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SOCIAL IMPACT ASSESSMENT: AN ANALYTIC BIBLIOGRAPHY

A Report Submitted to the:

U. S. ARMY ENGINEER INSTITUTE FOR WATER RESOURCES  
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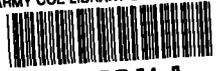
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A Report Submitted to the:

U. S. ARMY ENGINEER INSTITUTE FOR WATER RESOURCES  
Kingman Building  
Fort Belvoir, Virginia 22060

by

Mark A. Shields  
Brown University  
Providence, Rhode Island

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## PREFACE

The Corps of Engineers' practical requirement for social impact assessment raises a fundamental problem of knowledge for sociology and related social science disciplines. This report, an "analytic bibliography" of materials relating that knowledge to the Corps' concern, is a first step in making accessible and useful the growing body of social research that can illuminate the problem of social impact assessment and approaches to its solution.

"Literature search" is an initial step in any research effort, and the problem of social impact assessment (SIA) is no exception. Again unexceptionably, the desired outcome is an organization of knowledge that will afford both intellectual mobility and analytic leverage in thinking about the issue. Frequently, information about a situation comes to constitute part of the problem rather than yielding insights towards its solution. It is typical to find administrators and researchers alike confronted by the problem of assimilating large and disjointed bodies of knowledge in short time. Their success will depend on the structuring of that knowledge in a comprehensive and comprehensible framework. What is exceptional, in social research at least, is the condition of effective organization. An additional requirement is the presentation of that knowledge for persons who are not themselves specialists in the field.

A literature search should be extensive and systematic, but should not in itself consume so much time and effort that accomplishing it becomes a hindrance to further progress; a definitive bibliography at this juncture might impede rather than facilitate our efforts. According to this strategy, it is more important in the present to lay a solid foundation for building cumulative knowledge than to aim at exhaustiveness. At the same time, the knowledge base assembled should lend itself to extension and elaboration at every point in conceptual space and real time.

There are three accustomed levels of bibliographical research: (1) simple citation, (2) annotation and (3) the bibliographic essay, which attempts to integrate materials in a less mechanical, more conceptual fashion. All three levels are involved in the present study.

What is distinctive is the intent that this become a working bibliography--extending beyond "the convenience of scholars" to the useful application of practitioners. Hence the organizing idea of this literature search and synthesis has been process-linked, proceeding from the series of steps outlined in "Guidelines for Assessment of Economic, Social, and Environmental Effects of Civil Works Projects" (ER 1105-2-105). While the present effort has moved significantly on that direction, full closure is not yet achieved. The basic set of working materials assembled here will require finer-grained analysis to make specific connections between social science knowledge and SIA practice.

## INTRODUCTION

### Purpose and Rationale

The purpose of a literature search and synthesis in the area of social impact assessment (SIA) is the same as that which guides similar efforts in any subject area: to organize and critically evaluate the existing knowledge base and thereby identify gaps which need to be filled through a program of systematic research. The present effort is especially pertinent in view of the emerging importance of SIA as an operational function in the governmental planning process. There is a pressing need to know just where the state of the art is at the moment so that efforts can be directed toward cumulatively building up our conceptual and methodological capabilities as aids to more effective decision-making.

Organizations engaged in the planning, construction, and operation of large public works projects are coming to understand the significance of their decisions for the communities affected. It is now recognized more clearly than ever before that such projects often have major impacts not only on the physical environment but also on the social environment. These impacts, though difficult to forecast in many cases, are nonetheless viewed as critical. If the task is negatively defined--i. e., to avoid or mitigate

adverse impacts--it is still crucial that such major alterations in our social and physical environment should also aim at producing useful and beneficial consequences. By surveying and analyzing research already done in SIA and attempting to place it in a useable framework, this bibliographic analysis begins what is hoped will be a valuable aid to planners in making better decisions regarding the impacts of public works projects.

Part of our goal is to demonstrate the utility of a particular framework of analysis--one which, it is anticipated, will be employed in future efforts of the same type. In this way a body of research may be analyzed and organized in a context which makes comparative analysis of sources easier. Hence, we attempt to do more than merely describe and summarize in a cursory fashion what was said in a particular source. Rather, we hope that by carrying out a number of discrete but interrelated analytical operations on the research cited that we can provide detailed, intensive understanding of their import. This is accomplished in the form of a series of "files" consisting of the products of the analysis performed on each article, report or essay. In a very real sense, then, this is an attempt to begin a reference work in the area of SIA, one which can be continuously updated and revised. The measure of our success in this task, and therefore the utility of the organizational framework outlined, is

the assistance it can provide to planners and decision-makers.

Largely for this reason, we urge readers who use this "analytic bibliography" to offer comments about its value to them.

### Procedure

Where to begin and where to stop are among the most difficult methodological questions to answer in any research effort, and this is particularly true with respect to bibliographic research. Since we conceived our task as not only providing substantive guidance to the available literature, but also as a "test" of an organizational framework for analyzing this literature; and because we explicitly conceived this task as a start in the direction of a cumulative bibliography, our resolution of the question could be more easily taken than if our aims had been more comprehensive and exhaustive. Nevertheless, our selection from the literature was not arbitrary. We relied mainly on three sources of information in selecting our bibliography: (1) the Office of Water Resources Research (OWRR) abstracts, indexing some 3,000 references on the social aspects of resource management, (2) references cited by writers in their own articles, and (3) leads and references given by colleagues and friends. From this domain we selected those sources which were centrally focused on socio-economic impacts, rather than those treating them as ancilliary themes. These included both programmatic essays and a variety of case studies.

A programmatic essay is a piece which focuses on a given problem in impact assessment, discussing and evaluating its relation to policies and programs and usually concluding with a series of recommendations. Case studies here are taken to be those which select a specified area or areas in which a project is, has been or will be constructed and, through the use of social science methods, describes, explains and/or predicts the nature and extent of social impacts discernible within the area(s). Because one of our aims in this analytic bibliography was to develop a file on relationships (i. e., empirical generalizations and propositions) we deliberately biased our selection toward the case studies. This decision severely limited the volume of sources chosen for inclusion in the final report, primarily because the number of detailed case studies of social impact is not very large. But as we noted earlier, this strategy permitted a more intense, detailed analysis of the literature selected and so, we hope, will enhance the value of this report as a research tool.

Perhaps a brief description of the "files" which are the products of this research is now in order. These include a "raw" and an annotated bibliography; lists of descriptors, identifiers and locators; a discussion and tabular display of methodological approaches; and a combined section on findings reported in the sources together with

our interpretations. The "raw" bibliography is simply an alphabetical listing of references, while the annotated bibliography includes a reference citation plus an abstract of the source, salient findings and implications, and a compendium of comments on, criticisms of and reactions to the source. The file of descriptors, identifiers and locators is an alphabetical listing of "key words." For each source selected, primary (descriptors) and secondary (identifiers) words are listed, and for sources presenting case studies of particular projects or areas a list of "locators" was compiled. The purpose of the files is to assist researchers in their initial scanning of sources by identifying problems, issues, topics or locations studied. This should help researchers to economize on time spent in retrieving pertinent information. The methodology file (incorporated into the accompanying essay) is intended as a guide to the range of approaches and techniques used by social impact assessors. Together, these files constitute an "analytic bibliography" of a selected sample of the literature in SIA. If the sources selected have been analyzed well, then the product of this literature search and synthesis may serve as a useful and economical reference work in SIA for planners, researchers and administrators alike.

## Definitions of SIA

Before moving on to the studies themselves it might be in order to briefly define what is meant by "social impact assessment." The Corps of Engineers' Section 122 Guidelines (Office of the Chief of Engineers 1972: A-1) gives the operational definition now in use:

Effect assessment is an iterative process which consists of the following steps: identification of anticipated project-caused economic, social, and environmental effects; quantitative and qualitative description and display of the effects; evaluation of the effects, whether adverse or beneficial; and consideration of measures to be taken if a proposed project would cause adverse effects.

A later supplement to these Guidelines speaks of "social effects" as observable quantitative or qualitative changes in social phenomena relating to any proposed project (Office of the Chief of Engineers 1973). Mack (1974:175), distinguishing social from economic impacts, defines social impacts as "impacts on people other than those that operate primarily via the dollars in their wallets." This conception, of course, does not imply that economic impacts do not have social consequences. Llewellyn (1974:90) thinks of social impacts as "changes in interpersonal relationships, perceived well-being, or quality of life which might be attributed directly or indirectly to the [construction of a project]." And finally Gardner (1973:4), calling attention to the interrelatedness of social impacts, provides this definition:

Social impact...is the change in the activity, interaction, or sentiment of a unit...as it responds to the changes on it from the surrounding environment and the resultant changes which occur due to the interdependent relationships of the system.... [A] project will alter one or more of these elements in the units to differing degrees, and those changes will in turn alter other elements and units.

In short, a social impact is anything which effects a change in the state of a social system or its subsystems. The best way to understand the diversity and meaning of the term "social impact" is to look at the concrete impacts identified in the studies themselves, a task to which we now turn.

#### AN EXPOSITORY ANALYSIS OF SOCIAL IMPACT STUDIES

This section will review studies falling in several categories of social impact: demographic, institutional, economic, etc. Population displacement and relocation, community cohesion and personal lifestyles are among the topics considered. The legal aspects of SIA are briefly examined, and the question of equity is raised in consideration of a pervasive feature--that of distributive or "differential impacts." The section closes with a brief discussion and tabular presentation of methodologies of social impact assessment.

## Demographic Impacts

The general nature of the problem of demographic impacts of water resource development has been argued by Hollis and McEvoy (1973: 25): "From a demographic point of view, the crux of the water problem in the United States lies in the discrepancy between the natural distribution of the water supply and the distribution of the consumers." The history of water resource development in the United States has centered on the problem of anticipating demographic changes affecting water supply and demand.

Smith and Hogg (1971a) emphasize the changing role of water resource development as it relates to population growth. They identify three phases: the first, from the mid-nineteenth century to just prior to World War II, was a period during which water resource development was geared to stimulating population movement to the American frontier; the second, from the end of World War II to roughly 1970 (symbolically marked by "Earth Day"), was characterized by a focus on keeping water development in pace with population growth; and the third, now emergent, is characterized by the use of water development as a strategic planning mechanism for regulating population growth and distribution. The latest phase is recognition of the fact that water development is a significant part of the total

planning environment and can be used as a conscious planning strategy to effect other societal changes, specifically population changes.

Despite this increasing concern for anticipating the interdependent impacts in population and water development, planning may achieve the paradoxical result of catalytically producing that which it is intended to avoid. Smith and Hogg (1971a) and Hollis and McEvoy (1973) argue that there is a tendency for admittedly tentative population projections to become compelling prophecy. Citing the prominent case of Los Angeles, the latter comment (p. 25):

Projects are usually planned to meet the needs of the area in the "foreseeable future," that is, to support the population "projected" to be in the receiving area in about 30 years time. Yet the very art of constructing such projects usually ensures that the projected population becomes a reality, so projects become both self-fulfilling and self-perpetuating.

This is not to suggest that planning is a hopelessly impossible if not downright dangerous enterprise; rather, it cautions us to the independent causal impacts planning itself can have on the objects of its concern, and impresses upon us with striking clarity the limitations of our ability to forecast. This cautionary note is pertinent to all prediction in social impact assessment, not just population prediction. Our forecasts should be better than "best guesses," but they are

always constrained by the assumptions we make in extrapolating from present trends, some of which are likely to be significantly altered.

### Institutional Impacts

In every case, there is a direct relationship between the planning and construction of civil works projects and changes in the volume and distribution of populations. This relationship cuts across project type and areas. The initial demographic impact is felt via the influx of construction workers and others connected with a project (Peelle 1974; Gold 1974; Hogg and Smith 1970; Wilkening and others 1973). This influx, in turn, places extreme demands on local services and institutions (Peelle 1974; Hogg and Smith 1970; Gold 1974). The typical pattern presents the receiving area with an unavoidable crisis, with short- and long-term impacts. The invasion by outsiders stimulates demand for expanded services; the structure is then adapted to meet this demand; a temporary "boom" is experienced in which local revenues show marked gains. After construction and well into the operation phase of the project, after the workers have left and demand has returned to a lower level, the area finds itself faced with an underutilized but costly service and institutional structure which the local residents must pay for through higher taxes.

Some communities view projects positively as a means to encourage population growth (Hogg and Smith 1970); others fear the encouragement to growth signaled by projects (Gold 1974); and still others are ambivalent (Wilkening and others 1973). What does seem clear, however, is that most communities are willing to look favorably upon population growth if it is also accompanied by economic growth. In short, there is a desire for balanced population and economic growth and often projects are justified by this objective. But owing to the pattern described above, this objective is frequently thwarted. From a policy standpoint, this strongly argues for some action on the part of the planning agencies to ameliorate these negative impacts. Policy criteria should include some legal specification of the binding obligations of developers' responsibilities to the impacted area after the project has been constructed so as to redistribute impact costs. This also speaks to the need for elevating the role of social well-being to the status of a planning objective, alongside national and regional economic development, since it is peculiarly well-suited to pointing out significant local (community) impacts of the kind described here.

#### Displacement and Relocation

The problem of displacement and relocation has probably received more attention than any other category of social impact.

In addition to those impacts which may broadly be termed economic, displacements and relocations are among the most significant and pervasive. Usually, too, they are among those which have the heaviest negative impacts on people. Almost without exception, displacement and relocation connected with the construction of large public works projects are involuntary and preclude return to the former residence. They have the characteristics described by Ludtke and Burdge (1970) of "free compelled" migration: no choice about whether or not to move, but "free" choice of a new location. Free compelled migration has been studied in connection with the construction of large military installations (Breese and others 1965), reservoirs (Burdge and Ludtke 1973; Webb 1969; Burdge and Johnson 1973; Ludtke and Burdge 1970), dams (Mack 1974) and highways (Perfater 1972; Llewellyn 1974). Other studies have looked at the impact of migrations which are different from the free compelled type, including urban renewal (Williams, Jr. 1970) and voluntary moves from one neighborhood to another (Booth and Camp 1974).

Most studies of forced migration have found often severe psychological stresses and social strains associated with moving. In two papers reporting their findings on persons displaced by reservoirs in Kentucky and Ohio, Ludtke and Burdge (1970; 1973) found that

apprehension over moving relates inversely to people's willingness to separate themselves from their current friends and homes. Moreover, strong identification with place (i. e., attachment to a specific home or location) was associated with high levels of apprehension over moving. In contrast, people with more favorable attitudes toward the projects were less apprehensive and were consequently more willing to engage in moves that required greater degrees of separation from friends and residences. A partial explanation for these differences may be that those whose vested interests are served by projects seem more willing to engage in moves requiring significant separation from current membership systems. Those with vested interests enhanced by projects also tend to be those of relatively high socio-economic status while those who tend to be hurt most by relocation are the poor and the elderly with relatively little formal education (Burdge and Johnson 1973). Large numbers of these people are also farmers and have a stronger attachment to their place of residence.

Moreover, these difficulties are exacerbated by the financial costs of moving. In their study of persons displaced by a Corps of Engineers reservoir project, Burdge and Johnson (1973:12) found that many expressed the feeling they were mistreated by the Corps: "They were not helped enough, or were not paid enough for the

difficulty and inconvenience of finding a new home. About half the respondents experienced some difficulty in dealing with the Corps, and the major issue was financial cost." For these people the psychological loss of a highly valued attachment to place, coupled with inadequate financial compensation, can have catastrophic results.

In a study of relocatees in communities in Ohio and West Virginia, Napier (1972) found considerable negative feelings expressed toward the planning agency. Mack (1974) also notes the distrust of the Corps expressed by people affected by the North Springfield, Vermont dam project and even suggests that this was generalized to a loss of confidence in government. While it is probably inevitable that those adversely affected by civil works projects will have a sense that they were treated unjustly by the responsible planning agency, it does appear that agencies like the Corps have not been very effective in understanding the serious people problems their projects create.

Burdge and Johnson (1973:32) state the issue pointedly:

The Corps' image is badly in need of refurbishing. . . . Current attitudes of Corps members toward condemned property and those who must move are alienating and may affect readjustment to relocation and reinforce or create negative attitudes toward the federal government as a whole. More humane treatment of forced migrants by the Corps might deter the vocalization of such sentiments as, in the words of one of our respondents, "The Corps's meaner than a barrel of fishhooks."

Clearly, an effective program of public involvement at all stages of planning is needed in responding to these disaffections.

Displacement due to highway construction reveals some of the same impacts as those discussed in connection with reservoir projects. Llewellyn's (1974) analysis of the literature on the social impacts of urban highways found loss of neighborliness, feelings of confusion and despondency, uncertainty about the actual time of moving, and high costs of relocating as among the most salient impacts. The bulk of the literature he reviewed argued that reimbursements for the costs of relocation could not adequately compensate for the tremendous psychic costs of moving. Llewellyn also found that highway impacts tended to be most severe in low-income areas, or those communities heavily populated by minority groups or elderly, long-term residents. "All too often," he concludes, "highway route selection has followed the path of least political resistance--precisely the localities just described" (p. 98). A different study, though emphasizing that most of the persons sampled in connection with a highway impact survey in Virginia were relatively satisfied with the treatment they received and the financial compensation for moving, nevertheless notes that "the social, economic and psychological impacts of relocation were relatively more severe upon the poor, the elderly and the poorly educated" (Perfater 1972:xi).

Breese and others (1965: 592) emphasize the economic costs of relocation:

Generally, especially if the displaced people and uses do not have ready access to adequate capital and cannot act quickly before inflation appears or outside competition moves in, they are likely to be in a disadvantaged position as a result of site acquisition procedures and timing.

Mack (1974) describes similar negative impacts on people directly affected by dam construction in North Springfield, Vermont. In addition to the psychic costs mentioned above, they suffered reduction of income from capital in property, loss of income in time lost for relocating and litigation costs of obtaining fair settlement terms. In contrast, business interests tended to benefit from dam construction because of additional income accruing from enhanced value of their capital via potential expansion in secure areas, and real estate operators gained because of the increased value of floodplain property in the protected areas.

Another type of forced relocation, urban renewal, displays some of the same characteristic impacts as those discussed above. In some ways, one might expect urban renewal relocation to be less disturbing than the relocations previously discussed because of requirements to provide replacement housing. Williams, Jr. (1970), in a study of the impact of urban renewal on blacks in Austin, Texas,

found however mostly negative and, at best, neutral impacts. Among them were the failure to obtain a "decent" home; heavy financial costs in changing residence; little, if any, improvement in the overall physical environment; no decrease in segregation and a significant degree of perceived "loss of community."

