IUCN Publications, New Series:
Supplementary Paper No. 4

A SYSTEMS APPROACH TO PARK PLANNING

by

William J. Hart

International Union
for the Conservation of Nature and Natural Resources
Morges, Switzerland, 1966

A SYSTEMS APPROACH TO PARK PLANNING

by

William J. Hart

Eeport of a Study for the Committee on Park Systems Planning of the IUCN International Commission on National Parks. The study was supported by a grant from Resources for the Future, Inc.

International Union
for the Conservation of Nature and Natural Resources
Morges, Switzerland, 1966

Published with the assistance of UNESCO
Subvention Unesco—1966—AVS/414/23

Price $1.50
Obtainable from IUCN,
Morges, Switzerland, or
IUCN, 2000 P Street, N.W.,
Washington, D. C. 20036

FOREWORD

The International Commission on National Parks of the IUCN, which owes its origin to the meeting of the Union's Sixth General Assembly in the Temple of Apollo at Delphi in 1958, has become increasingly aware of the need for countries concerned with national parks and reserves to better plan their development, as well as to exchange information and obtain technical aid, in furthering this form of land use for the benefit of their people.

During the Commission's six years of operation these matters have been emphasized through the preparation of two editions of the U. N. World List of National Parks and Equivalent Reserves, and the holding of the First World Conference on National Parks in Seattle (USA) in 1962. The Proceedings of that Conference records guidelines for many different aspects of future conservation developments on a worldwide basis.

In implementing one of the Seattle Conference recommendations, a Committee on Park Systems Planning, under the chairmanship of Joseph L. Fisher, was appointed to study ways in which assistance could be given to help countries develop park systems. The present report sets forth the high points of this study, which was carried out with initiative, originality, and enthusiasm by William J. Hart. Let us hope that it will inspire increasing interest in this important new field of international activity.

Harold J. Coolidge
Chairman
International Commission on National Parks
IUCN

Washington, D. C.
26 February 1966

PREFACE

At the first World Conference on National Parks held in Seattle, Washington, in the summer of 1962, a group of a dozen or so persons from various countries of the world found common interest in thinking about national parks and nature preserves as an interrelated system of areas which ought to be closely tied in with national and regional plans and development programs. The needs and desires of peoples for outdoor experiences, this group thought, should be the beginning point for planning any system of parks and natural areas. Many people want parks for recreation; scientists require protected natural areas for biological and ecological research; those interested in history and anthropology want to be assured that historical sites will be preserved for all time; there is widespread interest in magnificent scenery of mountains, lakes, ocean shore, and forests and in maintaining wildlife.

How can the countries of the world move from piecemeal and haphazard attention to parks and nature areas to a comprehensive and systematic concern? How can the need for parks and related areas, now being felt more and more intensely in all parts of the world, be given adequate expression in national and regional development programs? These are among the questions the group at Seattle addressed. Out of their discussions a recommendation was presented to the Conference calling for a Committee on Park Systems Planning under the aegis of the International Commission on National Parks of IUCN. The recommendation, subsequently adopted, stressed assistance to countries in developing park programs through further research on park systems planning and through an advisory service.

This present study, *A Systems Approach to Park Planning*, states the concept and idea of park systems planning as these evolved out of practical experiences in a number of countries of the world. William J. Hart, who prepared this report, has had an intensive experience in several countries of the world in the past year and a half in analyzing park problems and suggesting development priorities. Prior to this, Mr. Hart had served as director of parks for the state of Nevada; he has long been a student of land-use planning.

All of these experiences Mr. Hart has brought together in the present text which he and others who have been concerned with

park systems planning hope will stimulate further thinking and action in various countries of the world to further progress in establishing systems of parks and natural areas. Members of the original Seattle group plus a few others who joined later have contributed to this study with suggestions from time to time and by reviewing drafts of the study. These persons are: Gert Kragh (Germany), E. 0. A. Asibey (Ghana), Dusit Banijbatana (Thailand), Luis A. Bolin (Spain), Gerardo Budowski (Costa Rica), R. W. Cleland (New Zealand), J. R. B. Coleman (Canada), E. P. Gee (India), Tetsumaro Senge (Japan), David P. S. Wasawo (Uganda), who served on the Advisory Committee during the course of the study, and Alfred B. LaGasse (USA), Charles A. DeTurk (USA), Arturo Eichler (Venezuela), Kim Jung-Up (Korea), Joyce E. Lyndon (USA), and Amotz Zahavi (Israel) who participated with them in Seattle.

This report, therefore, should be thought of as the beginning, a pioneering effort in a new field, to establish a broad, systematic approach to park systems planning along lines set out in the Seattle resolution. Further research and studies as opportunities are presented, and creation of an advisory service through which assistance in park systems planning can be offered to any country wishing it, are the next steps to take. IUCN and its International Commission on National Parks are to be congratulated on sponsoring this current report. Their continued leadership in park systems development will be of great service to all countries desiring to move forward with parks and related areas.

Joseph L. Fisher, President
Resources for the Future
Washington, D. C.
January 12, 1966

ACKNOWLEDGEMENTS

An undertaking which involves official and quasi-official agencies, private organizations and individuals in many countries requires a great deal of open-handed help. The work that led to this report enjoyed more than its share of assistance, generously given.

To adequately acknowledge all the contributors to the work of refining the concept of park systems put forward at the First World Conference on National Parks by observation and test under a wide range of circumstance would require a companion volume. All that is possible here is to specify those who made identifiable contributions to the work and express gratitude to them and, in a general way, to recognize the many others who gave assistance along the way. The merit of the present study is largely attributable to them.

The project was made possible by two generous grants from Resources For the Future, Inc. In addition to financial support, the Directors and officers of RFF demonstrated great understanding and interest in the undertaking and were unflagging in their support.

The Steering Committee, comprised of Joseph L. Fisher (Chairman), Harold J. Coolidge, Edward H. Graham and Marion Clawson, was a most helpful sounding board and helped to avoid numerous pitfalls. Each member also made major individual contributions. It was of great value to discuss with Dr. Clawson and Dr. Graham the implications of changing economic conditions for reservation of land and water resources, development needs and recreation as well as the possible responses of conservation groups.

Harold J. Coolidge, Chairman of the International Commission on National Parks of IUCN in a most amazing fashion was the guiding genius who ordered a sequence of events which led to the organization of the project within the IUCN framework. His seemingly inexhaustible knowledge of scentific conservation situations, and the people involved throughout the world provided ready entree to countries and individuals. This acknowledgement would not be complete without recognition of Mr. Coolidge's strong right arm, Mrs. Lenore Smith, whose personal actions were of equal value to those made as part of her job.

High praise is due the members of the Park Systems Planning Committee. They reviewed drafts of working papers, constructively

discussed issues at the time of the IUCN General Assembly in 1963 and often took time from their busy schedules to write detailed comments and suggestions. Messrs. R. L. Cleland and Tetsumaro Senge were most helpful in this regard.

Four principal countries and several secondary countries were visited on invitation of their governments. In each country an agency was assigned responsibility for arrangements and providing transportation within the country. While officials of all concerned governments were most cooperative, special mention should be made of the extraordinary efforts made by the General Directorate of Forestry of Turkey, the Autonomous Regional Corporation for Cauca, Valle and Caldas of Colombia, the Department of Game and Fisheries of Zambia and the Bureau of Forestry of Korea to make the visits to their countries as representative of conditions and as profitable as possible.

Mr. Jerome K. Full and Drs. Jack L. Knetsch and Marion Clawson critically reviewed the various drafts of the manuscript and made particularly cogent comments. Dr. Edward H. Graham edited the final manuscript for form and style as well as substantive content and acted as staunch advocate for the approach employed throughout the project.

The experimental planning program in Uludag National Park (Turkey) would not have been possible without the truly marvelous support given by the then National Parks Branch, Department of Northern Affairs and National Resources, Government of Canada. Messrs. J. R. B. Coleman and Lloyd Brooks were directly involved in the undertaking.

One cannot overlook friends, old and new, who are interested in the quality of life for man under radically changing conditions in the Twentieth Century and who contributed, probably in ways not anticipated by them, to the perception and understanding which constitute the point of view expressed in this report.

Certainly the undertaking could not have been attempted by the author without the active encouragement of Mary Lois Hart who cheerfully tended the flock during her husband's prolonged absences and endured the rigors associated with the production of the manuscript.

It is a pleasure to acknowledge my great debt to all who have offered so much, but this in no way alters my acceptance of full responsibility for the observations and judgments made or the conclusions drawn. The study report is offered in the belief that it

accurately illustrates the concept and utility of planning systems of parks and reserves in the larger context of land and water planning, and with the hope that the ideas presented will offer a new avenue of approach to the problems of parks and reserves useful to planners, scientists, administrators and citizens at large.

William J. Hart
Washington, D. C.
February 10, 1966

TABLE OF CONTENTS

FIGURES AND TABLES

INTRODUCTION

The underlying concept of park systems is relatively new. It can be simply stated as follows: within a given land area all parks, no matter how large they may be, or for what purpose they were established, are related to each other, to the use of resources in the landscape which includes them, and to the society which supports them. Reservations of land and water resources, particularly for parks and recreation, exert as profound an influence on the use of the resources surrounding them and upon the societies which control their fate as society and historic land-use patterns exert on the reserves; parks cannot be considered in isolation. When one consciously takes into account as many of the biological, physical and social interrelationships as possible in considering various kinds of parks and park programs for a region, nation, or group of nations, he is engaging in planning systems of parks, or park systems planning.

The impetus for studying the issue of parks systems came from the First World Conference on National Parks.[1] At this conference specialists in the biological, physical and social sciences, from universities, business and government came from 62 countries to discuss problems facing a diversely interpreted institution: the national park. Each delegate brought his own background of training, national habit and value system into the session, but all agreed, in broad outline, on at least several objectives of national parks as they now exist in various parts of the world. These serve as a starting point in distinguishing land and water use for parks from other resource-use practices.

The delegates to the Conference agreed, for instance, that the survival of fauna as well as the deleterious effects of precipitate modification of natural environments were related to projects financed as part of a worldwide effort to accelerate economic development. The projects were designed by national economic planners who seldom understood the biological consequences of their proposed actions. It was felt that the high physical and social costs of trying to plow new land ill-suited to agriculture were not

[1] The Conference, held in Seattle, Washington, USA, June 30–July 7, 1962, was sponsored by the International Union for Conservation of Nature and Natural Resources, FAO, UNESCO, the Natural Resources Council of America and the United States National Park Service.

in the best interest of genuine, long-term improvement of world living conditions but, as yet, such costs are not recognized in most national economic planning procedures.

Another important concern of many delegates was the future of the impressive park reserves established under colonial regimes in countries recently or soon to be independent. Finding practical ways and means to begin demonstrating the utility and value of these park reserves to new governments facing financial problems of huge proportions was not an easy problem. Assisting in the drawing up of physical development plans for such parks with provisions for large numbers of visitors and maintenance of pristine natural values seemed to be one avenue of approach.

For these reasons a Committee on Problems of National Park Planning was appointed and charged with making recommendations. The Committee reported and the Conference unanimously adopted Recommendation 12 which ". . . . urged IUCN to study the need to establish a Committee on Park Planning (this planning to include nature reserves, scientific areas, prehistoric, historic and cultural sites, wildlife sanctuaries, outdoor recreation areas, and other natural areas) for the purpose of assisting countries to develop programs emphasizing . . . an advisory service . . . and research . . . on the development and use of parks and park systems."[2] The Committee on Problems of National Park Planning had obtained a clear understanding of the import of the term "park systems" through a paper prepared for the Conference by Marion Clawson and Joseph L. Fisher, titled "Planning for a Nation's System of Parks."[3] This paper pointed out that park systems planning meant a great deal more than preparing conventional master development plans for a single national park area or series of national parks.

Under the terms of reference established by Recommendation 12, as amplified by the Clawson and Fisher paper and the Committee Report, a study of implementing an interrelated system was authorized by the International Commission on National Parks of IUCN. It was clear that the approach taken must go further than consideration of the nature reserves, scientific areas, prehistoric, historic and cultural sites, wildlife sanctuaries and outdoor recreation areas established under the aegis of national governments. It must include all park areas within a country or even within a

[2] Alexander B. Adams, (ed.), *First World Conference on National Parks,* (Washington, D.C.: U.S. Government Printing Office), 1964, p. 380.

[3] *op. cit.,* p. 414.

group of countries, and must ". . . . be concerned with land use and related water planning in a comprehensive way . . ." [4]

The sometimes conflicting concepts of wise resource use tend to confuse matters. Tightly held attitudes toward particular resources formulated by archeologists, urban and country planners, and other disciplines, plus value system differences found in people of different world regions, produce deep rooted emotional and philosophical conflicts about the "best" use for land and water resources and in the use of terms to describe conservation, resource use and park practices. Some would solve all land-use difficulties —from agricultural land zoning to watershed protection—with something called a "park" while others violently oppose any land-use action which smacks of "parks."

Full exploration of the full import of the different kinds of land-use philosophies in detail was beyond the scope of the Seattle Recommendation to IUCN and this report must be limited to parks. Yet, in considering a rational sorting out of various kinds, locations, and development alternatives for parks, one should not lose sight of the fact that there are perfectly acceptable land managing arrangements which may be infinitely better suited to deal with the specific needs and conditions of many countries than traditional ideas of parks.

Limiting the investigation to park matters does not mean that the semantic problem is eliminated. The delegates to the First World Conference on National Parks had widely disparate concepts in mind when they referred to parks. Some felt strongly that parks were areas in which there would be no human occupancy to permit unfettered inter-play of natural forces, but others argued for intensive manipulation of the environment in order to maintain a single evolutionary stage. Depending on the view of the observer, parks may mean manicured, formal gardens, playgrounds, centers for the development of tourism or preserves for scientific research.

This study has undertaken four principal tasks. The first was to devise some common denominators which might reconcile much of the variety of thought concerning parks and various types of reserves.

A second task was to appraise the status of such planning where the technical expertise of Europeans, North Americans and others might be put to work.

Third, actual examination of representative areas was needed

[4] *op.cit.*, p. 362.

to assess the nature of the threats to establish parks. Part of the same task was an appraisal of opportunities to begin systematic park planning.

Finally, what was learned would have to be sifted and judged in the light of existing bilateral and international assistance programs to determine whether the research and advisory service envisaged in Recommendation 12 is needed, and if so how it might be institutionalized with a source of funds to carry it on.

Some countries have had parks of different kinds for a long time, but their practices, evolved from completely different circumstances, are dissimilar. Yet each country with park experience may have adopted something that would be of exceptional value in certain other countries with no park planning problems. It was thought that each area with experience in operating parks of one kind or another might provide useful case studies of the impact and problems induced by basic socio-economic shifts which have been going forward at a steadily increasing rate for many years.

It was anticipated likely that population density, systems of administration, settlement history and cultural heritage in less advanced countries would call for the application of combination solutions taken from successful experiences in all countries.

Only limited insights about advanced or less advanced countries could be gained from surveying the literature. Much of it is piecemeal and very little is readily available. Data about the status of parks and the protection of the landscape in the several less advanced countries has to be guessed at from a collection of reports. Some are precise statements by skilled investigators, some allegations by skilled persons based on very limited observation, and some are sheer fiction. Depending on where the reports originated and on the point of view of the evaluator, the park situation in the less advanced world (and in the advanced world for that matter) could be dark and pessimistic or bright and hopeful.

It was anticipated that conditions in less advanced countries[5] would not lend themselves to any one mode of attack. It was likely that population density, systems of administration, settlement history and cultural heritage in such countries would call

[5] The terms "advanced country" and "less advanced country" are used arbitrarily to indicate the relative stage of technology achieved. The terms have no relation to cultural attributes or is there an implied superiority of one group over another. An "advanced country" is one that is largely industrialized with all of the problems associated with industrialization.

for the application of combination solutions taken from successful experiences in all countries.[6]

Reports indicated that large, world-famous reserves set aside during the colonial era seemed to be threatened by newly independent people who could see the rich land only as a place to settle. Large reserves, afforded *de facto* protection by their inaccessibility, were being threatened by roads constructed through wild areas to open up the country. As the roads were completed, people moved out along them to hack out farm clearings. New roads were only one facet of a general attempt by land-hungry people trying to settle areas where none but scattered tribes existed before. New construction projects to speed economic development were altering the natural landscape and biologic balance to a marked degree.

Other reports were more encouraging. Academicians, citizens influenced by their training in advanced countries and administrators of resource programs in less advanced nations were beginning to exert effective pressure on their governments in behalf of nature preservation. In some new governments there was immediate recognition of national park values and quick steps were taken to protect those which existed and examine the possibilities and needs for others.

On the international scene, the 1962 UNESCO General Conference passed a historic resolution urging all nations to recognize the social and economic values of landscape and nature conservation.[7] UNESCO's action was more than mere resolve. It gave financial support to IUCN, actively sponsored natural science research and encouraged the establishment and upgrading of museums designed to protect and display objects and sites of cultural importance. At the same time FAO was beginning to place more emphasis on park and wildlife projects as part of its regional development schemes. It provided financing for the imaginative IUCN African Special Project which did much to draw attention

[6] Shortage of time to look at the total European structure of park administration is one of the most evident shortcomings of the study. Most pronounced is the failure to even make a cursory examination of land control practices in Scandinavia. The literature from Sweden, particularly, shows a wide range of activity that could well he applied to situations in the less advanced world.

[7] UNESCO, 12th General Conference, "Recommendation Concerning the Safeguarding of the Beauty and Character of Landscape and Sites," Paris, 11 December, 1962.

to park and conservation needs in Africa. Another bright spot was the concern and the active interest shown by many individuals and organizations on behalf of parks and wildlife in the less advanced countries.[8]

In spite of what could be learned from reports, however, on-the-ground visits were considered essential to provide some of the answers to the status of park planning throughout the world. The task of selecting countries which would provide a sufficient sampling on which to base meaningful recommendations was difficult, particularly in the less advanced regions. There was also a limited amount of time available, requiring that visits be restricted to a few countries, and that the study be more comparative than comprehensive. Certainly foreign observers, in any country, during a short visit, may miss some critical facts about the situation which is material to their primary interest, but they sometimes have the advantage of a fresh viewpoint and may see relationships which one closer to the scene overlooks. Moreover, the contrasts among countries may be more informative than the most detailed study of a single country. In any event, the task of synthesizing the views of the myriad disciplines which have a bearing on the success or failure of parks in the changing world poses serious handicaps for a single brief reconnaissance. Time, funds, formal invitations and offers to underwrite in-country travel expenses permitted visits to Colombia, Korea, Turkey and Zambia. Arrangements for consultation in advanced countries and other less advanced countries were made in conjunction with trips to these four primary countries. In these countries, views were received from development economists, educators, biologists, archeologists, historians, sociologists, recreation specialists, city and highway planners, bankers, travel promoters, budget officials, foresters, range conservationists, wildlife managers, administrators, park guards, ecologists and engineers. From all these, and personal observation of conditions in the field, an attempt is made in the following pages to present a balanced view of the concept of park systems planning, methods for doing the planning job and to suggest the machinery necessary to apply them.

[8] A complete listing is not feasible, but examples are the World Wildlife Fund, The African Wildlife Leadership Foundation, The Fauna Preservation Society and The Nature Conservancy of the USA.

CHAPTERI

THE FRAMEWORK

Parks of one kind or another have been an accepted use of land ever since man moved into towns and cities. Squares and plazas have long been part of city patterns and for practical reasons the community well was often set in an open space where people could—and still do—congregate during the evening hours or for special events. Such places are central to the still accepted conception of city parks. For a long time conditions of city life required no elaboration of parks; there was little time or reason for anything more because open country was just beyond the edge of the city. Those who could afford them had princely estates beyond the city reserved for their own use.

Little thought was given to parks, natural areas or conservation before the advent of the Industrial Revolution. Since then, consideration of parks, open space, recreation, nature protection and related topics has received increasing attention in all parts of the world. In industrial countries people have become concerned about the quality of living space and places to use their leisure time. In agrarian countries the rush toward industrialization has set in motion forces which are jeopardizing sustained water flows, high grade forests and irreplaceable wildlife.

Since the world has changed, however, so have park concepts and requirements. Very old ideas, like those about formally landscaped parks in city squares, have become enmeshed with a rush of new ideas geared to new needs, like those about large-scale landscape protection zones. Thus, it is only natural that the whole field of park and recreation planning should abound with new notions. It becomes even more pronounced when parks are equated with land reservations for forestry, watershed protection, game harvesting and so on.

Various disciplines have separate views of parks, recreation areas and open space. Naturalists favor minimum interference with the natural flora and fauna while city planners favor intensive development to accommodate active recreationists. Terms which are common, everyday tools of the trade can and do take

on different meanings when used by people with different backgrounds and experience, lay and professional alike. The term "park development" implies one thing to the administrator of several parks in a small city, something else to a tourist promotion officer in a newly independent country and something altogether different to an officer of the Nature Conservancy of Great Britain. Added to the conceptual confusion are ideas from disciplinary groups who do not want to be considered part of a park spectrum, such as game managers and foresters who often, nonetheless, manage lands under their control to provide recreation opportunities ranging from playgrounds to remote wilderness reserved for solitary enjoyment.

It is possible to use the term "park," however, as a shorthand designation to encompass sometimes conflicting and sometimes complementary terms, concepts, statutes and field practices which have given rise to a whole array of titles for various kinds of reservations and special zones. In places it will be useful to distinguish between refuges established in response to a biological imperative, such as the preservation of an endangered species, and reservations established in answer to human desires, launching motor boats for instance. Unless specifically differentiated, the term "park," in this paper, however, means any area expressly reserved, acquired, controlled or managed primarily for recreation or preservation of the natural environment. The term includes, but is not limited to, areas of several hundred thousand acres dedicated to the protection of wildlife and its natural environment; small, specifically delineated recreation sites which are part of larger areas publicly managed primarily for timber or forage production; special tracts held to protect a type of natural habitat for study; zones of prehistoric or historic significance, playgrounds, promenades and open spaces which are parts of old cities or new towns.

Use of a shorthand term is not intended to obviate the real differences between various kinds of parks. Most importantly the purpose for which a park is established makes for differences in size, number, management, appearance and use. Several park purposes may be found at each level of government. With rare exception, the only systems of parks exist within agencies charged with a single park function at a single level of government. A provincial fish and game agency may control a system of parks to protect, propagate and maintain the rare or endangered species of animals found in the province; a national park agency may administer a system of natural and cultural areas which protect

and interpret features and events of national interest. A municipality may have a system of recreation parks located to permit easy access for each of its residents. Such systems do not represent park systems as conceived of in this study. Each system is based on a single rationale which sets the standards for each individual park in the system and each park is usually considered only in terms of the criteria of its own system. The result is the traditional approach to parks—each one is a separate, discrete unit in space and time and is unrelated to other types of parks which may exist in the same region. Yet every land unit, no matter how large or small, bears some relation to all other land units within some logically defined region around it. In reality, what happens outside the boundaries of a given park is often as important—perhaps more important—as what happens inside the boundaries, particularly in terms of habitat protection. Each park within each system bears a relationship to the other parks in other systems and to use patterns of the land in which all the parks are situated.

Three basic factors can affect the location, size and management of parks and other reserves: *Biological* where considerations of species preservation or type of habitat are controlling; *Physical* where accurate location of a prehistoric ruin, major geologic feature or historic site is controlling; *Social* where location of potential users or political issues are controlling.

A classic example of biological interrelationships is found in Nairobi National Park, Kenya. The wild animals of the region are the remnants of far greater ungulate herds and their predators which ranged over the broad savanna spreading south of Nairobi where settlers and agriculture during recent years forced the diminution of the wild animals and their grazing area. The national park was established in 1946. Now the land adjacent to the park boundaries is subject to the inexorable expansion of the city to the northeast and more intensive agricultural use to the southwest. The park, originally conceived as a refuge for a representative association of African plains mammals, cannot long serve this purpose. It is not a case of whittling away or alienating park land; but is due to changes in use of the land adjacent to it. Adequate planning for a park to fulfill the original conception would have recognized the far ranging habits of the animals and provided for them. Solutions will now depend on intensive management, based on competent biological knowledge and on sociological factors for implementation.

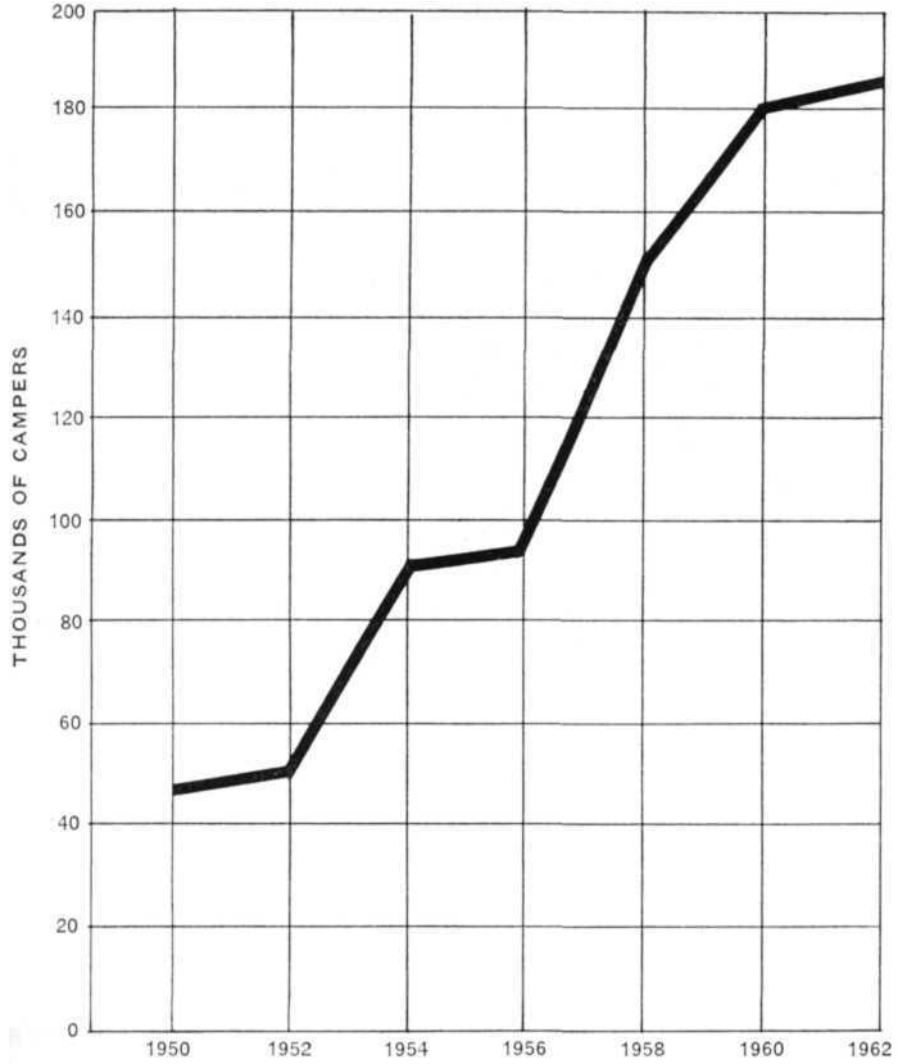
Physical factors involve many considerations. One of the most

common is the location of a through highway. It is generally agreed that highways through park areas can cause detrimental effects. At one time heavy truck traffic passed through Zion National Park (USA). When a new construction project was proposed, park authorities realized that the volume of truck traffic through the park would more than double. The trucks would make the park roads unsafe for visitors and completely ruin the park environment. A second trans-mountain road farther north was paved to absorb the traffic.

An example of the effects of social influence is provided by the state of Maine, USA. Statistics show a remarkable drop in the rate of increase in camping use in the state parks following 1960, a rate considerably lower than elsewhere in the nation. See Figure I. Maine has a low human population density and possesses a landscape which offers contrast and relief to city dwellers during the summer months. The state is within easy driving distance of great urban centers. The drop off in the rate of increase is explained by the simple fact that the state government decided that the parks should not be used for camping and have not appropriated funds for the construction of new campsites. As a result, campers are shunted off into campgrounds which are on private farm and forest land. Thus, by changing policy on public lands, the state government has materially influenced the use of certain private lands.

The traditional approach to social influences is usually depicted by maps, such as that in Figure II. Concentric rings are shown radiating from a proposed park. The rings usually designate distance—increasingly expressed as a function of time—and are accompanied by an enumeration of population within each ring. The whole exercise is intended to demonstrate the number of people, present and future, who will avail themselves of the attractions of the park, the magnitude of which is so great that creation of the park seems unquestionable. Such conceptions usually project huge future visitations based on straight line correlations with anticipated gross population growth within the "demand" area described by the rings. Unfortunately there is no attempt made to predict how many of the people will be able to travel, would come if they could, or what differences in visitation will be affected by larger family size, higher income, better roads going in the opposite direction or other parks with more salubrious facilities. To state that proposed park X lies within two days driving distance of Y million people says next to nothing.

