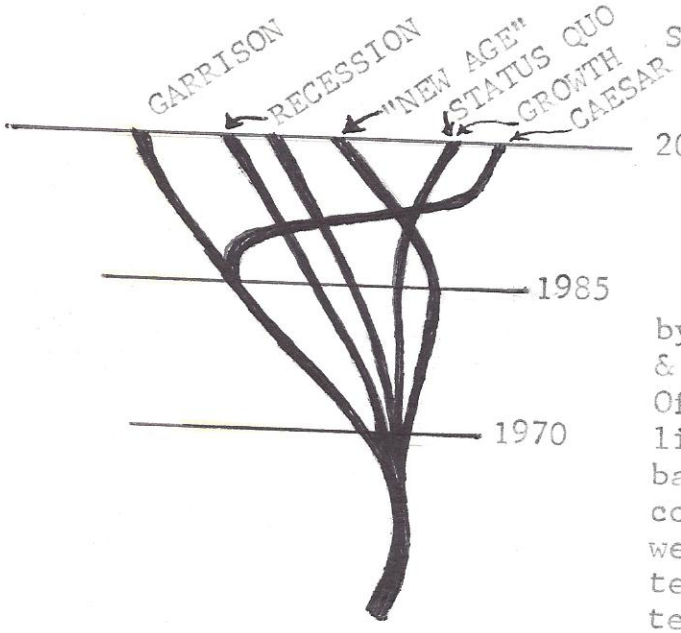


The Four Steps in the FAR Cycle

Step 1: Develop a sense (necessarily holistic) of the future.

Step 2: Choose component elements, or analytic constructs, especially suited to the policy issues at hand.

Step 3: Manipulate the constructs to develop an extended list of future conditions (or configurations) to be considered, and strings of configurations as scenario outlines.



Step 4: Return to holistic inquiry to flesh out the outlines into internally coherent, believable tales.

An Example: Contingent U.S. Patterns (CUSPs), 1970 - 2000

This set of projections is being built by a Stanford Research Institute/Patterns & Systems, International team for the U.S. Office of Education. A futures tree, much like that shown in the sketch, is emerging, backed by scenarios and iteratively refined constructs. The constructs used initially were world wide hunger, U.S. economics, internal politics, demography, science and technology, and foreign relations.

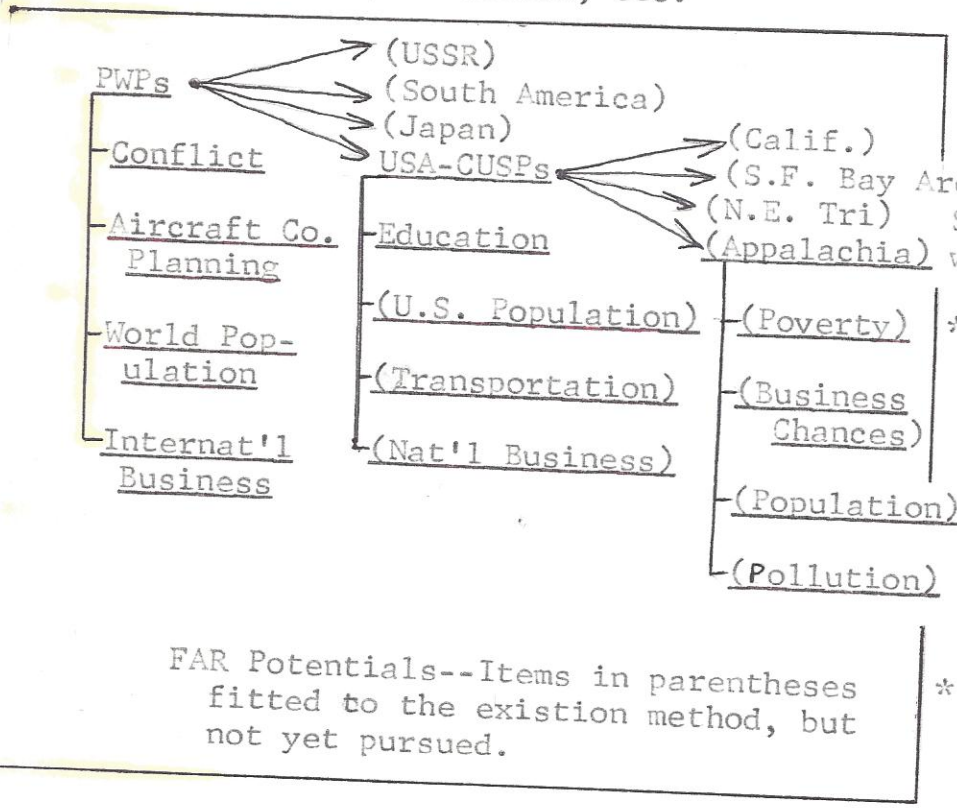
FAR Applications

Basic Foundations Have Been Laid. The FAR method will evolve further, but it now is well in hand after a $1 million investment and a decade of work on varied applications. Main products of that work offer bases for many similar uses.

* Projected World Patterns (PWPs) have been developed and applied chiefly to military and aerospace planning problems: they offer (with adaptation) worldwide planning contexts for use in connection with policy concerns of similar scope and as roots for national projections.

* Contingent U.S. Patterns (CUSPs) have been freshly projected for the U.S. Office of Education: they can serve (as is) as contexts for the projection of intra-U.S. regional and local futures and of future patterns within U.S. institutions.

Full Coverage of Needed Types of Contexts Is Possible. Geographical scopes cascade downward, from worldwide, to major nations or regions, to local areas. Having projections for an area, one may then lay out alternative futures for particular fields of concern--population, urban dynamics, education, etc.



Potential Extensions of FAR

Several extensions of FAR which appear promising are:

* Perturbation Analysis: Projection of plausible future departures from what otherwise might have been the future, traceable to specific policy interventions, acts of God, of inventions.

* Education: Adaptation and use of FAR as an instructional device or mode, to aid in teaching holistic realities and to help executives, professionals, students, and the public to face uncertainty without fleeing responsibility.

FOOTNOTES

1. Delphi technique, A forecasting and consensus generating methadology codeveloped by Olaf Helmer and Norman Dalkey. The raw material for this technique is a mass of collected statements of expectation regarding the probable occurrence of specified events or discoveries. These statements are collated and fed back to the study members who reassess their expectations in light of the groups. The process consists of generally three such rounds which show consensus or distinct disparity.

2. Widner, Ralph R., Technology and Social Institutions, Proceedings of a 1973 Engineering Foundation Conference, Kan Chen, ed..

3. Jouvenel, Bertrand de, The Art of Conjecture, Basic Books Inc., New York, 1967.

4. Quote taken from the attached Patterns and Systems International description of Whole-body projections.

5. ibid.

6. Rhyne, Russel F., "Contingent U.S. Patterns (CUSP), 1970-2000, An Exemplary Application of FARM, Johnson Research Associates Report RM 69-3; 1969, pages 1-2.

7. Rhyne, Russel F., "Projecting Whole-body Future Patterns-The Field Anomaly Relaxation (FAR) Method", Stanford Research Institute Memorandum Report EPRC 6747-10, 1971, page 30.

8. ibid., 1971, page 43.

9. ibid., 1971, page 33.

10. Gappert, Gary, "The development of a pattern model for social forecasting", Futures, October, 1973.

11. Rhyne, ibid., 1971, page 41.

12. Wells, H.G., The Salvaging of Civilization, 1913.