In generalizing about the literature on the human impact of displacement and relocation, it appears safe to conclude that relocatees are overwhelmingly placed in the role of benefactors and only rarely in the role of beneficiaries (Smith and Hogg 1971). What this says to those involved in planning and carrying out changes with these kinds of impacts has been aptly stated by Booth and Camp (1974: 127):

Family stress is a factor that should be considered in weighing the costs of residential relocation programs which move families....Is the increased anxiety and tension the families will experience equal to the gains which might be realized from moving them? If prolonged stress contributes to mental illness, alcoholism or physical illness...the cost to the community may exceed that of relocation alone.

#### Economic Impacts: Income, Employment and Taxes

Civil Works projects are usually justified on the basis of their expected contribution to economic development. But a critical question here is: Whose economic development? If it is the affected community's development that is at issue, then a large number of projects must

assuredly be adjudged failures. What often seems to happen is that the goals of national and/or regional economic development undermine or obscure the goals of citizens in the most directly affected communities. Severe community disruptions have been caused through the relative neglect of these goals. For example, Breese and others (1965) argue that financial adjustment is the single most crucial point of stress in the community's adaptation to new projects. If two of the most central functions of water resource development are the "gaining of subsistence" and the "establishment of a meaningful community" (Smith and Hogg 1971a), it is clear that failure to achieve the first makes the realization of the second exceedingly difficult.

The impacts on regional economic development have been treated by Kraenzel (1957), who compared the patterns of development in the contrasting areas of the Tennessee and Missouri River Valleys. Whereas the Tennessee Valley, under TVA guidance, has had highly favorable development, the Missouri River Valley has not been nearly as fortunate. Kraenzel discusses a number of reasons for these differences. The Tennessee River Valley is a relatively small basin and the benefits have more easily and equitably reached all the inhabitants. It also contains many indigenous metropolitan centers, is easily accessible to the urbanized, commercial-industrial complex

of the East and has favorable environmental conditions. The Missouri River Valley, on the other hand, is considerably larger and has a much greater diversity of resource and social structures. It also contains fewer metropolitan centers, and those that do exist tend to be located on the periphery and serve interests largely outside the basin. Moreover, environmental conditions are, on the whole, less favorable than in the Tennessee Valley. Kraenzel argues that the cluster of "plus" factors for the Tennessee Valley are also those which receive support through the national ethos, a condition which does not hold for the Missouri Valley. His point is that Tennessee River Valley development has succeeded because it is in many ways more "useful" to larger national interests than the Missouri Valley.

Moving to the more localized community level, a number of studies have analyzed the differential economic impacts of various types of projects on people and their communities. Mack (1974:190) found that the North Springfield, Vermont dam brought substantial economic benefits to business interests in the community:

[E]conomic impacts, largely positive, fell on the half dozen large... manufacturers with plants along the river, and on present and future property owners farther north where some large commercial enterprises settled after the dam was built.

In contrast, the local residents--including those with property to be bought and cleared--tended to suffer major economic difficulties. Prominent among these were the costs associated with displacement and relocation (supra). These were partially counterbalanced by increased employment opportunities due to construction, but these were short-term gains and the overall economic impact, coupled with adverse social impacts, was negative for most townspeople.

Gold (1974) discovered a similar pattern in his study of the impact of strip mining on two communities in southeastern Montana. The overall economic impact there presents a mixed picture. While the communities do seem to be experiencing at least a temporary "boom" due to mining development, a large number of ranchers in the area see development as a long-term threat because of land acquisitions by the mining company:

Those who want to expand their ranches anticipate trouble in acquiring more land because the coal companies can always offer more money for acreage which becomes available. At the same time it is also doubtful that anyone interested in buying land for farming or ranching purposes would do so in this area, knowing of the press for coal development and the ramifications such industry brings. (p. 130)

In addition, ranchers worry about the demand for water supplies created by the mining developments and potential pollution hazards.

All of these factors make them reluctant to expand and improve their holdings because of the uncertain return on investment.

By contrast, the merchants and businessmen in the area appear to be benefiting from the mining developments, much to the resentment of the ranchers on whom the businessmen were formerly dependent for their livelihood. Accusations are made that the merchants are out to make a "quick buck." These suspicions, growing out of the differential interests served by coal mining, have thus created adverse social impacts in the form of a general climate of distrust for those who previously contributed to each other's well-being. Gold also notes the rise in tax base accompanying the influx of the mining development interests. But there is a good deal of suspicion among area residents that the extra tax dollars will not, in the long-term, accrue to the area but to the more populous regions of the state. Locals are also fearful of rising taxes to pay for the expanded service needs created by development.

Impacts on taxes have been prominently reported in other studies as well. Peelle (1974: 115), speaking of the impact of nuclear power plants, found that "if the huge increase in assessed valuation of the completed plant is felt primarily by a small governmental unit such as a town, tax rates will inevitably be affected and land prices may boom as the area becomes more attractive to new residents." Hogg and Smith (1970) found that most of the added tax burden growing

out of dam construction in Sweet Home, Oregon was borne by the local property owners on behalf of the short-term resident construction population. The income taxes paid by the construction people went to the state government, not to support the expanded local service structure which they and their families used during the construction phase. In total, Hogg and Smith concluded the people of Sweet Home, despite their belief and hope that the dams would contribute to economic development, were not substantially aided by the projects. The only major positive economic impact, and one which promises to continue, was in the area of increased sale of recreational supplies and other tourist-related business. This will not be sufficient, however, to sustain general economic growth.

A case in which increased recreational capacities did serve to promote highly positive economic growth has been reported by Milliken and Mew (1969). They studied the impact of the Shadow Mountain/Granby and Horsetooth Reservoirs in Colorado and found significantly positive economic impacts, including increases in land and property values, tax revenues, retail business sales and employment. Most residents in these areas drew their livelihood from the recreation business and, since the effect of the reservoirs was to increase recreational opportunities, nearly all of them received an economic boost whether it was in food, lodging, equipment or other recreation-related services.

In like manner, Wilkening and others (1973) report that a majority of respondents in the Kickapoo River Valley of Wisconsin expect construction of the LaFarge Dam to have positive economic impacts by improving recreational opportunities and attracting more tourists. Similarly, Fullerton (1972: 125) estimates recreation benefits on the order of \$3,000,000 per year as a result of construction of the Cross Florida Barge Canal.

It does appear, then, that a major positive economic impact of a variety of water development projects is more dollars generated by increased recreational opportunities. This is likely to continue.

As Hollis and McEvoy (1973: 30) point out:

Recreational demand has not gone unnoticed by water resources development planners and any increased recreational opportunities offered by a proposal are used as strong arguments for the project, not only from the point of view of amenities provided (or supposedly provided) but also because of the added income that such facilities generate.

Nevertheless, as the studies by Mack, Peelle, Gold and others cogently point out, there are likely to be pervasive negative economic impacts. The problem for planners, then, becomes how to ameliorate these impacts and this, in turn, implies some standard or concept of equity. At the very least, equity means just compensation for costs incurred. But as we have seen, even when just compensation is defined in strictly economic terms, actual and perceived inequities

persist. The problem is that in impact situations where significant costs are incurred by the people affected, strict economic accounting of damages is insufficient because of the second-order social impacts precipitated. Thus, there is a need for an effective--i. e., practical and just--means of evaluating social and economic costs within the same accounting framework. We shall discuss one particularly promising method for doing this in the section on "differential impacts" (infra).

### Community Cohesion

Community cohesion is a problem of social integration. It refers to the bases and mechanisms by which individuals and groups within a defined ecological area maintain their functional and affective ties to one another. If we speak of a community as a social system, maintenance of its special unit character may be analyzed in terms of the ways in which it is integrated. A community may be said to have both ecological and conceptual boundaries within which membership and non-membership are defined. Viewed in this way, the introduction of some external agent such as a construction project creates the need for adjustment by which system integration can be maintained. By this conception, social impacts on community cohesion are among the most crucial, for in large measure they affect the entire set of structures and processes bearing on a community's identity and integrity.

Of the entire range of social and economic impacts described in this paper, it is safe to say that any of them may have some causal importance for community cohesion. In his study of the impact of coal mining developments on two Montana communities, Gold (1974) found many disruptions resulting from the superimposition of a new industrial technology on a formerly stable rural environment. These included shifts in friendship networks and new strains among old friends, intensification of class alignments and class awareness, a decline in "neighborliness," and the dissolution of old coalitions and the formation of new ones. These all symbolized a pervasive sense of "loss of community":

The old-time residents of Colstrip are finding that the community is no longer theirs; it already belongs to others. Locals here and at Forsyth are feeling socially uprooted, that is, feeling a loss of sense of community as the impact of newcomers becomes more apparent, as old-timers are elbowed out of established positions, and as traditional networks of relationships undergo continual strain and rupture. As locals contemplate future changes of greater magnitude and at a faster rate, they become very anxious about being able to manage their lives satisfactorily in the future. Factionalism related to the coal issue has added to the sense of being a stranger in one's own town.  
(p. 134)

Gold describes a not-atypical case here: the sudden impact of rapid development which most townspeople associate with the bad effects of an urban-industrial society: lack of privacy, fear for self, congestion and the sense that life is busier and more complicated.

The same kind of reaction has been described by Hogg and Smith (1970) in their study of the impact of dams on the communities of Sweet Home and Foster, Oregon in the Santiam River Basin. Here too, outsiders are seen as invading, taking over, and shaping anew the character of the community. Residents of Sweet Home, they note, have started to think differently about their community. At first, during the planning phase when the dams were being discussed, most looked upon the projects as something which would bring greater prosperity and well-being to the community. But few of the anticipated benefits were realized and now the town finds itself under the guidance of urban-suburban migrants connected with development. They have introduced more formalistic, legalistic processes and values which have undercut the more traditional, informal and personal orientations of most community residents. In sum, the dams have brought about social processes which have intensified disintegrative social relationships and increased the predominant "non-articulation" of the system in which extensive role differentiation is not effectively integrated. Hogg and Smith argue that the structural configurations characterizing the rapid changes in these communities are similar to those of social and cultural disintegration.

Similarly, Mack (1974) describes North Springfield, Vermont as a town whose identity and development as a community have been

adversely affected by the dam project. People complain of the difficulties of forming new community and personal relationships because of the disruptions created by dam construction and its aftermath.

Ironically, projects which in general tend to break down community cohesion overall may aid it in specific ways. Gold (1974:135), for example, speaks of the "excitement involved in opposing coal development" which has brought some formerly opposed groups together for that shared purpose. And Wolf (1974:7) relates the comment of a Chicago District planner "that before the Corps of Engineers came into a downstate Illinois town, 'there wasn't any such thing as community cohesion.'" But it would be silly to view instances like these as positive impacts on community cohesion. More properly, they should be viewed as last ditch attempts on the part of otherwise powerless people to organize in the best way they can to protect themselves against forces which are troubling their lives in ways which seem profound and irreversible.

### Lifestyles

Much of what we have treated under the topic "community cohesion" is directly related to the matter of lifestyles. The concept of lifestyles as used here has both a perceptual and behavioral

dimension: it refers to both symbols of what people value and how they behave on a day-to-day basis as well as to other's beliefs about these values and behaviors. The two are not necessary synchronous, but W. I. Thomas' theorem that "if men define their situations as real, they are real in their consequences" aptly applies here.

Breese and others (1965:590) make the general point about lifestyle impacts:

The pre-existing public image of forthcoming installations [or projects] var[ies] greatly. . . . The public image is related not only to the kind of [project] but to the corresponding differences in the types of personnel attracted.

The evidence from the studies examined points toward the conclusion that in the case of relatively insulated and small rural communities there is real trepidation about the "strangeness" of the lifestyles of those brought into the area to work on projects. Gold (1974) and Mack (1974) both discuss the belief on the part of townspeople they interviewed that the projects in their communities had brought in people whose lifestyles and values were threatening to them. And Wilkening and others (1973) found some concern on the part of people in the Kickapoo Valley that the dam would attract people with different social outlooks and lifestyles as well as "undesirables."

As noted above, it is probably true that concern over new lifestyles is as much related to what the new people stand for and

symbolize as to their actual behavior. This is at least what Hogg and Smith (1970) observed in their study of the people of the Sweet Home and Foster communities: the people there had a hard time adjusting to the more formal operational modes of the newcomers and the communities also recorded a definite rise in crime during the construction phase, which returned to pre-construction levels after the dams were completed. The findings of James and Brogan (1974) are pertinent here. They studied a sample of Atlanta city blocks to determine the impact of land use on the well-being of residents. The dominant pattern they found was that land use patterns which cause large numbers of non-residents to frequent residential neighborhoods are regularly associated with problems for the neighborhood residents, including narcotics, alcoholism, burglary and juvenile delinquency. They conclude with a policy recommendation:

If the implication that physical features that attract large numbers of outsiders contribute to certain community well-being problems while those that isolate the community reduce these problems is indeed true, the relationship needs to be factored into urban land use management decision making.

While we may doubt the wisdom of following one extreme implication of their study--that communities should remain insular--we should nonetheless be cautioned to the implications of their findings for

what they say about the negative impacts of the influx of outsiders into the rural project areas discussed above, where the disruptive effects tend to be even profounder than in more differentiated metropolitan areas.

### Legal Dimensions

Social impact assessment is only beginning to acquire formal legal standing, although it is increasingly being incorporated into federal agency planning guidelines and has begun to make inroads into the corporate planning process. The legal basis of social impact assessment is slowly evolving through generalization of the National Environmental Policy Act (NEPA). As Savatsky (1974:47) has argued in this connection:

[I]t is obvious that legislation has, through implicit communication, showed the necessity for human and therefore societal or sociological analyses. Explicitly, in [a] recent [Council on Environmental Quality] document, there has been a suggestion that the social effects [considered secondary]"may often be even more substantial than the primary effects of the original environmental actions themselves."

Francis (1974), in a review of recent court decisions growing out of the provisions of NEPA, argues that court interpretations of the act have recently turned to the human urban environment. This is true at both the federal and state levels and for private as well as

public projects. While raising social impact assessment to the legal status of environmental impact assessment would be clear recognition of its importance in overall social planning, there are dangers associated with attempts to push toward this goal. Francis (p. 61) cites the case of a Chicago homeowner's association which is attempting to block construction of a low-income housing project in a white neighborhood on the grounds that the social class behavioral characteristics of the proposed occupants constitute a significant environmental impact. This is not to counsel against the legal route, but to warn of its hazards. Wolf's (1974:34) conclusion is pertinent here:

However necessary legal compulsion may appear, it is not likely to prove sufficient. Certainly it will not substitute for the regular performance of professionally competent assessments on the part of responsible administrators and their staffs.

### Differential Impacts

We are tempted to sum up our analysis in two words: differential impacts. The point is that the impacts of high-technology projects affect different people in different ways at different times. Some people lose a great deal, others gain, most probably fall somewhere in-between, gaining in some ways but losing in others. And there are certainly some--indeed, many--who are virtually

unaffected by project impacts. So it is quite clear that differential impacts are what social impact assessment is all about. The problem is: how do we measure, weigh and compare the importance of impacts with such diverse complexity--how do we, in Mack's (1974:182) words, go about "summing non-commensurables?" Simple application of benefit-cost ratio (BCR) techniques is insufficient, for it assumes that what is being analyzed is measurable in purely economic terms. For many of the impacts we have discussed, no such assumption can be made. It may be that some of them are immeasurable in any precise way ("non-quantifiables" in Peelle's words); or, more plausibly, we have not yet found the requisite measurement techniques but with hard work we shall eventually succeed. The development of reliable and valid social indicators certainly holds promise as a solution to many of these measurement problems. Yet even if we found good measures, there would still be the problem of converting these into precise dollar equivalents, the calculus of BCR.

One promising attempt to deal with these problems has been proposed by Mack (1974). Her "e-model" is an exploratory theoretical and methodological framework within which a diverse array of social, economic and environmental impacts can be described and measured. The e-model is grounded in economic utility theory and a theory of

human needs postulating nine utility categories (or "want-satisfactions"). Starting with the assumption that individuals attempt to maximize utility, she argues that one way by which to assess the cost people incur from a project is to ask what proportion of the utility they could buy with their last one percent of income would they be willing to give up to avoid an undesirable impact. This is measured in "utility index points," with one point representing the utility that a person or household expects to derive from spending the last one percent of income. For a given type of impact, many utility categories may potentially be affected. The method of computation is to identify the impact and the relevant impacted group, the category(ies) or utility(ies) affected, and the imputed magnitude of the impact on the "average person" and on the group over a specified time period.

The method makes some assumptions which might be disputed and raises other questions of substance (Shields 1974). Nevertheless, it is the most interesting attempt to date to come to terms with the enormous problems of assessing differential impacts within a single analytic framework. From a practical standpoint, the method is compatible with traditional BCR but also improves on it by the way in which it handles non-economic impacts. It also places no constraints on the types of data-gathering which might be used, whether they

be open-ended or closed interviews or questionnaires, secondary sources or the compilation of "life histories" (Hogg and Smith 1970). One direction future work in social impact assessment might take is to develop and refine the model and method, applying it to a range of impact types and settings.

We have described one exemplary approach to the problem of assessing differential impacts, one which seems particularly fruitful. There are others (e. g., Bishop 1972; Fitzsimmons and Salama 1973). It is clear, however, that whatever the preferred approach, social impact assessors must find an effective way to validate their observations in a manner which decision-makers at all levels can appreciate and accept. Otherwise, we are in danger of frustrating our hopes and falling short of our goals. We may have confidence in the soundness of our judgments, but this faith will not be enough to convince skeptical administrators and planners. It is one thing to lament the precarious position of impact assessment in the overall planning process (Wilkinson and Cole 1967), but it is another thing to do something about it. The way we do something is to improve on what we know and how to apply it, and thereby demonstrate to planners that we offer useful knowledge upon which they can securely base decisions.