FIGURE I
NUMBER OF OVERNIGHT CAMPERS
AT PARK CAMPSITES IN MAINE



SOURCE: AN EVALUATION OF POSSIBLE RECREATION DEVELOPMENT IN THE MACTAQUAC RESERVOIR DEVELOPMENT REGION: A REPORT TO H. G. ACRES & CO., LTD.. (MULTILITHED), RESOURCES PLANNING ASSOCIATES, WASHINGTON. DC., JULY 1964

FIGURE II
TRADITIONAL APPROACHES TO SOCIAL INFLUENCES

SOURCE: RIVER BEND—ITS POTENTIAL ECONOMIC SIGNIFICANCE FOR MARYLAND, MARYLAND DEPARTMENT OF ECONOMIC DEVELOPMENT, ANNAPOLIS, MARYLAND, NOVEMBER 1961

Current conditions at Yellowstone National Park (USA) illustrate both biological and social interrelationships. The park was established to preserve marvelous scenery and unique natural phenomena. Management decisions in the park with regard to fish and wildlife are immediately felt on the land outside the park and vice versa. This is true, for example, of the increasing numbers of elk or wapiti which migrate from their summer range in the park to their winter range on private ranchlands and other federal lands outside the park. Many people go to Yellowstone only to camp or fish with little interest in the specific natural wonders the park was established to protect and interpret. Provision of alternative high quality camping areas and stocked streams outside the park has a good chance of decreasing the current extraneous use within the park which threatens to turn certain parts of the park into resorts. Such areas outside the park, along with the park itself, begin to provide the elements of a park system. The interrelationships between elements of park systems usually have three dimensions. The first dimension is the proximity of one park unit to other park units. A national forest park and a wildlife park twenty miles apart are likely to have a much higher degree of interrelationship than exists between the wildlife park and a similar wildlife park unit two hundred miles away. The second dimension is the relation of the park areas to location of users. The third is the established pattern of land and water resource use in the vicinity of the park or parks. This dimension is exceptionally important when considering the establishment of a new reserve.

One aspect of social interaction that has come to be recognized by many leaders is that legislative bodies most often act in favor of park projects when there is a broad base of *public* support for parks. The broader the base the greater the likely response of the legislative body. Such support comes primarily from people who have some personal or professional interest in one or more phases of a park agency's work. Most groups of people are only interested in limited parts of what is presented here as park systems. It has been observed, for instance, that zoologists and botanists usually support proposals for wilderness areas because such areas preserve associations of plants and animals of interest to them. Naturalists, however, may be indifferent to recreation parks, just as the vastly more numerous groups interested in recreation may be indifferent to wilderness preservation. Yet recognition of the value inherent in both wilderness and active

recreation must exist in the minds of user groups, planners and decision-makers if any comprehensive system of parks is to be developed and gain widespread public support needed to sustain it.

In 1933, President Franklin D. Roosevelt assigned responsibility for national military parks, national battlefield sites and national monuments to the U.S. National Park Service. He was wisely trying to broaden the base of popular support for park concepts.[1] The move was an extension of the personal interest of Mr. Horace M. Albright, one-time Director of the U.S. National Park Service, in the history of his country and his conviction that areas of historic importance should be part of any national system of parks. He argued successfully that the protection, management and interpretation needed at historic and prehistoric sites was very similar to that required in parks which emphasized natural history.

A case can be made to show that large reservations made for general resource management, such as U.S. National Forests, were early examples of the kinds of interrelationships being examined here. That is, the condition of forest and rangeland vegetation influenced the quantity and quality of stream flow and forests provided not only cellulose but livestock grazing, wildlife habitat and recreation as well. Unfortunately, physical factors are the only interrelationships acknowledged in management decisions. Range surveys are used to determine range condition and trend; timber inventories try to keep abreast of the quantity, quality and growth rates of various forest species; and studies are conducted on the effect of various management practices on the hydrology of streams. Thus, resource use can be effectively integrated, it is claimed, by changing livestock numbers and season of use, by increasing forage production by reseeding, by adjusting wildlife harvest, by accelerating or decelerating logging. Inter-action of biological, physical and social conditions argues for consideration in planning of something more than the boundaries of multi-use reserves, such as the U.S. national forests. In considering the development of a park area, as defined here, in such a reserve for instance, the only factor commonly taken from external conditions is the gross trends in camping pressure. It is unusual when they do not signal the expansion of camping capacity. On the basis of physical inventory data, a site with well drained soils, easily developed culinary water, proper slope and good cover can be selected for camp-

[1] John Ise, *Our National Park Policy,* (The Johns Hopkins Press: Baltimore, Maryland for Resources for the Future), 1961, p. 352.

ground development. The interrelations posed by close proximity of at least two different kinds of parks usually involve fairly precise information about the characteristics of users who might be expected as well as existing land use. Then the question of whether to build a campground, for example, in the multi-use reserve takes on the proportions of a simple park systems planning problem.

Figure III shows a situation where the nearby park is a provincial historical park which is very close to a major highway. No camping facilities have been constructed because the terrain and cover type were thought to be uninteresting in terms of the accepted image of a desirable campground. Studies indicate, however, that in many cases the majority of campers using other campgrounds in the vicinity are enroute to a major destination and are not particularly anxious to go very far from the highway, but they will travel the highway if it has pleasant scenery. A complicating factor is that livestock, traditionally bunched together during the spring and fall, have made the approach to the proposed campground in the multi-use area very unattractive. On this basis it would seem that more public benefits and higher efficiency from scarce investment capital would be obtained if a transient-type campground were developed in the provincial park—even if actual construction costs per campsite were higher than proposed in the multi-use reserve.

The problems of administration to achieve such allocations, even if the park and multi-use reserve are both parts of provincial systems, are obvious. But suppose the two agencies administering the two units are on different governmental levels, and suppose further, that budget officers are hostile to funding any new campgrounds at all, and that historians oppose the "unwarranted" entry of the historic park for camping. Such situations do occur, and, collectively, decisions may be made to develop or not to develop campgrounds in the reserve, in the park, or on private lands, through no public action, as in the Maine case above. Perhaps a subsidy to the private owner is the best alternative if increasing income from recreation enterprises will permit reduction of pressure on both the park and the multi-use reserve. This is in part what park systems planning is all about. Park systems planning should deal competently with the entire park and recreation portion of regional land-use planning by focusing on plans for the use of the recreation resource base.[2] Sooner or later, these plans must

[2] "Recreation resource base" is a term which will be used for convenience in describing the total natural values of a particular landscape or countryside.

FIGURE III
HYPOTHETICAL PARK SYSTEMS PLANNING PROBLEM

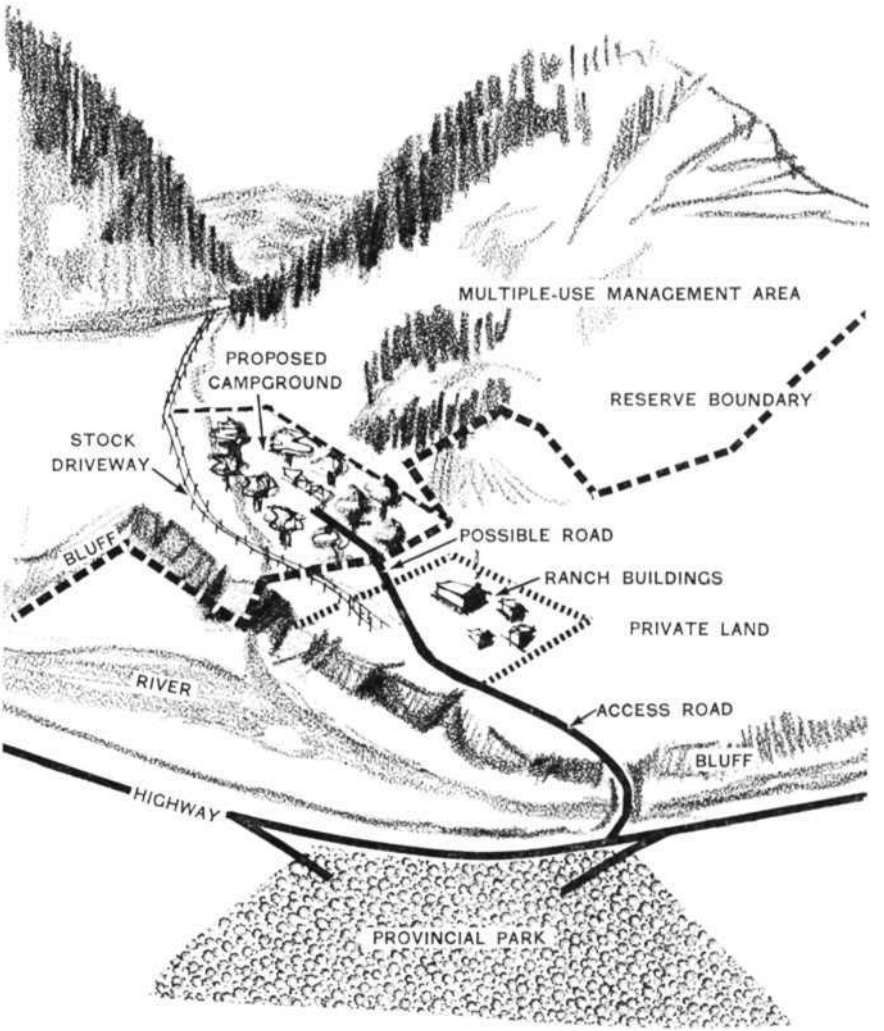


exhibit a definite relationship to economic plans for the regions involved.

Not long ago, Durward Allen quoted A. W. Smith, now President of the National Parks Association (USA) as saying:

> "It should not be necessary for our park and wilderness people to fight forever with their backs to the wall to preserve these values, not only against commercial exploitation, but against otherwise progressive public development. Our over-all program should recognize the place of parks and wilderness in our scheme of things." [3]

This is part of it, for Allen goes on to say: ".... the nation sorely needs a 'scheme of things', . . . we should have a national study of resource problems, a national plan, and effective national zoning that will indicate the sound economic function of specific lands and other assets." [4]

It applies to the view of a quiet agricultural scene; the flow of a river through a gorge; the paths and trails leading to temples tucked away in the mountains; pleasant, uncluttered beach; the thrill of seeing wild game moving in a natural environment; the slope and climate for skiing; water surfaces for recreation boating; sites for picnicking, camping and overlooks; the nature of the roadways on the landscape; and areas reserved for natural science research.

[3] Durward Allen, *Our Wildlife Legacy,* (N. Y.: Funk and Wagnalls Co.) 1962, p. 335.

[4] *Ibid.*

CHAPTER II

CONTROLLING FACTORS

The purpose of the investigation undertaken for IUCN by the International Commission on National Parks was to see whether the ideas of interrelated systems of parks as a land-use planning technique have relevance in other parts of the world and what, if anything, is being done about them.

In planning systems of parks, it must be recognized that every portion of the earth's surface is affected by what man chooses to do. Even the Antarctic is not immune from detrimental air pollution.[1] The creation and maintenance of parks where public visitation is excluded requires a conscious willingness by society to allocate land, labor and capital resources. Modern technology may bring on the rapid conversion of the land to other uses even by primitive indigenous people.

The situation is the culmination of a general movement to free man from the vagaries of his environment. The pace of the movement was accelerated with the advent of the Industrial Revolution and has proceeded at a vastly increased rate since World War II. In the process, two distinct groups of nations emerged. The first group is comprised of those countries, predominently European or of European derivation (Japan being the sole exception) which have developed highly industrialized economies resulting from large scale adoption of technology—the advanced, developed, rich countries. The second group comprises those countries with traditional agricultural economies where the application of modern technology is quite limited—the less advanced, underdeveloped, poor countries. Some of the trends in advanced countries are central to understanding the present allocation of resources to various parts of park systems; conditions in the less advanced countries serve as a backdrop to gauge the implications of technological advance on the need for park systems.

It is admitted that there are difficulties involved when attempts are made to generalize conditions for any grouping which involves

[1] Maria Buchinger, "Undisturbed Conditions for Research," in *First World Conference, op. cit.,* p. 72.

more than one nation. In the countries classed as advanced, each has reacted differently to the stimulus of technology depending on its historic land-use patterns, social attitudes, natural resources and so on. There seems to exist, however, a European attitude—which varies within itself from north to south—and an American attitude. This should not be surprising. Entirely different conditions prevailed before industrialization exerted its profound influence, and institutions erected to cope with new conditions had to conform to the traditions and patterns of the past. Among other differences, Europe has been occupied for long periods and European administration has very strong centralist traditions stemming from the exercise of complete power by monarchs. In the U.S., settlement of the land is recent, and the people have relied on small, decentralized units for administration. University and educational traditions were also different as were attitudes toward property ownership and the relationship of national scientific organizations to government.

Too often U.S. methods and techniques have been held up as models representative of the advanced world. The facts do not substantiate the use; conditions in the various parts of even the advanced world vary a great deal from place to place.[2] In this

[2] Some idea of the over-simplification involved can be gained by comparing the stages of technological advance of the various countries as reflected in socio-economic conditions in the six stages advanced by W. W. Rostow, *The Stages of Economic Growth,* (London: Cambridge University Press), 1960. He described the stages as follows: *The traditional society* which has not felt the impact of technology either in productive capacity or in social outlook and remains untouched or unmoved by man's new capability to change his environment. *Precondition for take-off* where free societies or societies stimulated by the interests of other nations (colonial or quasi-colonial) support leaders able to mobilize the capital resources of the country and establish an effective centralized national state. *Take-off* occurs when the capital resources of the national state are sufficient to permit the establishment of new industries whose profits are reinvested in new plant capacity so that more and more workers can be supported and the flow of labor dramatically shifts from the rural to the manufacturing centers (said another way, the national rate of saving reaches 12%). *Age of high mass consumption or maturity* should be reached some 40 to 60 years after take-off and is characterized by rising per capita income, rising leisure and the other characteristics of a modern industrial society. *Beyond high mass consumption* is that stage when the maintenance of satisfactory standards of living and consumer demands no longer use the productive capacity of essential durables and society increasingly spends because of pleasure, status, or planned obsolescence. Even this expanded system is inadequate to cover all the possible situations and there are likely to be many regional abberations within nations and within categories. A country which is just entering the take-off may have a highly developed social security system, as in

context terms like "Western" and "European" do not necessarily imply homogeneity of approach to many current public problems including parks. The U.S. example of park development is only valid as an indicator of a number of trends which are likely to accompany continued advance in technology by other countries.

Even though there were basic dissimilarities existent which produced differing socio-economic reactions, the new technological forces caused changes common to all. Just as pre-industrial mercantilism brought specialized groups together where conditions for trade were particularly favorable, so the new factories were located where communications, power and raw materials were most favorable. The first workers were town people, but increasingly the labor force attracted young people who had little future in the rural areas. Grouping of industry and the efficiency motive tended to group like processes together. This led to regional specialization, which in turn, led inevitably to larger productive units to take advantage of economies to scale and the concentration of industrial populations in a limited number of centers. There resulted a proportional, if not absolute, shift of people from the country to the urban centers and a selective reduction of farm operations using low productivity (marginal) lands. Vast improvements in communications caused small manufacturing firms to lose their competitive position and fail in the same way that most producing regions that cannot compete with Australian lamb—even after it is transported half way around the world—stop stock farming altogether or shift to some other crop. During the relatively short period of a little over 100 years, the U.S. has shifted from a primarily agricultural nation to one where most people live in a few great urban complexes. Small towns continue to be abandoned and land formerly tilled is converted to forests.[3] In Europe, where much of the land was occupied, the movement resulted largely in increased density in a few urban centers with very little change in rural densities. Currently, retention of pre-World War II subsidies, originally enacted to maintain national

---

Mexico, which is usually associated with more advanced societies. Northern Italy is a mature industrial region; southern Italy is, for the most part in pre-condition stage. According to Rostow's criteria, the U.S. is beyond high mass consumption, some European countries are approaching similar levels while others are in some stage between take-off and high mass consumption.

[3] For a more complete discussion of past trends and the implications for the future in a U.S. context, see: Marion Clawson and R. Burnell Held, "Demand for Rural Resources in the Context of Long-Range Needs," *Journal of Farm Economics,* XLV No. 5 (December, 1963) pp. 1027-1037.

self-sufficiency, is the only reason some European farms are still in production despite the fact that other regions can produce and transport the commodities at lower market prices for the consumer. In all too many rural areas, including the small town, the average age is older than national averages because the people know they cannot (and do not want to try) to make the conversion to city life. Actually it is part of a vicious cycle which results in continually worsening conditions until the whole area is cloaked with hopelessness. It is popular to term such areas as pockets of rural poverty, and there are convincing arguments to indicate that, even with massive, direct public investment, considerable time will be required to significantly raise standards in whole regions.

The movement of people from rural areas has not been without cost. Not every rural person moves to a city because he wants to; many are forced to leave the farms because there is not enough productive land to support all the people desiring land. The rural immigrants often are poorly educated, without skills to qualify them for urban jobs and crowd into sub-standard housing around urban centers. The bulk of city people today seem to aspire to a life in the suburbs. This movement takes out of the city the people most able to contribute to its welfare, leaving the core cities to deteriorate and to choke on overdoses of poor children to be educated, heavy traffic, slums and wastes which pollute both water and air.[4] With suburbs proliferating over large areas, constituting what Vernon calls a gray zone,[5] it is no longer possible for the city dweller to find open space relief by merely going to the edge of the city. The dense megalopolis stretching from Boston to Washington along the East Coast of the U.S. is made up principally of suburbs, of varying density, occasionally interspersed with old core cities and farm land. The provisions for people to enjoy a feeling of open

[4] An extensive literature exists dealing with the plight of the urban regions. A short, clear exposition of the problem can *be* found in: Raymond Vernon, *The Changing Economic Functions of the Central City,* (New York: Committee for Economic Development), 1959.

[5] Robert C. Wood, in a companion volume to Vernon's, explores the provision of service on a region-wide basis in the vast "bedroom" communities surrounding large cities. He feels that the most severe problems for all service, most particularly parks, are not being met. The term gray zone refers to those zones where people live in one jurisdiction, work in another and may go to yet another for social activity and have not developed any strong sense of community in the sense of a small rural town. The discussion is found in *Metropolitis Against Itself,* (New York: Committee for Economic Development), 1959. Professor Wood takes the discussion further in: *1400 Governments,* (Cambridge: Harvard University Press), 1961.

landscape in this vast belt are inadequate. (As we shall see, the income level of the average suburbanite is sufficient to enable him to alleviate his situation, but the average city dweller cannot afford such relief.)

We have seen that the early parks made up parts of city complexes and were extensions of city form, seldom as a concomitant of leisure. Neither the European or American city dweller of the time was very much concerned about what was happening in the countryside surrounding the city. The European city dweller had little time to venture into the countryside and furthermore private owners held all of the land, much of it intensively used and closed to him. The American, too, had little spare time and was restrained by the stigma of the Puritan ethic which frowned on the "wasteful" pursuit of leisure. Furthermore, he always had access to open countryside which, with low population densities, he was usually free to use.

The residents of the advanced countries, with machines of ever greater power, have set about changing the landscape and the whole balance of nature. The tragic results of exotic species introductions which became pests in their own right or brought a plague with them that did, of housing developments built on flood plains or on steep hillsides with clay soils and denuded watersheds are well documented. Man usually learns from his mistakes, but in competition with nature, the mistake is not that the houses were built in the wrong place, but that levees should have been built first or that a new type of piling should have been driven to hold against the slippage of the soil. Proposals to tinker with the natural order of things are being made all the time. Whether the tools of modification—from bulldozer to nuclear explosive—can be kept in bounds is not at all clear at this point.

Only a small group, usually in the upper class, often sport hunters or intelligentsia, turned its attention to the problems of the natural attributes of the landscape. Through dedicated, diligent and sometimes autocratic effort, they were able to reserve, under one guise or another, sizeable areas of land for conservation purposes. It seemed evident to these men that societies with great power to modify their environments would increasingly need to hark back to prior conditions in the same fashion that most experimental work requires some unaltered base line against which to measure results. But even these enlightened crusaders were only able to secure large-scale land reservations in areas where

it was possible to treat indigenous people with impunity—a situation no longer tolerated by world society.

Various manifestations of industrialization are meaningful to consideration of conservation and systems of parks. They have been increasingly detailed in recent years so that they need only be mentioned here.[6] Among them are population increase, higher standards of living, and increased leisure.

Whether there will be new upturns as countries reach certain levels of affluence, as seems to be the case in the U.S., is of serious concern in many countries which have had relatively stable populations for some time, but are now gaining higher living standards. Also important is an increase in the percentage of young and old people relative to total population. There has been a marked increase in leisure time. Whether additional leisure is made available by shortening all working days, reducing the number of work days or by extending annual vacations makes a significant difference in terms of land-use planning because it affects the range of urban impact. Another factor has been a rise in real money income per capita. In the advanced countries, income level is a determinant of many things people can do and is of singular importance when dealing with recreation. Single family residences, food, clothing and automobiles are bought and there is enough left over to think of camping trips or winter vacations in a warm climate. Tax structures and other social devices have tended to distribute incomes in a middle range encouraging the rise of a vast middle class majority. People in advanced countries are extremely mobile, primarily because of the family automobile, but increasingly because of improved transportation of all kinds, especially air. Mobility extends the impact per unit of time available to urban populations into the countryside.

Since existence of comparable levels of affluence in the U.S. and Europe are out of phase, Europe lagging by perhaps as much as 15 years, there is an excellent opportunity to learn whether,

[6] All of these factors, including those dealing with the history of parks, recreation and conservation in American heritage, are to be found in a number of sources. The most recent, and comprehensive is: Outdoor Recreation Resources Review Commission (ORRRC), *Outdoor Recreation for America*, (Washington, D.C., U.S. Government Printing Office), 1962. A forerunner with excellent material illustrating the factors in a modern society with special bearing on recreation is found in: Marion Clawson, R. Burnell Held and Charles H. Stoddard, *Land for the Future*, (Baltimore: Johns Hopkins University Press for Resources for the Future), 1960, pp. 124-193. See particularly pp. 126-135.

in Europe, results will be comparable to those which were achieved under American conditions. For example, traffic jams and new suburban construction in Europe are reaching American proportions. If results become comparable, traditional European land-use institutions will be subjected to unprecedented pressures.[7] Of particular relevance to parks are two issues. First, increases in leisure and per capita income seem to result in increases in conventional outdoor recreation pursuits such as camping, mountaineering and boating. Second, regions specializing in production may have to rely on other regions for recreation supply. Thus, recreation may become a major force in inter-regional distribution of wealth.

If the trends in Europe continue to follow the American model, we can expect certain related recreation problems. The areas around the cities will feel the brunt of new urban populations and spaces for the recreation of central city dwellers will compete with space for new suburban housing. While certain portions of the new recreation needs can be built into the housing developments themselves, a lá LeCorbusier, the requirements for active recreation for city and suburban dwellers will have to be met on a comprehensive scale. The amount of the famed Forest of Fontainebleau being used for developed picnic, camp and trailer sites illustrates the growing pressure. To meet the demand, some agency is going to have to begin acquiring open land for recreation development and some farmers encouraged to undertake recreation development on their own. Soon there will be little to differentiate a worker in the industrial region between Detroit and Flint, Michigan, (USA) and a worker in the Ruhr Valley (Federal Republic of Germany). The U.S. worker used to trek to the lake shore or the forested land to the north on weekends or one-week vacations; later, time and money permitted him to enjoy the Atlantic shoreline and the lakes in the Tennessee Valley; now he is able to make trips to the warm beaches of Florida during the cold winter months and is thinking of buying a house there to serve as a vacation place where he will go frequently by air and to which he will eventually retire. In recent years the German worker could motor to the upper Rhine or perhaps Bavaria for a week-end trip; he is now finding his way to Paris and to Switzerland, even to the shores of the Mediterannean; it may not be

[7] For the most part, European society is now far more egalitarian than ever before. This factor as much as any other will make realigned institutions necessary if the expected trends materialize.

long before he is using the beaches regularly and even thinking about a house for vacation use. In the U.S. such recreation travel only involves shifts in spending patterns within a country; in Europe the inter-regional movements are international and the concern over currency transfers may slow the process somewhat. Today Florida is expanding its total economic base to complement tourism and agriculture; so are Italy, Greece and Spain.

Land-use planning will have to take account of shoreline use in European countries. In fact, there may be so much demand for shoreline use that the problem of handling the people in a manner which enhances their experience, protects the resource, and at the same time bolsters the economy, may reach the same crisis proportions as seen in the U.S. today. In both the U.S. and Europe, there seems to be a large scale increase in the popularity of boating and fishing. Major streams, the Connecticut and the Rhine to name just two, are polluted and cannot be used to make their optimum contribution to recreation needs until they have been decontaminated.

By the same token, there are a number of examples of land-use planning and policy in force in European countries which deal with the provision of more pleasant living conditions in the face of dense population pressures which could and should be adapted for use in the densely settled regions of the U.S. European attention to the needs for scientific research in natural areas could also be emulated.[8]

Another dimension which is being added in the U.S. is specialization among those seeking outdoor recreation. Given the flexibility of sufficient income, considerable leisure and great mobility, people tend to group themselves into several outdoor recreation publics which, very often, can be identified according to age, income level and education received.[9] Their desire to participate in various kinds of outdoor recreational activities, together with their ability, in terms of money, time, mobility and opportunity, to undertake them constitute recreation demand. Obviously, people

[8] Some of the possibilities, as seen in Denmark, France, U.K., Germany and the Netherlands can be found in: ORREC, *A Look Abroad: The Effect of Foreign Travel on Domestic Outdoor Recreation and A Brief Survey of Outdoor Recreation in Six Countries,* (Study Report #18), (Washington, D.C.: U.S. Government Printing Office), 1962.

[9] ORRRC, *Prospective Demand for Outdoor Recreation,* (Study Report #26), (Washington, D.C.: U.S. Government Printing Office), 1962.

with low income, a secondary education, living in a city apartment, without an automobile and with only one day a week leisure present a demand for recreation that is quite different from those people who have higher incomes, are college graduates, have two-day weekends and four-week vacations, own an automobile (and perhaps a boat) and live in the suburbs. ORRRC summed it up this way: "Equally as important as the magnitude of demand is the way in which it is distributed among the groups within the population. There are significant differences in the desire for outdoor recreation between young and old, rich and poor, city people and suburbanites. The groups themselves, furthermore, are changing—incomes are rising, the older are living longer. A projection of these trends cannot foretell the future, but there are important clues here indicating the new order of needs."[10] These factors are likely to indicate an inter-play between publicly provided recreation opportunity and that which is provided privately. At a certain income level, people are apt to begin buying more exclusive use of particular resources by joining private clubs or purchasing waterfront property of their own. Each family group who does so reduces the need to provide public facilities just as each low income family which reaches a certain income level will increase the need for additional public facilities.

Each demand group forms a separate public. There is a skiing public, a camping public, a hiking public, a fishing public, a motor boating public and so on. Membership in one public does not exclude membership in other publics. A skier can also be a wilderness enthusiast in the summer, and a weekend camper can be an evening tennis player.

With respect to park systems planning, not all of the publics are complementary. In fact there is sometimes bitter competition between some publics as between the fishermen and the water skiers or between the automobile campers and the wilderness preservationists. By using the knowledge available about the present and projected total population and its composition by age, income and education for a nation or region of a nation, it is possible to ascertain the magnitude of demand for certain kinds of recreation opportunity. These social determinants are as important as the biological and physical considerations, to be discussed in some detail later, in planning for the protection of natural values

[10] ORRRC, *Outdoor Recreation for America, op. cit.*, p. 27.

as well as providing pleasant outdoor opportunities for everyday enjoyment.

In allocating land, labor and capital among various kinds of park solutions to socio-economic demand it is helpful if various user publics have some conception of what kind of experience they are seeking. Their preferences are really matters of quality. A bass fisherman journeying to Lake Mead National Recreation Area (USA) tends to be gregarious and wants to have a campground which makes extensive visiting among other fishermen possible—in fact, two or three families may share a single campsite. Such crowding is intolerable to people who desire to pack into a remote area. "In practice the existence of quality-effects means planners face a choice of expanding output on a given area at constant levels of quality or of expanding output at usually diminished levels of quality . . . Too often, we fear, a shift from a 25-unit campground to a 250-unit campground has been looked upon as a change in quantity of output when it is really a change in product."[11] By varying the quality of facilities provided, one is able to direct use by one or more publics. Failing to find a suitable supply of close order camping in other places, the automobile camping public has descended on the U.S. National Parks and, in many ways, brought about changes in quality which were not consistent with the kinds of public the parks were intended to serve.