## Methodology

The range of methodologies in social impact assessment is as varied as that of the social sciences as a whole. Table 1 charts the range and diversity of methodological approaches to social impact assessment. We have already discussed Mack's (1974) in terms of its capability for dealing with the problem of differential impacts. In addition to Mack, we would like to call particular attention to the approach elaborated by Johnson and Burdge (1974), "comparative diachronic analysis." This "tentative predictive methodology" involves using ex post analysis of a project similar to one which is in the planning stage and for which a social impact assessment is proposed. Similar project size and purpose, similar geographical and cultural region, similar data time frames and comparable data sources are proposed as the minimum matching criteria. While for theoretical and methodological reasons they suggest the county as the unit of analysis, there is no apparent reason why larger or smaller units could not also be selected, provided appropriate controls on systematic variations are insured. Illustrative kinds of data for matching would include information on the age/sex structure of the population, the size of the community, its labor force patterns and the percentage urban and rural. The distinctive value of this approach is its attempt to be predictive--a clear requirement for effective

impact assessment. Moreover, it selects a strategy which fills a present gap in the literature on social impact assessment: the development of empirical generalizations and eventually propositions by inductively building up comparative case materials. And, like Mack's, Johnson and Burdge's methodology places no constraints on the kinds of data sources which may be used.

### Social Research and SIA Practice

The greatest utility of the sources analyzed would be to associate their approaches and results with a series of social impact assessment steps employed by field planners. These necessary connections can only be roughly approximated at present. Further refinements will be needed to tighten the connections between social research and field practice.

The sequence of SIA steps delineated in Section 122 Guidelines (Office of the Chief of Engineers 1972) outlines the current operational phases through which social impact assessments are to be carried out within the Corps of Engineers. Although there are eleven steps in all, the first seven are most central for our purposes here. These are: (1) profile; (2) "without" project projection; (3) "with" project projection; (4) identification of significant effects; (5) description and display of significant effects; (6) evaluation of effects with public; and (7) mitigation of adverse effects. In this section we shall interpret

Table 1 - Methodological Approaches to Social Impact Assessment

<u>Approach</u>	<u>Methodology</u>	<u>Technique(s)</u>	<u>Data Source(s)</u>	<u>Use</u>	<u>Display</u>	<u>Reference</u>
Anthropological	Participant observation	Interviewing; life histories	Interviews	SIA of San-tiam Basin	Narrative; tabular	Hogg and Smith 1970
Demographic	Forecasting	Population projections	Census	Demographic impacts of water	Tabular	Hollis and McEvoy 1973
Ecological	Factor analysis	Multiple regression	Census block data	Land use and well-being	Tabular	James and Brogan 1974
Economistic	Benefit-cost analysis (e-model frame)	Accounting ("Utility Pt. Index")	Analytic narrative	Differential impact assessment	Tabular	Mack 1974
	Benefit-cost analysis	Accounting	Interviews	Recreation impacts of reservoirs	"Balance sheets"	Milliken and Mew 1969
Evaluation Research	Survey research	Interviewing	Interviews	Evaluation of urban renewal success	Tabular	Williams Jr. 1969
Group Impact Analysis	Benefit-Cost analysis	Impact dimensioning	Case studies	Social impacts of nuclear plants	List	Peelle 1974
Interactionist	Participant observation	Informant interviewing	Observations; interviews	Impacts of coal industrialization	Narrative	Gold 1974

<u>Approach</u>	<u>Methodology</u>	<u>Technique(s)</u>	<u>Data Source(s)</u>	<u>Use</u>	<u>Display</u>	<u>Reference</u>
Legalistic	Case review		NEPA: Court decisions	Generalization of NEPA to SIA	Dimensions outline	Francis 1974
Literature Review	Analytic bibliographic		Case studies	Research on highway impacts	Narrative	Llewellyn 1974
Quasi-Experimental	Comparative diachronic	Case-matching	Mixed primary and secondary	Matched-case prediction of social impacts	Information mapping	Johnson and Burdge 1974
Regional Analysis	Survey research	Reputational interviewing	Interviews and census data	Profiling of area	Tabular	Wilkening & others 1973
Social-Psychological	Quasi-experimental	Scaling and interviewing	Interviews	Relation between relocation and alienation	Tabular	Napier 1972
	Benefit-cost analysis	Interviewing; surveys	Previous case studies	Costs and benefits of relocation	Tabular	Burdge and Johnson 1974
	Modeling	Interviewing; scaling	Interviews	Attitudes toward relocation	Models	Burdge and Ludtke 1973
	Quasi-experimental	Interviewing; index construction	Interviews	Attitudes toward relocation	Tabular	Ludtke and Burdge 1970

<u>Approach</u>	<u>Methodology</u>	<u>Technique(s)</u>	<u>Data Source(s)</u>	<u>Use</u>	<u>Display</u>	<u>Reference</u>
Systems	Group-issue identification		Varied (unspecified)	Mainly for profiling	Discussion	Dunning 1974
	"Factoring"	Matrix logic	Mixed: primary and secondary	Dimension- ing of water- society relations	Matrix; tabular	Fitzsimmons and Salama 1973
	Causal modeling	Regression analysis	Interviews and secondary literature	Model of hydrologic- sociologic flow system (urban)	Flow charting	Andrews and others 1973

each step and cite sources from the literature exemplifying them. It should be noted, however, that none of the sources reviewed can serve as a paradigmatic example of the entire sequence. "In principle, the cumulative effect should be the systematic and comprehensive identification, measurement and evaluation of all significant impacts and their interrelations. In practice, this logic has yet to be carried through to a successful conclusion, though fragments of it have been assembled" (Wolf 1974:22). As a guide to these "fragments," a chart cross-referencing sources and steps is included at the end of this section (Table 2).

1. Profile: "The purpose of the profile is to establish a relevant planning setting and framework for analysis, and to assist the planner in identifying the needs and problems of the planning area as it currently exists" (Office of the Chief of Engineers 1973:5). The task here is to accumulate and organize baseline data about the area in order to develop its sociological "portrait" prior to the start of project construction. At the least, this implies some "dimensioning" of the probable loci of impact (Peelle 1974) or delineation of the parameters of interaction between project and area (Fitzsimmons and Salama 1973). As Dunning (1974) argues, a systemic approach which seeks to identify major groups and issues may prove highly useful in anticipating likely points of stress which might be created

by project plans. That is, in compiling baseline data to describe the area, the profiler should try to identify salient characteristics and problems in terms of their implications for impact assessment. One problem here is to delimit area (system) boundaries (Wolf 1974: 22). This necessarily involves giving careful thought to where indirect and longer-term impacts are likely to lodge so as not to be too narrow in boundary-setting. An impressive attempt to meet this problem as well as that of identifying major groups and issues is reported in a study by Andrews and others (1974), which develops a preliminary model of the interactions between the hydrologic and sociologic dimensions in the metropolitan Salt Lake City area. Ideally, model-building of this kind should be applicable at every step of impact assessment.

2. "Without" Project Projection: This is "extended profiling": forecasting the areal situation into the future under a "no project" assumption. Essentially this involves extrapolation of the baseline data in the profile to detect changes which might be anticipated in the absence of a project. This general forecasting phase should include some delineation of the time frame within which the predictions are cast as well as explicit statement of the assumptions grounding the predictions. Hollis and McEvoy (1973) caution against the failure to observe the latter requirement by noting the "self-fulfilling" nature

of population predictions used to justify the expansion of water supply. Their point is that predictions are, or at least should be, better than "best guesses." But they are only as good as the assumptions upon which they rest; and if the assumptions change, as they often realistically do, then the predictions will err. One way of optimizing predictive validity is to hypothesize a set of alternative futures, assuming a range of parameter values for the designated project area (Chicago District 1973). This is particularly important at this step since the "without" project projection(s) are the baseline against which the "with" project projection(s) are compared.

3. "With" Project Projection: This more specific project-related forecast involves speculation about possible futures of the area assuming one of the alternative plans is carried out. Causative factors and their effects are identified and comparisons are made against the "without" project projections. Previous impact studies of similar project types in similar project areas may be useful here (Johnson and Burdge 1974; Riordan 1970). In addition, effective sampling of the opinions of affected publics is one technique which could be more frequently used at this stage (Wilkening and others 1973). In principle and at least initially, a set of alternative project plans should be assessed as in the previous step (Chicago District 1973).

"The preparation of the 'with-project' projection is essentially the heart of effect identification. It can best be achieved by considering all factors going into a project and describing the effect that factor will have on the planning area" (Office of the Chief of Engineers 1973:10). In practice, however, it is probably inefficient, if not impossible, to consider all factors and their effects; rather, the analysis calls for some selective focus on a subset of the total according to some criteria of significance.

4. Identification of Significant Effects: For each alternative project plan, significant effects are selected and their causes identified. "'Significance' may denote quantitatively large change, qualitatively important change, or may merely connote change the planner feels will be a matter of contention" (Office of the Chief of Engineers 1973:10). A critical problem here is distinguishing real project-induced changes (effects) from those unrelated to the project (Highway Impact Research Staff 1962; Milliken and Mew 1969). For its resolution, this problem requires experimental controls which few impact studies have yet managed to incorporate (Cook and Scioli, Jr. 1972; Wolf 1974:26).

5. Description and Display of Effects: This step calls for the classification and summarization of impacts through narrative description and graphic representation in a way that facilitates public

understanding and evaluation. Information displays in the form of charts, models, graphs and cognitive maps are among the techniques implied here. The particular technique used will partly depend on the type of methodology employed in the impact study. Gold (1974), for example, makes effective use of the narrative in approaching his study of the impact of coal mining industrialization from an ethnographic perspective, while Mack's (1974) presentation of findings about the impact of the North Springfield, Vermont dam exemplifies the technique for tabular displays of impacts and impacted groups. While it is desirable to have quantitative data for display, many types of social data are, at present, amenable only to qualitative analysis (Peelle, 1974).

6. Evaluation of Effects with Public: Evaluation through public disclosure and discussion of findings is the key to this step. The public--or better, publics--are presented with alternative plans and encouraged to register their preferences. The "no project" option is one alternative which, in principle, is always present. This step usually involves a discussion of impact "trade-offs" and the reformulation of plans. The choice of evaluative tactics is left open, a factor which perhaps helps to account for the not uncommon failure of this step to be implemented consistently and effectively.

As a result, public evaluation is increasingly taking recourse to legal review (Francis 1974; Savatsky 1974). This is not where it properly belongs or where it is always best accomplished. Work is now underway to make this step a more central part of the total planning process. Indeed, the combined problems of identifying the various publics and then designing ways to structure their responses are among the most persistent and obdurate in SIA (Wolf 1974: 27).

7. Mitigation of Adverse Effects: This step follows logically from those preceding. It is clearly involved in the ongoing formulation and evaluation of alternative plans and the effort to solicit public feedback. Up to now the procedure of SIA has included description, explanation and prediction; in this step control enters the process. What this step calls for is more than mere analysis. Rather, it forces analysis to give way to questions of value and equity--questions like "Who gains and who loses?" and "What losses must be suffered for what gains?" (Mack 1974). The assumption that there is some larger "public interest" to be served can be illusory and mischievous. The standard of distributive justice is seldom applicable because of the too frequent separation of the roles of beneficiary and benefactor (Smith and Hogg 1971). Evidence

from a number of the studies reviewed (Mack 1974; Burdge and Johnson 1973; Napier 1972) indicates that significant numbers of people in impacted areas believe costs and benefits of projects are unnecessarily maldistributed, a result for which they tend to hold the planning agency most responsible. Given these problems, it may be that the most demanding responsibility of effective impact assessment is to propose means by which distributively unjust impacts can be avoided.

The chart on the following pages is meant to serve as a checklist and guide through sources and SIA steps. It is meant to highlight primary connections between each source and the steps, but does not detail the specific content. The question which guided the compilation of this chart was: What SIA steps are illuminated or exemplified in this source? None of the sources, it should be noted, explicitly followed the procedure adumbrated by the steps. Thus it is this writer's judgments about the connections which are being displayed in the chart. In many cases, a given source does not technically fulfill the conditions of a specific step as defined in the previous section. For example, in regard to the third step ("With" Project Projection), most of the sources checked do not strictly do projecting since their study area is already an impacted

TABLE 2: SIA STEPS AND SOURCES MATRIX

Source	Profile	Without Project Projection	With Project Projection	Identify Significant Effects	Describe & Display Effects	Evaluate Effects w/ Publics	Mitigate Adverse Effects
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Andrews and others 1973	X	X	X			X	
Burdge and Johnson 1973	X		X	X	X	X	X
Burdge and Ludtke 1973			X	X	X	X	
Dunning 1974	X					X	
Fitzsimmons & Salama 1973	X			X	X		
Francis 1974	X					X	X
Gold 1974	X		X	X	X	X	
Hogg and Smith 1970	X		X	X	X	X	
Hollis and McEvoy 1973		X	X	X			
James and Brogan 1974	X			X	X		X
Johnson and Burdge 1974	X		X	X			
Llewellyn 1974			X	X	X	X	
Ludtke and Burdge 1970			X	X	X		
Mack 1974	X		X	X	X	X	X
Milliken and Mew 1969	X	X	X	X	X	X	
Napier 1972	X		X	X	X		
Peelle 1974	X		X	X			X
Savatsky 1974						X	
Smith and Hogg 1971	X		X	X	X		
Wilkening and others 1973	X		X			X	
Wilkinson and Cole 1967				X		X	
Williams Jr. 1969			X	X	X	X	X

area which is being described. It is plausible to argue, however, that studies of already impacted areas are of value to planners who are faced with the task of forecasting impacts in project areas still in the planning stage. This point applies to all the other steps on the chart. With these caveats in mind, the chart is offered as a practical tool for those interested in scanning the literature in terms of the SIA steps.

#### Concluding Remarks

"[One] difficulty in the way of... forecasting and planning is our inability at present to secure reliable knowledge about the causal or functional relationship between the processes which operate in any piece of social planning" (Sorokin 1936:18). This is only partially true now. The problem is not so much that we lack the ability to obtain secure, reliable knowledge; rather, it is that the knowledge available to us has yet to be comprehensively and effectively organized.

The task demanded of social impact assessment is nothing short of comprehensive societal analysis. "In its broadest definition, SIA is practically coextensive with integrated social science knowledge; doubtless this is part of its intellectual appeal" (Wolf 1974:2). Our knowledge base, however, is inadequate to the demand. The major theoretical problem is one of evolving an analytical framework and

model of society which are abundantly useful. The request is simple, but the job is enormously difficult. In the operational context of SIA, the theoretical problem is transformed into a practical "how-do-you-do-it?" problem with political and time constraints. Consequently, the organization of knowledge in SIA must proceed incrementally, usually by single and comparative case studies. But this frequently results in a dissociation between the empirical base and the formation of theory. The gaps are already large enough: SIA seems to carry on with little utilization of existing social theory; and there are many who believe that our theories have little to offer toward the resolution of "reality" problems. But it is probably closer to the truth to say that the connections have not yet been properly charted.

This is not the whole picture, however. Work in SIA is growing--and improving. We have given special attention to Johnson and Burdge's work in developing a predictive methodology and to Mack's efforts to develop a framework for assessing differential impacts. Their leads are worth following and building upon, as is the work of Andrews and others in system modeling. And there are other specific needs which current research should address, including the ongoing need for comparative case materials and the development of methodologies for disaggregating publics and identifying impact.

recipient groups. These only hint at the range of research opportunities.

Finally, SIA is in need of operational and conceptual expansion. SIA is knowledge in use--applied social science in the broadest sense--and encompasses (potentially) the entire range of social science fields. Extending to the largest societal dimensions, the need for SIA far transcends the task of single agency planning. In principle, there is no reason why the analytic and methodological procedures of project-specific impact assessments cannot extend to the domain of overall societal assessment. It is not fantasy to think that within the foreseeable future, alongside the economic and foreign policy reports of the President, there will be an equivalent report on the state of the society. Certainly, the growth of social indicators implies and facilitates this trend. Perhaps the main obstacle at present is not so much the unwillingness of political authorities to grant us equal opportunity, but the insufficiency of our efforts as social scientists to make our services one among the categories of "critical needs."

A P P E N D I C E S

## APPENDIX I

### ANNOTATED BIBLIOGRAPHY

References below are annotated in the following format:

Title  
Author(s)  
Place of publication and other identifying information  
Descriptors/Identifiers  
Locators  
Abstract  
Findings  
Comments  
See also:

"Descriptors/Identifiers" are key words describing the broad subject areas (descriptors) and specific contents (identifiers) of each source. Since the same terms can be used interchangeably, as either descriptors or identifiers according to the author's emphasis, both sets are combined in a single list or index in Appendix 2. Here, identifiers are subordinated by use of a colon, e.g., Attitudes: Flooding and Flood Protection. The former term is the descriptor; the latter, the identifier.

"Locators" simply indicate the physical setting of the studies reported. In certain cases these are highly localized; in others they are area-wide (e.g. river basins).

Abstracts used are those supplied by the author wherever possible. "Findings" are selected to highlight the reviewer's particular interests, however. Comments are his own except where otherwise stated.

"See also" refers to cognate sources a reader may wish to consult.

A Preliminary Model of the Hydrologic-Sociologic Flow System of an Urban Area

Wade Andrews and others.

Logan, Utah: Institute for Social Science Research on Natural Resources and Utah Water Research Laboratory, Utah State University, 1973 (April).

DESCRIPTORS/IDENTIFIERS

Attitudes; Flooding and Flood Protection; Flood Plain Management; Hydrologic System; Interviewing; Methodology; Modeling; Regression Analysis; Social Well-Being; Watershed Management

LOCATORS

Salt Lake Valley, Utah

ABSTRACT

This report describes the first phase of a larger project directed toward developing a general technique for analyzing and solving urban metropolitan hydrologic problems through joint consideration of both the physical and social system dimensions. This particular report is limited to the preliminary work of identifying social variables, the first step of assigning mathematical values and developing a mathematical format for them. In addition, the physical-hydrologic system is identified for purposes of clarifying the element in that system. The ultimate objective of the entire project is to lay out a theoretical and generally applicable mathematical model of both the physical and social dimensions involved in metropolitan flooding problems.

This report is divided into five parts. Chapter I introduces the problem and sets out the scope of the study. Chapter II is concerned with the development of the hydrologic dimension of the model. The methodology and rationale used in developing the conceptual model of the sociological component of the system are presented in Chapter III. A conceptual model of the hydrologic-sociologic system together with generalized mathematical relationships for specific sociological processes are included in Chapter IV. Chapter V sets out the conclusions of the first phase of the project. Specific data, computer programs, and other relevant information are included as appendices.

Both survey data and data collected by agencies and groups in the study area (Salt Lake Valley) are used and modeled by application of multiple regression analysis.

### FINDINGS

1. The variable, "perceived likelihood of flooding at present residence," is a central motivating variable for members of the public and is also related to other types of behavior, such as membership in groups or organizations concerned with flood control projects which are instrumental in influencing flood agency behavior.
2. An agency is alerted to a flooding problem by either the hydrologic component (physical systems and their condition) or by public perception of the flood probabilities through the variable "perceived likelihood of flooding at present residence."
3. Emergency and non-emergency action selection processes on the part of agencies emphasize different factors. The selection of emergency actions emphasizes "flood control potential of action" and "cost and other economic factors." Non-emergency action selection emphasizes factors such as aesthetics and recreation as well as opinions of publics and other agencies.
4. There are many more specific findings contained within each section of the report and referring to each part of the model. These are mainly found in Chapter 4, pp. 37-59. Here the sociologic part of the hydrologic-sociologic model is divided into six stages:
  1. State of public opinion information and perception of flooding problems.
  2. Planning agencies or social structure for planning activities and the preliminary proposal process.
  3. Decision agencies or structure for analysis and adoption of proposed plan.
  4. Public reaction process (acceptance, rejection, or adjustment).
  5. Alternative actions subcycle.
  6. Implementation of actions.

For each stage, regression analyses of the most strategic variables are conducted and the results are "plugged into" the model.

COMMENTS

1. This is an ambitious modeling effort which effectively demonstrates the possibilities of a systemic path model approach to laying the conceptual foundation for impact assessment. It is particularly pertinent to area profiling issues.

Social Costs and Benefits of Water Resource Construction

Rabel J. Burdge and K. Sue Johnson

Research Report No. 64, Lexington: Water Resources Research Institute, University of Kentucky, 1973 (November).

DESCRIPTORS/IDENTIFIERS

Adjustment; Army Corps of Engineers; Attitudes: Relocation/Reservoirs; Benefit-Cost Analysis; Community Cohesion; Evaluation; Interviewing; Methodology; Migration: Forced; Reservoirs; Social Values

LOCATORS

Carr Fork and Cave Run Reservoirs, Kentucky

ABSTRACT

This report analyzes the process of relocating people who must move due to reservoir construction in Kentucky. Using a variety of data obtained in previous studies psychological, social, economic and other material costs and benefits of forced relocation are described and the role of the relocating agency (the Army Corps of Engineers) is examined. Generally, the younger, more affluent and better-educated migrants fare better in the relocation process than the older, poorer and less-educated. Particular attention is paid to those people who found relocation difficult and suggestions are offered for easing their burden. The framework for this report is longitudinal, tracing the relocation process from pre-migration to post-relocation.

FINDINGS

1. Relocation tends to affect people who are poor, often subsistence farmers, with little formal education, and who hold values such as traditionalism, familism, person-centeredness, and fatalism. Many hold negative attitudes toward reservoir construction and the federal government in general.
2. It is not true that knowledge about a project is necessarily a factor in reducing negative attitudes. The tendency toward negativity is greater among those who must be relocated.

3. Positive attitudes are likely when people can see real benefits for them personally or for the whole community (Burdge and Ludtke 1973). Negative attitudes probably arise from the feeling that they are losing something personally.

4. "The mean age of those having to move for the Cave Run Reservoir was 58, and for Carr Fork Reservoir 56 for males and 53 for females. This is considerably older than the U. S. average. Their modal education in both populations was eighth grade; their mean incomes were \$4,000 at Cave Run and \$5,000 at Carr Fork, so they hardly form a well-to-do class. Rural dwellers tend to be very attached to their homes and land. . . . These people lead a life based on personal, individualistic, and familistic relationships--all of which, plus ways and pace of doing things, is disrupted when they have to move. For some people this loss of focus of identification can have catastrophic results."

5. "These data show that a substantial number of people were mistreated by the Corps. They were not helped enough, or were not paid enough for the difficulty and inconvenience of finding a new home. About half the respondents experienced some difficulty in dealing with the Corps, and the major issue was financial cost."

6. "About one-third of the persons whose financial situations worsened (20 of 67) cited relocation as a cause. Frequently cited reasons included the lack of a garden and higher rents and for those with a new business location the necessity for more rent and a decrease in business volume. On the other hand, only a very small number (2 out of 43) whose financial situation had improved cited reservoir-related causes. These two respondents listed a garden and increased business volume as the reason for an improved financial situation."

7. "When asked what social activities had changed the most upon relocation, the majority replied, 'visiting friends.'"

SEE ALSO: Burdge and Ludtke (1973); Ludtke and Burdge (1970);  
Johnson and Burdge (1974).

"Social Separation among Displaced Rural Families: The Case of Flood Control Reservoirs"

Rabel J. Burdge and Richard L. Ludtke

In: W. R. Burch and others (eds.) Social Behavior, Natural Resources and the Environment. New York: Harper and Row, 1973, pp. 85-108.

DESCRIPTORS/IDENTIFIERS

Adjustment; Attitudes: Relocation/Reservoirs; Benefit-Cost Analysis; Causal Inference; Community Cohesion; Interviewing; Methodology; Migration: Forced; Modeling; Quasi-Experimental Design; Reservoirs.

LOCATORS

Kentucky; Southeast Ohio

ABSTRACT

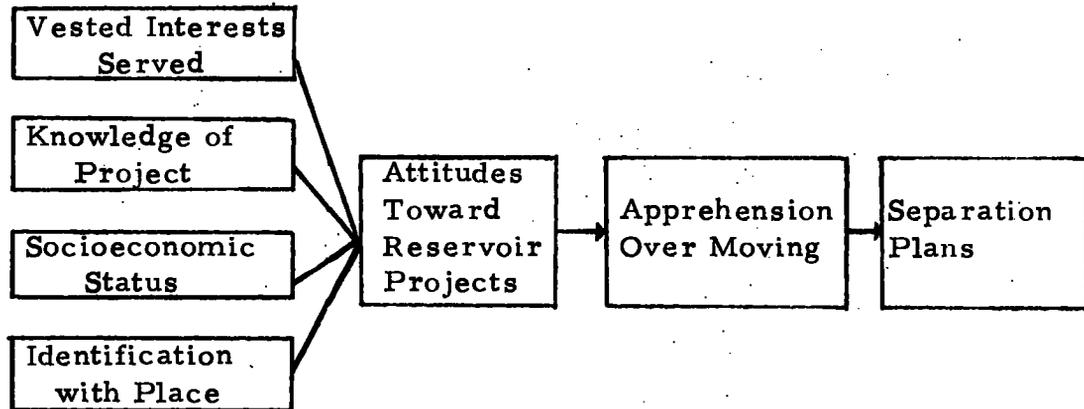
The focus of this paper is on how rural people anticipated forced migration due to reservoir construction. Data were obtained from personal interviews with people about to be flooded by multipurpose reservoirs in southeastern Ohio and central Kentucky. A model is tested in which the variables "vested interests," knowledge of reservoir project, socio-economic status, and the degree of "identification with place" are seen as producing differential attitudes toward the projects. Different attitudes, it is hypothesized, will produce differential apprehension over moving, which in turn will influence individual migration plans. Support for the model is uneven, but the variables "vested interests" and degree of "identification with place" are correlated strongly with attitudes of respondents toward reservoir projects. A most surprising finding is that socio-economic status is not related to attitudes toward projects with sufficient strength to be considered important.

FINDINGS

1. This is a study of how rural people anticipate forced moves. The unique aspect of the phenomenon under study is that return migration is precluded. The main dependent variable is anticipation of migration under this condition.

2. Previous literature on migration is reviewed. None of this research rejects the notion that migration is a stress-producing activity.

3. The model tested is the following:



The design is one which makes causal inferences from non-experimental data. In this design only the concluding variable is seen strictly as a dependent variable. The two intervening variables may be considered as independent or dependent. The initial variables are assumed to be caused by (exogenous) variables outside the system, but are viewed as independent variables in the model. Reciprocal causation (feedback) is ruled out.

4. Results of the test:

1. Apprehension over moving relates inversely with people's willingness to separate themselves from their current friends and homes.
2. People with more favorable attitudes toward the project are less apprehensive over moving and consequently are more willing to engage in moves that require a greater degree of separation from current friends and residence.
3. Vested interests is an exceptionally powerful variable in support of the hypothesis that attitudes affect social migration. Vested interests were found to relate to apprehension indirectly

as predicted, supporting the idea that those persons with vested interests served by a project are more willing to engage in moves that require a greater degree of separation from current friends and residence.

4. Knowledge about the project had a negligible effect on people's attitudes toward the reservoir projects and did not contribute to the explanation of social migration.
5. The level of identification with place was found to relate strongly and consistently with apprehension and consequently produced indirect effects on social separation. Uniformly, the more intense identification with place, the less inclined people were to move.

5. This study, then, suggests a portrait of a person with favorable attitudes toward reservoirs as one who is younger, unresistant to change, has high vested interests in the project, and has an extremely low identification with place of residence. This person is less likely to be apprehensive about moving.

SEE ALSO: Ludtke and Burdge (1970); Burdge and Johnson (1973).

"A Systemic Approach to Social Impact Assessment"

C. Mark Dunning

In: C. P. Wolf (ed.) Social Impact Assessment. Milwaukee, Wisc: Environmental Design Research Association, 1974, pp. 59-64.

DESCRIPTORS/IDENTIFIERS

Evaluation; Groups: Impacted; Planning; Profiling; Publics: Identification of; Systems Approach.

LOCATORS

Pruitt-Igoe (St. Louis, Missouri)

ABSTRACT

In order to gain understanding of potential impacts, a project area may be viewed as a system and the major components and issues identified. By obtaining baseline data on the project area social system, a comparison of this information with the perceptions of this system embodied in plans and planning inputs can be made. Impact assessment, by this method, is a two-part process. In the first part, the project area is disaggregated into major interest groups and publics. Major community issues are also identified so that the character of interrelationships among these groups is more apparent. Utilizing this understanding as a framework, plans are then compared on the basis of the manner in which costs and benefits are distributed over the area. By forecasting future social conditions, given the assumptions of plans or perceptions guiding planning, an understanding of the social trade-offs that alternative plans entail can be developed. This understanding, in turn, can be reapplied to the planning process to add another dimension to choices that must be made in developing project plans. Impact assessment as comparative evaluation can thus aid in the development of plans that may be sensitive to a wider range of political, social and economic groups and issues.

FINDINGS

1. What is the method of systematic analysis?

1. Disaggregate project area into publics and interest groups; specify their goals, their perceptions of important issues.
  2. Compare and evaluate plans on basis of benefit-cost distribution over groups. (differential impact analysis).
  3. Choose best alternative in terms of optimum systems advantage.
2. Why do systemic approach?
1. To avoid extreme selective focus or bias toward one group to the exclusion of others.
  2. Need to know whole project area and how it fits together.
  3. Sensitizes one to complexities of project area structure and to salient community issues.
  4. Shows that impacts have different beneficial or adverse impacts on different groups.
  5. Best guide to good planning because it includes important, but easily overlooked, factors.

#### COMMENTS

1. Girard Krebs ("A Systemic Approach to Social Impact Assessment: A Response to Dunning," pp. 65-66 in C. P. Wolf (ed.), Social Impact Assessment. Milwaukee, Wisc.: Environmental Design Research Association, 1974) warns against the political use of a systems approach in rationalizing planner bias.
2. Krebs further argues that adopting a holistic viewpoint implied in the systems approach forces the question of where to draw boundaries around the impact area and what is the adequacy of social models for handling such complexity. In any case, a systems viewpoint is only the beginning of wisdom, and it cannot substitute for interior as well as exterior viewing of the area under study.

Man and Water--The Relationship Between Social Psychological Systems and Water Resources Development

S. J. Fitzsimmons and O. A. Salama

Cambridge, Mass: Abt. Associates, Inc., 1973 (November).

DESCRIPTORS/IDENTIFIERS

Bureau of Reclamation; Data Sources; Four Accounts Framework; Indicators; Matrix Logic; Methodology; Multiple-Objective Planning; Profiling; Social Needs; Social-Psychological Concepts; Water: Functions/Policy

ABSTRACT

This report is divided into two major sections. The first examines man's social-psychological needs and his water resource development activities and the relationships between the two. The second part develops a set of measurements for determining the nature and extent of these relationships for use in planning for actual water resources development projects.

Part One, "Social Psychological Systems as They Relate to Water Resources Development," begins as a brief "primer" on the content of the various social sciences, followed by a more extensive treatment of sociology and social psychology. Next, a description of the qualities of water and its reclamation is presented. Based on this review, a variety of water functions are identified. Following this is a chapter which attempts to integrate the concepts of the social sciences and the water development functions through a discussion of human social and psychological needs and water development activities. The first part closes with a chapter which explores the relationships between human and water systems and then generates a systematic basis for deriving a set of social data which may be used in water resources planning.

Part Two, "Methods and Procedures for Measuring Relationships," begins with a discussion of the policy context of water resource development. It then explores the program context of water resource development by examining the multiple-objective planning framework within which social assessment must coexist with economic, environmental, technological and budgetary assessments of projects. Following

this is a chapter-length treatment of measures of social psychological variables relevant to water development planning. These measures are construed in a deductive manner, progressing from the earlier analysis of the interface between human and water needs, through policy and program contexts, to data selection. In addition to data specifications, the aspects of data acquisition, validity and reliability, and synthesis and aggregation are discussed and recommendations made.

### SUMMARY

Chapter 1. Based upon their review of the literature the writers come to four conclusions:

1. Until recently there has been a lack of public concern for the social needs of man for water and the impact of water policy on man.
2. There is a gap in the social sciences on the theoretical level with respect to understanding man's relationship to his environment, and certainly with respect to water development aspects.
3. There is also a corresponding lack of research.
4. There is a lack of knowledge at the program level about how to measure the relationships between man and water.

The purpose of this report is to fill in these gaps by proposing strategies for addressing the four problems listed above.

Chapter 2. This chapter discusses concept selection and organization, based on a review of social science literature. From a larger sample of concepts, the writers select a subset to be included in a matrix relating social-psychological concepts to water development functions. Each concept is tied to one (or more) of seven levels of behavioral organization. These are: Individual, Groups, Organizations, Social Processes, Social Maintenance and Change, Society, and Population.

Chapter 3. Water serves a variety of functions for man. Based on the literature, a range of functions was identified which were considered representative of the many types of objectives embodied in reclamation activities. A total of fourteen functions was selected, including ecology

maintenance and control, life support, security, available and predictable supply, quality and distribution, recreation, community, industrial-agricultural and other functions. A given water development activity (e.g., a dam, reservoir, power plant, etc.) usually fulfills a variety of functions simultaneously. Conversely, a given function can be supported by a variety of activities. Activities and functions are arrayed against each other in a matrix.

Chapter 4. This chapter: (1) presents a matrix arraying social-psychological systems concepts against water development functions; (2) indicates ways in which the matrix will be used for analysis; (3) relates the matrix to upcoming chapters on program and policy considerations; and (4) discusses some of the implications and limitations of matrix logic for generating variables.

Chapter 5. This chapter identifies a series of concepts, magnitudes or concerns generically referred to as "parameters" which establish a bridge between the fourteen water development project functions and the seven levels of behavioral organization. Each of the linkages between behavioral categories and water development functions is examined according to its implications for man's needs for water and water's impact on man.

Chapter 6. The political juncture between water resource development and social goals is discussed in this chapter, primarily in terms of the Water Resources Council's "Principles and Standards." A systematic accounting framework is presented at the end.

Chapter 7. The focus here is on multiple-objective planning in the context of water development programs. Certain principles of multiple-objective planning distinguish it from other types. Some of its central features include: implicit criteria to accept or reject a plan, the concept of optimization of choice among project possibilities, long-range planning for change and an interactive or "systems" approach. A section of this chapter is specifically addressed to various ways of looking at and solving the problem of optimization.

Chapter 8. This, the concluding chapter, fills in the cells of the matrix using a large number of indicators presumably relevant at each level of connection between function and behavioral organizations.

COMMENTS

1. The reader who may be interested in this report but who does not wish to struggle through its 400-plus pages is advised to read the excerpts from the report appearing in Wade H. Andrews and others (1973), pp. 117-158.

2. This report disappoints and aggravates in so many ways and at so many points that it is hard to decide where to begin criticism or what is the most strategic critical orientation. In my view the report, in its present form, should not have been written and certainly should not have been published, though its patent deficiencies may prove instructive. Ironically, the service best rendered by Man and Water is a negative one--what not to do--and it unwittingly speaks to the advisability of case-study approaches to the social impacts of water resources development. It is not tenable to argue for the report even on the grounds that it was intended for non-professional audiences because its bulkiness, disorganization, lack of conceptual clarity and methodological looseness altogether convey what may mildly be termed an "unimpressive" picture of the capability of social science to say anything illuminating about the relationship between water and society. If the report is not entirely an incompetent one (and this may be doubted), it is assuredly an inconsequential one. This is a real pity since the need for sound, cogent analysis in the water resources area is manifest. The central problem of the report and that from which most of its substantive shortcomings derive is that the scope and objectives of the study were ill-conceived. These were, in essence, to produce a definitive statement (a "treatise") on the relationship between social-psychological systems and water resources development. The major problem with this is the prematurity of a deductive strategy toward mapping that relationship. The writers apparently thought it to be the most effective strategy although it is difficult to know why since they note at the outset the weakness of the knowledge base from which they work. This strategic error demonstrates in high relief how critical problem formulation is to effective research. Now for some specifics.

3. Three relationships between man and water are postulated:

- a. MAN—needs—→WATER  
(+)
- b. WATER—impacts—→MAN (functional)  
(-)
- c. WATER—impacts—→MAN (dysfunctional)

These are incomplete, overly simple, and uninformative. For one thing, they omit what I think is a more obvious and important man-water relationship:

d. MAN  $\xrightarrow{(\pm)}$  impacts  $\rightarrow$  WATER (functional and/or dysfunctional)

Although itself overly simple, d. better expresses the focus of social impact assessment than a., b. and c. That these relationships are uninformative is best revealed by the writers' own statement, which is repeated a number of times throughout the report (the reason for which eludes me):

It is abundantly clear that the relationship between man and water is not symmetric; that man's need for water is not the same as the social impact of water on man. Stated another way, people do not influence environmental infrastructure in the same way as it influences them. It is apparent that the relationship between man and water is asymmetric--that is, man's need for water is not the same as water's impact upon man. (p. 187)

4. The criteria for concept selection are unclear. In fact, "selection" may be too generous a term. The concepts of the social sciences look like a grab bag listing from the indexes of introductory texts. The problem is that there is no clear theoretical rationale underlying or giving meaning to the concepts used. To be sure, the report does state some criteria but they seem irrelevant to the selection process. The major criterion should have been parsimony. Instead, it appears to have been "the more the better."