Thus, the rise of affluent, middle class groups demanding various types of recreation has forced attention to the treatment of various kinds of parks as inter-dependent units. Not only is it possible to direct use of park areas according to preconceived plans in keeping with their inherent values, but it is possible to make use of the interest of each of the outdoor recreation publics to support, make use of, and learn about the unique values of each part of the system. From examination of the behavior of various publics, Marion Clawson deduced that each recreation experience is part of a package. It is made up of planning and preparation, travelling to the park, enjoying various activities while there, travelling home, and for a considerable time thereafter enjoying by recollection the entire event. The travel route to and from

[11] Robert K. Davis, "Recreation Planning as an Economic Problem," *Natural Resource Journal,* 3 No. 2 (October, 1963), pp. 247-248. Davis sites Allen Wagar to show that interpersonal effects are more likely to be limiting than are physical and biological factors. *The Carrying Capacity of Wildlands for Recreation,* (Ann Arbor: unpublished Ph.D. Thesis, University of Michigan), 1961.

the site has to be pleasant if the whole experience is to be fully satisfying to the user. A very pleasant park can be spoiled if the approaches to it are obnoxious or dangerous; an inferior park may receive a far larger volume of visitors because of the superior total experience offered.

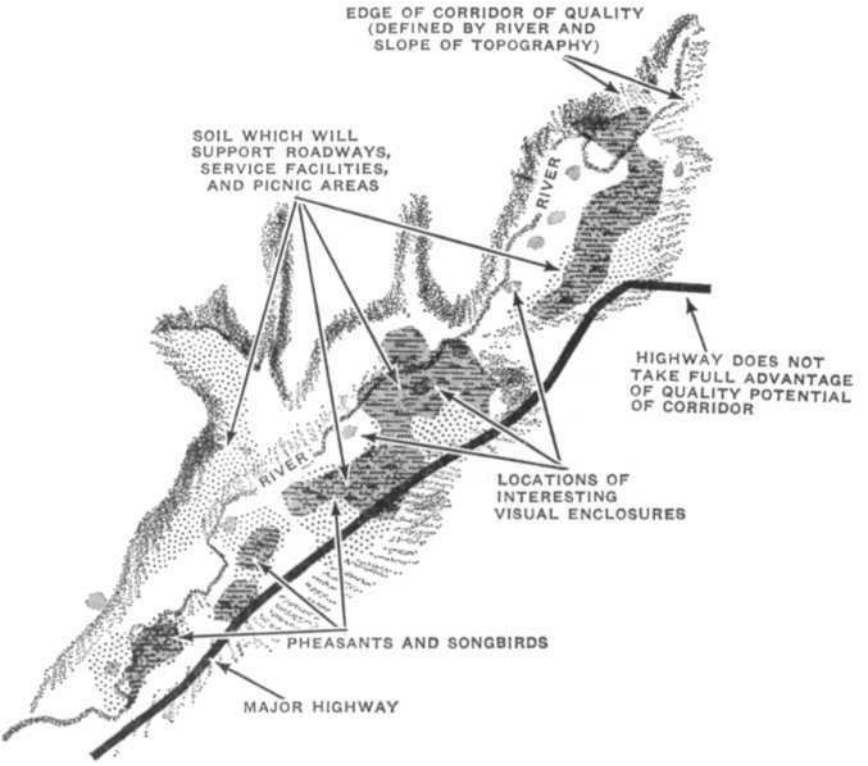
Considering the extensive, but continuous land use that suburban living implies, systems of parks and the notion of total experience lead directly into the exciting ideas of linear parks and quality corridors.[12] Such ideas are not bounded, but serve as a flowing element which can be added to, widened or narrowed, to affect the design of whole regions. They include parkways, trails for walking, riding and cycling and often use stream drainages like Rock Creek Park (Washington, D.C.) as an essential design element. Quality corridors often serve to link nodes of high recreational value. Not all land in the "corridors" needs to be in public ownership. Control of roadsides, landscape change and protection of wildlife on intermingled private and public land is essential, however. (See Figure IV.)

It is far more difficult to generalize conditions in the less advanced countries. Their size, diversity and differences in cultural history are far more varied than the countries grouped in the advanced category. There are also differences imposed by the length of European influence which caused uneven adoption of technological methods. On the other hand, there are some traits which are reasonably common.

Residents of the less advanced countries are primarily engaged in subsistence agriculture. They live on the land or in small rural villages where tradition and mysticism tend to resist change. Rural population density is sometimes high, as in India and Pakistan, or it may be quite sparse, as in Zambia. Rural people suspect and are often antagonistic toward city people, often their own civil servants, because cities frequently represent interference from absolute rulers and colonial masters. Travelling through the fields of southern Korea, one cannot help but sense the number of civil and military administrators from great civilizations—from Chinese dynasties to modern Japan—that have attempted to cope with the same problems of flooding rivers and streams, collecting taxes from people growing rice and to maintain systems of civil control and service. The same problems face the present Korean

[12] Wisconsin Department of Resource Development, *Recreation in Wisconsin*, (Madison: multilithed), November 1962. Arthur Glikson (Israel) feels that the linear idea was behind the establishment of the Appalachian Trail.

FIGURE IV
QUALITY CORRIDOR FOLLOWING A MAJOR STREAM



government while the day-to-day matters of life and death are unchanged for the rice farmer who is not in a hurry to deviate from a norm which has changed very little in hundreds of years.

There is seldom a significant middle class, perhaps only ten per cent of the total population. About the same percentage of the total is very rich. If there is a middle class, it is, for the most part, composed of civil servants, educators and a few merchants. They nearly always live in the cities and seldom attempt two-way communications with the rural majority. Except for the very rich and the middle class, few people can read or write.

In one way or another, technical assistance has been made available in these countries for some time. In order to boost the mercantile worth of the colonies, it was in the best interest of the colonial powers to increase productivity, look to the health of the people, build railroads and make other improvements. Modern medicine permitted unprecedented population growth, the bulk of the early increase falling on the agricultural family units which divided the arable land among unexpected numbers of sons. The surplus rural population migrated to the existent cities, most of which were the products of new commercial enterprises encouraged by colonial governments. Because of their meager education and past experience they were equipped for none but the most menial of jobs. The result has too often been shanty towns or vast slums of ill-fed, unemployable and progressively hopeless people watching succeeding waves of rural migrants expand the slums like an evil fungus.

Where the opportunity existed, land was made available for agriculture and settlement to help absorb these people. For the most part, the new land had not been previously used for very good reasons: it was too steep, had poor soil, suffered from too many cold, cloudy days or possessed other deficiencies. If the land was not made available as part of a publicly endorsed program, the pressures of land hungry people took it—witness the squatters of Central and South America.

Rate of population increase, per capita income, mobility, leisure time, urbanization and rural population density are principal factors affecting land-use patterns in the advanced countries of the world. The response to the pressures depends largely on the stage of technological advance found in the particular country or region. Measures of technological advance are roughly equivalent to the categories describing stage of economic development described by W. W. Rostow.

The U.S. is in an advanced stage of technological development (American society is beyond high mass consumption). The behavior of the rates of growth for the principal factors are of peculiar concern because they may anticipate future trends in countries which have lagged in technological advance. Technological advance in the less advanced countries is causing some of the same forces to develop as experienced in the advanced countries, urban over-population for instance.

In the U.S., public awareness of the need to more carefully husband soil and water resources came while there was time to reserve large areas for timber, water and park use in the sparsely settled West. In the eastern states such large scale reservations were not possible in view of the people who owned and used the land. This is the region where outdoor opportunities demanded by increasing numbers of people are in shortest supply.

European settlement had already established rigid patterns before European economies reached a point of general worker affluence and leisure. Requirements to meet the park and open space needs increasingly resemble those faced in the U.S. several years ago. Longer experience and general acceptance of public controls over use of private property may make the job easier, but there will be some pressures which will require public acquisition of land for recreation purposes.

In each set of circumstances there are elements of conflict. In the advanced countries there is growing competition between park use and development use of resources and between various recreation publics. In the less advanced countries the competition is more fundamentally between agricultural use and natural reserves. Planning for systems of parks in advanced countries offers good chances of providing a framework within which the conflicts can be judged. It is clear that the conflicts are of a different order in the less advanced countries. To be applicable, the scope of the systems may have to be somewhat broadened to include the full range of conflict which might be anticipated in a less advanced situation.

CHAPTER III

CHOICE OF LAND-USE ALTERNATIVES

It is possible for a single reserved area, under changing circumstances, to be referred to as a game reserve, a game park and a national park without changing size or basic function of the area. This may mean that the titles are inter-changeable or it may mean that different people have attached different meanings to the titles. It certainly means that titles cannot be relied on to accurately describe what is actually happening on the land.

In some countries a forest reserve is an area which is subject to intensive management and the name implies that the land has been preempted for direct public supervision of the growing and harvesting of trees. An area classed as protection forest, on the other hand, is likely to mean that the area is to be afforded more complete protection than the parks of the same country. Yet it cannot be called a national park as long as it is administered by a forestry agency. Forest harvesting may, in some countries, be a standard practice in areas designated as national parks because they are administered by an independent board forced to depend on its own revenues to survive.

Some places reserved for nesting of migratory waterfowl are designated as national parks, while it is the practice elsewhere to consider such reserves refuges and to contend that they do not meet the criteria for national parks.[1] In one country the construction of a dam within a national park is an extreme violation of principle while in another country policies encourage such construction, often with allusions to enhanced recreational values. The term "National Park" may imply an area where tourist attractions are stressed or it may mean that no visitation is permitted except by qualified investigators. In parks where wild-

[1] See, for example, a statement by the Government of Denmark in, *U.N. List of National Parks and Equivalent Reserves*, (New York: United Nations Economic and Social Council), 1962, p. 10 (Part II).

life is given dominant consideration, the species composition of the flora may be altered—perhaps with new species deliberately introduced—or, as in Wankie National Park (Rhodesia), some small animals may be eliminated by excessive concentrations of certain large, showy species like elephant and buffalo. This is, in part, attributable to a judgment that large numbers of these animals in easily found herds would contribute most to tourist satisfaction.

Inconsistent terminology may sometimes reflect deep differences in attitude, especially with regard to parks. Other inconsistencies may arise when certain titles—as National Park—are desired by groups too weak to secure complete legal standing for all the title implies. In the less developed countries, administrators and technicians from advanced countries could only draw on terminology evolving in their homeland or elsewhere in response to different conditions. They often affixed titles to reservations without knowledge of the full range of choice open to them. The same situation now applies to many fledgling administrators charged with the task of designating reserved areas.

Whatever the reasons for conflicting terminology the need for argeement on terms has already been recognized.[2] Two important conventions relating to park definitions and objectives, namely The Convention Relevant to the Preservation of Fauna and Flora in Their Natural State (1933, London Convention) and The Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere (1942, Washington Convention) represent the first tangible attempts to come to grips with the problem.

The Conventions are interesting for their differences as well as the terminology adopted. Table I presents comparisons of pertinent language from the two Conventions. Both documents agree on the broad concepts of national parks except that the London Convention includes historic and prehistoric values while the Washington Convention alludes to them in the nature monuments category. There is also similar language, it is true, as part of the descriptions of strict wilderness reserve and strict natural reserve but the London Convention means protection from any kind of human entry except by scientists, while the same term as used in

[2] First World Conference, *op. cit.,* p. 366, Report of the Committee on Problems of Nomenclature. See also an illuminating series of discussions of terminology in: UNESCO (IUCN), *Preparatory Documents to the Internar tional Technical Conference on the Protection of Nature,* (Paris-Brussels), 1949.

TABLE I

COMPARISON OF TERMS
LONDON CONVENTION OF 1933 AND WASHINGTON CONVENTION OF 1942

London Convention	Washington Convention
National Park—An area (a) set aside for the propagation, protection and preservation of wild animal life and wild vegetation, and for the preservation of objects of aesthetic, geological, prehistoric, historic, archaeological, or other scientific interest for the benefit, advantage, and enjoyment of the general public. In accordance facilities shall, so far as possible, be given to the general public for observing the fauna and flora. (b) placed under public control, the boundaries of which shall not be altered or any portion be capable of alienation except by the competent legislative authority. (c) in which the hunting, killing, or capturing of fauna and the destruction or collection of flora is prohibited except by or under the direction or control of the park authorities.	*National Park*—An area (a) established for the protection and preservation of superlative scenery, flora and fauna of national significance which the general public may enjoy and from which it may benefit when placed under public control. Facilities will be provided for public recreation and education. The resources shall not be subject to exploitation for commercial profit. (b) The boundaries shall not be altered, or any portion be capable of alienation, except by the competent legislative authority. (c) Hunting, killing and capturing of members of the fauna and destruction or collection of representatives of the flora is prohibited except by or under the direction or control of the park authorities, or for duly authorized scientific investigations.
Strict Natural Reserve Area placed under public control, throughout which any form of hunting or fishing, any undertakings connected with forestry, agriculture, or mining, any excavations or prospecting, drilling, levelling of the ground, or construction, any work involving the alteration of the configuration of the soil or the character of the vegetation,	*Strict Wilderness Reserve* Region under public control characterized by primitive conditions of flora, fauna, transportation and habitation wherein there is no provision for the passage of motorized transportation and all commercial developments are excluded. Such reserve shall be maintained inviolate, as far as

any act likely to harm or disturb the fauna or flora, and the introduction of any species of fauna and flora, whether indigenous or imported, wild or domesticated, shall be strictly forbidden; which it shall be forbidden to enter, traverse, or camp in without a special written permit from the competent authorities; and in which scientific investigation may only be undertaken by permission of those authorities.

Flora and Fauna Reserve

An area within which the hunting, killing or capturing of any part of the natural fauna (exclusive of fish) shall be prohibited save (a) by the permission, given for scientific or administrative purposes in exceptional cases by the authorities of the territory or by the central authorities under whom the reserves are placed, or (b) for the protection of life and property.

So far as may be practicable, a similar degree of protection shall be extended to the natural flora in these areas.

Special efforts should be made to establish such reserves where preservation of species of flora and fauna are thought necessary.

Intermediate Zones

Zones where the hunting, killing, and capturing of animals may take place under control of authorities of a park or reserve; but in which no person who becomes an owner, tenant, or occupier after a date to be determined by the authority shall have any claim in respect to depredations caused by animals.

practicable, except for duly authorized scientific investigations or government inspection, or such uses as are consistent with the purposes for which the area was established.

Nature Monument

Regions, objects, or living species of flora or fauna of aesthetic, historic or scientific interest to which strict protection is given. The purpose is the protection of a specific object, or a species of flora or fauna, by setting aside an area, an object, or a single species, as an inviolate nature monument, except for duly authorized scientific investigations or government inspection.

National Reserve

Region established for conservation and utilization of natural resources under government control, on which protection of animal and plant life will be afforded in so far as this may be consistent with the primary purpose of such a reserve.

the Washington Convention means only that lands so reserved will not be alienated, that is, they are open for any use which does not involve motorized equipment or permanent structures.[3] There is no comparability between the reserves with prohibition of hunting and collecting in the London Convention and the national reserves of the Washington Convention. The definition of a national reserve is built around U.S. National Forests which have no counterpart in Europe. Sustained yield forest production is attained in Europe without resort to public ownership of large tracts of forest land for the sole purpose of controlling its management. Good forest management has been a matter of law on all lands for a long time and is accepted as a matter of course.

Discrepancies may be attributed to changes in thinking during the nine-year time lapse between the two sessions. The contrasts also reflect differences in approach conjured up to meet problems in a European land-use context and those devised in the milieu of the U.S.A. Furthermore, the two Conventions are intended as guides to resource management in continents where conditions are at considerable variance from those which existed in the countries providing the impetus for them. The Conventions, even where applied, could only deal with a limited part of the park situation. They do not become involved in general hunting laws, recreation pursuits or the component factors of environmental quality. They are also limited in that they apply only to action by national governments.

Another attempt at definition was articulated by the U.S. Outdoor Recreation Resources Review Commission in 1962. Six categor-

[3] The implications of the term wilderness, another unique American form of land use, is an interesting study in itself. Most relevant material is contained in the extensive hearings before committees in both Houses of the U.S. Congress beginning in 1957 and ending in 1964. See, for example, The Wilderness Bill, as enacted, which defines wilderness as: "A wilderness in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value." (Public Law 88-577).

ies were recommended for use by all public and private agencies engaged in outdoor recreation.[4] The ORRRC categories are:

High-density recreation areas (I)—land which would be intensively developed and managed to accommodate large numbers of recreationists.

General outdoor recreation areas (II)—land which would be subject to substantial development for a wide variety of specific recreation uses.

Natural environment areas (III)—land suitable for recreation in a natural environment and usually in combination with other uses.

Unique natural areas (IV)—lands possessing outstanding scenic splendor, natural wonder or scientific importance.

Primitive areas (V)—land which is to be roadless and characterized by natural, wild conditions, including "wilderness areas."

Historic and cultural sites (VI)—features with major significance, either local, regional, or national.

These classes have been adopted for use by all U.S. agencies assigned responsibility for recreation. The classification system is pointed specifically at management decisions: the decisions made to guide the development or control the use of particular parcels of land. The system is very useful in that it crosses the dividing lines between government agencies. Thus, a unique feature would be classified and preserved for inspirational, educational, or scientific purposes whether it was within (in U.S. terms) a national forest, a state park or a national park. Knowing that the feature was in Class IV means that ". . . general activities such as swimming, picnicking, motorboating, camping, hunting, and fishing should be excluded. Food, lodging, automobile service, and other facilities should generally be located outside the immediate areas . . ."[5] as a matter of management policy. A wilderness area controlled by a municipal government for watershed protection purposes must be recognized as wilderness unless, of course, it is the intention of the municipal government to change the wilderness character of the area at an early date. Another advantage of the classification is that it alleviates the difficulty of assigning significance on the sole criterion of governmental administrative level.

Classification on the basis of management decisions implies some prior notion of the social impact expected on the resource and

[4] ORRRC, *Outdoor Recreation for America, op. cit.,* pp. 95-120.
[5] *Ibid.,* p. 110.

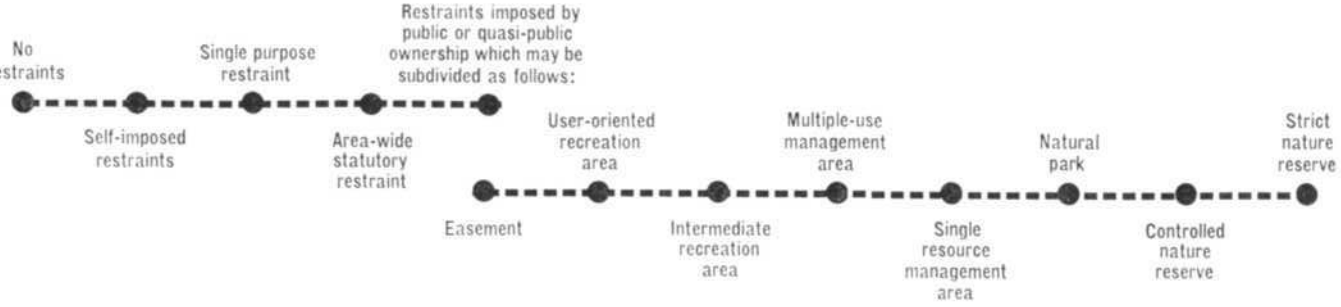
makes a judgment concerning the use that will be made of the land. A disadvantage is the uncertainty of whether to classify resources as things now stand or on the basis of what they ought to be. Another problem of application is that it is not clear on what basis the classification should be applied—to a single land unit according to jurisdiction or to larger land areas which involve a park as one element, or to both.

Other classifications have been proposed.[6] All of them are designed for use once some decision has been made to use an area for park or recreation use of some sort. In less advanced countries, decisions concerning whether large areas should be reserved for various uses have not been made and where they have been made the general rationale has not been inclusive or clear. Neither the U.S. system or the Conventions are able to deal with the use of lands likely to be adjacent to the zones complying with the definitions, although the Washington Convention provides for "national reserves" in which timber harvesting, water resource development, domestic livestock grazing, wildlife harvesting and so on are subject to professional management to perpetuate resources for public use and the London Convention urges Intermediate Zones around parks and reserves. In this sense, none of the definitions of terms or classification schemes fill all the needs for advising less advanced countries about systems of parks.

It is possible to compile a simple list of categories which reflect the variety of alternative uses for which all land, private and public, can be managed. It is not suggested that all nations subscribe to some master terminology although the adoption of common terms might, over a period of time, ease semantic difficulties likely to arise in describing and implementing park systems planning. For descriptive purposes, the alternatives are arranged as finite points along a continuum. (See Figure V.) The alternatives proposed here are viewed from the perspective of man's own attempts to limit his alteration of the natural scene. All points on the continuum are of equal value, that is, there is no attempt to say that one alternative is to be preferred over any other. At one extreme of the continuum is private land not subject to any control on use of resources. There are several alternatives shown representing an increasing degree of control exercised

[6] Marion Clawson has suggested a system composed of three broad categories: user-oriented, resource based and intermediate. See "Crisis in Outdoor Recreation," *American Forests*, vol. LXV, nos. 3 and 4, (March & April, 1959). (Also Resources for the Future Reprint #13.) Professor E. Pleva uses a system with four categories in Ontario, Canada.

FIGURE V
THE RANGE OF SOCIAL RESTRAINTS ON HUMAN MANIPULATION OF THE NATURAL ENVIRONMENT



over private owners of property to achieve the objectives desired by society. After a certain point, consideration of a society larger than that conceived by the owners of property would become so overriding that the public interest could only be served by public acquisition of all or part of the bundle of rights associated with the land. A variety of alternatives present themselves at this level too. They are shown on a sub-continuum. In reality, each alternative may exhibit the characteristics of several of the alternatives illustrated and the total effect placed on the continuum. Obviously such blending cannot be shown diagrammatically.

The alternative controls may be described as follows:

NO RESTRAINTS—Privately owned land on which private interests have complete freedom to extract minerals, cut timber, graze, farm or otherwise use the land and its resources without regard to present or future consequences.

SELF-IMPOSED RESTRAINTS—Privately owned land on which a group of land owners act in concert to establish and subscribe to a code of restraints which specifies the type of land use which the individual owners will practice, the kinds of buildings that may be constructed on the individual parcels of land, and the cooperative actions which will be undertaken by the group as a whole. Adherence to the code is sometimes voluntary and for the benefit of the members of the group, although the majority may exclude from the group, or impose sanctions against, those who do not conform. In other cases the code is part of a covenant which becomes a condition of land ownership.

SINGLE PURPOSE RESTRAINTS—Privately owned land where an action by the public (acting through government) establishes a restraint on the use of one particular resource. An example is a hunting law which provides an orderly mechanism to control the numbers of wild animals by establishing rules for their harvesting or protection.

AREA-WIDE STATUTORY RESTRAINTS—Privately owned lands on which the government exercises general land-use controls such as are typified by European statutes which fix the pattern of land use throughout political sub-divisions. Some examples are the highly integrated Swiss implementation of the Christoller land-use system, the *ex post facto* suburban planning in the USA and the architectural preservation districts. Laws on the degree of control imposed vary from place to place, depending largely on the characteristics of the society and how much control will be tolerated to achieve what it considers to be desirable objectives.

Extremes in application are found in English national parks and in German landscape reserves.

If the degree of restraints offered by the application of any of the above alternatives is still not adequate to provide for public requirements, then a public or quasi-public agency must acquire all or part ownership of sufficient land to meet public need.[7] Since there are many alternatives open to policy-makers once public intervention is deemed desirable, a separate sub-continuum illustrates alternatives in the sector under public control or ownership. These may be listed as follows:

EASEMENT—Ownership of certain limited rights to land by public (i.e., government) but with most of the ownership rights remaining in private hands. The easement device is especially useful in protecting views from highways or providing points of access to some major body of water. Farming could continue on certain plots to which the public has bought the right to control housing. The effect is not vastly different from area-wide statutory restraint, except that the public buys a portion of the property rights.

USER-ORIENTED RECREATION AREA—Land and water areas on which a high degree of human alteration is permitted by society as a whole, as in small urban parks, general urban parks and specialized outdoor recreation sites. Most of the areas are located close to where people live or congregate; their location, size and use are dictated largely by the distribution and social characteristics of users. Property is acquired solely for utilization and the entire area is planned for use by people.

INTERMEDIATE RECREATION AREA—Land and water areas on which the freedom to alter the natural scene is considerably more limited than in user-oriented recreation areas. Here the natural surroundings must be carefully considered in planning for people. Land with the highest landscape quality, consistent with the needs of user groups, is usually selected for development. It is also possible to develop a natural environment for development like those adjacent to reservoirs.

MULTIPLE-USE MANAGEMENT AREA—These are extensive areas which permit equal consideration of many uses of the land under a single administrative agency. Maintaining the pro-

[7] The author is indebted to Mr. Lloyd Brooks, Chief, Planning Division, National Parks Branch, Canada, for some of the secondary terminology used. It is taken from his paper "Proposed Basis for a Park Classification System" (duplicated) Ottawa, July 17,1963.

ductive capacity of all resources in various combinations from the total tract over a long period of time is the objective. Properly applied this would mean that all species of plants and animals would be preserved and no resource would be damaged beyond its ability to recuperate.[8] Often a particular resource occupies a preferred place, such as timber in the Pacific Northwest Region (USA) or recreation at Lake Mead National Recreation Area (USA) and will dominate other uses. Alteration of the landscape and use of resources is allowed subject to control of the administering agency.

SINGLE RESOURCE MANAGEMENT AREA—These are commonly used to preserve a single species or natural community, particularly those in danger of extinction. Human interference with the biota is limited to those activities which will benefit the viability of the resource. Depending on circumstances, the specific designation may be a refuge where the species is kept free from all disturbances, although habitat may be modified—clearing aquatic weeds to provide more open water for waterfowl, for instance. Or the area may be treated as a game management range where provisions for water development and grassland reseeding are needed to preserve habitat conditions. Historic, archeologic, geologic, biologic, or scientific monuments are in this category. Treatment may consist of stabilization, partial reconstruction or total restoration.

NATURAL PARK—Areas designated to provide for maintenance and exhibition of all resources in the area. Human interference is limited to provision of amenities which facilitate viewing, enjoyment, and understanding that part of nature which justifies the reservation. Great care must be taken that the facilities provided do not become so elaborate that they destroy the purpose of the park or unnatural protection throw the segments of nature out of balance. Educational and interpretative use plays a significant role in guiding development of these areas.

CONTROLLED NATURE RESERVE—Land and water areas where modification is limited to those things that are necessary

[8] This is part of a "reversible range" theory. It holds that the ecology of any species may be altered to a considerable extent but once total numbers or some other factor is reduced beyond a critical point it is impossible for the species, in a natural condition, to recover and reach proportions where the population is viable. A discussion of "reversible range" theory applied to renewable resources is found in: *Principles of Resource Conservation Policy,* (Washington, D.C.), Agricultural Board, National Academy of Sciences-National Research Council, Publication No. 885.) 1961.

to permit visitors close contact with nature. Careful checks of visitation in controlled nature reserves is required so that overuse is not allowed to alter the environment.

STRICT NATURE RESERVE—Land and water areas identified by scientists and reserved specifically for research. Human visitation and manipulation are severely controlled.

CHAPTER IV

INVENTORY AND INTEGRATION

Considerable interest has built up in recent years around the concept of "zoning" park lands. This means that by designating different areas of a major park for different kinds of use, objectives of recreational use and resource protection can be achieved in the same land unit. French national parks, as developed in West Africa, are often mentioned in this regard. At the risk of over-simplification, they consist of three concentric rings. The inner ring encompasses a biologically identified area of high park value. It is to be subject to the minimum manipulation necessary to maintain a natural habitat. In the next ring, controlled resource management is practiced. In the outer ring, agriculture is permitted. The gradations are presented diagramatically in Figure VI. Japanese National Parks employ the same principle. No part of the Japanese National Park is actually owned by the park agency. A large share of the inner ring (Zone I), however, is national forest land subject to the same restraints imposed by the National Parks Division as on all other land owners.