Besides engendering a certain indifference ("So what?") in the reader, the non-systematic selection and use of concepts also creates real problems of measurement. The writers state that fewer measures (indicators) than parameters (relationships) were identified because a given measure might be used for more than one parameter. If so, this suggests that some kind of factor analysis should have been used to reduce the number of parameters so that a one-to-one relationship between parameter and measure could have been obtained. We need good operational measures of concepts, but the effect of this report's attempts in that direction is to further conceptual and methodological carelessness.

5. In addition to poor concept selection, the report does a shabby job of organizing the concepts selected. It opts for seven levels of behavioral activity. These levels are confusing although they seem systematic. The language of the report confuses even more, referring to these activities variously as "referents," "social concerns" or "levels of analysis." One senses that the writers have not thought out the meaning of their distinctions nor the terms by which they are best expressed. In regard to the levels, they are poorly distinguished descriptively and probably do not all fall within the same logical plane (e.g., lumping together processes and structures seems unwise). Besides, when one finds out what these levels are supposed to encompass it becomes evident that their conceptual connections overlap considerably so that the whole object of distinguishing them is lost. In short, this taxonomy of categories and concepts is worse than useless because it does little to inform and much to obscure. It does not seem difficult to come up with a better one with just a bit more effort and some stricter criteria of inclusion and exclusion. The problem these writers had, I would argue, is that they lacked a guiding theoretical framework so they ended up with the worst kind of eclecticism.

6. The major output of the report is contained in the matrices arraying social-psychological concepts against water development functions and the indicators which are supposed to operationalize these relationships. Looking over these matrices it is apparent that they are quite ineffective because they suffer from all the problems which precede them: poor organization, duplication, proliferation, dubious measures as well as a lack of meaningful policy relevance (an avowed aim of the report). Moreover it is clear that many of the measures do not aptly fit at a given level of analysis (e.g., using population measures to characterize individuals). The strategy the writers should have opted for was to take a very delimited subset of parameters, select the best measures available and suggest how the resulting data connect to the policy-making context.

More could be said about the report on a chapter-by-chapter basis, but the problems addressed above are the most significant and irksome. The scope and objectives of the report, to repeat, were ill-conceived and, not surprisingly, the product reflects this. It may be worth noting that the text is replete with typing and grammatical errors, which suggests that the report received as little editorial attention

as its substantive shortcomings received little critical attention. One recommendation is called for: back to the drawing boards and start all over again.

"The National Environmental Policy Act and the Urban Environment:  
Toward Socially-Oriented Impact Statements"

Mark Francis

In: C. P. Wolf (ed.), Social Impact Assessment. Milwaukee,  
Wisc: Environmental Design Research Association, 1974. pp. 49-58.

DESCRIPTORS/IDENTIFIERS

Dimensioning Impacts; Environmentalism; Goose Hollow Foothills vs. Romney (1971); Legal Aspects; Natural Environmental Policy Act: Legal History/Social Impact Assessment; Nucleus of Chicago Homeowners' Association vs. Chicago Housing Authority (1973); Planning; Social Goals

ABSTRACT

The intent and scope of this paper is to discuss the impact of the National Environmental Policy Act on urban programs and projects and to schematically propose a framework within which social information can be utilized in environmental impact statement formulation and review. The paper is presented in four sections. The first deals with the common law, constitutional, and statutory rights of the environment, with the major discussion being on the provisions of the National Environmental Policy Act (NEPA). Secondly, recent judicial interpretations of the application of NEPA to the urban environment are discussed. Next, possible future extensions of these court rulings are proposed in relationship to policies and programs administered under federal agencies (HUD, HEW, etc.). And finally, a framework for formulating socially-oriented impact statements within the professions of urban planning and design is presented.

FINDINGS

1. Recently (case of Goose Hollow Foothille League v. Romney, 1971) court interpretations of NEPA have turned to the human urban environment and dealt with impact of the environment on man rather than only impact of man on environment.
2. NEPA has potential of being used against social goals (e. g. , Nucleus of Chicago Homeowners' Association v. Chicago Housing Authority, 1973).

3. The applicability of impact statements to urban projects is moving toward making impact statements a standard requirement on "major Federal actions" which "significantly affect" the quality of the human environment.

4. The requirement to prepare an impact statement is currently being legislated by some states--Washington, Delaware, Wisconsin, Hawaii, North Carolina, and especially California.

5. Court actions brought by environmental groups under NEPA have primarily utilized the act as a negative tool intended to stop or delay major federal projects.

6. There is now a need to view environmental impact statements as a positive mechanism whereby Federal agencies can implement and guarantee such social factors as community involvement, user needs, and adequate community services in urban-related programs and projects.

7. Social information requirements for realizing this goal encompass (1) the environmental setting, (2) the offsite macro socio-economic setting, (3) macro onsite socio-economic impacts, and (4) micro onsite user impact. Subcategories are enumerated under each of these major headings.

SEE ALSO: Savatsky (1974).

"Social Impacts of Strip Mining and Other Industrializations of Coal Resources"

Raymond L. Gold

In: C. P. Wolf (ed.), Social Impact Assessment. Milwaukee, Wisc: Environmental Design Research Association, 1974. pp. 123-46.

DESCRIPTORS/IDENTIFIERS

Anomie; Attitudes: Coal Industrialization; Coal Mining Impacts; Community Cohesion; Differential Impacts; Economic Impacts; Future Shock; Groups: Impacted; Interviewing; Methodology; Montana Power Company; Participant Observation; Ranchers; Strip Mining

LOCATORS

Colstrip and Gillette, Montana

ABSTRACT

This paper reports findings from five months of ethnographic study in southeastern Montana which focus on the social impact of coal industrialization on groups in the area's two principal towns. Changes noted include shifts in the selection of friends, strains in communicating with friends and neighbors of long standing, a shift in the established power structure from ranchers to new mining industrialists, the need to live with constant and increasing uncertainties for which planning is virtually impossible, a keen interest on the part of some merchants and businessmen in immediate monetary gain, the need to accommodate to the invasion and requirements of newcomers who subscribe to foreign life-styles and value systems, and the loss of a sense of community. Suggestions are offered concerning the meaning of industrialization and rural life to area residents and the theoretical and research implications of these findings.

FINDINGS

1. This report focuses on landowners because, aside from the schools, the biggest social impact to date has been on them.
2. The impacts on merchants are much more economic (and positive) than social.

3. Many life changes have taken hold because of the mining situation:
  - a. Shifts in friendship networks and new strains among old friends.
  - b. Intensification of class alignments and awareness.
  - c. Shift in power structure from ranchers to new mining industrialists.
  - d. Constant and growing uncertainties.
  - e. Merchant interest in quick money.
  - f. Entry of newcomers with different values and life-styles.
  - g. Loss of sense of community.
  
4. Newcomers affect law enforcement, health care, churches, and especially schools. PEOPLE POLLUTION IS THE GREATEST FEAR AND UNCERTAINTY.
  
5. Locals are fearful of new taxes to pay for increased services demand.
  
6. There is a decline in neighborliness because there is less need for dependence on fellow-townspeople since new goods and services are available.
  
7. Future shock and anomie are resulting from disruptions of an industrial technology superimposed on a stable rural environment.
  
8. Old coalitions are breaking down while new ones emerge:
  - a. White and Indian children, formerly at odds, are now coalescing against newcomers.
  - b. Businessmen and merchants, formerly dependent on the ranchers, are now trying to share power with the mining companies.
  - c. Ranchers who view land as intrinsic value and inalienable home vs. those who see it as an economic tool, business item for profit.
  
9. One positive result of the mining operations has been the excitement generated by opposition to coal development and the shared purpose gained thereby.

COMMENTS

1. Need to display impacts in tabular form (cf. Mack). Complex group alignments and diverse (differential) impacts need to be partialled out in non-narrative form.
2. Approach is adaptable to both e-model frame and comparative diachronic analysis.
3. The ranchers, we are told, are being exploited; yet they were on top before the mining people came in. How did the mining people break through this rancher dominance in the first place? Do (did) the non-ranchers in the area feel exploited by the ranchers? by the power companies? by the strip miners? What the paper lacks but needs is a more detailed and systematic "before" profile so that better comparisons can be made.
4. Taking the ranchers' point of view lends a very effective and intimate touch to the sociological portrait, but tends to stereotype and/or ignore the views of the other groups.

SEE ALSO: John R. Kelly, "Site-Specific Research: Comments on 'Social Impacts of Strip Mining and Other Industrializations of Coal Resources,'" pp. 147-50 in C. P. Wolf (ed.), Social Impact Assessment. Milwaukee, Wis: Environmental Design Research Association, 1974.

Socio-Cultural Impacts of Water Resource Development in the Santiam River Basin

Thomas C. Hogg and Courtland L. Smith

Corvallis: Water Resources Research Institute, Oregon State University, 1970 (October).

DESCRIPTORS/IDENTIFIERS

Attitudes; Dams; Benefactors vs. Beneficiaries; Community Cohesion; Dams; Economic Impacts; Interviewing; Life History Technique; Methodology; Participant Observation; Social Impacts; Staging of; Social Values; Technological Lag

LOCATORS

Albany - Lebanon and Sweet Home, Foster and Green Peter Dams, Santiam River Basin, Oregon

ABSTRACT

This study assesses the impacts of two dams on the behavioral and attitudinal patterns of Santiam River Basin residents in Oregon. The research is structured by viewing the dams through a developmental cycle of preconstruction, construction and postconstruction, thereby highlighting the differential "staging" of impacts. The Santiam River Basin area is treated as a socio-cultural system undergoing important technical and environmental change. The research goal of describing and explaining these changes was accomplished through a combination of methods and techniques, including general survey questionnaires, more detailed open-ended interviewing of selected informants, and biographical data gained through a sociological reconstruction of the life histories of a number of individuals. A major focus is on the varying modes and degrees of integration experienced by the area towns prior to and during the impact stages.

The study finds that socio-cultural impacts of significant magnitude are clearly demonstrable throughout the development cycle. Central emphasis is placed on conceptualizing the project area as part of a larger system whose operation has notable consequences for the more local system. The dams, it is found, caused increased social "non-articulation" in the area's cultural system and stimulated quests for

new bases of social integration by urban escapees. However, lack of articulation and planning between elements of the larger socio-cultural system are restricting full developmental benefits.

Throughout, the writers argue that people's values and actions should be continually sought as inputs into the total water resources development process if full benefits are to accrue to the area. People must be prepared to assume the dual roles of beneficiaries and benefactors if project impacts are to be realistically assessed.

### FINDINGS

1. There would appear little problem in stimulating local support and acceptance of water resource development projects, based on the research reported here. This is largely because of the tendency to define economic growth and development as good.
2. In rural communities such as Sweet Home (Oregon), where most of the projects are constructed, the construction phase of the project brings significant short-term expansion and, then, in late stages of construction and early operation, a significant decline. This includes overburdening of local services--schools, municipal works, and commercial facilities.
3. Dissatisfaction with the quality of life in California led to the influx of migrants from there to the project area on speculation that work would be available on the dams. This fact points to the difficulty of establishing boundaries within which the assessment of impacts is conducted.
4. From the point of view of Sweet Home residents, the planning phase of the project stimulated them to think differently about their community.
5. Several kinds of different social and economic impacts are associated with the different phases of pre-construction, construction and post-construction.
6. The most direct impact on the schools was an increase of several hundred students during the construction phase.
7. Most of the added school tax burden was paid for by the local people through increased property taxes. For the most part, the

income taxes paid by the construction personnel went directly to the state government, thereby reducing direct support of the local system.

8. Municipal expenses like those for the schools rose after completion of the dams. City services were improved during construction, but associated with the improvements were increased taxes for the locals. What seems important is that the local people expected the dams to result in long-term growth for which expanded services would be required. The services were expanded but the expected growth did not occur.

9. Only a very small proportion of the total benefits accrued to the local residents and these were mainly recreational. The problem is that the projects were justified primarily on the grounds that they would develop the region. This had the effect of neglecting consideration of local development. Thus, the local community incurred most of the costs but received few of the benefits.

10. In the political area, the influx of urban-suburban migrants resulted in increased legalism and formalism in administrative matters. Formerly, the community had been used to conducting its affairs on a more informal and personal basis. Influence and moral persuasion, rather than the threat of formal sanction, were previously the major means of social control.

11. Economically, problems were created by the underlying faith in and assumption that the dams would bring economic growth and development to the community. Sweet Home is an example of a community which embraced economic growth, but did not realize its expectations. The interesting thing is that the residents seem not to have lost their faith in the ideology of growth.

12. In contrast to most of the residents, people seem to believe that merchants and businessmen did well, especially during the construction phase. Those engaged in recreation-related business will probably continue to benefit, although this will probably not contribute to sustained economic development.

13. The attitudes toward economic development and the influence of more formal and legalistic procedures have contributed to a changed image of the community which has necessitated social and attitudinal adjustments on the part of residents. Sweet Home has become a

more non-articulated community than before construction. What has occurred is the maintenance of specific patterns of roles but less integration and more segmentation between them.

14. The major question which an impact study should address is who benefits and who pays and how. The emphasis should be on groups as beneficiaries and benefactors as well as on impacts as costs and benefits.

### COMMENTS

1. The authors make an interesting remark about the relation between technological change and social organizational patterns. They write:

[E]xogenous impetus for cultural change may come in terms of ideas and behaviors appropriate to a given technology, even before the technology arrives. Thus, communities may be restructured and reoriented to a particular new way of life well in advance of developing that new subsistence system. This implies that technological change, even in situations of exogenous impetus, is not necessarily causally related to changes of organization and ideology. Furthermore, it implies that settings may, through unique historical circumstances, endogenously develop the ideological and organizational bases for a new technology well in advance of that technology's development. (p. 127)

This inverts the culture-technology relationship from one of "cultural lag" to one of "technological lag." It also suggests that over the long term in situations of technological lag, after the appropriate technology has been grafted onto the social system, there will result an imperfect, possibly sub-optimal fit, thereby producing some new disjunction between technology and culture. At that point the problem then becomes one of technology calling forth a cultural adaptation of ideas, attitudes and values.

## "Demographic Effects of Water Development"

John Hollis and James McEvoy III

In: Charles R. Goldman, James McEvoy III and Peter J. Richerson (eds.), Environmental Quality and Water Development. San Francisco: W. H. Freeman, 1973, pp. 216-232.

### DESCRIPTORS/IDENTIFIERS

Demographic Impacts; Recreation; Self-Fulfilling Prophecy; Population Projections; Urbanization; Water: Policy

### LOCATORS

Los Angeles, California

### ABSTRACT

From a demographic point of view, the crux of the water problem in the United States lies in the discrepancy between the natural distribution of the water supply and the distribution of consumers. In addition, water users "consume" more per capita each year as incomes, spending and leisure time increase. This makes population projections difficult and often risky, a major problem being that the projections often become self-fulfilling prophecies. Population and water demand projections are taken as immutable fact and the "threat" of future water famine prompts water managers to search always farther afield to serve a hypothetical population which might not appear if more water were not made available. The attempt to supply an area with unlimited quantities of water has serious environmental and social effects at both ends of the distribution system, and the magnitude of them will increase as our population continues to concentrate disproportionately in urbanized, semi-arid regions. The historical development of this population-water demand relationship is traced in terms of phases of policy objectives and outcomes, with special reference to the case of Los Angeles. To encourage growth for its own sake is a questionable philosophy in view of the decreasing quality of life it portends. As a start toward better water planning, a national policy should be established to assess all long-term demographic predictions used to justify large-scale water development projects.

FINDINGS

1. From a demographic viewpoint, the crux of the water problem in the United States lies in the discrepancy between the natural distribution of water supply and the distribution of consumers.
2. The demographic history of the United States has been dominated by three major phenomena, all of which are particularly salient in the twentieth century: (1) absolute growth of the population; (2) the movement of population to the West; and (3) increasing urbanization.
3. Recreational use, as opposed to physiological needs for other major uses of water, is an increasingly significant aspect of the value of water, including major impacts on income from recreation and recreational equipment, leisure time and aesthetic beauty.
4. A major problem with population projections as they affect water development is their tendency to become self-fulfilling prophecies. In Los Angeles, for example, population projections were used to justify water resource expansion which, in turn, generated more population growth and attracted industry.
5. Recommendation: The Federal Government should establish a policy of carefully evaluating all population projections used as background to water project proposals. Specifically, efforts should be directed toward determining to what extent a project would create, and not merely serve, a projected population.

SEE ALSO: Smith and Hogg (1971a). Together, these two articles provide a good introductory statement about the relationships between water development and population change.

"The Impact of Open Urban Land on Community Well-Being"

L. Douglas James and Donna R. Brogan

In: C. P. Wolf (ed.), Social Impact Assessment. Milwaukee, Wisc.: Environmental Design Research Association, 1974, pp. 151-67.

DESCRIPTORS/IDENTIFIERS

Community Cohesion; Environment; Factor Analysis; Flood Plain Management; Index Construction; Land Use Planning; Methodology; Planning; Quality of Life; Regression Analysis; Social Well-Being; Urban Areas.

LOCATORS

Atlanta, Georgia

ABSTRACT

Many now advocate that flood plains and other open urban space be preserved for recreational activities and visual enjoyment. One important consideration in evaluating this policy is the effect of open land within an urban community on the lives of those who live nearby. This study uses Atlanta data to examine the hypothesis that the well-being of urban residents is associated with their physical environment. The hypothesis is tested by using stepwise multiple regression analysis of 22 well-being indices on selected indices of the physical and social environment. The results substantiate the hypothesis by showing that the association of the indices of the physical environment with the well-being indices is statistically significant and that the indices of the physical environment are approximately equal to the indices of the social environment in their ability to predict well-being. The collective results imply that the most important influence of urban land is its role in attracting or deterring the entry of outsiders into residential neighborhoods. Urban open space can make a definite contribution to urban well-being through development as a barrier separating the residential communities from intense-use areas or through development to contribute to the recreational or aesthetic resources of the community.