If the land-use categories were applied, we would find that the inner cores would be either controlled nature reserves (the Japanese use) or strict nature reserves. They might be single resource management areas. They could be natural parks if park value were such that the areas lent themselves well to intensive interpretation. The next ring fits the criteria for a multiple resource management area, while the outer ring is generally subject to area-wide statutory restraints. Applying comparable standards to a U.S. national forest wilderness area, many similarities become apparent. If one considered the Yellowstone National Park—Grand Teton National Park—Teton Wilderness Area (Figure VII) as an inner zone, one can see that multiple resource management areas nearly surround them. Adding land-use controls to the lands between the multiple resource management areas in Zone II and

FIGURE VI
CLASSIC THREE ZONE PARK CONFIGURATION

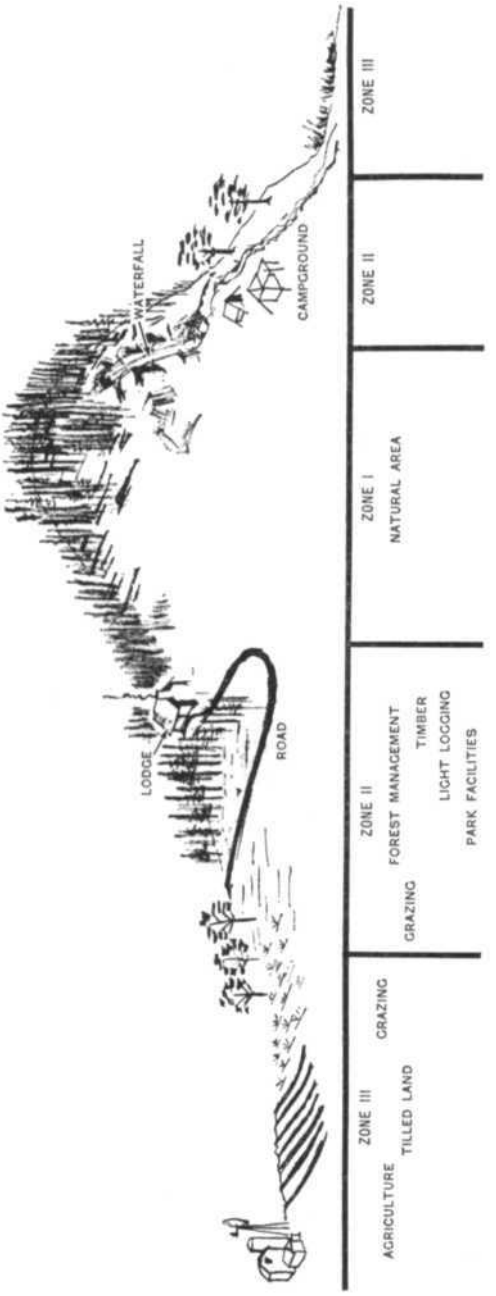
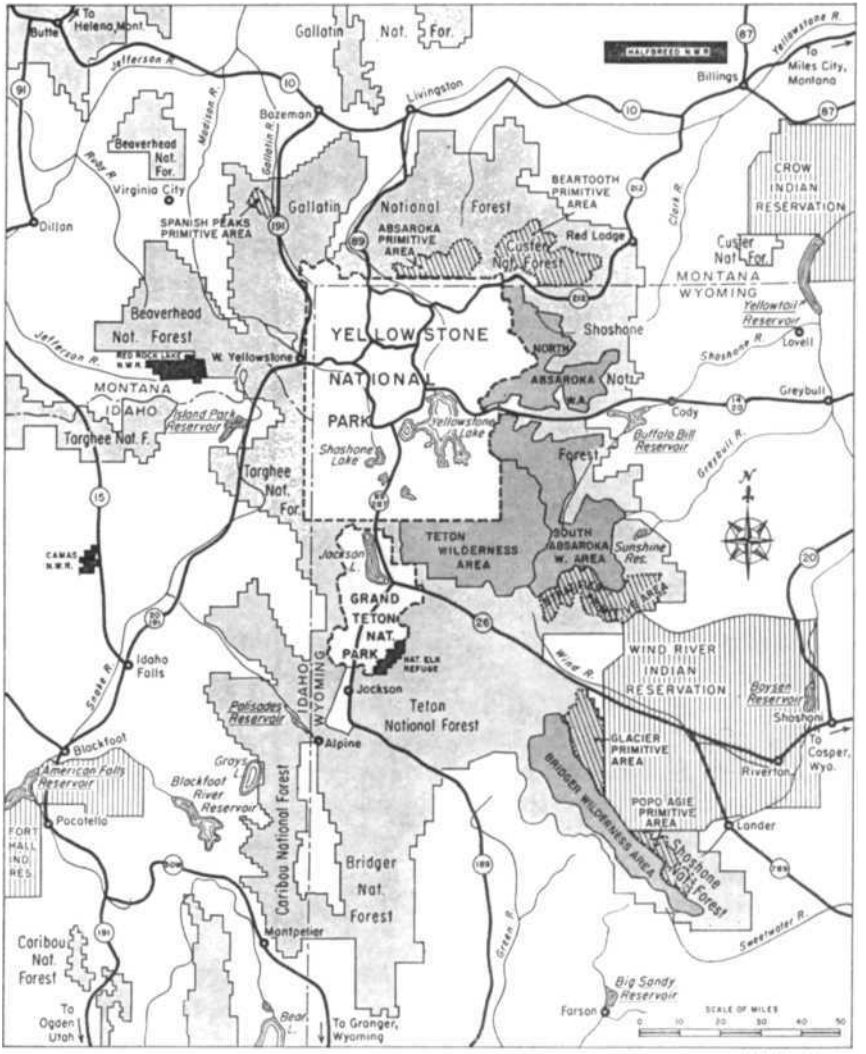


FIGURE VII
YELLOWSTONE NATIONAL PARK REGION



S.A. = WILDERNESS AREA
N.W.R. = NATIONAL WILDLIFE REFUGE

application of less stringent land zoning along the outer edges of the multiple resource management areas to form Zone III would complete the classic pattern. Thus, similar regional park objectives can be reached under a variety of titles and land-use designations—but the land-use objectives ought to remain constant.

Each natural park, many single resource management areas and controlled nature reserves fulfill the important function of making natural phenomena and human events interesting by careful interpretation *in situ.* Recognition of the educational potential of such parks, contrasted to research, has resulted in the rise of the visitors center where ordinary people can, through imaginative presentations, grasp the full significance of what the park has been created for. Thus, the objectives of significant archaeological and biological sites are exactly the same: to become living museums to enhance man's understanding of the world around him. All such parks use the same techniques and approaches to protect the resource while explaining it to people. This is a compelling reason to consider a single national administrative agency, as in the U.S., Canada and Kenya, to expedite planning for both natural parks and cultural parks, to recognize cultural and historic monuments as legitimate use of land interesting to all conservationists, and for park authorities at other levels of government to do interpretive work in natural and human history.

The fundamental requirement for sound progress in park work on a national basis is an inventory of the natural and cultural attributes of the country. The inventory should indicate those natural and cultural features which are outstanding and of paramount importance to the country. It should catalog the location and approximate size of the zones which demonstrate typical or atypical natural environments; which ancient cities and villages are worthy of treatment; the location of outstanding landscape form;[1] and so on. The inventory must be conducted as an inter-disciplinary effort by qualified personnel.

There are several ways in which an inventory can be accomplished. Two obvious ones are: 1) A national or world scientific organization can survey and report on the areas of outstanding scenic, scientific and cultural significance; 2) A select group of scientists can serve as a study commission at the request of their

[1] For a pioneering study directed entirely at landscape forms, see: W.H. Murray, *Highland Landscape,* (Aberdeen, Scotland: The Aberdeen University Press for The National Trust for Scotland), 1962.

government. It might be possible to finance these and other inventory methods by integrating the investigations with other programs. For instance, the study could be part of a total national land-use capability study which is conducted as part of agrarian reform movements or other land development projects. Such studies are general in nature and theoretically are directed at identifying lands with high capability for agriculture, forestry, urban settlement and so on. Or the studies might be part of a pre-investment survey carried out by one of the international organizations interested in determining worthiness of certain national resource development projects suggested for financial support.

Whatever the method of staffing and financing an inventory, primary reliance must be placed on natural scientists to identify, set realistic requirements for and justify the biological and physical value of a nation's recreation resource base. It may be necessary, for example, to point out that a certain montane oak forest area is the last of a once-general type, but it is also necessary to show conclusively which part of the remaining forest is necessary for scientific or aesthetic purposes. The inventory team should avoid, as much as possible, recommendations concerning the administration of the various resources identified, inasmuch as decisions will ultimately rest with the government concerned. A conscientiously completed inventory should present a composite of the natural and man-made story of a country delineated in a series of zones and corridors.

There have been efforts to achieve such a systematic identification of values in the U.S., but never on a comprehensive, scientific basis. It has never been made clear, as a matter of administrative policy, that the U.S. National Park system would contain representative environments of significance to the nation as a whole. Thus no listing of the ultimate components of the system has been drawn.

In the less advanced countries participation in making the inventory by the whole scientific community may result in closer working relations between disciplines and institutions. Joint effort may also bring a realization that natural parks are places of opportunity for all disciplines to heighten awareness of the natural and physical sciences and cultural development in the country in the minds of their countrymen. A major benefit of a cooperative inventory may be the definition of major research needs—which may require a further "team approach" for resolution.

In planning, use of regions tailored to specific needs is finding

increasing favor as a basis for analysis. The size and shape of regions may vary according to the nature of the problem under consideration. This is so because ". . . .no chosen area will be completely suitable to the resolution of all problem complexes . . . a small watershed to deal with flood control and farm management problems may not provide a reasonable basis for dealing with the educational needs of the area . . . economic units and social communities . . . may be suitable for meeting social problems but not physical problems." [2]

One danger of using contrived regions which do not follow political boundaries ". . . . is the absence of effective devices and institutions for raising and settling value, goal and policy issues." [3] Another is the difficulty in fitting available data to the contrived region.

For park planning, the landscape region seems most relevant and has been used as a fundamental unit for analysis in a number of U.S. park planning studies.[4] The landscape region is based on homogeneous landforms.[5] Thus, the Mojave Desert illustrates a landscape region for the U.S., the Laurentian Shield for Canada, or the Anatolian Plateau for Turkey. Landscape characteristics can be used to locate perimeters of smaller regions to further divide the regions, such as the lake region of the Anatolian Plateau, or the High Mojave Desert as distinguished from the Low Mojave Desert. Boundaries of regions may overlap political boundaries, or be truncated by them, depending on the nature of the

[2] Jack L. Knetsch, and William J. Hart, "The Watershed as an Entity for Development Planning," *Journal of Farm Economics,* XLIII, No. 4 Part I, (November, 1961), p. 758.

[3] *ibid.*

[4] Cf. California Outdoor Recreation Plan Committee, *California Public Outdoor Recreation Plan,* (Sacramento: State Printer), 1960; Nevada State Park System, *Nevada, A Sound State Park Program,* (Carson City), 1960; Division of Landscape Architecture, *Recreation and Open Space in Illinois,* (Champaign-Urbana: University of Illinois, duplicated), 1963.

[5] The first description and application of the landscape region and personality is found in: National Advisory Council on Regional Recreation Planning, *A User-resource Recreation Planning Method,* (Loomis, California), 1959. A landscape architect active in recreation planning, Philip H. Lewis, Jr., see particularly: "Quality Corridors for Wisconsin," *Landscape Architecture,* LIV No. 2, (January, 1964) makes extensive use of the personality concept as expressed by combinations of landforms. The author, working independently, devised and recommended the use of textural regions ranging from folded to smooth and, on the basis of the degree of contrast and general climate, rated raw recreation capability in terms of regional tones. Clearly discernable zones were readily observed and mapped at a scale of 1:125,000.

planning problem and the perspective brought to the problem by the planner. More work may show that landscape regions have a significant correlation with many socio-economic factors which will make such regions even more valuable for recreation planning. At this stage, it seems evident that the landscape region has application to the analysis and resolution of many resource-use problems.

In any case, it is useful to divide a country into landscape regions as a means of physically segmenting the several disparate social objectives which usually exist within any country. The focus of one region may be on the problems of burgeoning urban population; the focus of another region may be on ways and means of attracting more visitors to the region; still another central concern may be to stop the movement of the younger, more ambitious and intelligent residents to other regions. It is not uncommon for regional objectives as viewed at the national level to run counter to objectives visualized at the regional level or for the objectives of a region to be contrary to the wishes of a locality within the region. The compromises finally expressed at the national level are often the most generally acceptable for planning purposes. Major investments in intensified timber removal, increased livestock production, new mines and the location of manufacturing enterprises may be justified in certain regions—in welfare terms if not in more conventional economic analysis—but not in others while investments in parkways and provision of amenities for new residents may be considered a more efficient use of capital in other regions.

Obviously park systems in regions concerned with expanding urban populations will not be the same as in regions where tourism is to play a major role or in regions where intensified resource exploitation is to take place. The location of functional open space [6] as a major element in landscape planning of suburbs and the form of new city housing and location of intermediate recreation areas for day-long excursions and overnight stays will be the rule in urban regions. It does not mean, however, that sites of national importance should be forced into servicing urban crowds but rather that alternative sites should be found to divert urban pressure from the fragile areas.

In those regions where economic development projects are

[6] Functional open space means that the location, extent and shape of open space for parks, buffer zones and green corridors is treated as a land use on the same terms as residential, commercial, and industrial zones.

scheduled, the impact of the developments on the park areas listed in the national inventory must be evaluated. In some regions with superb recreation resources—for example, one combining snow peaks, unique fauna, archeological and historic sites, and sparkling ocean beaches—but with low industrial potential, investment in airports, marinas, resorts, parkways connecting various facilities and enforcement of rigorous landscape controls located and developed to augment and maintain the tourist appeal of the areas identified in the national inventory is efficient development policy.

Real difficulties may arise in regions where there are conflicts among resource uses, as between timber production and natural parks; or between resorts and strict marine-nature reserves, or agriculture and single purpose reserves. Conflicts arise not only because of differences between private and government objectives, but because many specialized agencies plan to meet national goals in different ways. In light of their conception of the national interest, scientists may feel very strongly about the establishment of a strict nature reserve while hydrologists, in the light of their own criteria, consider the area to be a vital source of hydroelectric power. Tourist enthusiasts may see a stretch of rocky shoreline interspersed with pleasant sand beaches as part of a carefully zoned (area-wide restraints) resort development while highway engineers see the same area as a particularly difficult stretch of construction which must be blasted through to permit the flow of heavy industrial products. Archeologists may recommend a single resource management area where the agrarian planners recommend conversion to farm land. It ought to be possible to see what adjustments will be required in established grazing patterns and in compensating those with established grazing privileges if a single resource management area is established for large ungulates, which shoreline areas should be withheld from urban engulfment for use by the progressively more affluent city dwellers. In many instances a region which follows landscape characteristics is best suited for integrating various interests and values and for the formulation of area-wide plans. Various plans can be laid out in sufficient detail within a region to identify the majority of the mutually inter-acting social, physical and biological factors.

Of material importance to regional analysis is the number of present and predicted users of various commodities. Our concern is with the park as a commodity. In an urban region, most of the users may originate within the region, and data describing their preferences can be ascertained from census publications. If a large

percentage of visitors to a park come from some distant place, and tourism is a desired objective of national development policy, then there is need for additional data describing the visitor population in terms of their point of origin, reason for coming, activities desired and participated in, income level, frequency of travel and final destination. Not all visitors require or want an eighteen-hole golf course. Not all visitors favor hiking on rough mountain trails nor are they all attracted by gambling casinos. Feeding these data into national planning machinery may alter regional objectives or at least shift development priorities and emphasis.

Features in the national inventory must be given separate consideration, and worked into regional plans. Some, as an ancient covered bazaar or beaches fronting on marine reserves, can be developed to meet specific human preferences under heavy human use. Some, like the nesting grounds of a rare bird, may require elimination of human use—year around or just during certain seasons. Such areas and the special characteristics of a region are the foundation stones for the erection of supplementary and complementary systems of parks and functional open space. To place them properly and keep the whole structure in balance requires considerable knowledge of the bio-physical and social inter-actions between areas, functions and resource uses within a region.

The adoption of any proposal costs something in direct outlay or in income foregone or both. To retain a marsh for wildlife may mean a willingness to forego added value of farm crops which could be harvested. A highway alignment which takes full advantage of scenery usually costs more per ton-mile of freight hauled than a shorter, straight line location, yet there is likely to be incremental earnings from tourism on the scenic highway not realized otherwise.

Extremely valuable economic tools are being developed which can be brought to bear on these and similar problems of resource allocation.[7] Recreationists have long been reluctant to have park

[7] Much has been done in the field of water resources development. See particularly: Otto Eckstein, *Water Resources Development,* (Cambridge, Mass.: Harvard University Press), 1958 and John V. Krutilla and Otto Eckstein, *Multiple Purpose River Development,* (Baltimore: Johns Hopkins University Press For Resources for the Future), 1958. More recently there has been a spate of research bearing on the costs, demands and benefits of recreational land use. For some examples see: Marion Clawson, "Methods of Measuring the Demand for and Value of Outdoor Recreation," (Washington, D.C.: RFF Reprint No. 10), 1959; Jack L. Knetsch, "Economics of Including Recreation as a Purpose of Water Resources Projects," *Journal of Farm Economics,* LXVI No. 5 (December, 1964), pp. 1148-1157; Robert K. Davis, *supra.*

values expressed in terms which permit comparison according to efficiency criteria employed, for example, in water resources development. Parks and conservation reserves fare quite well in comparison, however, under more realistic methods of computing benefits. Economic analysis has not been popular among recreationists because economic tools were used to justify conclusions already reached in an analysis that was single-purpose. Economic data have too often been used to support the decision to build a power project rather than to compare the relative worth of the power benefits added by the project against the existent natural values to be foregone. Analytical tools to examine the consequences of alternative actions are being increasingly accepted as a means to improve the rationality of public policy decisions. Fundamental to such an approach is the inclusion of the welfare aspects of recreation as well as the amount of traditional costs and benefits.

The national inventory is also useful in determination of priorities. It may record "emergency" cases which should receive first attention. Many "emergencies" involve alternative proposals such as the building of roads or dams which are controlled by public policy decisions. Modern economic analysis is sophisticated enough to provide for immediate corrective action if it is justified.

Admittedly, much more information and testing are needed to learn whether all of the social factors usually cited by conservationists are built into the models used in benefit-cost analysis and in the computation of benefit-cost ratios. Until conservationists have some confidence that they are, there will continue to be recourse to public appeals, political pressure, private intervention —as in the case of the Marismus marsh in Spain—and other non-economic methods in order to change priorities. Political objectives may also alter the stream of investment capital to projects which have lower absolute ratios.

For all its frailties, the landscape region holds out hope of ordering the park and conservation needs of a nation and inserting them in the mainstream of administrative and political decision-making for prompt implementation. With thorough analysis on the part of park officials, a comprehensive regional plan can include provisions for necessary investments in such things as highway locations which do not unduly mar the environment, multiple purpose reserves protecting the headwaters of streams proposed for hydro-electric development, pasture improvement to remove grazing pressure from single purpose reserves, visitors center and interpretive staff at a restored site of an ancient city

and much more. Adequately done, the regional plan can provide for growth of the national economy at the same time that it preserves the quality of the total environment.

No matter how good the plans are for reservation and protection of parks, the final test lies with the capability of the people administering each area. The planner, in concert with administrative officials, should at least suggest who is to have the prime responsibility for administering the various parts of a system. Some of the user-oriented areas may be assigned directly to municipal governments for administration. Other areas, less directly related to the population of one city, could be assigned to provincial governments. Still others may be administered by regional corporations. Those areas which have outstanding significance for interpreting the natural and cultural heritage of the nation may well be assigned to a national park agency. A single resource management area created to protect a virgin grove of trees which is completely surrounded by land protected by a forestry agency could most reasonably continue to be protected by that agency. Administration of certain areas of great importance for scientific research may best be assigned to the care of a university or research institute. Strict nature reserves, in areas where government cannot act, may be acquired and administered by private non-profit corporations or associations of interested people. Areas reserved entirely for the protection and management of a single wild species of plant or animal or of a limited group of species (single resource management) may be assigned to a game management department rather than the national park agency. Forest agencies might most effectively administer areas reserved for the growing and harvesting of timber. Each of the involved administering agencies should carry an over-riding obligation to prevent loss of soil and water from the areas under their control. There is no valid reason why technicians administering game management areas should be less responsible for soil and moisture conservation than those administering the national parks.

The development of a nationwide mechanism to bring together the planning and administrative efforts of the several agencies can help to fit them all into a general pattern. Planning regions, hopefully based to a large measure on landscape criteria, can do the job as long as it is well understood that planning is a continuing process which assesses what now exists, formulates proposals, measures the effects of actions taken and offers new proposals for future action based on changing situations.

CHAPTER V

SOCIO-ECONOMIC IMPACT

The countries visited in the course of this study presented a cross-section of conditions in less advanced regions. Both temperate and tropical countries were visited where trips in the field were taken to judge the recreation resource base and conferences were held with interested persons. A few countries were given major attention, but several others with somewhat similar conditions were visited in order to broaden the variety of observations and to provide cross-checks on the trends which appeared. The major countries were Turkey, Colombia, Zambia and Korea.

TURKEY has been a point of cultural collision since the first Greek cities dotted its Aegean shore. A bridge between Europe and Asia, it stands midway between an agrarian and an industrial society (just entering the take-off stage). Its Islamic traditions have been modified by close contact with Europe so that its land use and technology generally reflect practices common throughout the Mediterranean region and the Middle East. The landforms consist of rolling, moist hills, varied semi-arid high plateaus, rugged humid mountains along the sea coasts and true Mediterranean conditions along the south shore. The high inland mountains of Turkey give rise to the Euphrates and other major river systems.

COLOMBIA provides a physiographic bridge between Central and South America and thus possesses a remarkable, diversified flora and fauna with varied landforms. A representative number of problems which are being induced by attempts to change long established Latin American social institutions can be clearly seen. The landforms include three high extensions of the Andes, namely, the western, central and eastern mountains; hot, humid shoreline on the Pacific and beautiful beaches on the Caribbean; level river bottoms between the mountain ranges and dense tropical forests with broad grass plains in the Orinoco and Amazon basins.

ZAMBIA was a most useful source of information because it was approaching independence when visited, although obviously no single country could provide a cross section of all the vast diversity that is Africa. As such it illustrated many of the prob-

lems facing national leaders as they rapidly move toward complete assumption of full responsibility for the nation. Social conditions are typical of a traditional economy. The mining enclave on the Copper Belt presented some idea of the problems to be expected as new countries began to establish manufacturing centers in what, just a few years earlier, was tribal country. The conservation effort has been guided by the London Convention and it was interesting to see the interpretation given to the terms of the Convention by field people and to note that the emphasis of park people has been almost exclusively on game values. Zambia is a tropical country characterized largely by moderately high, rolling country with many flats—dissected by large rock bed rivers like the Zambesi and Kafue. Several of the flats are swampy or marshy.

KOREA has a temperate climate with mountainous landforms, and is bordered by seacoast on the east, south and west sides. Intensive irrigated agriculture has been practiced for many centuries. One observes in Korea a trend toward the further Asian stratification between those who occupy the level inter-mountain farm lands and those living in the mountains. The plains have been settled many times by various conquerers, causing a mixed lineage. The mountain people, on the other hand, have tended to be less diluted, with the result that there are in effect two distinct cultures within the country. Unique opportunities were found in the demilitarized zone to observe parts of the landscape outside the normal patterns of Asian agriculture.

Table II lists the countries considered along with some pertinent information about each. Figures VIII & IX illustrate the extent of field travel.

In each of these four countries, there was a governmental or quasi-governmental organization willing to act as host, provide transportation, interpreters and entree to officials in and out of government. The countries initially extended invitations because they saw the exercise as a way to receive detailed assistance in planning an existent or proposed national park. The purpose of the present study was not to deal with any specific park problem, however, but to review the situation in terms of the feasibility of planning systems of parks. Only in Turkey was a special report issued dealing with a single park unit.[1]

[1] In order to test out what might be accomplished, an experimental planning project was organized through the generous cooperation of the Governments of Canada and Turkey. Mr. Lloyd Brooks, Chief, Planning Division, National Parks Branch, Canada, spent two months helping Turkish technicians prepare

TABLE II

PHYSICAL & SOCIAL COMPARISONS OF SELECTED ADVANCED AND LESS ADVANCED COUNTRIES

	Geography						
COUNTRY	Continent	Climate	Minimum Elevation (ft.)	Maximum Elevation (ft.)	1964 Annual per Capita Income [1]	Annual Population Growth % [2]	Population Density Number/ Square Mile [2]
Turkey	Asia[3]	Temperate	0	16,945	$ 222.	2.6	102.2
Greece	Europe	Mediterranian	0	9,557	$ 532.	0.8	166.85
Spain	Europe	Mediterranian	0	11,417	$ 482.(1963)	0.8	160.60
France	Europe	Temperate	0	15,781	$1658.(1963)	1.2	229.11
Colombia	S.A.	Tropic	0	18,438	$ 293	2.2	35.26
Mexico	N.A.	Tropic	0	18,696	$ 406	3.1	51.99
Costa Rica	C.A.	Tropic	0	10,525	$ 370.	4.3	71.51
Zambia	Africa	Tropic	1,320	7,164	$ 152.	2.8	13.4
Uganda	Africa	Tropic	0	16,787	$ 75.*	2.5	7.78
Tanzania	Africa	Tropic	0	19,565	$ 69.*	1.9	29.99
Kenya	Africa	Tropic	0	17,040	$ 89.	2.9	40.5
Rhodesia	Africa	Tropic	1,520	8,514	$ 210.	3.3	27.81
Congo (L)	Africa	Tropic	0	16,890	$ 80.(1963)	2.4	17.5
Korea	Asia	Temperate	0	8,500	$ 96.	3.3	736.78
Pakistan	Asia	Tropic	0	25,263	$ 82.	2.1	255.73
Thailand	Asia	Tropic	0	8,452	$ 111.	3.0	149.75
United Kingdom	Europe	Temperate	0	3,557	$1564.(1963)	0.8	574.18
Japan	Asia	Temperate	0	12,395	$ 651.	0.9	608.15
U.S.A.	N.A.	Temperate	–282	20,320	$2650.	1.6	53.13

[1] Source: Population Reference Bureau.
[2] Source: Population Reference Bureau.
[3] Primarily Asian although a part is European.
*. Gross Domestic

FIGURE VIII
LOCATION OF MAJOR AND SECONDARY VISIT COUNTRIES

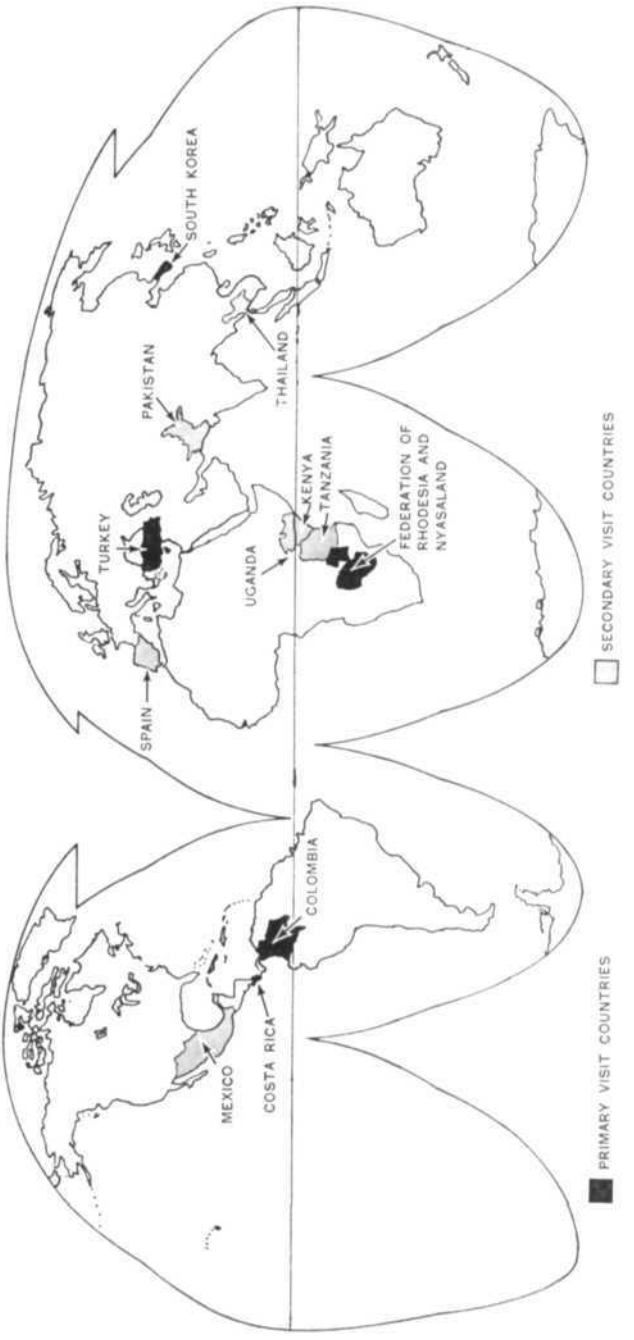
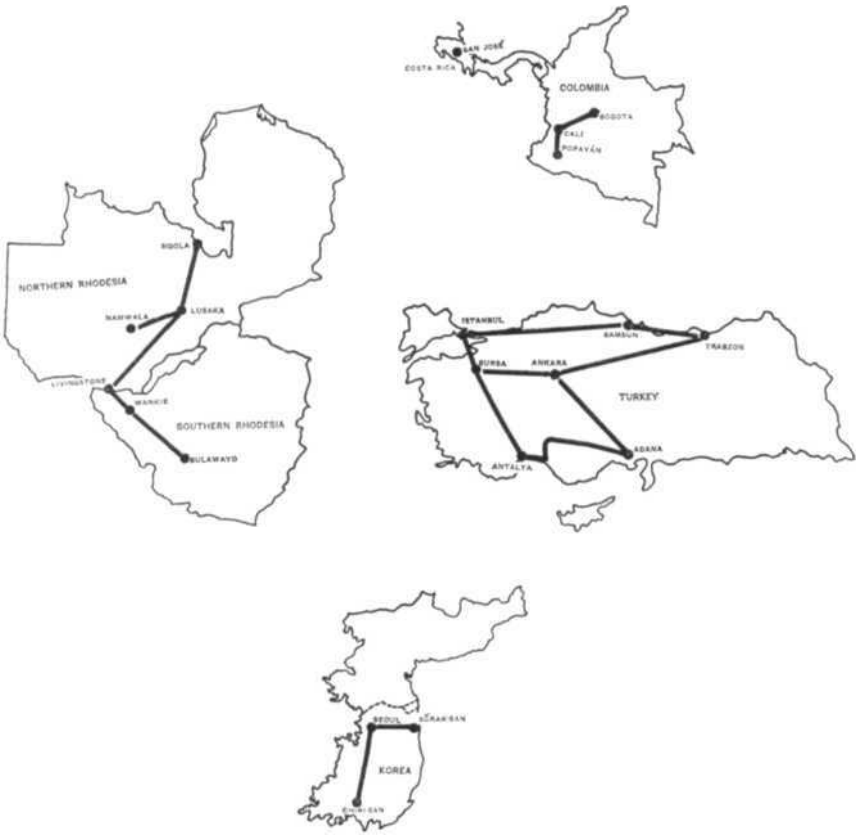


FIGURE IX
TRAVEL WITHIN PRIMARY COUNTRIES



Experience in the advanced countries has revealed relationships between biological, physical and socio-economic factors on park size, function and location. The bulk of restraints imposed on modification of the natural scene depends on society acting in concert through government. In the less advanced countries, therefore, government administration and decision-making processes—both formal and informal—were examined for indications of whether these factors were being considered in the planning process, and whether technological advance was producing or would produce comparable socio-economic forces to inter-act with the biological and physical components of the recreation resource base.

The observations seemed to fall into three broad categories: *social conditions* involving per capita income, population migration and so on; *administration* or government organization with its associated decision-making and planning; *state of the resources* resulting from the interacting pressures of the preceding two conditions on the recreation resource base. Many of the factors observed have a bearing on all programs which intend to bring about changes in the way people do things whether adopting new agricultural techniques or improving public health practices.[2] This is particularly true of social conditions and the objectives of technical improvement programs. Again the fabric of government is important since it both limits and facilitates change. In order to deal with park systems, those public, quasi-public and private mechanisms which deal with the planning for or management of the recreation resource base were examined. These same agencies and their methods are of concern to all programs dealing with natural resources. Finally, some of the salient points concerning systems of parks bear directly upon the functioning of technical assistance programs.

By any measure, the impact of technology is having a profound effect on the less advanced regions of the world. Tractors are available to people who understand best the way of the buffalo; hard surfaced roads have been constructed along routes used only by camels a few years ago; jet equipped national airlines operate from countries where twenty years ago there were no

---

a master plan for one national park. Mr. Brooks and the resulting plan were both well received by all concerned. The project could have been repeated in most of the countries on the itinerary given adequate finances.

[2] An interesting anthropological analysis of the process of change can be found in: Arthur H. Niehoff and J. Charnel Anderson, "The Progress of Cross-Cultural Innovation," *International Development Review,* VI No. 2 (June, 1964), pp. 5-11.

automobiles. There have been expensive mistakes made, to be sure, but by and large, the investments made by the advanced nations in promoting the capacity for self help in the less advanced countries have produced much greater productive capacity and for some people, higher standards of living than their wildest yearnings could have imagined.

This is good, of course, but the progress has not been without a dark side as well. People who do not comprehend refrigeration and have never thought of it before have difficulty remembering how to keep an electric refrigerator running or what to put in it besides soda pop. For those who do not understand the danger of plowing too dry land with donkeys will only accelerate the damage when given tractors and steel plows. The tools of technology often outstrip understanding of the changes they can achieve.

In spite of all the problems that result from such sudden technological impact there seems to be an increasing realization that capital alone, particularly in the form of wholesale introduction of the tools used in the advanced world, does not in itself achieve higher standards of living. This awareness is the most encouraging aspect of development efforts in recent years.

What is seen today is the product of a great many years when technical assistance and development capital were not so enlightened. The theory of using capital as a panacea for development began with the successful U.S. effort to re-establish European productive capacity following World War II. Here capital could be employed efficiently by existent technical and organizational competence in both the public and private sectors. After that, the theory was treated as dogma and set in motion without modification in other areas: Asia, Africa and Latin America. The results were not what had been expected. It was most noticeable in the spread between rich nations and poor, rich classes and poor classes. The gap did not close as it was supposed to, in fact it widened. There is much validity in the argument that ". . . . underdevelopment is often a disparity not so much between industrialized and nonindustrialized countries as between the widely separated sectors of the rich and the poor within the same country."[3] Two things were fundamentally at fault: population and administrative capacity.

We have noted that population increases in the advanced

[3] E. Gordon Alderfer, "Accion Communal in Colombia," *International Development Review,* III No. 1 (February, 1961), p. 12.

countries of Europe were gradual while medical science became more effective and there were overseas lands available to absorb the subsequent more rapid increases. No such breathing space exists for most less advanced countries. There is currently available a body of well tested public health measures which can dramatically drop the death rate, especially among infants. Population rates are likely to increase quickly from zero or one per cent to three, four or even more per cent increase per year. A sustained three per cent increase for one generation means a doubling of population. Such a build-up in countries with traditional economies, or even in take-off, results in intolerable rural land density.

For many development planners this meant two things: 1) make new land available by applying technology or revising tenure arrangements; 2) invoke a mystique, e.g., "Since development aims at higher living standards, and since this implies more per capita productivity, achievable only through greater mechanization, we should recognize this route at the very beginning, and not be misled by sentimental feeling towards the mythical 'man with the hoe'." [4] One can only observe that mechanization was not the answer to Japanese agricultural production (one of the highest per acre in the world) and is not likely to be in any country which has crowded rural conditions. In fact, widespread adoption of mechanization will, as experience in the advanced countries indicates, increase the flow of illiterate people to metropolitan areas. The cities are being inundated by displaced rural people and new jobs have not been created fast enough resulting in the too common shanty towns around large cities.

The already large cities are growing at rates far in excess of the national population increases, as witness Istanbul, Bogota, Seoul, Bangkok, Nairobi, Kampala, Karachi, Paris and Los Angeles. In the countries visited, Cali, Colombia is increasing at the rate of 9% per annum, San Jose, Costa Rica at the rate of 12% per annum and Ankara, Turkey at 8% per annum—in each case a higher percentage than the national increase. The slums that have grown up around the cities often constitute a source of crime, disease and civil discontent. They frequently serve to block off opportunities to reach recreation by emergent middle classes in the same fashion that the advanced suburbs do. They also often create the kind of blot on the landscape which destroys the total

[4] Edward Marcus, "The Role of Agriculture in Tropical African Development," *International Development Review,* V No. 1 (March, 1963), p. 24.

experience of the tourist—the very person the government may be most interested in impressing.

Drawing again from advanced country experience, increasing concentrations in the urban areas intensify the rural pressure. City living and industrial processes require increasing amounts of raw materials from the surrounding countryside. Culinary water, electric power, minerals, food and fiber are for the most part produced outside the city and transported to it. From the standpoint of parks, the implications are clear. If the urban centers in advanced countries have given rise to the tremendously increased demand for outdoor recreation, then the new urban populations developing in the less advanced countries will also begin to generate new outdoor recreation demands. Such is, indeed, the case.

For example, bus loads of Cali people travel on Sundays to the foothills of the Farallones Mountains to picnic and swim in the clear streams. Their desire to do this is so strong that they are willing to break down the wire fences of the land owners to reach the water. They only come on Sunday, but soon it may be a half day on Saturday as well, and in private cars or taxis. What will happen as more and more people acquire the leisure and income to enjoy outdoor recreation depends in part on the effort made by public and private bodies to provide the opportunity for these people to fulfill their desires.

In San Jose groups of people also travel several miles in busses to picnic or spend some time in the outdoors. The single area now available for their use, Agua de la Ora, is receiving exceptionally heavy use and clearly points to the need for more such parks in the immediate future. Interestingly, Agua de la Ora was developed by the government Tourist Institute to provide a pleasant diversion for tourists rather than to meet local, urban demand for recreation.

In Mexico, almost three-fourths of the people live in the high mountain and valley region dominated by Mexico City. A stratification of income level in the city is evident. Some are able to drive to Acapulco, others to ski on Mount Popocatepetl, while some can afford the transportation cost to some of the several parks operated by the national government on the outskirts of the city. Those who cannot afford these indulgences use cheap public transportation to crowd Chapultepec Park within the city limits.

Madrid has an extensive city park system that is heavily used. It is not unusual to see a sail boat or motor boat being towed

through the city by those who are able to enjoy the recreation afforded by nearby reservoirs. Present facilities on the lakes are private, but one cannot help but contemplate how long it will be before those who go to the nearby mountains for winter skiing demand public use of the city lakes for summer waterskiing.

Gross population density figures seldom reflect true rural land pressure, especially in a region of extensive shifting agriculture. The density of population might appear low, but if any tract was cleared, burned and planted more than once every twenty years the density could in fact be high.[5] Sometimes density varies by point of view of the enumerator. To the American settler on the Great Plains, the population density before he arrived was zero, for he did not count the indigenous population of Indians. While the land may have appeared to be vacant, it was used by a population to hunt, fish and occasionally grow some sort of crop. Today all such rights exercised by indigenous people must be recognized and computed as part of the rural density. In the area around Kafue National Park, Zambia, for example, people from several villages used the area for hunting. They normally shifted the location of their villages according to the severity of the tsetse fly and the movement of the game herds. During one of their shifts, enforced this time by government, the park was gazetted[6] effectively removing it from re-use by the villagers who considered such behavior incomprehensible. They hunted in their customary manner in the areas allotted to them because they fully anticipated a return to their previous haunts. The villagers, predictably, then hunted out nearly every living creature in their present area and are now placing great pressure on the government to recognize their right to the game and fish within the park. Other traditional land uses may also lessen the efficiency of land per unit to support man. The herds of cattle grazed by the Masai provide an illustration. Sufficient documentation exists to show that too many cattle will create desert conditions unsuitable for recreation use. The problem is not one of Masai density, but of cattle density on semi-arid tropical land.

Alderfer, while specifically referring to Colombia, sums up the current situation for many less advanced areas. He states: "Enor-

[5] Hugh Popenoe, "The Pre-Industrial Cultivator in the Tropics," paper presented at the 7th Technical Session, IUCN, Nairobi, Kenya, September, 1963.

[6] The process of publishing notice of government action in British administration, serving the purposes of Executive Orders and the Code of Federal Regulations in U.S. administration.

mous strides have been made toward the attainment of an equitable balance of payments and the re-establishment of national credit. But at the level of life of the Campesino in the rural areas and the propertyless poor who have flocked in increasing numbers to Colombia's cities, the high objectives of the new era have not yet been reached. . . . The country is fervently seeking ways to develop its resources and enrich the lives of its people where the great bulk of its population lives and where development really counts most—the local community." [7]

[7] Alderfer, *op. cit.*, p. 12.

CHAPTER VI

PHYSICAL AND BIOLOGICAL FACTORS

Many people—often those making economic policy decisions —are apt to consider all land as having similar characteristics. They do not distinguish capability groupings as separate inputs in the design of investment models. Land resources are different, though, and the most striking difference is between temperate and tropical conditions.

Advanced countries have developed a land technology conditioned by temperate climate and they have attempted to apply it indiscriminately to all land development problems. There has been a limited appreciation that the response of tropical habitats is different than that of comparable temperate habitats and the data pertaining to use in one zone have little relevance to the other. Tropical land does not behave in the manner of desert, savannah and forest in the temperate zones. Unprotected tropical soils will not stand up under tropical rains and searing tropical sun. Tropical desert and a few tropical forest soils are the only ones which seem to offer some opportunity to be productive in conventional terms. Very high costs for irrigation and drainage, transportation, community establishment and changing social attitudes toward soil husbandry are likely to be incurred in projects aimed at breaking new ground in the tropics. Hasty, forced action increases the possibility that programs will be launched to settle people on land which should never be cultivated.

Yet the tropical zone contains the bulk of the less advanced countries and people. This underscores the need for extensive research to define a new tropical technology which will permit a better understanding of tropical land resources and their wise use. It is encouraging that policy makers in advanced countries have begun to recognize that such a new, or at least a modified, technology will be required if investments in rural development programs are to result in economic advance rather than despoilation.

Knowledge of the stage of economic development and categorization of a country's resources according to temperate or tropical zone produced some interesting comparisons. For instance, Korea, Mexico and Turkey are temperate countries and are at similar points in terms of economic development. They face major problems of erosion control, they have roughly the same rate of population increase and per capita income, and they all have a strange ambivalence of their residents toward tree cutting.[1] It was a surprise to find that all three have forestry departments within ministries of agriculture, all three have forest services of long standing, most of the forestry training is concentrated in a single national institution, each country has somewhat similar legal provisions relating to the forested land of the country and wildlife protection has been slow in gaining recognition.

Population growth is the largest single element behind the rapid depletion of recreation resource base in all of the countries visited. The rate of depletion has been multiplied by many of the attributes of technology such as power equipment. The rates and form of depletion show considerable variation among the countries in the study although there is not great variety between countries within regions. The rate of depletion is dependent upon the ability of the agricultural sector to increase the production of foodstuffs in relation to the increase of population and, more significantly, the trend of population density in the rural areas and the gray zones around the cities.

For the most part, agricultural production has not been able to equal the increased demand for food and fiber. Not only will the demand for agricultural production increase in proportion to the total population, it is also likely to rise as per capita income rises. The new middle class man is able to afford higher per capita consumption of staple commodities. The formal choices for narrowing the gap are to import more (usually unacceptable in terms of national balance of payments) or to produce more.

[1] Enrique Beltran first told the story of the ambivalence when he was Sub-Secretary of Agriculture for Forestry and Wildlife in Mexico. He believed that the forest resources of the country had to be utilized under rigid control of sound management plans. He encouraged private companies to establish milling operations to utilize the trees marked for cutting by Mexican foresters. The move caused an outcry against the cutting of trees. School children have been told for years about the advantages of a forested environment and Simon (Mexican equivalent of Smokey Bear) and Arbor Day festivities gave broad circulation to these ideas. The peasant who hacks down trees and burns them in place in order to grow crops is viewed as an intrepid folk hero.

The informal responses are more difficult to catalog. Where heavy rural density occurs, every animal that walks, flies, crawls or swims is fair game for the family pot—unless protected by local mores as wild boars are protected in a Moslem country. It is not uncommon to walk through forested areas in some parts of the world today and not hear or see a song bird or even signs of small mammals. Where tropical man has adopted shifting agriculture, the cycles of cut, burn, plant and abandon to fallow become shorter and shorter until there is little chance for soil recovery. Then too, intensified agriculture on land with any real agricultural capacity forces shifting agriculture onto very steep land with resultant shorter cycles, loss of fertility and increased soil movement. Such is the case in the Cauca Valley near Cali, Colombia. Small, valley bottom farmers have been absorbed by large operating units and the displaced farmers are forced to occupy the steep ridge country where it may take eleven months for corn to mature.[2] In Turkey, as in much of the Mediterranean, more people mean more sheep and goats. The consequence is an accelerated attack on the remaining hardwood stands. The trees are cut for charcoal, the sprouts grazed by sheep and then by goats until the land looks like an erosion pavement. In Korea, where sheep and goats are not part of recent agriculture, the attack on the forested hillsides, largely planted following the cessation of hostilities, takes the form of gathering all forest litter and lopping limbs and branches from even very small trees for fuel and green manure.[3]

The result of each of these attacks is the exposure of raw soil to the unbroken force of precipitation and subsequent severe erosion which fills streams with heavy silt loads, lowers water tables and reduces the utility of the trees.

Rising world markets make the collection of all sorts of exotic animals—alive as well as for skins—very lucrative; this has resulted in the ruthless depletion of many creatures, some to the very edge of extinction. With so few people in the less advanced countries who understand the importance of wildlife, there is no popular

[2] The development of the Cauca will also involve altering the regimen of the river and several extensive marsh areas along the river will be affected by diking and drainage. Without support attesting to the value of the marshes from a national point of view, there is little chance of maintaining them as an accepted form of land use in the valley.

[3] For a much more detailed description of Korean forestry see: Henry Kernan, "Korea, Land of the Morning Calm," *American Forests,* LXIX, no. 8 (August, 1963.)

outcry for hunting licenses, export limits or other means of regulating bags. Nowhere is a license considered a tool of management; but only as another needlessly imposed burden of a revenue hungry government. Thus, even though licenses, where they exist, are ridiculously cheap, few bother to buy them and officers seldom inspect for them. This is true of the new middle class sport hunter as well as the market hunter.

Depredations are not limited to flora and fauna. Improved communications make artifacts from historic and prehistoric sites more easily marketable and considerable ingenuity is exercised by farmers and herders in by-passing the authority of the museums and antiquities provisions of the law.

As far as the recreation resource base is concerned, the formal decision to grow more by organized expansion of the cultivated area poses a hazard. In Turkey the effort involved the plowing of extensive semi-arid grass steppes for grain production. In Colombia the direction is to clear forests in the remote Andean highland (actually in the lake country near the Ecuadorian border) and in the low forests of the Orinoco-Amazon Basins. In Zambia it may involve the drainage of marshes, now the haunt of red and black lechwe, and the establishment of polder agriculture. In Korea, both reclamation of salt marshes on the southwest coast and newly designed upland terraces are used to expand the amount of crop land. Mexico has embarked on an extensive irrigation program in the northwest using dams and sub-surface water supplies to bring semi-arid and arid land into cultivation.

In some semi-arid regions, prolonged periods of inadequate moisture have caused large machine-plowed grain fields to erode, the fine top soil formed into shifting dunes and the land made totally unproductive. Clearing tropical forests for agriculture, besides being extremely costly in terms of making the areas even marginally habitable, intrude on unknown cycles of plants and animals which may adversely influence life in the established regions. Water development for power and irrigation are changing the regimen of major streams resulting in abnormal concentrations of animals adjacent to the projects and reducing downstream flows to the detriment of fresh water fisheries.

Too little thought has been given to coastal and inland fisheries. Some very excellent work is being done in using exotic fish in small farm ponds as a source of protein. One such station is located at Buga, Colombia. Unfortunately, little fundamental work in the ichthyology of the streams and native species has

been undertaken and the threat exists that the native balance may be completely disrupted by careless releases of exotics. This has been true in many streams where well intentioned sportsmen have introduced trout. The cannabalistic tendencies of trout are well known and native species have been eliminated from the habitat of the streams—all of which may ultimately act to the detriment of the trout. In other cases, exotics such as carp have become as much a pest in an aquatic environment as rabbits in the Australian terrestial environment.

Another effect of population growth is the rising pressure placed on the boundaries of reserves established for protection and management. As has been mentioned in regard to Kafue National Park, the people build up around the edge of the reserved area and make periodic incursions to hunt, fish and burn. As the situation worsens, the push is for permission to settle and farm the park area. There is little comprehension of the reasons for blocking off large areas of good level land in order to protect or manage some part of the recreation resource base. Very few of the governments visited were able to perceive the trouble let alone mobilize their strength to protect the boundaries.

The rate at which such practices modify or eliminate natural values determines the degree of urgency for establishing viable reserves within the planning framework of a country. In other words, if a country has an extensive recreation resource base and low density, a careful, orderly job can be done, but if the non-urban population density is extreme, emergency tactics to hold whatever is possible are necessary and justified.

Each new technological advance made by the country accentuates each of the forces operating against the recreation resource base. None are so pronounced as road construction. During 1960, for instance, George Ruhle of the U.S. National Park Service visited Thailand under the auspices of the International Commission on National Parks. He noted the sequence associated with building paved roads like the Friendship Highway through tropical forests and reported that land hungry settlers followed along the road as it was completed. They cleared patches of tropical forest for small farms and then extended the clearing so that the natural protection was removed from a broad belt paralleling the road. The once productive forest land, further abused by poor husbandry, became increasingly xeric. There had been no attempt to determine the ecological effect of uncontrolled land

use along the highway when it was constructed.[4] The utility of the road as a part of the total recreation experience leading to Khao-Yai National Park for urban Thais and tourists has been materially reduced even though it was originally constructed for other purposes.

The same sequence of events has attended the completion of segments of the Inter-American Highway through previously inaccessible country. In Costa Rica squatters followed close behind the construction crews and began cutting and burning, primarily for charcoal, huge trees in a montane oak association. Other income was to accrue from gathering palmetto hearts and pasturing dairy cows. The high elevation and lack of sun did not provide the cows much nutrient from the grass that occupies the sites after timbering, and the palmetto is becoming scarce. The squatter families sit and shiver in their hovels, as poor as ever, and the watershed and the earning capacity of the recreation resource base along which a substantial flow of tourists is expected to travel have both been seriously depleted. The 237 million colones ($29,600,000) Rio Macho water development scheme is now scheduled for construction without adjustments for changes in hydrology caused by removal of the forest at the very top of the watershed. Thus, the access provided by excellent engineering and international cooperation has not achieved the optimum social benefits possible.

It should be noted that the emphasis on cheap hydro-electric energy in development programs ought to carry with it an equally high priority for the source of the water, but seldom does. Without adequate administrative control, the ability of development schemes to support more and more people is usually accompanied by progressive watershed denudation and attendant reduction in reservoir capacity.

Other schemes undertaken to meet the food and fiber requirements of the less advanced countries may do considerable damage to the recreation resource base. In Colombia, for example, an effort is being made to introduce sheep culture in the high paramo. Relatively little attention is paid to the total impact of sheep grazing on species composition, or the need for a public organization to hold grazing use within carrying capacity and to protect

[4] George C. Ruhle, *A National Park System for Thailand,* (New York: American Committee for International Wildlife Protection, Special Publication #17, 1964), pp. 12-13 and 17-18.

substantial areas set aside as natural parks and strict nature reserves.

As for parks themselves, confusion about objectives of various land reservations results in a number of serious difficulties. Not the least of these is faulty boundary location. A classic example, to an administrator, is the famous Albert National Park (Congo, L.). The boundary, in many places, was apparently drawn with only wildlife values in mind, and does not follow natural topographical lines which would permit ease of identification and patrol. Pasturalists are burning the mountain slopes outside the present boundaries but in plain view from most of the park. It is difficult to see how the finger-like boundary extensions around gorilla habitat in the mountains can escape damage by these fires. Elsewhere the boundaries dissect broad expanses of flat land which does not make for easy protection of the park against the inroads of fires set outside the boundary or against deliberate grazing incursions.

The boundaries of Queen Elizabeth National Park (Uganda) take the form of a star fish. They have no bearing to the habits of the wild animals or the configuration of the landscape. In fact, park considerations had very little to do with the selection of boundaries in the first place.

Both examples seem to argue that, as more and more knowledge becomes available concerning the requirements for various kinds of reserves, particularly those for the propagation of big game, more reasonable flexibility for boundary adjustment ought to be a requisite if the objectives of the reserve are to be met through enlightened management.

Another kind of boundary problem is the one which ends a park at an international boundary. The path of political boundaries often disregard like environments. International boundary parks make good sense in that they permit the inclusion of like landscapes in single management units provided there is unanimity of opinion about the values to be protected so that the park boundaries form a continuous line.

Still another boundary difficulty is the location of a village for some special purpose within the confines of a park. Such villages exist within Albert National Park, Banff National Park (Canada) and elsewhere. In both cases they cause a variety of grief for the administrators. At Albert people from the surrounding countryside are entering the village in hope of securing employment, goats are in great evidence, and sooner or later there will be

demands to expand the village and improve access across the park. In Banff the residents demand places of amusement and service typical of an average small town. Many such activities are not appropriate to a park environment.

Many parks, from Queen Elizabeth and Albert to Banff and Grand Teton (USA) have major highways traversing them. The highways may provide access for visitors but potential burners and poachers and commercial traffic, including heavy trucks, also have the right to use them. The point may seem remote to needs for park systems. It is, in fact, a direct case in point. For any person to consider a park of any sort without consideration of the major lines of communication merely builds in some seeds for future destruction of the park itself. Effective working relations with highway engineers is implicit in a systems approach to park planning.

Turning specifically to conditions in parks, it was found that interpretation is practically non-existent in the less advanced countries. It has already been shown that educational values should have a material role in the selection and development of natural parks and those single resource management areas dealing with significant portions of the national natural and cultural heritage. To arouse a sense of inquiry and understanding of what nature means can be started in intermediate parks and in some user oriented parks as well. A zoological garden which sympathetically and accurately tells the story of a country's wildlife situation will give impetus to programs for the protection of animals and their natural habitat not possible in any other way. Thus, education is an integral part of all conservation activities and should be closely related to park systems establishment in all countries.

Management plans appropriate to the biological, physical and social requirements depend on the use of a vehicle which exercises the proper degree of restraints on modification of the natural environment. Frequently, and for various reasons, parks are recommended to achieve several objectives which would be more efficiently met by using a better adapted land-use form. Some of the principle resource protection problems which often give rise to calls for park establishment are worth examination here since they bear on the adequacy of management plans and their acceptance.

One such stated objective is watershed protection. Undisturbed land cover is nearly always the best protection for water courses, but to make this the chief rationale for natural parks may put

the emphasis on high elevation slopes while a unique biotype may be under destruction at lower levels. In Mexico it is general policy to designate high watershed areas as national parks. In one case, the reserved area extended to the lower flanks of the mountain slope. Fifteen years later the boundary was altered to exclude all commercial timber so that logging could proceed to supply a paper mill. Under supervised logging practices the edges of the access road to the "park" are lightly cut. The other slopes are more heavily cut without noticeable soil loss or change in water regimen; in fact, watershed technicians are now able to show increased water yields without increases in surface flow by manipulating vegetation. In this case the rigorous natural park restraints were not necessary to maintain a productive watershed and the setting for unique natural values above timber line have been severely limited because of faulty rationale.

Another necessary part of land management attributed to parks is the provision of opportunities for scientific research. The need for strict nature reserves is well accepted by most students of the natural sciences. That the work in undisturbed areas is only a part of the spectrum of natural science research is not always made clear. There is need to include once devastated areas for research into the problems of succession, into the effects of large scale modification of certain biota in order to advance knowledge of biologic productivity, and into the degree of management to be applied to a biotic community to maintain it in its existing condition. Opportunities for the range of research mentioned may be found in categories of the land-use continuum other than natural parks or strict nature reserves. The case must be made that some of the kinds of research proposed should not be conducted in natural parks or controlled nature reserves since retention of the natural environment is essential.

Protection of unique scenery is another reason advanced for park reservations. Yet the Swiss scenery is retained without park protection and some of its finest views overlook extensive pastoral scenes from roadways far removed from park reservations. Often efforts to attract tourist trade, as we shall consider later, lead to greater desecration of scenery in parks than in areas given no formal designation. If scenery is to be the sole issue, many countries have dealt with the protection of scenery by use of parkways, easements, zoning authority and other methods rather than by acquisition of unitary natural parks, controlled nature reserves, or intermediate parks.