FINDINGS

1. Exterior physical characteristics (factors) are statistically significant and as important as socioeconomic factors in explaining

such social problems as arrests, poor mental health, absence from school, fires, etc. In fact, the results indicate that the physical environment is much more important than the socioeconomic factors in associations involving juvenile and drug problems.

2. The findings also illustrate distinct differences in the characteristics of the exterior physical environment associated with different well-being indices: e.g. juvenile arrests are highest among those young people living near recreational opportunities attracting other youth into the neighborhood; narcotics arrests occur most often among people living near gardens, parks and woodlands, etc.

3. The dominant pattern in the regression analyses was that land use patterns that cause large numbers of non-residents to frequent residential neighborhoods are regularly associated with problems for the neighborhood residents.

4. A major policy implication is that urban well-being would be enhanced if areas of intense commercial, industrial or recreational activity were separated from residential areas. This involves two distinct kinds of open space use. One is as vegetative barriers separating residential areas from areas devoted to other uses and subdividing residential areas into communities with which people can identify, and within which they can know one another. The other is to provide within each such community the natural or aesthetic environment and the recreational opportunities that satisfy the needs of its people.

#### COMMENTS

1. The findings appear overgeneralized for purposes of firm policy guidance. Comparative studies of different cities and neighborhoods is a prerequisite to generalization of the findings.

2. The socio-economic indices are not all good ones--in fact, it is hard to tell the socio-economic indices from the physical environment ones at times. The conceptual distinction informing this operational classification seems fuzzy, or at least overly simple; theoretical coherence may have been sacrificed to measurement methodology.

3. Do the non-subjective (non-individual) grouped data used really get at the concepts tested? Don't we really need some attitudinal

data at least as supplementary data? The validation of objective measures by subjective perceptions would be instructive.

4. Assuming the finding that "land use patterns which cause large numbers of non-residents to frequent residential neighborhoods are regularly associated with problems for the neighborhood residents" is true, the question of a "causal" model providing some explanatory framework for the measured associations becomes acute.

5. Alternative linkage patterns are mentioned at the outset and not developed in subsequent analysis or interpretation of findings. Theoretical development might explore these models more fully.

SEE ALSO: C. P. Wolf, "Comment on 'The Impact of Open Urban Land on Community Well-Being,'" pp. 169-70 in Wolf (ed.), Social Impact Assessment. Milwaukee, Wisc: Environmental Design Research Association, 1974, and rejoinder by the authors, pp. 171-74.

**"Social Impact Statements: A Tentative Approach"**

Sue Johnson and Rabel J. Burdge

In: C. P. Wolf (ed.), Social Impact Assessment. Milwaukee, Wisc: Environmental Design Research Association, 1974, pp. 69-84.

DESCRIPTORS/IDENTIFIERS

Case-Matching; Comparative Diachronic Analysis; Data Sources; Dimensioning Impacts; Methodology; Quasi-Experimental Design; Reservoirs; Survey Research

LOCATORS

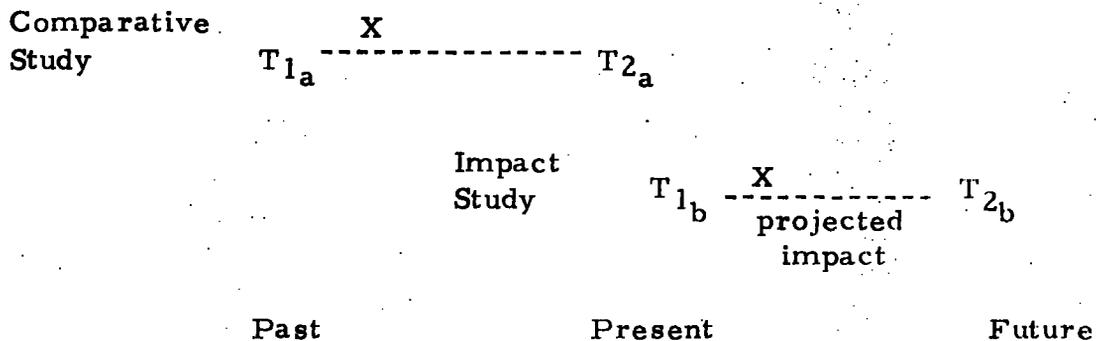
Kentucky (Reservoirs)

ABSTRACT

The general methodology presented here involves using post-construction analysis of a project similar in as many respects as possible to one being proposed to make social impact predictions (comparative diachronic analysis). Consideration is given to the kinds of similarities needed to "match" projects; e. g. , geographical location, size and scope of project, and the social and economic characteristics of the affected community. Further attention focuses on the degree of validity associated with primary and secondary data to make the necessary predictions for social impact statements. The examples here deal with reservoir construction projects, but the general methodology with important adaptations can be used for other large-scale projects such as highway construction, urban renewal, waste disposal, and watershed management, among others. Social impact is here divided into two categories: the impact on persons who must be relocated and the project impact on the local community and adjacent counties.

FINDINGS

1. This paper proposes a quasi-experimental design under the name of "comparative diachronic methodology" as one practical approach to social impact prediction:

Schematic Diagram of Comparative Diachronic Methodology

X = Reservoir Construction

2. Data supporting social impact statements occur on various levels. A methodological proposition is advanced that as one moves from level I (census data) to level VII (survey data), validity will increase since the data will better reflect the character of the local area.

3. A substantive point is that relocatees are among the first to be affected by a project and in major ways, starting with the "news" that a project is being planned.

4. The closer the matching on basic community characteristics, the greater the accuracy of impact prediction.

COMMENTS

1. A criterion problem arises as to which characteristics of areas and groups are most important for obtaining a good match. This problem is even more difficult if the method is applied to cities.

2. Besides the problem of matching, the methodology is probably limited when applied to urban situations. The unit of urban analysis is probably not a county, but something like the SMSA and, at a disaggregate level, groups within the city.

3. How does cost-benefit get worked into the methodology? The method needs to be supplemented by a way to measure and weigh impacts.

4. While Johnson and Burdge take the county as their unit of analysis, it is clear that their analytical units are really territorial entities within a defined cultural area. Actually, cultural homogeneity is the most important matching criterion, although what "cultural" means in this context is not clear.

5. There are no political variables among the matching criteria, except that implied by the "purpose" of a proposed project.

SEE ALSO: C. P. Wolf, "Comment on 'Social Impact Statements: A Tentative Approach,'" pp. 85-86 in Wolf (ed.), Social Impact Assessment. Milwaukee, Wis: Environmental Design Research Association, 1974, and reply by the authors, pp. 87-88.

"The Social Impact of Urban Highways"

Lynn G. Llewellyn

In: C. P. Wolf (ed.), Social Impact Assessment. Milwaukee, Wisc: Environmental Design Research Association, 1974, pp. 89-108.

DESCRIPTORS/IDENTIFIERS

Attitude Surveys; Attitudes: Highways; Community Cohesion; Differential Impacts; Environment; Highway Impacts; Interviewing; Methodology; Migration: Forced; Noise: Highway Impacts; Public Participation

LOCATORS

Baltimore, Maryland

ABSTRACT

Recent interest in the social effects of highways was prompted by urban disorders and the growth of environmentalism. For years the benefits accruing from highway construction had been extolled while little attention was devoted to social costs. This paper examines data on social impact derived primarily from surveys with individuals living in proximity to completed freeways or proposed freeway locations. Included in the presentation are attitudinal data on transportation preferences, perceived highway impacts, and freeway disputes. Special emphasis is also given to the effects of displacement and relocation and to the extreme variability of response to highway traffic noise. The findings suggest that the social costs of freeways are generally borne by the urban poor, minority groups, and the aged.

FINDINGS

1. Perhaps the most unequivocal statement that can be made about highways is that they affect people differentially and they are in turn reacted to in much the same way.
2. The urban poor, minority groups, and the aged are often the victims of short-sighted freeway planning.

3. The general public, for the most part, favors highway construction. Furthermore, once highways are completed, the majority of those living nearby see more advantages than disadvantages in their presence. On the other hand, opposition to certain types of highways, particularly freeways, is increasing in various localities. Opinion surveys and case studies of freeway controversies suggest that some groups are more likely than others to resist freeways, but for quite different reasons. Senior citizens, as they become increasingly dependent on public transportation, avoid freeways, possibly because they fear high speeds. Anxiety may also contribute to lower tolerance for freeway noise among the elderly. Low-income, non-white, inner-city residents oppose freeways on the grounds of community disruption and the high probability that, if anyone is to be displaced (with inadequate compensation and inferior replacement housing), they will be the victims. Those with higher incomes and more education, especially professionals, frequently combat freeways on environmental and aesthetic grounds (e.g., increased noise and air pollution are common complaints). Concern about the safety of children and the physical deterioration of neighborhoods is typically mentioned by several population groups.
4. The consequences of displacement are often most severe in low-income areas, or those communities heavily populated by minority groups and elderly, long-term residents. But all too often highway route selection has followed the path of least political resistance--precisely the localities just described.
5. The data suggest that actual sound levels do not correlate highly with reported disturbance; other factors such as age, length of residence, socio-economic status, and attitudes toward one's immediate environment (and toward highways in general) appear to account for more of the variance. There is also evidence indicating that the type of noise, and the difference between ambient noise levels and that produced by freeway traffic, are sometimes more important than absolute noise levels. Perhaps the most disturbing findings are those reported by Glass *et al.* (1973) relating the intensity and duration of freeway noise to impaired learning. If nothing else, it underscores the fact that many questions about the impact of noise remain unanswered.
6. In order of frequency of neglect, the problem areas identified as most in need of research in the area of highway impact are:

- mass transit alternatives
- impact on taxes and tax base
- increased urbanization
- nearby property values
- disposition of public comments
- community disruption
- "no-build" alternatives
- noise pollution
- air pollution

### COMMENTS

1. Michael A. Perfater ("Comment on 'The Social Impact of Urban Highways,'" pp. 109-10 in C. P. Wolf (ed.), Social Impact Assessment. Milwaukee, Wisc: Environmental Design Research Association 1974) complains that Llewellyn has uncritically accepted the dated and biased assertions of highway critics.

2. Perfater contends that where abuses existed they have since been rectified by recent legislation such as the Relocation Act of 1972 and the requirement that state highway departments submit "Action Plans" detailing planning procedures and provisions for public involvement.

SEE ALSO: Llewellyn's "Reply to Perfater's Comments on 'The Social Impact of Urban Highways,'" pp. 111-12 in C. P. Wolf (ed.), Social Impact Assessment. Milwaukee, Wisc: Environmental Design Research Association, 1974.

Evaluation of the Social Impact of Reservoir Construction on the Residential Plans of Displaced Persons in Kentucky and Ohio

Richard L. Ludtke and Rabel J. Burdge

Research Report No. 26, Lexington: Water Resources Research Institute, University of Kentucky, 1970.

DESCRIPTORS/IDENTIFIERS

Adjustment; Attitudes: Reservoirs; Benefit-Cost Analysis; Community Cohesion; Interviewing; Methodology; Migration: Forced; Modeling; Quasi-Experimental Design; Reservoirs

LOCATORS

Caesar Creek Reservoir, Ohio; Taylorsville Reservoir, Kentucky

ABSTRACT

This research was initiated to develop and test a model for explaining migration under conditions of forced displacement and relocation. Data for the study come from investigation of questionnaire responses by populations in Ohio and Kentucky who were affected by the planning and construction of reservoir projects. The model includes a consideration of people's potential for transferring existing statuses to new residences, the extent to which people's interests are served by the reservoir, people's knowledge of the reservoir, the social class backgrounds of those displaced, and the extent to which people identify with their places of residence. These factors are viewed as affecting people's levels of apprehension and consequently their willingness to separate from their current membership systems.

The testing of the model indicated that apprehensions over moving are greatest for those who identify strongly with their present residences; that apprehension over migration is less for those whose vested interests are served by the reservoir; and that knowledge of the reservoir project did not reduce apprehensions over moving as predicted by the model. The writers suggest that the deleterious impacts of reservoir projects could be reduced if agencies planning the projects would develop and use more effective mechanisms for including affected people's views in the planning process.

FINDINGS

1. Apprehension over moving relates inversely to people's willingness to separate themselves from their current friends and homes.
2. People with more favorable attitudes toward projects were less apprehensive over moving and as a consequence were more willing to engage in moves that require greater degrees of separation from their current friends and types of residence.
3. One of the main independent variables, "type of status transfer," was predicted to vary inversely with apprehension. The findings showed little support for this relationship. The status transfer variables did, however, relate to the measure of separation. The extent of transfer of primary relationships was strongly related, in a negative direction, with people's willingness to separate from their current friends.
4. The presence of commuting did not relate to apprehension, but commuters did appear less willing to separate themselves from either their friendship groups or type of community than non-commuters. People with a history of mobility, on the other hand, did seem less apprehensive over moving in general and more willing to separate from both friendship groups and their current community types.
5. Vested interests proved to be an exceptionally powerful variable. Those with interests enhanced by a reservoir project expect to engage in moves requiring the greatest amount of separation.
6. Knowledge had a negligible effect on people's attitudes toward the reservoir project and did not contribute to the explanation of social migration.
7. Socio-economic status also failed to relate to people's attitudes toward reservoir projects. However, separation from place was found to be directly facilitated by socio-economic status.
8. Identification with place related consistently and strongly with apprehension and consequently produced indirect effects on social separation. Uniformly, the more intense identification with place, the less inclined people were to engage in social separation.

SEE ALSO: Burdge and Ludtke (1973); Burdge and Johnson (1973).

"Criteria for Evaluation of Social Impacts of Flood Management Alternatives"

Ruth P. Mack

In: C. P. Wolf (ed.), Social Impact Assessment. Milwaukee, Wisc: Environmental Design Research Association, 1974, pp. 175-95.

DESCRIPTORS/IDENTIFIERS

Army Corps of Engineers; Attitudes: Dams; Community Cohesion; Dams; Differential Impacts; E-Model; Economic Impacts; Evaluation; Flood Plain Management; Groups: Impacted; Interviewing; Methodology; Modeling; Optimization; Participant Observation; Social Values; Social Well-Being; Trade-Offs.

LOCATORS

North Springfield, Vermont

ABSTRACT

This is a descriptive and analytical study of two cases of water resource management--the flood in Westfield, Massachusetts and the construction of a dam in North Springfield and Weathersfield, Vermont. The report covers the period from 1955 to 1971 for both cases, thereby allowing developmental comparisons over time. The major intent of the report is to develop a method for systematically assessing and evaluating differential impacts and their relationships to various community groups. This task is carried out in terms of an explorative ("e-") model which is grounded in economic utility theory and which aims to measure household utility optimization as it is affected by project impacts. The specific impacts in both cases are identified, analyzed, and displayed in terms of the e-model frame. A central conclusion is that social impacts are substantial relative to economic ones--proportions of 40 to 60 for the flood and 45 to 55 for the dam. Moreover, impacts of different kinds fell on different groups: economic impacts, largely positive, were most associated with business and industry; social impacts, largely negative, were most associated with residents and townspeople. The report concludes with a discussion of criteria for designing and selecting alternatives in flood management protection programs and endorses approaches which attempt to maximize planning flexibility and management means which are sensitively designed at all phases of program development.

## FINDINGS

1. Social impacts are substantial relative to economic ones.
2. Both social and economic impacts fall on different groups with different effects. A major theme of paper is differential impacts.
3. As between what might be called the service and source areas of flood control benefits, it is abundantly clear that the service area, primarily businessmen in Springfield, uniformly benefit and the large majority of such benefits are economic. The source area, on the other hand (Weathersfield and Perkinsville), made large sacrifices, the majority of which were social.
4. The tabular display of impacts and impacted groups gives a detailed analysis of impact magnitudes and directions (i. e., whether "positive" or "negative" and to what degree). Some examples may give an idea of these concrete impacts:

Planning and Purchase of Basin Property: People whose property may be taken or who may be cleared out of areas and forced to find new homes uniformly suffered negative impacts including litigation costs, uncertainty about the future, reduction of income from capital in property, the tension of controversy, etc.

Clearing of Basin, Dam Construction, and Aftermath: People who were relocated suffered significant losses including loss of income, difficulties of forming new community and personal relationships, loss of leisure time due to relocation, etc. In contrast, business interests tended to benefit substantially from dam construction because of additional income accruing from enhanced value of flood plain property and potential expansion of business in the protected area.

## COMMENTS

Shields (1974) first raises questions about Mack's "imputational method":

1. Where do the numbers come from? How were weights assigned to the various impacts? Are they "objective" measures or "subjective" judgments? A methodological note on this matter should be appended to the Report.
2. The utility categories are too vaguely distinguished, especially for purposes of concrete case analysis. They all make sense in their own terms, but tying them to the specific impacts is somewhat arbitrary in the sense that different observers using the same model and looking at the same concrete impacts could differ widely in their assignments of utility categories. Maybe what is needed is a set of operational measures for each category.
3. This is related to point 2. Why are some of the utility categories economic, others social, and still others environmental? Also, what is involved in the term "environmental?" As used in the Report, it seems to include typically cultural things--ideas, beliefs, aesthetics, etc. This use confuses the meaning of "social." The idea of designating utilities as economic, environmental, or social is, I take it, to connect the individualistic utility categories to more macro-scale units or concepts. This should be done more systematically: the underlying theoretical rationale and principles of classification should be explained.
4. Again, this bears on the impact types--economic, environmental, and social: why are there three types identified in the text, but only two are used in the display tables? There is a disjunction here between the conceptual discussion and the actual impact analysis.
5. While many impact groups are identified, it is not clear to what extent their memberships overlap. Overlapping group memberships should result in more intense impacts (+ or -) on those members. This raises the possibility of "impact inconsistency."
6. Evaluative activity is central to the e-model, but is virtually ignored in the impact analysis and display. Evaluative activity is completely absent in the display table for the dam.

7. Whereas the Report is a study of two different cases of flood management, there is very little in it, by way of explicit, detailed paired-comparison. It would be useful if the comparative possibilities were more fully exploited.

Economic and Social Impact of Recreation at Reclamation Reservoirs:  
An Exploratory Study of Selected Colorado Reservoir Areas

J. Gordon Milliken and H. E. Mew Jr.

Denver, Colorado: Denver Research Institute, University of Denver,  
1969.