Protection of wildlife is one of the most popular reasons advanced for park establishment. Yet, as witnessed in Wankie National Park of Rhodesia, total concentration on wildlife numbers, particularly the showy species, can lead to serious depletion of other animal numbers and of habitat through trampling and over use. Increasingly common are the reports of overutilization of habitat and starvation by elk in Yellowstone National Park, secondary species in Tsavo National Park (Kenya), hippopotamus in Queen Elizabeth National Park, and so on.

In each case the real question is whether a natural park was the best alternative on which to base management or whether other types of reserves might not have been more appropriate. Attention to matters of designation may seem petty, but employment of the full variety of resource management techniques can assist in the difficult assignment of reaching biologically sound results which add to the general well being and advance of the nation or region. An example involves tourism.[5] In general, tourism is being over-played as a factor in support of natural parks and single purpose reserves. Such an indictment does not mean that the single purpose reserves of East Africa and natural parks elsewhere are not earning foreign exchange from tourism. It does mean that the tourist argument has to be used discriminatingly. It is difficult to envisage *wide-spread* international tourist travel into cold, cloud forests or the insect and fever ridden swamps of the Amazon Basin. Yet requirements for natural parks and reserves in such areas will be identified in the national inventories as well as areas with more salubrious climates and the need for action may be just as urgent since they are unique.

Very little is known about the tourist industry in relation to natural features. One study indicates that European travelers to the United States rank natural parks high as attractions and they express their preferences by scheduling visits to Yellowstone National Park or Grand Canyon National Park. They also visit New York City and Disneyland—even spend more money in these places. What percentage of American travelers, who constitute the bulk of international tourism to all regions, would

[5] Tourism has been given a multitude of meanings too. For this discussion it means the travel of persons for pleasure in which one returns to his starting point, usually after travelling a considerable distance involving a time span of several days and is most often inter-regional. Use of a park by people is visitation—some of which may be by tourists. A simple example of the distinction is: a local man walking his dog in Central Park, New York, is a visitor; a visitor to Central Park from Chicago or Paris, France, is a tourist.

choose to visit a natural park with minimal facilities in preference to Paris or the beaches of Rio de Janeiro? Until there are better data concerning the structure of the tourist market it is not possible to forecast the quantity or quality of international travel that natural areas will generate or give advice concerning investment levels in resource oriented visitor facilities. Where tourism is a recognizable factor, park systems planning should seek to emphasize those kinds of parks which will have the greatest appeal for tourists and then assist in the development of visitor accommodations which recognize the natural attributes and capacity of each. Park systems planning for tourism will also have to consider two sociological aspects. One is the effect that the park will have on the traditional ways indigenous people in the region use resources. The second is the attitudes of resident people toward the flow of visitors who are, by comparison, fabulously wealthy and enjoying luxuries, often provided by the local government, which exceeds anything the native could previously conceive.

The countries visited demonstrated a notable lack of sophisticated analysis prior to tourist promotion and little understanding of how the natural charm of the landscape could be used to best advantage. In Korea, for instance, tourism revolves around a chain of government built hotels. Only one of them bears the slightest relation to the native styles of architecture or to the surroundings. Hotels in the cities perform a commercial function and can be like any other hotel. The hotels located in the countryside should have been built to facilitate visitation to natural beauty spots. Natural parks and well planned landscape zones could contribute substantially to the flow of curious and interested persons eager to become acquainted with Korean life. Opportunity exists for the design of new facilities which should offer traditional types of Korean hotel services coupled with modern facilities.

Many less advanced countries do not give sufficient consideration to a valuable natural area before declaring it part of a national reservation system. Then the tourist development begins. Paved roads which do not respect the natural scene are built; luxurious lodges usurp choice overlooks and natural features are converted into specialties of the house like turning natural hot springs into swimming pools. Natural forest areas are felled for golf courses; marsh land is cleared and deepened for swimming and boating; the indigenous wildlife quietly disappears. The objective of protecting a natural environment is endangered with the

realization by unsympathetic authorities that only the small "developed" area is needed for tourism.

Fortunately some officials concerned with the tourist industry are beginning to express alarm at the detrimental impact tourism can have on a region. William D. Patterson, associate publisher of *The Saturday Review,* stated:

> Both nationals of the country and foreign visitors have a stake in the protection as well as the use and exploitation of the natural patrimony. This is a problem of modern civilization as well as tourism on an increasingly congested globe and extends from national parks, primeval forests, hunting and fishing areas, etc. to, in some respects, the folk art, native settings, and primitive, unspoiled environment of many countries and areas. The folkloric flavor, the cultural heritage, national characteristics in architecture, local costumes, etc., as well as natural attractions, open space and outdoor recreational facilities in many regions have suffered from the pressure of industrial development, modernization and the encroachment of *new tourist facilities themselves*[6] (emphasis added).

M. Jean Sainteny, French Commissioner of Tourism, has raised this same question and has requested guidance and experience from eighty-one other tourist countries.[7]

The man who travels to Africa to view game reaches a point where one elephant looks the same as another. This may seem heresy to professional game men, but the one-week novice doesn't acquire the ability to detect differences in elephants or acquire the proficiency required for the thrill of a stalk, particularly the middle-income tourist. They will, for the most part, be confined to Land-Rovers and busses during their trip through the bush. Caught in the gap between the excitement of seeing an animal in the wild and the excitement which comes with understanding what he sees, he is ready for a plush sea-side resort for a change of pace. Many planners do not give full weight to the simple notion that variety is a great part of what a tourist seeks. Facilities in natural parks need not be of the same investment level as those of resorts, but they should provide neat, clean, comfortable accommodations in keeping with the natural landscape. Such facilities are being imaginatively undertaken by the Zambia Department of Game and Fisheries in Kafue National Park. Round, hut-like buildings made of native materials, and built by unskilled laborers blend well with the landscape and the visitors' conception of

[6] *ORRRC, A Look Abroad: The Effect of Foreign Travel on Domestic Outdoor Recreation and a Brief Survey of Outdoor Recreation in Six Countries,* (Study Report #18), op. cit., p. 64.

[7] *ibid.*

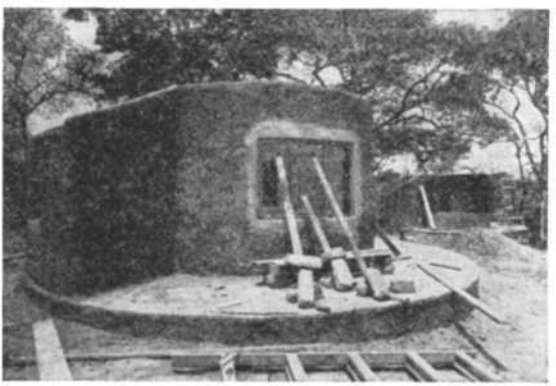
what African buildings should look like. The total cost of each unit designed to house a single family is around $1,100—including water supply, plumbing and access roadways. (See Figure X). The long eaves which shade the wall during the heat of the day keep the interior of the rondevaals reasonably cool. It is obvious that the marginal return on investment for each night these buildings are occupied is far higher than for more costly units which neither add to the feeling of Africa nor are as comfortably adapted to the climate.

Of critical import to tourist planning, and therefore to the park systems planner, is the changing socio-economic condition of the advanced countries. The increasing middle class, lower air fares and the opening of new areas will change the demand pattern and opportunity to expand the scale of tourist income in a given country. But most national tourism programs give little thought to markets which could be profitably entered. The size, distribution and ornateness of tourist accommodations, quality of communications, transportation, personnel training and other social investments, and acceptable land-use controls will be quite different in countries and regions which decide that maximum profit can be derived from entering the market for middle class travellers as contrasted to those countries who choose to enter the luxury market. Too often large investments to support construction of major tourist facilities are justified on the basis of someone's judgement that "it's the way the Swiss do it" rather than an analysis of the characteristics of the people to be served in order to determine optimum returns to the total economy.

To offhandedly promise a new government staggering returns from tourist travel on the basis of a new natural park is tantamount to a deliberate attempt to mislead. If large amounts of scarce capital are committed to provide sophisticated infrastructure and the anticipated flow of tourist dollars does not materialize, the chances for a natural park to escape dismantling are not going to be good. It is better to present an honest picture of possible tourist revenues, depending on investment alternatives for promotion and inter-regional cooperation (as illustrated by joint Turkish-Israeli tour promotion), and gear investments for facility development to those levels which will maximize returns on the stream of investment.

Land resources, particularly those associated with recreation resource base in less advanced countries, are being subjected to misuse from a variety of sources. They are receiving direct pres-

FIGURE X
INEXPENSIVE NATURAL PARK ACCOMMODATIONS



sure from the increased social pressures outlined in Chapter V. In most cases solutions to the imperatives of social change in the less advanced countries compound the difficulties because they are part of temperate technology when solutions to tropical questions are needed. As advanced technology is introduced in the less advanced world, it becomes incumbent on both the less advanced countries and the advanced countries providing guidance to carefully consider the values of the recreation resource base and take positive action to assure proper protection.

The first step in deciding on proper actions is a clear idea of the goals and requirements of various alternative land-use categories. Improper classification and attendant management standards often have not been in the best interests of the resources. Governments and enthusiasts alike have been prone to designate many areas as natural parks for reasons completely alien to such parks.

Park systems planning relies on regional analysis to correlate resource protection needs with stated social objectives. Administrative ability, the organization for physical and economic planning and political decision-making are important determinants of how well the park systems planning process will work in the environment of any country. Administration, decision-making and training were considered in the study countries to test their ability to deal with the changing social structure and its implications for land-use planning.

CHAPTER VII

PARK SYSTEMS ADMINISTRATION

If those who advocate park systems planning are to see their efforts materialize in permanent, sustained programs, they must concern themselves with problems of government administration. In advanced countries, historic circumstance and the non-market character of parks and most forms of outdoor recreation have resulted in government dominance in the field. In the less advanced countries nearly everyone qualified to lead is employed by government. David S. Brown, based on his experience in Pakistan, put it this way: "Unlike the advanced countries, the underdeveloped ones must depend on government for even the most modest of social and economic achievements. Government is not only the most powerful single force, it is the only one with an organizing and unifying purpose." [1] He goes on to point out instances of program failure where administrative capacity—the ability to organize so that the right amounts of the right materials arrive at the right place at the right time—was inadequate.

Many conservationists concerned with systems of parks are often content when comprehensive laws are enacted or certain principles are agreed to by a government. The fact of the matter is that the success or failure of any system of parks will ultimately depend on how well the laws and principles are understood, applied, adhered to and/or enforced on the ground. We turn here to the general questions of communication, coordination and the planning (policy-making) process. Rational policy-making depends on good two-way communication through the administrative agen-

[1] David S. Brown, "Key to Self-Help," *Public Administration Review,* vol. XXIV, No. 2 (June, 1964), pp. 69-70. The article reviews U.S. efforts to take local administrative problems into account as part of the development process. Others have also argued that the rate of development progress possible in most less advanced countries depended largely on supply of skilled administrators. See Eugene Staly, *The Future of Underdeveloped Countries,* (New York: Harper & Brothers, 1954).

cies and the ability to respond to policy modifications resulting from experience. Administrative problems of mobilizing resources and coordinating programs toward identifiable objectives face innovators concerned with the total environment just as they are by all who seek to bring about social change. Some of the more obvious problems can be summarized quickly. Once again it is possible to point to analogous administrative conditions in advanced countries, but in less advanced areas each condition is more pronounced and the consequences more extreme.

First, there is a shortage of people at all levels who combine substantive knowledge with ability to organize. The available training programs have focused on narrow, specialized fields, often as they occur in the advanced world, with little attempt to combine substantive knowledge with administrative capacity. As a consequence many positions in resource protection and development requiring monumental talent are filled by persons forced to be narrow organization men who capitalize on detail. Men suited to pioneering conditions who are adaptable, resourceful and self reliant based on an understanding of any field are drafted for top policy posts in government.

Second, while the statement that there is never enough money to accomplish what is needed is generally true, it is frequently easier to secure financing for costly, showy projects or *big* new programs than for relatively small, mundane but essential projects and is very often nearly impossible to secure money for routine maintenance programs. The situation obtains in the advanced countries where a factor in such decisions is headline news value, but it is aggravated in less advanced countries where local funds must be parcelled out to match investments made on "showcase" criteria by sources in the advanced world and who must bear the costs of operation and maintenance alone.

Third, there is a break in communications and attitude between the government, academic and mercantile communities in national capitals and the rest of the country. The seriousness of this situation is nowhere more evident than in the field of natural resources where field knowledge is essential to sound policy formulation. Yet whole bureau hierarchies are making decisions concerning lands and forests they assume are in certain condition but which they have never seen and do not have current reports about. Under these circumstances a forest area can be decreed a natural reserve when, in fact, the forest has been cut for shifting agriculture.

Fourth, administrative methods—from bringing working level administrators together to coordinate programs to filing and record keeping—are not able to keep abreast of changing conditions. Most visitors to less advanced countries are shocked to discover valuable records being laboriously written by pen and ink, and stored in neat, ribbon tied stacks on tables. Data are incomplete, inconsistent and often non-existent. Existing alignments of government, i.e., division of responsibility among ministries at the national and local levels, are based on habit and maintenance of status quo rather than on an all out effort to move upward on the ladder of technology.

Attempts to counter these difficulties have a tendency to become enmeshed with academic arguments about the strategy best suited to institutionalize technological progress. Community development, economic planning, development of scientific research or some other approach is believed by different groups of innovators to be in itself the means to quickly increase the rate of social and economic progress. The most frequently cited solution for each of these diverse approaches involves the creation of specialized agencies or authorities. Policy makers have long been plagued with the dilemma of whether bold new programs to promote rapid change should be entrusted to existing agencies or whether completely new institutions should be erected for program formulation and execution.[2] Elaborate arguments, pro and con, have grown up around the use of specialized agencies. The pros contend that conventional government forms are not suited to the solution of highly complex undertakings since parts of such undertakings will be within the jurisdiction of sometimes non-related, old-line agencies where entrenched bureaucracies jealously guard their prerogatives and resist combined actions with other agencies. The specialized agencies can, the argument goes, place all aspects of a particular program within one organization where objectives are clearly spelled out and recruitment, training, wages and all other aspects of a program can be tightly integrated so that internal communication and cohesion are improved and efficiently is

[2] Authorities with a single purpose nationwide or multiple responsibilities in a limited geographic region, complete with semi-independent policy-making board, financing, and personnel policies are very popular in many developed countries. They range, in the USA for example, from the multitudinous turnpike authorities, to port authorities and valleywide authorities like TVA. Each was established in response to a particular set of circumstances rather than as part of a dogma. Adoption of such methods *en masse* in less advanced areas approaches dogma.

increased. The contrary view holds that the existent framework of government cannot be eliminated, e.g., U.S. valley authorities did not cause abandonment or reconstituting of state and local government, and the original problem of bringing together all the interests involved with a single issue is compounded by the addition of new administrative entities whose structure is designed to remove them as much as possible from the influence of traditional government channels. Since the semi-independent organizations can attract top quality civil servants and academicians, they contribute to competition for the people best qualified to lead and for commitments of the best young people to specific lines of training. If top people are bled away from the old, traditional agencies, the lack of a pool of qualified people to take their place means that the work which must be done by the old agencies as required by law will be done by increasing numbers of inferior people.

Specialized agencies were found in each of the major countries visited and in most of the secondary ones too. They dealt with water resource development—Department of Water Development (DSI) in Turkey, agrarian reform and colonization—Institute of Land and Colonization (ITCO) in Costa Rica, and regional development—Autonomous Regional Corporation for Cauca, Valle, Caldas (CVC) in Colombia to name a few. One cannot help wonder if these advanced administrative devices are not too sophisticated in relation to the kinds of solution required for countries in the precondition and take-off stages of economic development and if the disadvantages of overlapping and dislocation of administrative channels do not overweigh the advantages at this point in time.[3]

[3] A case in point is Colombia. As a measure to increase agricultural production and reduce civil unrest the National Colombian Institute for Agrarian Reform (INCORA) was established with very broad legislation. It included authority to break up large estates through expropriation, purchase or taxation, to reorganize agriculture at all levels to improve efficiency and to raise the skill and culture of the peasant and farm labor. Establishing INCORA admits that the Ministry of Agriculture was incapable of performing this part of overall agricultural policy. Responsibility for forestry, wildlife and parks was left with the Ministry of Agriculture so there is no internal check on INCORA's tendency to look to new lands for colonization, without consideration of their natural values, rather than redistributing present large holdings. (This is not to argue against the efficiency of large farms, only to say that many large land holdings are not presently producing efficiently.) In matters of land planning INCORA overlaps and must deal with Agriculture. In examining and planning for the use of virgin lands in the Amazon and

National economic planning is increasingly used in nations at all stages of economic development to better order policies and programs by coordinating program execution. Usually the central planning office is close to the chief executive officer of the country. The function of such an office is to analyze the inputs and outputs of various sectors of the national economy to determine those sectors which can produce savings most rapidly for reinvestment. Requirements for and availability of capital, land and labor are calculated and the anticipated resources for a period of years is allocated to the various sectors of the economy. These allocations constitute national plans which serve as a basis for annual national budgets, tax policies and so on. All funds, internal and external, public and private, are usually subjected to scrutiny to determine whether their use complies with the objectives of the plan. New programs and proposals can also be examined in terms of their impact on the economy and their value as desirable additions or substitutes for ongoing programs.

Planning bodies were in operation in each of the four major countries visited. Those in Turkey and Korea—State Planning Office (SPO) and Economic Planning Board (EPB) respectively —were of recent origin. In Colombia the function was begun during the previous administration and in Zambia the plans had been drawn up by a development board. (See Table III). For the most part, planning staffs are talented, young and well educated. Generally speaking, the plans are technically superb, not only because the personnel are good but also because competent foreign assistance is available. The Turkish First Five Year Plan, for instance, drew on top level U.S. AID (Agency for International Development) program staff and experts from OECD (Organization for Economic Cooperation and Development). The Pakistan First Five Year Plan was, in most respects, developed by a team of experts financed by the Ford Foundation, USA.

In Turkey, the SPO plan outlines an ambitious and essentially sound program to guide investment in the public and private sectors. There is great hope in some quarters that SPO will be able to bring order to government operations in Turkey. Planning units

Orinoco Basins it overlaps the Ministry of Government which provides civil government for these areas in the absence of locally constituted government. Planning the agricultural sector of various regions brings INCORA into involvement with the geographically specialized agencies like CVC whose job it is to provide a coordinated regional plan of development oriented toward electric power.

TABLE III

COMPARISON OF ADMINISTRATIVE STRUCTURE

	Mechanism for		Administrative Responsibility for		
COUNTRY	Regional Planning	National Plan	Natural Parks	Wildlife	History & Prehistory
Turkey	Yes	Yes[1]	Forestry	Forestry	Antiquities
Greece	*	Yes	Forestry	Forestry	Separate Service
Spain	*	No	Forestry	Forestry	Separate Service
France	Yes	No	Forestry	Forestry	Arts
Colombia	No	Yes	A Div. of Agri.	A Div. of Agri. (National & Dep't.)	Education
Mexico	No	No[2]	For. & Wildlife	For. & Wildlife	Separate Service
Costa Rica	No	No[3]	Inst, of Lands	Agriculture	Education
Zambia	No	No[4]	Wildlife Service	Wildlife Service	Historical Comm.
Uganda	No	*	Park Board	Wildlife Service	*
Tanzania	No	Yes	Park Board	Wildlife Service	Various
Kenya	No	Yes	Park Board	Wildlife Service	Park Board
Rhodesia	No	Yes	Wildlife Service	Wildlife Service	Historical Comm.[5]
Congo (L)	No	No	Agriculture	Agriculture	Information & Culture
Korea	No	Yes	Forestry	Forestry	Education & Culture
Pakistan	No	Yes	Forestry (Prov.)	Forestry (Prov.)	Separate Service
Thailand	No	Yes	Forestry	Forestry	Separate Service
United Kingdom	Yes	No[2]	Divided[6]	Landowners	National Trust
Japan	Yes	No	Welfare	Agri. & For.	Education
U.S.A.	No	No	Park Service (State & Fed.)	Wildlife Service (State & Fed.)	Park Service

* Unknown

[1] 1963 was its first year.

[2] Although there are no national plans, legislation and government action in nationalized industries act just as effectively.

[3] A first plan was in the process of being prepared in 1963.

[4] Zambia has activated a Ministry of National Development and Planning.

[5] Some historic sites and one prehistoric site are administered as National Parks by the Department of Wildlife Conservation.

[6] English national parks are guided by a National Park Commission; actual administration of resources in declared parks is the responsibility of a planning board. Some national nature reserves in Scotland are equivalent of natural parks.

have been established within the individual ministries to integrate the departmental programs with the national plan. As long as the government remains committed to the provisions of the plan and will defend its precepts in the Grand National Assembly there is a good chance that the plan may achieve several of its goals.

The Pakistan First Five Year Plan failed largely because the government did not enforce its provisions. The Second Five Year Plan, less sophisticated than the first, has been successful because it enjoyed the unqualified support of the President who has displayed the will and the means to implement it.

How well these institutions measure up to the high expectations held for them depends on many factors. Among them are the support given by all countries assisting with development, the location of real power in the countries they serve, the degree of support given the plans by the effective leaders, the reliability of fundamental data and the ability to translate the plans into physical action on the ground.

It will be well to point out here that most of the less advanced countries, from historic development, or from residual colonial forms, tend to centralize government power. Many of the same traits and characteristics dividing park philosophy into European and North American discussed in Chapter II are applicable. In the four major countries visited, and in most of the others too, responsibility for all government, including local administration, was part of a well established hierarchy. In the most extreme cases, representatives of a technical service organization, e.g., a forest service, are responsible to the local representative of the central civil government rather than to members of their own organization. This is a reflection of ". . . . the structure of civil government . . . built upon those 19th Century French Constitutional principles that place the effective force for development at the political and economic apex, rather than at the communal roots of life . . . there is very little legally constituted structure at the local level to support and carry out a process of development."[4] Under such conditions the economic planners' ability to exert life or death influence on all programs must be recognized, especially by the park systems planner. In countries where power is decentralized, the power of the central economic planner is considerably reduced.

In the less advanced countries, effective power may be exercised by elite power groups. They exist in the vacuum of general

[4] Alderfer, *op. cit.,* p. 11.

public literacy and widespread administrative capacity. The elite are simply those with experience in leadership. Governments dominated by elite power groups are headed either by absolute monarchs, by committees of military officers or by persons supported by a coalition of established persons or families who dominate all commercial activities. In such cases the effectiveness of national plans is directly related to the conviction of the power group that the terms of the plan suit their objectives. Good plans may end up on the shelf gathering dust or bad ones may be vigorously followed. Most power elite groups recognize the importance of outside capital and that the quantity of such help and the prestige of the group depends on having a plan. Even though the power group may not wish to implement some parts of the plan, it may be possible, through cooperative controls on the stream of foreign assistance being directed to the country to have particular programs, such as park systems establishment, activated and sustained. In those countries where the elite rely on sound planning to point out the best policy alternatives, any program which is not included in the priority portion of the national plan will be supported only with great difficulty.

Some national planners may defeat their own efforts by preparing plans which, while structurally perfect, bear little relationship to the real world. The plan is an end in itself and does not provide a basis for realistic and effective decisions.

By and large, national plans are achieving a degree of program coordination and their influence is likely to become more pronounced. Two other factors influence the success of such plans. First is the mechanism for measuring the success within different subject areas. Turkey's technique of establishing a planning unit in each major ministry is one way. Second is the coordination involved in actually applying the plan in the field. France and Turkey have established regional planning groups. In Turkey's case the groups are to devise schemes to enable the regions to meet their targets assigned in the Five Year Plan, but they report to the Ministry of Resettlement and Reconstruction (now Rural Development and Resettlement) rather than to SPO.[5] This may be a fatal flaw. As now constituted, design specialists form the core of the regional planning groups. One of the early groups was established at Istanbul with jurisdiction over a region

[5] Cf. Malcolm D. Rivkin, "Let's Think Small for Development," *International Development Review,* vol. V, No. 1 (March, 1963), pp. 24-28 for a thorough discussion of the regional planning program in economic terms.

encompassing all of the provinces touching the Sea of Marmara. This group is well aware of the tendencies of middle-class urban dwellers to seek recreation areas close to the city. Demand for such areas was shown in the number of automobiles on rural roads around Istanbul and the large attendance at a developed recreation site in the Belgrad Forest on the outskirts of the city. Other regional groups were beginning work in rural regions. It is too early to tell how effective the linkage between the national plan and the regional efforts will be. It is encouraging to note, however, that the regional boundaries chosen in terms of economic homogeneity show remarkable conformity with regions that might be defined for landscape analysis.

Systems of parks are particularly hard to coordinate since they cross jurisdictional and disciplinary lines and involve sometimes diverse objectives, e.g., tourism and scientific research. While most of the following points bear on situations generally encountered in less advanced countries, it is again worth noting that many are relevant to advanced countries too. Administrative structure will vary in the same fashion that European and North American conceptions of parks and government administration vary.

Management of city parks is still considered largely as a gardening chore within public works agencies of city government or as expression of horticultural artistry. Famed Shalimar Garden in Lahore, little changed since the Moguls, is 40 acres in extent and scrupulously manicured, while children play in nearby streets and in gullies littered with refuse. Youth Park in the center of Ankara provides green relief but an admission fee is charged to enter and stroll on the grounds, sit in the tea houses or ride the miniature train—a strange combination of city park and amusement park. These parks and their administrators exercise little or no control over the location of new park land, the use of functional open space to shape the form of the city or its expansion into the countryside. Municipal museums are seldom considered part of a city park system nor requested to provide natural or cultural interpretation within the parks as part of education and recreation programs. The study revealed that most municipal park organizations follow this pattern.

In Mexico City, where there are children's play areas and other diversions for youngsters in historic Chapultapec Park indicating an awareness that visitors are changing and likely to be more active than before, the park agency does not have responsibility

for planning, developing or administering parks which ring the urban settlement in the Federal District. These lands are administered nationally even though they do not have national significance and they are increasingly used by Federal District residents for weekend and holiday enjoyment.[6] No agency or level of government was found where clear responsibility was assigned for parks that are used as intermediate recreation areas (see definition on p. 44). As indicated, many of Mexico's national parks, the Agua de la Ora near San Jose, Costa Rica, and the Belgrad Forest outside Istanbul are all in pleasant, natural countryside, within easy driving distance of major cities. Each is heavily used by city dwellers. In one country the areas are national parks, in another a developed area in a forest and in the third a resort developed and administered by the National Tourist Agency. The dilemma posed in park planning by this void is illustrated by the marvelous recreational opportunity afforded by the new 3,000 acre campus of the Middle East Technical University a short distance from downtown Ankara. There is a lake and extensive pine plantations on the hillsides. The small beach and boathouse, built by the University, receive heavy use from Ankara residents. The University was interested in making some sort of park out of that portion of the tract surrounding the lake—perhaps 1,500 acres. Government officials, however, expressed little interest contending that it was too far out of the city for municipal administration or that it had no national significance or that it was not part of a national forest. The area was in a park administration no-man's-land. It is in these areas that advanced countries now find park opportunities to be most limited and difficult to provide.

Each of the countries visited is making substantial efforts in one or more park fields at the national level. No single administrative structure is universally applied, but a distinct pattern emerges from a comparison of park administration in the primary and secondary countries visited. Most countries do not recognize the unity of interpretation and place administration of the two components of natural parks and single resource management areas—natural and cultural—(see p. 44-45) in separate ministries.

Responsibility for many categories listed on the Land-Use Continuum are located within one ministry—often in a single division

[6] There is no reason why all parks in the Federal District should not be administered by a national agency—the U.S. National Park Service administers parks in the national capital. If this course is taken, then all parks and playgrounds ought to be administered by a single agency.

or bureau. In three of four primary countries visited, park matters in the natural sector are assigned to ministries of agriculture. Zambia has a Ministry of Natural Resources.[7] Two of the four countries place prime responsibility on their forestry organizations; Colombia has a Natural Resources Division which includes forestry while Zambia now relies on a Department of Game and Fisheries. Obviously, the Zambian organization, as in all East and Central African countries, is geared to big game as the dominant recreation resource while forested country is considered dominant in the other countries. In none of the countries visited was there a conscious attempt to systematically reserve examples in each type of landscape. None of these agencies can consider cultural sites as integral parts of a system of areas of national significance. More will be said about the administration of cultural sites a bit later.

Each of the four countries assign broad responsibility to the agency actually charged with park administration. All are responsible for wild-life management, all have flexibility to consider facility requirements to serve visitors, all may consider scientific values when establishing reserve boundaries. There is seldom any other agency in the country granted authority to hold or manage lands for these purposes.[8] Only in the Zambian structure, which divides forest and agricultural land administration, is it impossible, given money and trained personnel, for the single department or bureau to identify, establish, develop and manage, for natural values, the full range of land categories listed in the public action sector of the Land-use Continuum. The pattern is widespread and holds in most countries visited although statutory authority for land-use planning may be vested in a specialized agency as in Costa Rica. (See Table III). Scientific interest in the natural environment exists largely in university museums and departments of biology—often for the express purpose of having areas where specimens could be collected. Most of the park personnel expressed the belief that they should operate nature museums in their park areas. None of them had trained museum personnel and very few understood a distinction between the function of a field museum, a visitor center and a research station. Most "park

[7] At the time of the visit, the government of Northern Rhodesia (now Zambia) had lodged park matters in the Ministry of Native Affairs.

[8] The most notable exceptions, in European tradition, are national museums for scientific areas and occasionally universities. No institutions of this sort were called to the author's attention in the countries visited.

museums" visited attempted to do all three things with some not very happy results. Having broad administrative flexibility is an advantage over situations found in advanced countries where various parts of the park spectrum are parceled out to a host of agencies in several ministries. One unfortunate tendency, however, is an attempt to do all park jobs, including development for intensive use, protection of wilderness and management of wildlife on a single area carved out of an already existing multiple resource reserve.

In the cultural sector, parallel organizations are being built to deal with historic, artistic and prehistoric monuments and sites. The specific agency is within ministries of education or culture (refer to Table III). They are all charged, in varying degrees, with protection of national cultural heritage (patrimony). Most administrative divisions with responsibility in this sector usually consider authority for museums as an integral part of their operation. They usually have authority to protect artifacts on public and private lands and to identify, protect and restore historic monuments and sites. Some may play a part in certain "living" historic zones such as Taxco, Mexico. Of the four primary countries, Turkey and Korea best illustrate the prevalent pattern. In Colombia, a considerable body of achievement for prehistoric sites exists, but historic values are handled by relatively weak regional commissions. Historic sites were marked by a Historic Sites Commission in Zambia, but extensive work in protection, field research and interpretation was not in progress. Very sophisticated activity was noted in several of the secondary countries, in fact, the work of the Institute of Anthropology and History of Mexico holds an exemplary position in the world today.

Nearly all less advanced countries have some land which is owned publicly, sometimes communally, but not allocated or reserved for any specific public use. Control and use of these lands is so varied and complex that it defies short description. Control of such lands in Turkey is exercised by the Treasury Department in the Ministry of Finance and has recently been placed under INCORA in Colombia. Management of these lands is complicated by two factors. First, the control agencies seldom consider the physical capabilities of the resources in granting title or assigning use and, by the nature of communication, seldom ask advice from other ministries. Second, land survey, records and titles are very confused, often antiquated, and seldom adequate to establish clear divisions between public and private ownership. Some of the pub-

lic lands contain extremely valuable recreation resources in many countries.

Planning for interrelated systems of parks requires consideration of several interactions closely related to statutory delegation of control over land and water resources, the attitudes of personnel presently concerned with natural and cultural resources, the distinction between European and North American administrative systems and the opportunities for training available.

For ease in exposition, it is assumed that all persons involved in the various aspects of park work fall into four general categories.

Theoreticians—those who are able to identify and evaluate one or all of the factors which determine the number, size, location and general management objectives of parks. The orientation of theoreticians does, and perhaps should, vary by system. In user-oriented parks, the theoreticians may be city planners while in natural parks the theoreticians ought to represent a number of biological and earth sciences.

Professionals—those who by training are able to synthesize several scientific disciplines and apply the knowledge to particular problems. They must be able to translate the requirements set down by the theoreticians into field programs by preparing and justifying budgets and measuring the effect of general management so that shifts required to reach the objectives of theoreticians and the political administrators can be made in terms of men, equipment and activity. Professional orientation is also likely to vary from recreation specialists in user-oriented parks to forest managers in multi-resource reserves and landscape architects in natural parks. There is no reason why professionals cannot move freely between public and private categories on our Land-use Continuum, and in fact they do. The important thing is that they have had extensive training in some form of park specialty which combines scientific knowledge with administrative skills. In many ways, professionals practice that part of management called art.

Technicians—employees who supervise on-the-ground operations, bear the brunt of law enforcement and collect, organize and report information to the professional staff.

Skilled and Unskilled Laborers—the myriad employees performing the everyday tasks of minor construction and maintenance.

In European tradition the decision-making posts have gone to persons skilled in the art of administration (professionals) while "park theoreticians" tend to congregate in their institutes, museums

and universities and resource professionals gravitate to tightly organized, specialized service agencies. While the tendency to follow similar lines is apparent in North American experience, there is much more interchange between the theoreticians and professional functions. Communications and rapport between the theoreticians and the professionals are noticeably weak in less advanced countries. One often finds struggles ocurring between theoreticians and professionals over the control of certain aspects of parks. Some theoreticians seek to create an impression, particularly in the eyes of international colleagues, that it is through their efforts that a national system of natural parks is to be set up. Sometimes, with support from international scientific groups, national governments do establish permissive legislation, but seldom are the theoreticians in a position to mobilize a field force comparable to that commanded by professional organizations to enforce the provisions of law and administer extensive land areas for a variety of purposes.

In each major visit country, save Zambia, there are two professional organizations dealing with parts of the park spectrum. One deals with cultural sites and tends to be theoretician-dominated. The other deals with renewable natural resources and tends to be dominated by professionals. The cultural programs in the countries have been receiving relatively more money than the resource agencies to conduct field research, collect specimens and build museums.[9] These funds have not been used to establish a field organization capable of performing professional tasks outside the museums. As a force in planning and administering systems of parks as a functional use of land and water resources the cultural agencies are not significant even though their enabling legislation is often comprehensive. To be effective in the park spectrum, as used here, the cultural agencies will need to strengthen their professional capabilities to sustain a field organization to safeguard and interpret antiquities.

Most of the professional organizations are largely staffed by trained foresters. They have been hard at work dispersing their personnel to achieve a measure of control on all forested lands for many years. In Turkey there are approximately 1,600 college

[9] Many university task forces from advanced countries have solicited the funds and performed the excavation work. The expeditions have not dealt with organization niceties other than to obtain a permit. The occasional natural scientist who collects or otherwise does research work is a less advanced country does not usually carry on his work at such noticeable scale.

trained foresters, 4,000 uniformed and armed forest guards and an active program of forestry high schools to train forest technicians, for example. Turkish foresters, as is true of Thai, Pakistani, Mexican, and Korean foresters, are distributed across the country in regional and district offices. These professional organizations need to broaden their reliance on theoreticians to be able to recognize and cope with the full range of natural values in a system of parks. Certainly there could be great mutual advantages for the professional organizations working with cultural resource values since there is (or should be) a common need for technicians, skilled labor and personnel to patrol and protect the integrity of the park units. The need for a military type organization to enforce the apportionment of land among various uses cannot be over emphasized. It is true that the maintenance of the divisions will in time depend on broad understanding and support on the part of the citizenry and their recognition of law. Understanding of this sort will take time and the resources, both cultural and natural, will have to be defended by a combination of force and more attractive alternatives for some time.

The stature of law enforcement requires separate examination at this point. North American services are most often looked to as models for park field administration in less advanced situations. Many argue the park organizations of the less advanced areas will not be able to function until they have their own uniformed and responsive guard system. If, as in the case of Turkey, a force of guards does exist, reenforcement of the force with telecommunications, modern equipment and economic land adjustments may be appropriate now. Where such forces do not exist, the program must have sufficient weight so that the government will demonstrate its support by use of military forces to buy time for recruiting and training the requisite professional and technical personnel. Many forget that such action was required in the early years of U.S. national parks and forests. Without such commitment on the part of government, there is little reason to think that there will ever be sufficient budgetary support to maintain the guard force or provide sufficient rewards to keep it effective.

Training personnel for park systems planning and administration is equally complex because of the number of purposes and activities which are encountered in the various segments of the interrelated systems. The fact of the matter is that each type of park identified on the Land-use Continuum poses different train-

ing requirements. Systems of user-oriented parks must emphasize meticulous care of grounds and the aspects of organized recreational use while strict nature reserves must give full weight to scientific requirements. Yet each of these dissimilar systems of parks is different only to a certain point. All will require personnel to patrol and protect the integrity of the parks and interpretive skills to make values identified and researched by scientists interesting and understandable. These technical jobs, together with skilled trades and crafts, are as worthy of training emphasis in planning for systems of parks as the theoretic and professional positions.

More time was spent in each of the countries visited with officers of the national government, thus more insight into the personnel problems of the national park institutions was gained in contrast to the parks traditionally assigned to other government jurisdictions. The observations concerning the current personnel training situation derive from these experiences and pertain to national organizations. There is reason to believe that some of the same conditions exist in the user-oriented and intermediate systems of parks.

Most theoreticians are university trained in a scientific discipline closely allied with a purpose generally associated with parks such as zoology, archeology, ecology and so on. Their interest in parks is directly related to their discipline and they would prefer to see parks follow the European pattern with control of the Strict Nature Reserves vested in the universities, academy of science or national museum. North American and European groups with park interests direct scholarship funds to theoreticians to do graduate work in advanced countries in their particular field of specialization on the premise that such training will upgrade the importance of parks and the competence with which they are administered. The premise is true only if there is no professional organization with statutory authority to administer one or more systems of parks. If there is, the probability is very high that the theoretician will be assigned to a university or museum to pursue his specialized work far removed from the park decision-making machinery. If there is no professional organization in existence, then the theoreticians need crash training in administration to begin the multitudinous tasks of converting land and water resources into parks.

The overwhelming majority of professionals in the resource field are foresters. In each country where there is a strong forestry organization the training concentrates on a single college

of forestry in a national university. The emphasis in these institutions is on classic forestry with a far more European bias—forestry is just a matter of trees—than it is North American. Such specialization is really a reflection of disciplinary cleavages found among theoreticians, which includes the faculties, and which is unfortunately passed on to the field. Thus, little is said about watershed management and the role of foresters in development because traditionally water resource development is a matter for engineers; wildlife is seldom covered except as a phenomenon of forest land because animals are the business of zoologists and so on.[10]

Virtually no attention has been paid to training needs for technicians and skilled labor.[11] Most of the present employees in jobs which would be classified as technical do not have the slightest notion of why they do the jobs that they do.

The personnel concerned with museum operations in both sectors demonstrated high academic capability and the work done is competent.[12] Very little emphasis is put on interpretation of the collections. True, the displays are adequately labelled and explained, but attempts to further understanding among persons without a great deal of fundamental appreciation of the objects is lacking. Museum displays seem oriented more to the arrival of visiting scientists than to general publics.[13] This is a key to interpretation which is essential to natural parks and much natural park theory. It should attempt to awaken interest and lead the visitor to seek out more information concerning what he has viewed.

A concomitant of these training problems exists in the agencies which plan for development and administer general government. For the most part these people have very little recognition for the harsh realities of resource use and the consequences of

[10] Parenthetically, this narrow restriction of concern may be one of the major reasons why foresters, as nearly the only trained professional people in less advanced countries, are seldom part of higher echelon development planning—tasks usually reserved for "generalists."

[11] The forestry high schools in Turkey and the College of African Wildlife Management at Mweka, Tanzania are notable exceptions.

[12] There is a bond of common interest in museums fostered by the International Council of Museums. Museum personnel have closer ties to one another than with other parts of their sector—natural history museum curator to Assistant Minister of natural resources, for instance—although the ties between museum and ministry may be very close in the case of history or archeological museums.

[13] This is part of the distinction between the valued scientific purpose of a museum as contrasted to the vital need to make the facts about a particular area of knowledge comprehensible to casual visitors.

mistakes in terms of lost productivity, human suffering, inefficient use of capital. It seems obvious that there is a need for foresters and other resource professionals to become more general in their outlook and approach. It seems equally obvious that the professionals engaged in policy formulation ought to sharpen their specific knowledge about the resources they are making plans for. The limited examination of training institutions made during this study did not reveal any programs to facilitate inter-disciplinary consideration of natural resource administration. The shortage in less advanced situations might not be too serious if it did not, in large measure, reflect the educational compartmentalization which exists in advanced countries or if it had more of the North American trait of interchange, e.g., one can find foresters working in the U.S. Bureau of the Budget.

Private citizen organizations have played an important conservation role in advanced countries. Persons with specific interests have organized into forestry associations, parks associations and sportsmen's groups. Certainly the North American example indicates what organized citizen movements can achieve in a democratic society.

Citizen organizations of this sort are not prominent in the less advanced countries. In nearly all countries where such organizations are private, i.e., not government sponsored, the members are theoreticians or professionals associated directly with a particular field rather than businessmen or other segments of the middle class with a general conservation interest. The reasons are evident. First, the society lacks a middle class electorate who want to be informed and make their weight felt. Second, most less advanced countries do not rely on a popular concensus as a basis for government policy. It is more common to find policies which hold out the general promise of better living conditions for the vast lower class within a framework of what is deemed permissible by the power elite. Third, the theoreticians, most of whom are honest, dedicated people, use their limited membership associations as bases from which to attack the professionals who must work under government policy rather than as constructive forces to alter general government emphasis expressed in the national plan.

Even with these drawbacks there are a number of very important things that can be accomplished by such organizations. One role private support groups could well try is to provide protection for small but valuable land areas which are outside the main

thrust of government intention, as The Nature Conservancy of the USA. Such organizations might also seriously consider their role as educators. They are in ideal positions to request grants from philanthropic and scientific organizations to prepare and make available high quality, native language films, booklets and other devices for use throughout their countries to clearly show the consequences of resource misuse. This would be one way to fill the requirement of Peace Corps workers in Colombia for materials to use in community programs. There is not a first class Spanish language film on specific Latin American conservation problems prepared for use at the village level.[14] Obviously, if some members belong to the elite, or at least are persons respected by the elite, the ability of the organization to influence government policy will be substantial.

[14] The model for this work has been set by William Eddy and the New York Zoological Society in Tanzania. Mr. Eddy's films were made in the country, narrated in Swahili, highlighted themes that appealed to native audiences, were technically sound, and were done in conjunction with the existing professional organization charged with administration of national parks.

CHAPTER VIII

SOURCES OF PLANNING ASSISTANCE

There are significant forces within each country visited that could help establish parks as a part of a general national conservation program. If such forces were coalesced in a solid front, rather than struggling among themselves, the countries might be in a strong enough position to insure the inclusion of conservation experts in all requests for technical help. The whole cause will be advanced if the expert help received encourages a unified approach to conservation of land and water resources. It is important to know whether expert assistance has contributed to unity.

It is not yet clear whether multi-lateral or bi-lateral assistance programs will be most relied on in the future. Mr. P. S. N. Prasad, in his presidential address to the Society for International Development, contended that "by widening the international character of assistance" much can be done to reduce the "amount of waste involved in needless duplication, competition and jealousy among countries and agencies providing aid."[1] His view favoring more anonymous multi-lateral arrangements seems ascendent. Internationalism is not without its problems. It has been reported that: "The crosscultural confusion is compounded by the varied different base lines and viewpoints from which the UN's multi-national technicians and administrators started. Melding together . . . many different national strains, getting the highly independent Specialized Agencies to cooperate, and then trying to blend the Swedish and Malayan way of tackling a problem . . . with some remotely pertinent . . . tribal referent . . . (may mean) that the multilateral approach will be a long time bearing fruit".[2]

There are a surprising number of national and international

[1] P. S. N. Prasad, "The Changing Course of International Assistance", *International Development Review,* III No. 2 (June, 1961), p. 20.

[2] Derek S. Singer, "Congo Experience: Some Hard Lessons," *International Development Review,* III No. 2 (June, 1961), pp. 4-5.

institutions able to offer financial and technical assistance to less advanced countries. Taken together, they constitute a bewildering array of projects and programs which, of course, can work for or against park systems. The array is made even more diverse by the operations of several hundred non-profit organizations engaged in technical assistance programs, ranging in size from very small, single purpose organizations to very large foundations engaged in technical assistance work.[3]

The international organizations are of three types: those conceived as *financial* institutions to facilitate the flow of capital between regions; those which carry on continuing research for the purpose of *guiding* national programming, usually with the intent of achieving some measure of integration; those which supply technical *assistance* expertise and are usually part of the United Nations format.

The financial agencies use a commercial bank basis to finance projects which will contribute to economic development in less advanced countries. A few examples are: International Bank for Reconstruction and Development (World Bank), International Development Association, Inter-American Development Bank. The development fund of the European Economic Community resembles those of the banks and is so considered here. Bank financial teams are sent to countries to examine the soundness of specific projects from the standpoint of anticipated returns and, to a lesser degree, to assess the impact of the project on the growth sectors of the national economy. Such an approach necessarily focuses on money returns and must give preference to projects which will produce some saleable product that is measurable in cash for calculation of pay-out rates. A great deal of the financing has been directed toward such projects as dams where power is a product, harbors where wharfing fees can be extracted, railroads, manufactories and so on where tangible revenues are involved, preferably with discrete management agencies to facilitate identification of responsibility. Such calculations, obviously, seldom take account of social costs or benefits accruing to the projects such as fish depletion or squatters on the lands suddenly made available along construction access roads. Other agencies

[3] For a listing of the U.S. agencies see: Dao N. Spencer, (ed.), *U.S. Non-Profit Organizations, Voluntary Agencies, Missions and Foundations Participating in Technical Assistance Abroad,* (New York: Technical Assistance Clearing House of the American Council of Voluntary Agencies for Foreign Service, Inc., 1964). There is a similar compilation of private agencies operating from the Federal Republic of Germany.

have been providing the financing and the technical know-how for the construction of roads, schools, sewage plants and a welter of similar projects just as necessary for growth and development but whose benefits are not in cash which can be obligated to repay loans. Limited technical manpower available in any given country and the dependence of high return projects on low return investments for roads, schools and related projects will force the financial institutions to turn to low return projects. Recently the banks have been taking fresh looks at policies and beginning to underwrite projects once rejected as not being sound, in conventional balance sheet parlance. They will likely be of increasing importance to parks and conservation interests.

There are several guide agencies. Some of them are UN affiliates, the regional economic commissions for example, but many are independent organizations too. A prototype is OECD (Organization for Economic Cooperation and Development). The staff conducts detailed studies of the factors integral to the economies of the member countries, which puts the organization in good position to advise on national plans, fiscal policy, trade and tariffs and related subjects. OECD provided the expert advisors for the Turkish regional planning venture and continues to make advisors available for periodic follow-up missions. It also pays salaries for certain staff officers in the Turkish State Planning office. Some of these functions have been undertaken by the several UN regional economic commissions—Africa, Latin America and Southeast Asia.

To make park systems planning work as a concept of land-use planning the less advanced countries will need a full range of professionals able to supply expertise to permit the inclusion of park and recreation values in regional resource analysis and perform specific tasks required to implement programs aimed at environmental quality. A partial list of skills presented here indicates the variety of the park field. Obviously not all these specialties are necessary in any one country at any one time. Many of the specialties are not related directly to, and would probably never appear on, the staff of any action agency administering parks in less advanced countries, although most of them are included on staffs of some advanced country organizations engaged in some part of the park spectrum. The requisite skill ought to be available in other departments and ministries, however—agricultural economists in the central planning office, for instance—and the important thing is that they be available to participate in the regional planning process outlined in Chapter II.

A partial listing of skills is:

a. Landscape planners working with ecological principles to shape the location and character of functional open space in cities and suburbs as well as the location of roadways and other facilities in the countryside. New housing developments can be built so that the features of the natural landscape work for the development rather than against it. The location of houses away from normal drainage channels and the use of the channels for recreation and amenity linkage will result in lower maintenance costs arising from flooding and in lower social costs by building high quality natural dividers as well as placing recreation opportunity close at hand for every resident.

b. Resource economists to establish production relationships to indicate the value of additional output to be expected per unit of input for various kinds of land use including native cropping of ungulate herds. The relationships ought to include welfare considerations of social costs and returns for housing, road and other development schemes with varying degrees of concern for ecological conditions. The matter of comparing investment required, protein produced, managerial skill of persons to be engaged, and productive capacity of native vegetation for alternative uses of the great Kafue Flat could be an area of immediate interest.

c. Recreation resource planners to work with the theoreticians in developing inventories on which to base recommendations for the location, extent and administration of the nationally significant portions of the recreation resource base.

d. Wildlife biologists, interpreters and other professional and technical people to make and keep current management and development plans for individual zones and parks.

e. Physical planners able to correlate the scientific or recreational justifications for park establishment and recommend final boundary location, initial design of interior road systems, facility centers such as campgrounds, picnic areas, organization camps, and the like along with scheduling the cost of the master plan over a period of years and establishing priorities for investment by unit.

f. Professionals who know tourism as an industry and are able to recognize the different values for tourism in resort and natural park developments.

g. Planners with ability to guide restoration of historic and prehistoric sites under conditions as diverse as historic zones which are presently inhabited by people who want modern con-

veniences and stabilization of prehistoric cities in the middle of open countryside.

h. Men able to design interpretive facilities for a park including design and preparation of visitor center display material.

The obvious place for less advanced countries to turn for this expert help is to the multi-lateral and bi-lateral technical assistance agencies.

The actual field expertise required for international development assistance has been channeled through the specialized agencies of the UN. Coordination between the agencies has been provided for in the establishment of the Technical Assistance Board (UNTAB). The agency staffs exert considerable influence on policy formation and in choosing the experts assigned to projects. Funding for such experts usually comes from the United Nations Special Fund (UNSF) or the Expanded Program of Technical Assistance. In theory, project funding is triggered by a request from a member country to the UNSF for assistance in carrying out a certain project. The request is assigned to one of the specialized agencies for a determination of feasibility (sometimes called a pre-investment survey). These studies are often performed by contract personnel for the specialized agency. Actual funding and implementation of projects are dependent on the agency recommendations.

Each of the assistance agencies has regularized channels for the establishment of policy and budget. In most cases the full time agency staffs prepare policy recommendations and budget proposals. The staffs, then, shape the content of agency recommendations and it is helpful for those with special interests if the staff people can be made to look with favor on those interests. The staffs are relatively small and highly qualified technically. They are susceptible to arguments raised by other professionals.

The assistance agencies must confine their activities to the particular fields, usually quite narrow in scope, described in the agency charter. The charters constitute parameters agreed to by countries ratifying the charter which cannot be breeched. For example, even though FAO professionals know that their efforts to increase the efficiency of food production may mean contributing to rural displacement, they cannot follow the effects of such population movements to the urban regions.

But policy making, within the terms of the charter, is exercised by a legislative body. Each member country maintains a delegation at the headquarters of the specialized agency. Each delega-

tion scrutinizes the work of the agency and its proposals, transmits them to its government and then seeks to install the position of its government as agency program—through votes in council meetings or general assemblies.

It is possible to alter national positions on issues by employing public opinion. There is a National Commission for UNESCO in the USA, for example. A formal position on any issue by the Commission is likely to be taken seriously by the U.S. government and be reflected in the actions of the U.S. delegation to UNESCO.

All agencies are careful to point out that they are subservient to goals established by recipient countries. National officials are equally quick to observe that certain national goals are more highly thought of by the specialized agency staffs than others and that considerable effort is expended in explaining why this is so.

The preferences are the result of a professional alliance. Most of the people working with nations to formulate national goals, as propounded by development plans, hold views about the nature of the development process similar to those held by the program officers of the assistance agencies. With few exceptions they have comparable training and belong to the same professional societies. The empathy among top level assistance planners in financial, guide, and assistance agencies tends to produce comparable agency attitudes toward national programs. The agencies are in a position to shape national programming to suit their conception of the national interest by using financial or technical incentives.

The international programs are more than matched in number and overmatched in terms of available capital by the bi-lateral programs. The size and attitude of each donor country's program will, of course, vary. If they are like the U.S. program, the organization has a diffused decision-making structure. Guide, financial, and assistance functions are all performed within one agency. The agency, reporting to a cabinet officer in charge of foreign affairs, attempts to make available—almost like a microcosm of the society it represents—all the varied national talents in government, education, business and industry. The programs must be responsive to national foreign policy as well as to development theory and technical considerations. To interject a position at variance with past practice and carry it through to a policy change is enormously complicated and time consuming.

Non-profit foundations are capable of mounting efficient efforts. Most of them are on a small scale and restricted to particular

kinds of work or to one geographic region. The larger ones can support sufficiently large and attractive projects to exert influence on national programs. Some foundations have country representatives and resident staffs who engage in field work, research and active administration. They can advise home offices about the chances of project success or failure and the funds that will be required for programs. Others merely grant funds for particular projects within their prescribed areas of interest.

Of special note, and not amenable to standard categorization, is the U.S. Peace Corps and the rising number of comparable national efforts. The Corps assigns teams of young men and women to undertake specific tasks at the grass roots level. Most frequently the corpsmen are teachers or community development workers. The underlying theme is that the workers are to become deeply engrained in local life so that they will be able to ascertain the community desires and be able to organize projects capable of achievement by the people themselves. Peace Corps officials in Colombia expressed a willingness to have corpsmen, especially those stationed in rural villages, introduce conservation techniques and rationale via lectures and films. It was stated that the lecture and film material would have to be made available from the outside since few of the personnel were qualified to make the points unaided.

Technical assistance programs, bi-lateral and multi-lateral alike, can contribute to the difficulty of obtaining a unified conservation view and to the problems of program coordination. The first is a function of the absolute number of agencies, projects and programs possible. Coordination of national agencies bearing on park systems planning is made more difficult when the policy objectives of the assistance agencies are added—especially when reinforced with financial incentives. Furthermore, the use of financial incentives encourages countries to fully commit total domestic revenues to development schemes several years ahead, placing them in an inflexible position with little or no margin to permit opportune movements to take advantage of new technical developments which could increase the utility of capital investments. This may sound remote to park systems planning, but the amenity value of free flowing streams versus the value of hydro-electric dams may be put on a new footing with a large scale technological break-through in energy production. Flexibility in dealing with the tourist trade is also a must in view of the risk and uncertainty attending the travel industry in general.

Second, agency programs are restricted to specific subject areas by charter provisions or national policy. It is, therefore, seldom possible for a single agency to give equal weight to all resource use factors. One finds that some of the component parts of park systems planning are found among several technical assistance agencies. The bulk of park related activity is found in UNESCO, FAO and the United Nations Organization (UNO), but not in one place in any of them. The natural science aspects of parks is found in the Natural Science Department of UNESCO. The staff generally reflects European park attitudes. A separate division in another department deals with antiquities and monuments and has close ties with museums in many countries through the International Council of Museums whose headquarters and documentation center is housed in UNESCO. Recreation as it pertains to physical education and as part of organized youth development can be found in other departments. There is no unified UNESCO voice for parks and recreation, nor is there much research to produce meaningful data to defend parks at the council tables where land-use decisions are made. FAO is in a key position to influence land-use patterns in favor of park reservations. Of importance is FAO's recognition of resource interrelationships and the use of imaginative approaches to exploit them.[4] Actual park expertise is found in the Forest Products Division. Recently a special group was formed in the Division to analyze the effects of the multifaceted FAO programs in animal husbandry, water resource development and forest exploitation on forest policy, i.e., land use. There is no general policy, and no movement at the regional level, to consider land reservations for cultural sites as a functional part of country plans or to encourage agencies in the recipient countries to develop capability to administer areas other than those largely delineated by wildlife value judgments. The FAO voice on parks is not inclusive, but FAO's efforts to balance use with capability indicate the possibility of a systems approach to park planning. Planning for cities and suburban zones, as they are considered parts of urban regions, is primarily dealt with by UNO. The Department of Planning and Housing is

[4] The poplar culture work in Turkey is an example. The problem has been to find ways to alleviate the cutting and grazing pressure put on commercial hardwood stands by people anxious to secure a little more grazing and charcoal. The answer has been to encourage planting of very fast growing hybrid poplars expressly for firewood in pastures but providing several cash crops while the trees gain sufficient height to permit grazing without damage to the trees.

engaged in providing the technical competence to guide national programs aimed at improved housing, services and environment in the cities. The master plans devised under the Department's aegis offers a chance to provide better urban environments. The plans promulgated could be cognizant of the character and value of those features identified in the national recreation resource inventory as well as requirements for urban recreation opportunities. Bi-lateral agencies, representing a whole national culture in microcosm, pose equally difficult problems of the same nature for park systems planning.

Third, most professional expertise available for assignment must rely largely on experience in advanced situations. It is common to have divisions along professional lines wherein solutions to all problems are advanced according to the standards of one discipline. Often the expert attempts to translate all of the problems of the recipient country into terms which will fit within his limited frame of reference. Solutions, therefore, often are too sophisticated, assume advanced levels of administrative competence or are not suited to a particular environment.