DESCRIPTORS/IDENTIFIERS

Attitudes; Reservoirs; Economic Impacts; Interviewing; Land Use  
Planning; Methodology; Recreation; Reservoirs; Tourism

LOCATORS

Shadow Mountain/Granby and Horsetooth Reservoirs, Colorado

ABSTRACT

Three reclamation reservoirs in Colorado were studied twenty years after construction to determine the economic and social impact of recreation. Two were remote scenic mountain reservoirs (studied as a single area) while the third was a foothills reservoir near a city of 40,000 population. The methodology included questionnaires and interviews with recreationists and businessmen and analysis of land value changes.

Substantial direct economic impacts were found in both areas. These included: (1) increases in the value of land, improvements, and recreation facilities; (2) increases in tax revenue; (3) increases in retail sales of goods and services to recreationists; (4) increases in boat sales; (5) increases in expenditures for operation and maintenance of recreation facilities; and (6) the creation of more jobs.

Socio-cultural impact was also studied and significant differences were found between typical groups of recreationists using the two areas. These included differences in socioeconomic characteristics, place of residence, preferred recreation activities, frequency and duration of visits, and expenditures and investments in recreation equipment. The study forecasts future socioeconomic impact in both reservoir locations and hypothesizes general types of impacts that can occur at other water-oriented recreation areas.

## FINDINGS

1. Primary economic impacts of both reservoir areas were salient and positive. These included: (1) increases in land and property values; (2) tax revenue increases; (3) increases in retail business sales; (4) increases in employment. Secondary economic impacts were not discussed in the article.
2. Shadow Mountain/Branby Reservoir users are typically families with 2-3 children, parents of between 30 and 49 years of age, out-of-state vacationers, with above average occupational status and incomes above or about \$10,000 per year.
3. Horsetooth Reservoir users are typically area (Denver SMSA) residents, families, with above average occupational status and incomes between \$10,000 and \$14,000 per year. They are likely to go to the area for weekends and engage in fishing or water skiing.
4. Recreationist demand for the areas is expected to continue increasing, thus promoting further major economic impact.
5. Regarding social impacts, the reservoirs created substantial new recreational opportunities, although it is hypothesized that even without the reservoirs the area would have experienced a growth in recreational use and opportunities.
6. In their literature review, the authors found age, income, and occupational status the primary factors influencing participation in, and discrimination among, recreation activities.
  - The greatest demand for all types of outdoor recreation is concentrated in metropolitan areas and preference is for weekend use.
  - Both of the above trends are expected to continue into the future.

## COMMENTS

1. One positive note is their attention to "history." It should be said, however, that such attention is almost inevitable by the nature of the

study and the cases selected since it discusses the impact of reservoirs built twenty years prior to the study. History here involves accounting for impacts (mainly economic) prior to the time of the study and since the building of the reservoirs.

2. This paper pays scant attention to social impacts. In fact, the impacts noted are as much economic as social despite the label "social." Generally, the social impact part is concerned with characteristics of users of the reservoirs, not with such things as impacts on community and area residents (except for businessmen, where the impacts cited are economic). One section does imply positive impacts on Denver area residents who are the largest users of the Horsetooth Reservoir and there is some discussion of population growth (though no indication is made as to how population growth was or was not independently affected by the reservoirs). Even where the impact "improved recreational opportunities" is discussed, it is noted that recreational opportunities and use of the areas would probably have increased regardless of the reservoirs. This may tell us that a study which specifically focuses on economic impacts will find little in the way of social impact to report, even when such impacts may be strong. Of course, the alternative interpretation is that while social impacts beyond those briefly noted may have been in evidence, they were fairly insignificant compared to major economic impacts.

3. One highly noteworthy point about this study is that almost no one seems to have been adversely affected by the reservoirs. This goes for both social and economic impacts. In fact, the reservoirs appear to have been a real plus to the area as well as to the Denver Metropolitan area. This constitutes the first "bona fide" example of an impact study which describes nearly universally good results for the impacted area and groups. The reservoirs even improved the aesthetic quality of the area. (Can it really be that the projects were nearly universally beneficial or is the analysis deficient?)

4. The report does not deal with or estimate the extent of secondary impacts, both social and economic. It may be that focusing on some secondary impacts would have revealed certain adverse impacts.

"Social-Psychological Response to Forced Relocation Due to Watershed Development"

Ted L. Napier

Water Resources Bulletin, 8, 4 (August 1973), 784-795.

DESCRIPTORS/IDENTIFIERS

Adjustment; Alienation; Attitudes: Watershed Development; Benefit-Cost Analysis; Community Cohesion; Interviewing; Methodology; Migration: Forced; Quasi-Experimental Design; Watershed Management

LOCATORS

Ohio, West Virginia (Watersheds)

ABSTRACT

This paper analyzes the social-psychological response of rural community residents to the impacts of forced relocation due to externally imposed water resource development. The study was conducted within two communities in West Virginia and two in Ohio, all of which had been recently involved in watershed development. Two other communities were selected as controls. Groups within each affected community were divided into non-relocated/relocated and initial- and post-shock groups. Three hypotheses were tested: (1) community groups directly affected by forced relocation will become alienated from the changing community situation; (2) relocated people in the affected community groups will exhibit greater alienation than the non-relocated community groups; and (3) alienation will decrease as the affected groups adjust to the changed situation. None of the hypotheses is supported. Affected groups' attitudes about their community situation appear to be a function of variables other than the stimulus of forced relocation. Negative attitudes were present in the affected groups, but they were mainly directed toward the change agent and toward the inconvenience of physical relocation rather than toward social relationships within the community.

FINDINGS

1. This is a quasi-experimental design study which attempts to evaluate the social-psychological response of local residents to forced

displacement and relocation due to watershed development. The dependent variable is community alienation.

2. Three hypotheses are tested:

1. Community groups which are directly affected by forced relocation of population due to water resource development will become alienated from the changing community situation.

2. Relocated people in the affected community groups will exhibit greater alienation than those in the non-relocated groups.

3. Alienation resulting from the disruptive effects of externally imposed change will decrease as affected groups adjust to the changed community situation.

3. None of the hypotheses is accepted. Forced relocation of people due to watershed development did not consistently result in alienated subject groups in the manner predicted. Affected groups' attitudes about their community situation seem to be affected by variables other than the stimulus of forced migration. Negative attitudes were present among the groups, but they were directed toward the external change agent and the inconvenience of physical relocation rather than toward social relationships within the community.

4. A partial explanation for the apparent lack of community alienation may be attributed to the relocation pattern of the displaced people. The relocated groups moved or intended to move within the non-inundated portions of the affected communities. They were able, therefore, to maintain group memberships or believed that they would be able to maintain group memberships. Apparently the maintenance of group memberships prevented the fragmentation of established interaction patterns and therefore counteracted tendencies toward alienation.

#### COMMENTS

1. Valid conceptualization and measurement of "alienation" are exceedingly difficult. But ignoring this problem, the interesting point about this study is that it tested the less obvious hypotheses about alienation and found the more obvious one to hold. That is, it would

appear that relocated people would more plausibly be "alienated" from the agency responsible for their forced move than the community in which the move occurred. And this is precisely what was found. "Apprehension" over the move and the necessity to form new social relationships is probably the more appropriate variable when it comes to assessing reactions to a changed community situation (Burdge and Ludtke 1973). Or it may be that alienation, as the absence of solidary ties, may be avoided in impact situations like this one if there is an available out-group (the change agency) to scapegoat.

**"Social Effects of Nuclear Power Plants"**

Elizabeth Peelle

In: C. P. Wolf (ed.), Social Impact Assessment. Milwaukee, Wisc: Environmental Design Research Association, 1974, pp. 113-20.

**DESCRIPTORS/IDENTIFIERS**

Differential Impacts; Dimensioning Impacts; Environment; Groups; Impacted; Methodology; Nuclear Power Plants: Social Impacts; Radiation: Perceived Danger; Trade-Offs.

**LOCATORS**

Mendocino Nuclear Power Plant, California

**ABSTRACT**

Social effects of building and operating nuclear power plants result from impacts upon (1) socially-valued aspects of the physical environment and (2) the social structure itself. Sudden, temporary population growth during construction may strain financial and organizational resources of rural areas. Large increases in tax base result from operation of privately-owned power plants, affecting tax structures and land use balances in site-specific fashion.

Assessment of impacts involves dimensioning with fourteen descriptors, and analysis of impact recipient groups. Dissociation of social costs and benefits may occur (1) through time lag between costs and benefits, (2) when different groups are beneficiaries and payees, and (3) through vagaries of institutional structure. Assessment of social costs and benefits usually involves non-equivalent curriencies of exchange, and raises serious analytical and methodological problems for a final cost-benefit balance. Social impact alternatives are listed as are requirements for adequate social impact analysis.

**FINDINGS**

1. There is usually a striking dissociation between costs and benefits of nuclear power plants through: (1) time lag between costs and benefits, (2) different groups being beneficiaries and payees, and (3) vagaries of

institutional structure--in short, through the pervasiveness of differential impacts.

2. Population growth and the resulting demand upon local services and community structures are the major construction impacts upon the affected area.

3. A major impact of large installations such as privately-owned power plants is their effect upon tax structures and thus upon the balance of land uses.

4. Impacts may be dimensioned by at least fourteen descriptors:

- |                            |                                       |
|----------------------------|---------------------------------------|
| (1) time                   | (8) quantifiability                   |
| (2) location               | (9) synergistic effects               |
| (3) directness             | (10) magnitude                        |
| (4) singularity            | (11) cumulativity                     |
| (5) perceived desirability | (12) certainty                        |
| (6) importance             | (13) differential impact on people    |
| (7) reversibility          | (14) differential impact on resources |

5. Three major categories of social impacts emerge from the building and operation of a nuclear power plant: (1) impacts upon socially-valued aspects of the physical environment; (2) impacts upon the social structure itself; and (3) perceived danger of radiation.

6. An enumeration of the items which a social impact statement should address includes:

1. Systematic identification of social costs and benefits.
2. Analysis of social costs and benefits (dimensioning, etc.).
3. Quantification of social costs and benefits.
4. Identification and analysis of impact recipients.
  - a. Mixed impact groups.
  - b. Multiple impact groups.
  - c. Separation of beneficial and adverse impact recipients.
5. Reducing problem to sets of identical beneficiary-payee groups.
6. Quantification of costs and benefits in terms of impact recipients.
  - a. Number of recipients of each impact.
  - b. Intensity of impacts

7. Limiting/reducing unquantifiables.
8. Determining acceptable cost-risk levels.
9. Establishing equivalence among values.
10. Choosing an appropriate social discount rate.
11. Producing a final social cost-benefit balance.

### COMMENTS

1. William T. White ("Comments on 'Social Effects of Nuclear Power Plants,'" pp. 121-22 in C. P. Wolf (ed.), Social Impact Assessment, Milwaukee, Wisc: Environmental Design Research Association 1974) notes that as well as construction and operation, emphasis should also be placed on the social impacts of site selection. Moreover, there is a synergism present in the clustering of site locations that site-specific studies ignore.

2. White further believes that "life-style" as a social impact category has not been properly addressed and that theoretical development of such conceptualization is a pressing need that no amount of quantitative measurement will serve.

"A Legal Rationale for the Sociologist's Role in Researching Social Impacts"

Pamela Dee Savatsky

In: C. P. Wolf (ed.), Social Impact Assessment. Milwaukee, Wisc: Environmental Design Research Association, 1974, pp. 45-47.

DESCRIPTORS/IDENTIFIERS

Legal Aspects; National Environmental Policy Act: Social Impact Assessment.

ABSTRACT

In order to justify a mandate for social impact analyses where no explicit legal document exists, it is necessary to explore recent federal acts concerning environmental impact analyses. The most pertinent for this purpose is the National Environmental Policy Act of 1969. This act declares a policy of encouraging productive and enjoyable harmony between man and his environment through impact of man's activity on the interrelations of all components of the natural environment. The argument of this paper is that such a policy implicitly, but obviously, demands social impact analyses as well as environmental ones.

FINDINGS

1. Through implicit communication, NEPA (National Environmental Policy Act) has declared the necessity for human and therefore social impact assessments.

COMMENTS

1. The argument presented is sound. The real task now is how to best organize social science inputs into developing more formal and explicit guidelines and also how to most strategically follow the legal route. There are hazards to avoid (Wolf 1974: 34) and they are greater than those associated with environmental impact legislation because of the multiplicity of values and interests at stake.

SEE ALSO: Francis (1974).

"Cultural Aspects of Water Resource Development Past, Present, and Future."

Courtland L. Smith and Thomas C. Hogg

Water Resources Bulletin, 7, 4 (August 1971), 652-660.

#### DESCRIPTORS/IDENTIFIERS

Bureau of Reclamation; Demographic Impacts; Economic Growth; Social Values; Water: Policy.

#### LOCATORS

Western United States

#### ABSTRACT

Attitudes toward the development of the American West have undergone significant changes over the past century as the nature of water resources as factors in development have changed. Viewing these changes processually, stages for water resources definition and use can be identified in the total process of western cultural development. The first involves the value of water resource development as a stimulus to population and economic growth. The second stage, still in progress, adopts a dominant cultural norm which sees water development as inevitable if not necessary to keep up with growth. The third stage is incipient. Future cultural values with respect to water resource development will be to look at it as a means for controlling or managing both the location and quantity of population and economic growth. To this end planners will have to become concerned with the questions of human adaptation. Concern will have to be given to the problems of getting a living which enables individuals to meet the subsistence needs of self and family, to establishing community which provides for cooperation among individuals and the management of conflict, to establishing improved communication which promotes interpersonal interaction, and for fostering innovation which provides the new ideas necessary to adapt to new environmental situations.

#### FINDINGS

1. There have been three stages in the development of water policy in the United States:

1. 1862-Pre-World War II: Early water resource development was undertaken in the American West in order to stimulate population migration into the frontier.
  2. Post-World War II to 1970 (Earth Day): During this period the goals of planning seem to have shifted from a population settlement and growth ethic to a concern for using water resource planning to keep up with population growth.
  3. Post-1970: Unregulated population growth is being questioned and many are suggesting that population size be seen as a dependent variable to be managed either up or down by careful planning, of which water resource planning is only a part.
2. The cultural functions which are most important to water resource planning are adaptation to the environment, the gaining of subsistence, the establishment of a meaningful community, the enhancement of communication and the stimulation of innovation.
  3. The present water resource planning culture has too often dealt solely with demographic variables of births, deaths and migration to project population growth rates. There is consequently a need for planners of this culture to take account of prevailing cultural dimensions which influence variations in demographic variables.

#### COMMENTS

1. This article serves nicely as a companion piece to Hollis and McEvoy (1973). Together, they are a good historical and theoretical framework for understanding the relationships between water development and population change.

Quality of Life in Kickapoo Valley Communities

E. A. Wilkening and others.

Report No. 11, Madison: Institute for Environmental Studies, University of Wisconsin.

DESCRIPTORS/IDENTIFIERS

Attitudes: Community Leaders/Dams; Community Cohesion; Community Leaders; Dams; Interviewing; Methodology; Participant Observation; Profiling; Quality of Life; Reputational Method

LOCATORS

Kickapoo Valley and LaFarge Dam, Wisconsin

ABSTRACT

This report is the second in a series dealing with the economic and social impact of the LaFarge Dam on the Kickapoo River in southwestern Wisconsin. It is the intent of the study to establish social and economic baseline information on communities to be affected by a reservoir project before that project is completed. It illustrates a method for measuring the impact of the dam on people and institutions, using secondary sources and data collected by personal interviews with community leaders who were selected by a reputational method. Future studies of the same region will assess changes occurring as a result of the project, thereby building a continuous record of socio-economic changes in a flood control project.

The report briefly presents the economic history of the region and its population changes since 1890. Most of the report consists of a display and discussion of the responses of community leaders in the twelve communities in answer to questions concerning their opinions of services, facilities, leadership and the overall "quality of life" in their communities. The study also gives some indication of reservoir impacts anticipated by area residents. It was timed to take place before the LaFarge Reservoir was constructed but after most of the land had been purchased. A later report of the series will focus on changes in land ownership, values and use.

## FINDINGS

1. This study, part of a larger long-range effort, establishes baseline data about the social and economic characteristics of the communities which will be affected by the LaFarge Dam before it is completed. Future studies will assess changes occurring as a result of the completed project, thereby compiling a continuous record of socioeconomic changes in the area.

2. The reservoir to be created by the dam is expected to attract new recreationists and business to the communities to counteract the business and population decline in the area. But these changes will have impacts on life-styles and institutions. The purpose of this study is to provide a basis for assessing these changes so that citizens and policymakers can take account of them in future decisions about projects of this kind.

3. Some tentative recommendations are offered:

1. The total impact of a study of a project of this kind should include information about the social and economic consequences for individuals, institutions and services.

2. Impact studies need to be made early and by disinterested parties rather than by the agency having an interest in the promotion of the project.

3. Information about the decision to build major structures such as the LaFarge Dam should be disseminated as widely and as early as possible. Lack of information contributes to the problems of those who are forced to sell their land and make adjustments.

4. The LaFarge Dam will affect several communities above and below the dam. Some will benefit more than others. Maximizing benefits will require the cooperation of all people living in the watershed above the dam and immediately below it.

5. Measures of the impact of water management upon personal well-being and quality of life requires gathering a wide range

of both objective and subjective data. In combination, the two types of data complement each other in validating the measure of quality of life in an area before and after a project is built.

6. The subjective evaluations of leaders in the community may provide a substitute for a more comprehensive survey of a random sample of people.
4. Of the 127 questions on the interview schedule, only two deal directly with perception of impacts.
  5. The majority of the leaders saw no effect of the dam on property taxes in their communities. Less than ten percent of those in the valley thought there would be an increase because of the need for more public services and a few thought the decrease in land taken off the property tax rolls would increase taxes.
  6. In response to the question, "How much influence do you think the LaFarge Dam will have on the community?" most of the leaders in Ontario and LaFarge thought it would be "quite a lot." The responses of the leaders in the other communities varied considerably. The majority in all communities, except Muscodá and Richland Center, felt there would be "some" or "quite a lot" of effect, but many were uncertain as to the effect. The major advantages of the dam were perceived as economic benefits from tourists and recreation and from industry new to the area. Only one in eight saw the major benefit as flood control. A few see the reservoir as attracting "undesirable" people and as producing problems of drugs, drinking and the need for added police protection. The change in lifestyle and business patterns with out-of-town summer tourist trade is viewed as a disadvantage by some and as an advantage by others.