The less advanced countries desire to secure the benefits of modern industrial states for their people. The multi-lateral and bi-lateral financial, guide and assistance programs as well as national economic programs are committed to this goal. These commitments to change have not permitted parks or related values to be seriously considered in the formulation of national plans. Lack of any strong, central advocate for inclusion of a conservation point of view has resulted in requests for assistance which are weighted in favor of change for change's sake. Action on the part of the technicians is severely circumscribed by the terms of request for assistance. One university administrator has observed that his faculty:

> . . . . were rarely if ever presented with the original problem . . . . We were instead, presented with defined problems, with specific time limits for their solution, specified resources that would be available to us, and then asked if we would participate . . . .[5]

In an age when the team approach is in vogue, very few biologists-ecologists-conservationists have been involved in the framing of technical assistance requirements from the outset. A pre-

[5] Henry Reining Jr., "The Fourth Dimension: The Administration of Development and the University's Role," from *Papers in Comparative Public Administration,* Special Series #3, (Chicago: American Society for Public Administration, 1964), p. 4, quoted in David S. Brown, *op. cit.,* p. 74.

investment survey of the Kafue River Basin, Zambia, is instructive. The request for technical assistance was framed for government by a power agency. The staffing and field work, therefore, were conditioned by a stated need for expanded hydro-electric generating capacity. Consideration of current land use, tenure arrangements, agricultural land capability or wildlife populations had to be secondary. Each secondary factor recognized will be considered, of course, but only as it is affected by reservoirs, canals, transmission lines and so on rather than as determinants of whether the reservoirs ought to be created on anything other than engineering efficiency criteria. A regional development plan which had as its objective balanced, high return land use ought to have considered the costs of idling workers in the Wankie coal fields, the benefits and costs of animal ranching versus intensive agriculture and the cost of needed programs for the adjustment of indigenous people. The possibilities of these alternatives have been arbitrarily precluded by artificial selection of an optimum condition in the Zambian economy.

Such actions produce crass disregard for the welfare of the recreation resource base. A case in point is a community development project in northeastern Brazil:

> Charcoal was contemplated as the fuel: [for a cement plant]. Negotiations were begun with the Department of Forests to lease some of the nearby forest land for tree farming. These negotiations were delayed so that in the June to September period of 1963 private forest lands, scattered among the larger farms, were studied, and a company for producing charcoal from these private forest lands was proposed and organized. Now the cement plant is moving along and production is targeted for the end of 1964 or early 1965.[6]

But what about sustained forest yield? Are there trained men to do the job of cruising, marking and follow-up to assure regeneration? Will rapid cutting on the private land force irrational management on public lands? Have provisions been made to upgrade the capacity of the Department of Forests to produce future wood crops? Could they keep squatters from the cut-over land?

It seems fair to say, then, that the present system of providing technical assistance makes recognition of the values inherent in the recreation resource base very difficult. Development theory, the bond which joins program planners in the multi-lateral and bi-lateral financial, guide and assistance agencies with national

[6] Morris Asimow, "Project Brazil: A Case Study in Micro-Planning", *International Development Review,* VI No. 2, (June, 1964), p. 28.

economic planners, has not been well attuned to the kind of planning which leads to interrelated systems of parks. In order to gain consideration of parks systems, as understood here, international assistance agencies will have to agree to participate in a unified joint program for each landscape region. At this juncture there is no decision-making point in the existing institutions—singularly or collectively—which can affect the requisite coordination.

CHAPTER IX

THE FUTURE

During this study it has become quite evident that park issues exist as parts of larger problems bearing on the relation of man to the world in which he lives. The truth of the matter is that all human activities produce effects within a range of tolerance imposed by the physical environment. To exceed the limits leads to an environment which is, at worst, uninhabitable. Past civilizations have passed that point often, but the scale was always limited and other civilizations existed quite independently. Today habitat deterioration may well involve the whole world community; even isolated cases of habitat failure affect parts of the world far removed from the area afflicted.

While man has not made an outstanding record in advanced countries with respect to his natural and cultural heritage he at least has come to admit that an industrial society can afford and must have high quality environments in which to live. The state of the resources observed in the less advanced countries in relation to the fantastically rising pressures is convincing evidence that conservation and attention to the quality of the environment are needed now and will be more needed in the future.

Almost everywhere significant social changes are taking place. Each new urban dweller, each consolidated farm which produces more with fewer people, each new highway, each new hydroelectric power plant, each new factory produces its effect on the natural environment. The trend is toward larger gross populations with more people very old and very young in relation to the middle groups and more of them will live in urban regions composed of cities plus gray zones. Per capita income, leisure time and mobility will continue to rise. These trends are generating demands for all kinds of goods and services not the least of which is parks. The critical fact is that most countries soon will not have any surplus land available for parks. If they do not act now in anticipation of demand there may be no opportunity to reserve land or other resources for natural values.

The study made clear not only the need for park systems plan-

ning as an approach to adequate preservation of natural environments, it also demonstrated that the less advanced countries are beginning to realize the value of their natural assets and desire help in protecting and using them. The study has also shown that the many powerful forces in the advanced countries which have led the way to general public acceptance of conservation have not been effective in assuring the application of comparable principles in development programs being generated by their own governments.

The difference between advanced and less advanced situations makes it equally clear that prosperous societies cannot expect their methods to be easily transplanted to the less advanced countries. We have seen that there are problems of bridging cultural barriers and revising technology to suit less advanced conditions. The process of change will be generally slow—perhaps measured in time dimensions of a generation or more. Every effort should be made, however, to avoid the mistakes made by the advanced countries as they proceeded through their earlier stages of development.

An evident conclusion drawn from the field study is that park systems planning is not practiced in any country. There are some hopeful signs on the horizon. To be fully operative, the traditional approaches of both the European school and the North American school will have to be reassessed and in many respects combined to take advantage of the strengths which exist in both approaches. This means that people interested in parks and conservation have a responsibility to modify their own thinking so that rationally integrated systems of parks can be demonstrated. Prime reliance is still on the old, unitary park unit even though every socio-economic force clearly indicates the need for interrelated, flexible approaches to environmental development and control. It should also be clear that park systems planning does not mean that the increasing pressures for more human use should be met by forgetting the important aspects of preservation. It does mean that the singular values of the areas to be preserved need to be more sharply identified and placed in the context of land-use patterns which complement the objectives of strict nature reserves. It points clearly to the need for a systematic methodology for resolving conflicts between different kinds of parks and between parks and other uses of land and water resources.

Park systems planning is a multi-stage operation. As nearly as they can be treated in discrete fashion, the stages are:

First, a reconnaisance of a nation to identify the high priority regions and projects within regions. Experience with landscape capability analysis has shown that high value recreation resources will tend to be found grouped in limited geographic regions. It is in these regions that resource conflicts are likely to be most extreme and systematic analysis most useful. An example is the effort by the Peruvian Tourism Authority to identify "tourism regions". One such region combines the historic values of Cuzco, the prehistoric marvel of Machu Pichu, splendid Andean scenery, and extensive lakes. Within such a region even the location of a road system for basic communications (see Figure XI for comparison of road locations along a seacoast) will have an enormous effect on the quality and use of the recreation resources. Thus, to optimize development investments in such a region the nature of the park resources must be known and built into the calculus.

Second, develop knowledge and precise requirements of the individual recreation resource sites and investigations, as time permits, into those regions with lower occurrence rates of resource sites. The work may involve archeological excavation, architectural analysis, taxonomic identification, biologic transects and so on. The work will require, as a concomitant, an upgarding of the theoretic personnel available within the country.

Third, work with regional planning authorities to assess the relative values of different combinations of land use based on the physical imperatives of the resource base and provide a flow of value analysis to the national economic planning authorities for comparisons of priorities between regions and insertion of realistic costs and benefits for the projects to be undertaken in the regions in the national plan.

Fourth, within the project allocation of the economic plan, do specific work on distinct phases of component parks to provide for research, management of resources and visitors, and interpretation. Figure XII is a development scheme for a major natural park using the concept of nodes and corridors. It illustrates the kind of work to be done at this stage. It assumes the values of the park have been identified and compared with other areas in the country and found, on scientific grounds, qualified to be classified as a natural park and that its development is part of a region being comprehensively planned for tourism.

Fifth, provide for the recruitment, training and support of personnel required to obtain high professional standards, con-

FIGURE XI
COASTAL ROAD LOCATION

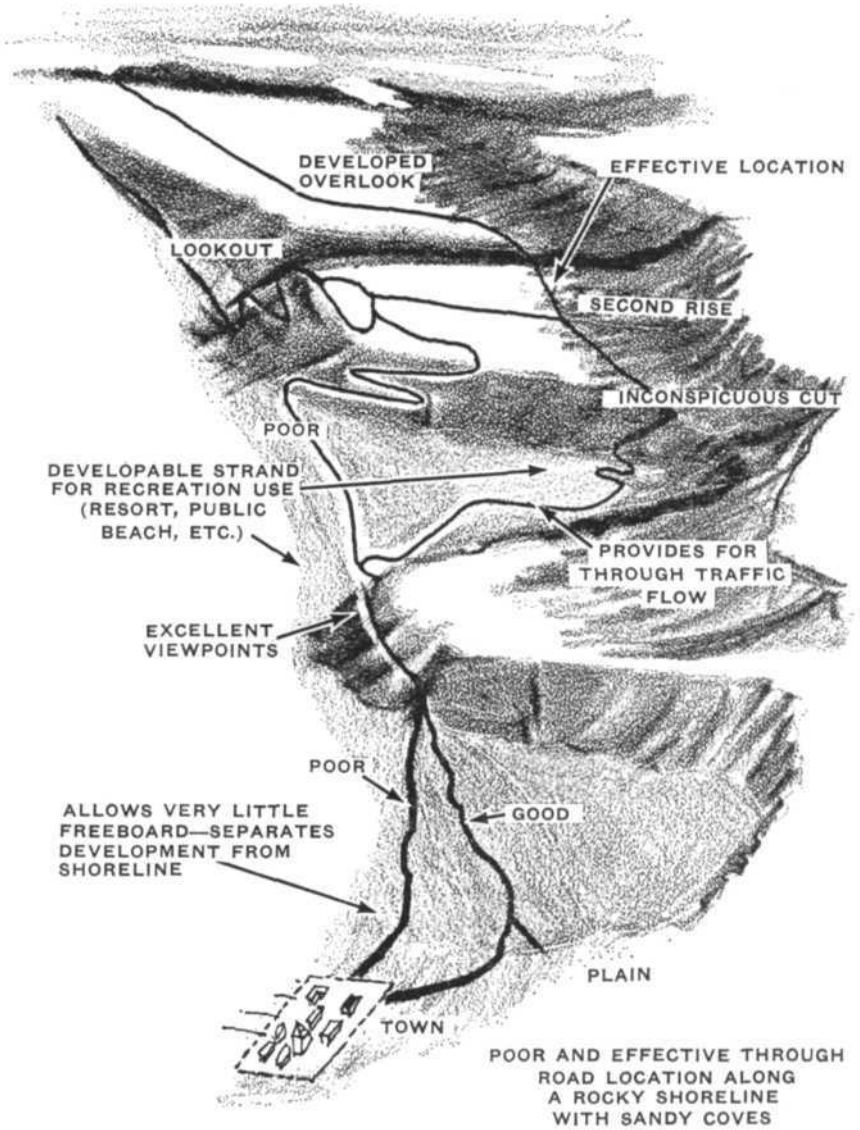
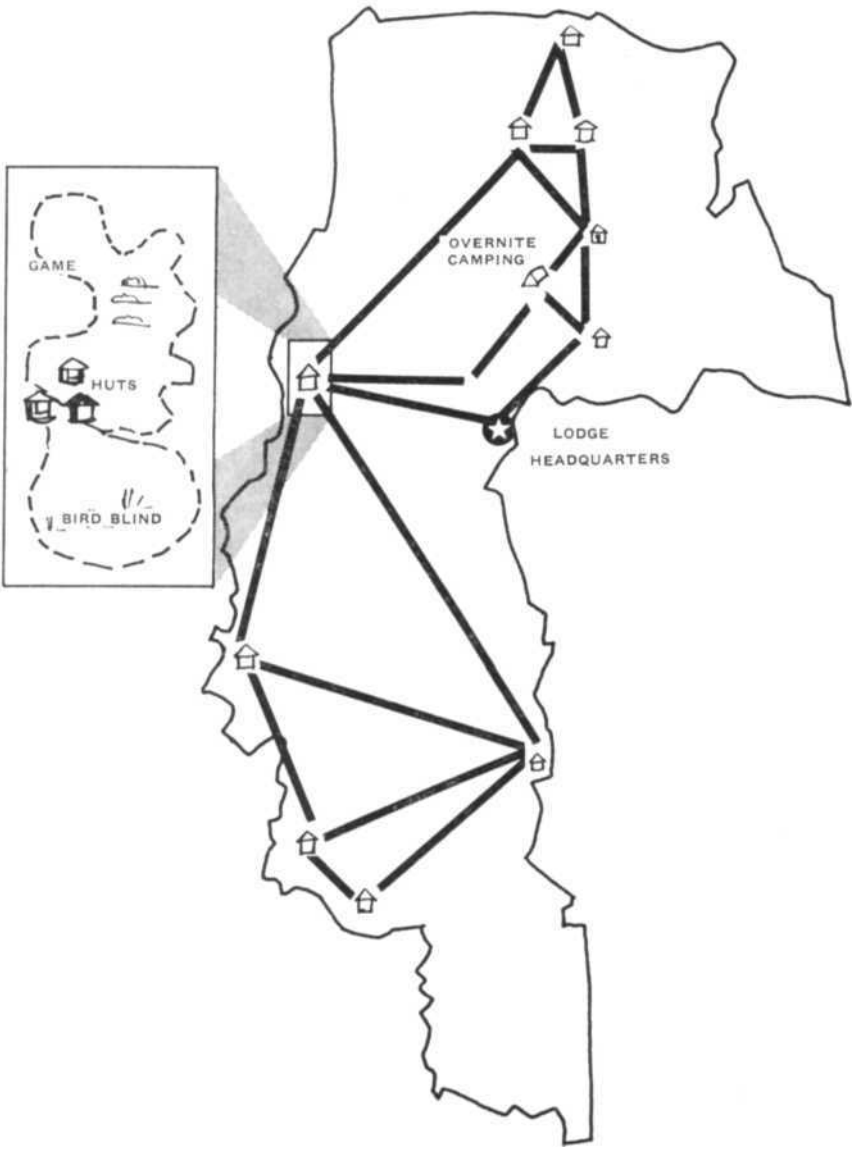


FIGURE XII
A PARK DEVELOPMENT SCHEME



tinuity of program and maintenance of facilities and improvements when they are completed.

To make park systems planning sound and effective, research is needed. Research can help to:

a. determine the effects of park developments on present and future travel markets, the quantity and location of new jobs resulting from investments made in rural tourist destination areas and the optimum levels of investment which need to be made in parks at various stages of economic development.
b. examine the productivity relationships of present land reservations and other conservation development practices.
c. establish the socio-economic indicators of quantity, quality and location of park facilities.
d. predict the number and caliber of personnel needed at various levels to plan and administer the several aspects of systems of parks.
e. understand the basic biologic relationship between animals, habitat and people as an aid to devising management plans for parks.

Several actions will be necessary if park systems planning is to function as a process. Most important is a clear recognition of the need by those interested in resource protection and use in the advanced countries. If the techniques described here are adequately tested and proven for general application, it will be possible to mobilize the powerful forces required to bring about acceptance on the part of the international and bi-lateral guide, financial and assistance agencies. As things now stand, none of the agencies is able to consider the full range of theoretic and professional personnel or techniques required for the multi-stage application of park systems planning. There is a noticeable gap in that none of the agencies covered has begun to think about the portent of the Sunday afternoon crowds along the clear streams several miles outside the city by residents of Cali, Colombia.

Another requisite action will be the establishment of a cadre with broad, general knowledge of the many facets of park systems planning to stimulate less advanced countries to put the techniques of park systems planning to work as part of their development plans. A group with such oversight should be knowledgeable about development theory as well as with the physical, biological and social aspects of parks. The group could be incorporated in an

international, or national non-governmental organization where sufficient freedom could be exercised to attempt to direct requests for assistance of various kinds to appropriate agencies. Another function of the group might be to serve as a technical consultant to multi-lateral and bi-lateral agencies in the recruitment of personnel for assignments in park systems planning or implementation.

A third action will involve the bi-lateral and multi-lateral agencies themselves. A special technical staff ought to be formed from many disciplines and be assigned responsibility for parks. Otherwise the reaction to requests forming part of a park systems approach may be received by a headquarters staff having only vague ideas about the requirements for the job.[1] Unless the terms of reference are adequately written the job runs a good chance of producing disappointing results regardless of whether responsibility is vested in an institution like a university or a highly qualified individual.

There is little doubt that it is in the best interests of all the people if the concept of park systems planning can pervade the existing multi-lateral and bi-lateral guide, financial, and assistance agencies. They are already established and financed and could incorporate park systems viewpoints more efficiently than trying to provide fullscale conservation planning assistance through new independent mechanisms.

A fourth major action will depend on recognition by the theoreticians and by park enthusiasts that park considerations are able to stand on their own in economic comparisons with other resource use schemes if the full range of costs and benefits are included in the evaluation. In order to judge the benefit-cost ratio of large scale investment in quality restoration of any one of Mexico's major archeological sites the marginal benefits accruing from employment of many laborers who have no other income, from the training in arts and crafts gained by such employment, from holding of the labor in rural areas rather than aggravate urban gray zones and the creation of social overhead capital to gain earnings from the tourist trade should be considered as well as the major contributions to science made by the archeologists during the course of the excavations and the contribution such sites make in creating an awareness of a great national cultural heritage

[1] A request for technical personnel to assist in high level organization of a national park organization specified a person with experience in law-enforcement rather than anyone with knowledge about parks, their use, or interpretation.

which predates the colonial period. It can also be argued that park work in urban areas will provide benefits from employment of urban unemployed and the creation of better environments for children.

If there are sufficient reasons for all or some combination of these actions to be taken, there would be a material increase in park activity in the less advanced world. How effective and lasting the effort will be depends on how well the countries are able to organize their institutions to do the job.

The use of existing organizational frameworks in less advanced countries is more rational than grandiose proposals for large scale reorganization or the establishment of new specialized agencies to carry out park legislation. Where regional planning organizations exist, they must learn how to plan for park systems; where agrarian reform agencies have comprehensive legislation to classify land for agriculture, forestry, housing, industry and so on, their staffs must be taught to consider the biologic underpinnings of land use, including parks, to make their plans more rational and comprehensive. Where professional agencies with natural resource experience exist the staffs must be exposed to the full range of resource administration and their administrative capacity must also be improved and broadened if they are to be effective in controlling park use. Further, there is a need to more sharply define some hazy areas concerning agency jurisdiction. The relationship of park personnel—including people having multiple resource management responsibility—to agricultural people is one area. In spite of increasing emphasis given to game cropping schemes as agricultural enterprises, for instance, there are no clear-cut lines as to whether such schemes are to be encouraged by agricultural departments or left as a sideline arguing point for the game managers.

The degree of competence possessed by existing resource agencies leads to the matter of training. For our purposes here, training for theoreticians is left for discussions of university teaching and scientific research needs. Many avenues for exchange, fellowships, scholarships and so on exist for undergraduate and graduate work and more are undoubtedly needed. Park systems, though, need a large number of professional, technical and skilled personnel for them to be effective. All planning for park systems should provide for ample funds to support training for employees of agencies concerned with park work. International cooperation for natural resource management institutes at two levels would seem

worthy of further consideration. The first level would be concerned with less advanced regions such as Latin America or Southeast Asia. The staffs of such institutes would have three functions: give counsel and advice to professional organizations in the countries in the region for establishment of in-service training programs, e.g., annual fire suppression schools; travel through the region to offer course work in the professional training institutions now existent, such as colleges of forestry, to both broaden the scope of undergraduate instruction and to employ the facilities of the college in an extension role for professionals already in the field and for superior technicians; offer, as resident faculty, course work for professionals and technicians from countries without forestry or resource faculties. One would have to be careful to recognize existing regional efforts such as the Inter-American Institute for Agricultural Sciences in Costa Rica, the College of African Wildlife Management in Tanzania and the Middle East Technical University in Turkey. Hopefully the institutes could operate under the aegis of an international organization to reduce the effect of changes in national attitudes as much as possible.

The second level would involve locations in the advanced countries. Such institutes could be used to offer training in park systems planning methods and advanced work in techniques of resource management, park design, interpretation and so on. The institutes should be located to take advantage of European or North American expertise as may be required by the problems faced in a particular country or system. The institutes at this level would probably benefit from operation under international auspices too. The Council of Europe for example, would be an ideal location for the European institution.

In this fashion it would be possible to provide for a ladder of progressively better training opportunities for professionals and technicians in a unified way that begins with skilled craftsmen and procedes up the scale to integration of renewable natural resources in national plans. Thus the two top level institutes could be used to provide understanding of natural forces for high echelon administrative and planning officers doing specialized study in advanced countries or to provide introductory briefing for theoreticians in the biological or other sciences directly related to resource use before they begin residence work in a university.

Finally, it would seem that as the societies of the less advanced countries become more affluent and a middle class takes form, citizens' organizations will become more important. It might not

be too early for conservation leaders in advanced countries to begin person-to-person efforts to stimulate the formation of citizen conservation organizations in less advanced countries. A fertile field might be the several hiking and mountain clubs found in countries like Ecuador and Korea. Business people in advanced countries could very well point out their role in conservation to counterpart businessmen from the less advanced countries when they have occasion to meet.

Park systems planning is not a mystique or new discipline. It is a process to facilitate multi-discipline consideration of resource allocation problems under a variety of changing social conditions. Failure to begin employing the analytical methods described increases the probability of subjecting the less advanced countries to the same mistakes and waste of resources seen in advanced countries.

The relevance of park systems planning is that it offers the best, if not the only way, to secure the resources necessary for the long-range protection and management of all kinds of parks for the use, enjoyment and inspiration of all the people.

BIBLIOGRAPHY

BOOKS

Adams, Alexander B. (ed.), *First World Conference on National Parks,* (Washington, D. C.: U.S. Government Printing Office), 1964.

Allen, Durward L., *Our Wildlife Legacy,* (New York: Funk & Wagnalls Company), 1962.

Anon., A User-resource Recreation Planning Method, (Loomis, Calif.: National Advisory Council on Regional Recreation Planning), 1959.

———, *Recreation and Open Space in Illinois,* (Champaign-Urbana, Ill.: University of Illinois Department of Landscape Architecture), 1963.

Clawson, Marion, R. Burnell Held and Charles H. Stoddard, *Land for the Future,* (Baltimore, Maryland: Johns Hopkins University Press for Resources for the Future), 1960.

Eckstein, Otto, *Water Resource Development,* (Cambridge: Harvard University Press), 1958.

Ise, John, *Our National Park Policy,* (Baltimore, Maryland: Johns Hopkins University Press for Resources for the Future), 1961.

Krutilla, John and Otto Eckstein, *Multiple Purpose River Development,* (Baltimore, Maryland: Johns Hopkins University Press for Resources for the Future), 1958.

Murray, W. H., *Highland Landscape,* (Aberdeen, Scotland: The Aberdeen University Press for the National Trust for Scotland), 1962.

Rostow, W. W., *The Stages of Economic Development,* (London : Cambridge University Press), 1960.

Ruhle, George C, *A National Park System for Thailand,* (Special Report #17), (New York: American Committee for International Wildlife Protection), 1964.

Spenser, Dao N. (ed.), *U.S. Non-Pro fit Organizations, Voluntary Agencies, Missions and Foundations Participating in Technical Assistance Abroad,* (New York: Technical Assistance Clearing House of the American Council of Voluntary Agencies for Foreign Service, Inc.), 1964.

Staly, Eugene, *The Future of Underdeveloped Countries,* (New York: Harper & Brothers), 1954.

Vernon, Raymond, *The Changing Economic Function of the Central City,* (New York: Committee for Economic Development), 1959.

Wagar, Allen, *The Carrying Capacity of Wildlands for Recreation,* (Unpublished PhD Thesis, University of Michigan, Ann Arbor), 1961.

Wood, Robert C, *Metropolis Against Itself,* (New York: Committee for Economic Development), 1959.

———, *1400 Governments,* (Cambridge: Harvard University Press), 1961.

GOVERNMENT REPORTS

State of California

Outdooor Recreation Plan Committee, *California Public Outdoor Recreation Plan,* (Sacramento: State Printer), 1960.

State of Nevada

State Park System, *Nevada, A Sound State Park Program,* (Carson City: State Printing Office), 1960.

United States

ORRRC, *Outdoor Recreation for America,* (Washington, D.C.: Government Printing Office), 1962.

———, *A Look Abroad: The Effect of Foreign Travel on Domestic Outdoor Recreation and a Brief Survey of Outdoor Recreation in Six Countries,* (Study Report #18), (Washington, D.C.: Government Printing Office), 1962.

———, *Prospective Demand for Outdoor Recreation,* (Study Report #26), (Washington, D.C: Government Printing Office), 1962.

United Nations

ECOSOC, *U.N. List of National Parks and Equivalent Reserves,* (New York), 1962.

UNESCO (IUCN), *Preparatory Documents to the International Technical Conference on the Protection of Nature,* (Paris-Brussels), 1949.

State of Wisconsin

Department of Resource Development, *Recreation in Wisconsin,* (Madison), 1962.

PERIODICALS

Alderfer, E. Gordon, "Accion Communal in Colombia", *International Development Review,* III, No. 1 (February, 1961), p. 12.

Asimow, Morris, "Project Brazil: A Case Study in Micro-Planning," *International Development Review,* VI, No. 2 (June, 1964), pp. 26-29.

Brown, David S., "Key to Self-Help", *Public Administration Review,* XXIV, No. 2 (June, 1964), pp, 69-70.

Clawson, Marion, "Crisis in Outdoor Recreation," *American Forests,* LXV, Nos. 3 and 4, (March, April, 1959).

———, "Methods of Measuring the Demand For and Value of Outdoor Recreation," (Resources for the Future Reprint No. 10), 1959.

——— and R. Burnell Held, "Demand for Rural Resources in the Context of Long-Range Needs," *Journal of Farm Economics,* XLV, No. 5 (December, 1963), pp. 1027-1037.

Davis, Robert K., "Recreation Planning as an Economic Problem," *Natural Resources Journal,* III, No. 2 (October, 1963), pp. 239-249.

Hart, William J., "Factors in Park Building Design," *Trends in Parks and Recreation,* II, No. 2 (April, 1965), pp. 17-20.

Kernan, Henry, "Korea, Land of the Morning Calm," *American Forests,* LXIX No. 8, (August, 1963).

Knetsch, Jack L. and William J. Hart, "The Watershed As An Entity For Development Planning," *Journal of Farm Economics,* XLIII, No. 4 Part I (November, 1961), pp. 758-766.

Knetsch, Jack L., "Economics of Including Recreation as a Purpose of Water Resource Projects," *Journal of Farm Economics,* LXVI, No. 5 (December, 1964), pp. 1148-1157.

Lewis, Phillip H., "Quality Corridors for Wisconsin," *Landscape Architecture,* LIV, No. 2 (January, 1964).

Marcus, Edward, "The Role of Agriculture in Tropical African Development," *International Development Review,* V, No. 1 (March, 1963), pp. 21-24.

Niehoff, Arthur H. and J. Charnel Anderson, "The Progress of Cross-Cultural Innovation," *International Development Review,* VI, No. 2 (June, 1964), pp. 5-11.

Prasad, P.S.N., "The Changing Course of International Assistance," *International Development Review,* III, No. 2 (June, 1961), p. 20.

Rivkin, Malcolm D., "Let's Think Small for Development," *International Development Review,* V, No. 1 (March, 1963), pp. 24-28.

Singer, Derek S., "Congo Experience: Some Hard Lessons," *International Development Review,* III, No. 2 (June, 1961), pp. 4-5.

OTHER

Brooks, Lloyd, "Proposed Basis for a Park Classification System," (processed working paper, National Parks Branch, Ottawa), 1963.

Popenoe, Hugh, "The Pre-Industrial Cultivator in the Tropics," (paper presented at 7th Technical Session, IUCN, Nairobi, Kenya), 1963.

Reining, Henry, Jr., "The Fourth Dimension: The Administration of Development and the University's Role," *Paper in Comparative Public Administration,* (Special Series #3), (Chicago: American Society for Public Administration), 1964.