#### COMMENTS

1. Dual use of reputational interviewing and more objective secondary census data sometimes has effect of making sensible interpretation of findings impossible because of the discrepancies between the leaders' ratings and the other indicators. On the other hand, this combination makes for increasing interpretation precisely because of the discrepancies.

2. To ask leaders to rate themselves and use that as the only measure of leadership effectiveness is dubious. It is useful to find out what leaders think of themselves, but that hardly constitutes a valid measure of leadership effectiveness.

3. This is mainly a descriptive study. What it lacks is some explanatory scheme which attempts to fit together all the pieces of data about the area studied. Also, it doesn't always do a good job of weighting the differences between communities on a given indicator. We end up with a jumble of evidence in need of interpretation.

4. The reputational technique has another disadvantage: it tends to undercut the role of conflict between groups in a community. If there is dissatisfaction or disagreement between leadership and public, these are not likely to get a fair airing through interview of leaders alone. For this reason it is doubtful that "the subjective evaluations of leaders in the community may provide a substitute for a more comprehensive survey of a random sample of people."

5. As the authors suggest, the value of this report may not be apparent until follow-up studies are done so that an evolutionary picture of the area is obtained.

6. Some salient cleavages identified in the study are: "insiders" vs. "outsiders," farmers vs. non-farmers, in-valley vs. out-of-valley, and state vs. region. These are of course pertinent to the question of differential perception of impacts.

Sociological Factors in Watershed Development

Kenneth P. Wilkinson and Lucy W. Cole

State College: Water Resources Research Institute, Mississippi State University, 1967 (July).

DESCRIPTORS/IDENTIFIERS

Attitudes: Watershed Development; Field Theory; Interviewing; Planning; Public Participation; River Basin Development; Watershed Management

LOCATORS

Mississippi (Watershed Projects)

ABSTRACT

This paper (1) develops a strategy and frame of reference (the interactional or field theory approach) for sociological investigation of the community and related social influences on watershed development; (2) reviews the literature of the social science which bears on this problem; and (3) compiles preliminary information on watershed development programs in Mississippi. These tasks are carried out as part of a long-range research program to assess the influence of sociological factors in water resources management, particularly at the local level.

The strategy proposed in connection with (1) integrating certain aspects of the work of social scientists and water management professionals has been carried out in only a preliminary, fragmentary fashion. Partly as a result of this, the proposed theoretical frame of reference has yet to be employed in research on the most salient and critical water resources problems. Findings of the review of literature reported in connection with (2) point to the need for a systematic classification and evaluation of the theoretical and methodological assumptions underlying social science research in this area. A start is made toward identifying social factors which influence watershed development, but the concepts and methods employed for this purpose are useful mainly in case studies of specific localities. Sophisticated studies using a large sample of communities must await development of more precise operations for measuring social-organizational aspects

of communities. The information reported in connection with (3) is intended to expand the base for generalizing from the earlier case studies through analysis of selected data on all small watersheds in Mississippi.

### SUMMARY

Chapter 1. The "interactional" or field theory approach to studies of water resources is proposed. Little theoretical convergence has been accomplished in the body of studies conducted thus far. This suggests that a systematic theory is needed to focus concentrated programs of research.

Chapter 2. On the basis of a review of literature in the water resources area, it is concluded that "human behavioral problems pervade many aspects of water management programs." Much of the literature focuses on the problem of public participation. Also, an economic benefit-cost analytical procedure seems to predominate. The writers argue that what is needed "is a concerted effort to apply the theories and methods of basic research" to the sociological study of water problems.

Chapter 3. This chapter reviews the more specific studies on watershed development programs in Mississippi. In concluding the writers note that the theoretical frame of reference outlined in Chapter 1 has yet to be applied.

### COMMENTS

1. This paper, perhaps because it was written at a time when the social science input into water resources management was so weak and pessimistic, reveals excessive concern for the role of the sociologist in the planning process. In fact, the substantive contributions discussed are more related to this question than to substantive questions themselves. Sociologists get hung up about this too much; we'll only be taken seriously when we begin to offer good problem-solving research.

2. It is hard to see how the "interactional approach" is superior to the systems approach. A problem in taking Parsons' scheme as the model is that scant connections will be found. Also, characterization of social systems approach is one-sided--i. e., on its failure to deal with change. Potential application of interactional approach appears dubious.

3. As a literature review and guide, this paper is still useful. It is very sketchy, however, and would have been more potent if it had selected a smaller set of problems and developed them more intensively. Its primary value is as a "scanning" device for literature review.

"The Effects of Urban Renewal upon a Black Community: Evaluation and Recommendations"

J. Allen Williams, Jr.

Social Science Quarterly, 50, 3 (December 1969), 703-712.

DESCRIPTORS/IDENTIFIERS

Attitudes: Urban Renewal; Community Cohesion; Evaluation; Housing: Replacement; Interviewing; Methodology; Migration: Forced; Minorities: Urban Renewal; Quality of Life; Urban Renewal: Housing.

LOCATORS

Austin, Texas

ABSTRACT

Although the dysfunctional consequences of urban renewal projects have been well documented, some proponents appear to believe that recent changes in policy and administration have solved the previous problems. The purpose of this paper is to present findings from a study conducted in a recently completed urban renewal project in a black area in Austin, Texas and to make several recommendations based on the findings. It is an evaluative study in that it attempts to assess the impacts of the project in terms of the goals of urban renewal. In general, few if any positive impacts are found and most of the impacts are clearly negative. For example, decent housing was not obtained by over one-third of the respondents, higher housing costs were incurred in the change, many complained of having been placed in an unsuitable living environment, and segregation was not diminished. Moreover, respondents complained that the move and the new area contributed to a sense of loss of community, including separation from friends and long-time neighbors. Recommendations for change include greater compensation for displaced families, better timing on the part of the relocating agency in displacing people from their old residences, and increased use of public service personnel to assist relocated families with a range of problems.

## FINDINGS

1. About one-third of the relocated households did not obtain "decent" housing; 70.5% of all households in the sample took on an increased financial burden after relocation.
2. The majority stated that there had been no change for the better in physical characteristics of their living environment.
3. The majority indicated little or no change in convenience to facilities and the number stating they are less conveniently located was twice that of those who felt more conveniently located.
4. Many feel the change has improved their lives regarding the honesty of the people and as a place to raise children, but many also expressed the view that safety after dark and police protection had declined.
5. There has been an overall improvement in tax revenue and commerce.
6. The project in no way contributed to ethnic desegregation through relocation.
7. Loss of community was highly salient for some (26.3%) but not uppermost in most people's minds.
8. Few households have received assistance through contact with service agencies.
9. The most salient need is to provide ways of minimizing harm to relocatees, including more funds to displaced households. Execution of renewal plans should be carefully staged so that housing becomes available prior to displacement. The aims of urban renewal may be incompatible; if so, priorities among the objectives should be established on the basis of need.

## COMMENTS

1. This kind of evaluation research needs to be expanded: larger samples, different projects, different areas. Site-specificity limits the generalizability of results and the applicability of recommendations.

## APPENDIX 2

### DESCRIPTORS AND IDENTIFIERS

- Adjustment (social-psychological)  
Burdge and Johnson (1973)  
Burdge and Ludtke (1973)  
Ludtke and Burdge (1970)  
Napier (1972)
- Alienation  
Napier (1972)
- Anomie  
Gold (1974)
- Army Corps of Engineers  
Burdge and Johnson (1973)  
Mack (1974)  
Wolf (1974)
- Attitudes  
Coal industrialization  
Gold (1974)  
Community leaders  
Wilkening and others (1973)  
Dams  
Hogg and Smith (1970)  
Mack (1974)  
Wilkening and others (1973)  
Flooding and flood protection  
Andrews and others (1973)  
Highways  
Llewellyn (1974)  
Relocation  
Burdge and Johnson (1973)  
Burdge and Ludtke (1973)  
Reservoirs  
Burdge and Johnson (1973)  
Burdge and Ludtke (1973)  
Ludtke and Burdge (1970)  
Milliken and Mew (1969)
- Urban renewal  
Williams Jr. (1969)  
Watershed development  
Napier (1972)  
Wilkinson and Cole (1967)
- Attitude Surveys  
Llewellyn (1974)
- Benefactors vs. Beneficiaries  
Hogg and Smith (1970)
- Benefit-Cost Analysis  
Burdge and Johnson (1973)  
Gold (1974)  
Llewellyn (1974)  
Mack (1974)  
Peelle (1974)
- Bureau of Reclamation  
Fitzsimmons and Salama (1973)  
Smith and Hogg (1971a)
- Case-Matching  
Johnson and Burdge (1974)
- Causal Inference  
Burdge and Ludtke (1973)
- Coal Mining Impacts  
Gold (1974)
- Community Cohesion  
Burdge and Johnson (1973)  
Burdge and Ludtke (1973)  
Gold (1974)  
Hogg and Smith (1970)  
James and Brogan (1974)

APPENDIX 2 - DESCRIPTORS AND IDENTIFIERS (Cont'd)

Community Cohesion (cont'd)  
Llewellyn (1974)  
Ludtke and Burdge (1970)  
Mack (1974)  
Napier (1972)  
Wilkening and others (1973)  
Williams Jr. (1969)

Community Leaders  
Wilkening and others (1973)

Comparative Diachronic Analysis  
Johnson and Burdge (1974)

Dams  
Hogg and Smith (1970)  
Mack (1974)  
Wilkening and others (1973)

Data Sources  
Fitzsimmons and Salama (1973)  
Johnson and Burdge (1974)

Demographic Impacts  
Hollis and McEvoy (1973)  
Smith and Hogg (1971a)

Differential Impacts  
Gold (1974)  
Llewellyn (1974)  
Mack (1974)  
Peelle (1974)

Dimensioning Impacts  
Francis (1974)  
Johnson and Burdge (1974)  
Peelle (1974)

E-Model  
Mack (1974)

Economic Growth  
Smith and Hogg (1971a)

Economic Impacts  
Gold (1974)  
Hogg and Smith (1970)  
Mack (1974)  
Milliken and Mew (1969)

Environment (physical)  
James and Brogan (1974)  
Llewellyn (1974)  
Peelle (1974)

Environmentalism  
Francis (1974)

Evaluation  
Burdge and Johnson (1973)  
Dunning (1974)  
Mack (1974)  
Williams Jr. (1969)

Factor Analysis  
James and Brogan (1974)

Field Theory  
Wilkinson and Cole (1967)

Flood Plain Management  
Andrews and others (1973)  
James and Brogan (1974)  
Mack (1974)

Four Accounts Framework  
Fitzsimmons and Salama (1973)

Future Shock  
Gold (1974)

Goose Hollow Foothills vs. Romney (1971)  
Francis (1974)

APPENDIX 2 - DESCRIPTORS AND IDENTIFIERS (cont'd)

Groups

Impacted

Dunning (1974)  
Gold (1974)  
Mack (1974)  
Peelle (1974)

Highway Impacts

Llewellyn (1974)

Housing

Replacement (urban renewal)  
Williams Jr. (1969)

Hydrologic System

Andrews and others (1973)

Index Construction

James and Brogan (1974)

Indicators

Fitzsimmons and Salama (1973)

Interviewing

Andrews and others (1973)  
Burdge and Johnson (1973)  
Burdge and Ludtke (1973)  
Gold (1974)  
Hogg and Smith (1970)  
Llewellyn (1974)  
Ludtke and Burdge (1970)  
Mack (1974)  
Milliken and Mew (1969)  
Napier (1972)  
Wilkening and others (1973)  
Wilkinson and Cole (1967)  
Williams Jr. (1969)

Land Use Planning

James and Brogan (1974)  
Milliken and Mew (1969)

Legal Aspects

Francis (1974)  
Savatsky (1974)

Life History Technique

Hogg and Smith (1970)

Matrix Logic

Fitzsimmons and Salama (1973)

Methodology

Andrews and others (1973)  
Burdge and Johnson (1973)  
Burdge and Ludtke (1973)  
Fitzsimmons and Salama (1973)  
Gold (1974)  
Hogg and Smith (1970)  
James and Brogan (1974)  
Johnson and Burdge (1974)  
Llewellyn (1974)  
Ludtke and Burdge (1970)  
Mack (1974)  
Milliken and Mew (1969)  
Napier (1972)  
Peelle (1974)  
Wilkening and others (1973)  
Williams Jr. (1969)

Migration

Forced

Burdge and Johnson (1973)  
Burdge and Ludtke (1973)  
Llewellyn (1974)  
Ludtke and Burdge (1970)  
Napier (1972)  
Williams Jr. (1969)

Minorities

Urban Renewal  
Williams Jr. (1969)

Modeling

Andrews and others (1973)  
Burdge and Ludtke (1973)  
Ludtke and Burdge (1970)  
Mack (1974)

Montana Power Company

Gold (1974)

APPENDIX 2 - DESCRIPTORS AND IDENTIFIERS (Cont'd)

- Multiple-Objective Planning  
Fitzsimmons and Salama (1973)
- National Environmental Policy Act  
(NEPA)  
Legal history  
Francis (1974)  
Social impact assessment  
Francis (1974)  
Savatsky (1974)
- Noise  
Highway impacts  
Llewellyn (1974)
- Nuclear Power Plants  
Social impacts  
Peelle (1974)
- Nucleus of Chicago Homeowners'  
Association vs. Chicago Housing  
Authority, (1973)  
Francis (1974)
- Optimization  
Mack (1974)
- Participant Observation  
Gold (1974)  
Hogg and Smith (1970)  
Mack (1974)  
Wilkening and others (1973)
- Planning  
Dunning (1974)  
Francis (1974)  
James and Brogan (1974)  
Wilkinson and Cole (1967)
- Profiling  
Dunning (1974)  
Fitzsimmons and Salama (1973)  
Wilkening and others (1973)
- Public Participation  
Llewellyn (1974)  
Wilkinson and Cole (1967)
- Publics  
Identification of  
Dunning (1974)
- Quality of Life  
James and Brogan (1974)  
Wilkening and others (1973)  
Williams Jr. (1969)
- Quasi-Experimental Design  
Burdge and Ludtke (1973)  
Johnson and Burdge (1974)  
Ludtke and Burdge (1970)  
Napier (1972)
- Radiation  
Perceived danger  
Peelle (1974)
- Ranchers  
Gold (1974)
- Recreation  
Hollis and McEvoy (1973)  
Milliken and Mew (1969)
- Regression Analysis  
Andrews and others (1973)  
James and Brogan (1974)
- Relocation (see Migration: Forced)
- Reputational Method  
Wilkening and others (1973)
- Reservoirs  
Burdge and Johnson (1973)  
Burdge and Ludtke (1973)  
Johnson and Burdge (1974)  
Ludtke and Burdge (1970)  
Milliken and Mew (1969)

APPENDIX 2 - DESCRIPTORS AND IDENTIFIERS (Cont'd)

River Basin Development  
Wilkinson and Cole (1967)

Self-Fulfilling Prophecy  
Population Projections  
Hollis and McEvoy (1973)

Social Goals  
Francis (1974)

Social Impacts  
Staging of  
Hogg and Smith (1970)

Social Needs  
Fitzsimmons and Salama (1973)

Social-Psychological Concepts  
Fitzsimmons and Salama (1973)

Social Values  
Burdge and Johnson (1973)  
Hogg and Smith (1970)  
Mack (1974)  
Smith and Hogg (1971a)

Social Well-Being  
Andrews and others (1973a)  
James and Brogan (1974)  
Mack (1974)

Strip Mining  
Gold (1974)

Survey Research  
Johnson and Burdge (1974)

Systems Approach  
Dunning (1974)

Technological Lag  
Hogg and Smith (1970)

Tourism  
Milliken and Mew (1969)

Trade-Offs  
Mack (1974)  
Peelle (1974)

Urban Areas  
James and Brogan (1974)

Urbanization  
Hollis and McEvoy (1973)

Urban Renewal  
Housing  
Williams Jr. (1969)

Values (see Social Values)

Water  
Functions  
Fitzsimmons and Salama (1973)  
Policy  
Fitzsimmons and Salama (1973)  
Hollis and McEvoy (1973)  
Smith and Hogg (1971a)

Watershed Management  
Andrews and others (1973)  
Napier (1972)  
Wilkinson and Cole (1967)

Well-Being (see Social Well-Being)

## APPENDIX 3

### LOCATORS

- Albany-Lebanon, Oregon  
Hogg and Smith (1970)
- Atlanta, Georgia  
James and Brogan (1974)
- Austin, Texas  
Williams Jr. (1969)
- Baltimore, Maryland  
Llewellyn (1974)
- Caesar Creek Reservoir, Ohio  
Ludtke and Burdge (1970)
- Carr Fork Reservoir, Kentucky  
Burdge and Johnson (1973)
- Cave Run Reservoir, Kentucky  
Burdge and Johnson (1973)
- Colstrip, Montana  
Gold (1974)
- Foster Dam, Oregon  
Hogg and Smith (1970)
- Gillette, Montana  
Gold (1974)
- Green Peter Dam, Oregon  
Hogg and Smith (1970)
- Horsetooth Reservoir, Colorado  
Milliken and Mew (1969)
- Kentucky (reservoirs)  
Burdge and Johnson (1973)  
Burdge and Ludtke (1973)  
Johnson and Burdge (1974)  
Ludtke and Burdge (1970)
- Kickapoo Valley, Wisconsin  
Wilkening and others (1973)
- LaFarge Dam, Wisconsin  
Wilkening and others (1973)
- Los Angeles, California  
Hollis and McEvoy (1973)
- Mendocino Nuclear Power Plant,  
California  
Peelle (1974)
- Mississippi Watershed Projects  
Wilkinson and Cole (1967)
- North Springfield Dam, Vermont  
Mack (1974)
- Ohio  
Southeastern reservoirs  
Burdge and Ludtke (1973)  
Watersheds  
Napier (1972)
- Pruitt-Igoe (St. Louis, Missouri)  
Dunning (1974)
- Salt Lake Valley, Utah  
Andrews and others (1973)

APPENDIX 3 - LOCATORS

Santiam River Basin, Oregon  
Hogg and Smith (1970)

Shadow Mountain/Granby Reservoirs,  
Colorado  
Milliken and Mew (1969)

Sweet Home, Oregon  
Hogg and Smith (1970)

Taylorville Reservoir, Kentucky  
Ludtke and Burdge (1970)

Western U. S. Water Development  
History  
Smith and Hogg (1973)

West Virginia Watersheds  
Napier (1972)

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