

# USING SOCIAL ECOLOGY TO MEET THE PRODUCTIVE HARMONY INTENT OF THE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

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## Abstract

In this paper, we explore the concept of productive harmony, contained in Section 101 of the National Environmental Policy Act (NEPA)<sup>1</sup>, showing how the term can be conceived and operationalized in ways not available when NEPA was passed in 1970. We make the case that Section 101 contains the policy intent of the law that has been ignored or under-emphasized since the law's inception. By re-invigorating the concept of productive harmony from Section 101, using the science of social ecology, many of the shortcomings of NEPA pointed out by its critics, legal professionals and practitioners can be addressed. We share our experience about what has gone wrong in the implementation process, and show the theoretical development and practical success of which we have been a part. The paper closes with a discussion showing how questions of productive harmony can turn information gathering and data analysis into knowledge and wisdom so that the policy intent of NEPA calling for integration can be met. We argue that projects using this productive harmony approach are capable of fostering community, landscape, and ecosystem health in degrees unprecedented in the past thirty years of NEPA implementation.

## The Background of NEPA

The National Environmental Policy Act (NEPA) is a sterling piece of legislation. The evolutionary outcome of over 10 years of congressional discourse, the 1969 law is the most comprehensive environmental law of the nation. It has had enormous impact on

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<sup>1</sup> 42 U.S.C. Sect. 4321 (1994).

citizens, communities, federal agencies and others in the field of environmental management, economic development, and business. What federal employee could not point to shelves, and rooms, filled with environmental impact statements, as required by the law? Seventeen states have adopted environmental impact assessment laws, modeled in various degrees upon NEPA.<sup>2</sup> Up to 80 nations have been inspired to create environmental review processes to assist in their decisionmaking.<sup>3</sup> Both the Agency for International Development and the World Bank now have requirements for social and environmental assessments. The consequences of NEPA have been much debated, some of it reviewed here, leading to the questions: Has NEPA led to improved decisions? Has it contributed to empowered individuals and communities, capable of managing their own environmental destiny?

The primary reviews of NEPA of the past few years have concurred that NEPA has been “a major force in reforming agency decision-making processes.”<sup>4</sup> The systematic use of science in the forefront of analysis and consideration of alternatives has been recognized as significant to making better decisions. The “action-forcing” provisions requiring environmental assessments (EAs) and environmental impact statements (EISs) as a regular agency practice has been well established by the courts.<sup>5</sup> The requirement for citizen participation has increased the quantity, if not the quality, of public involvement.<sup>6</sup>

Judicial interpretations of NEPA have clearly favored treatment of NEPA as a procedural and not substantive law. While substantive law “creates, defines and regulates rights and duties of parties,” procedural law prescribes methods of enforcing the rights.<sup>7</sup> In effect, the courts have stated that NEPA does not prohibit agencies from making decisions that degrade the environment, but rather requires them to fully analyze and disclose whatever impacts will be created by a project. If the process for reaching decisions matches the procedural intent laid out in NEPA, and the regulations and guidelines promulgated by the Council on Environmental Quality, then compliance has been achieved. As we will see, compliance does not necessarily create productive harmony.

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<sup>2</sup> BASS, RONALD & ALBERT C. HERSON, *MASTERING NEPA: A STEP-BY-STEP APPROACH*. (Point Arena, California: Solano Press Books 1993).

<sup>3</sup> HOUSE OF REPRESENTATIVES, COMMITTEE ON RESOURCES, 105<sup>th</sup> Congress, PROBLEMS AND ISSUES WITH THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969. Oversight hearing before House Committee on Resources, One Hundred Fifth Congress, Second Session, March 18, 1998. Washington D.C.: U.S. Government Printing Office, Serial No. 105-102.

<sup>4</sup> SPENSLEY, JAMES W., *National Environmental Policy Act*, ENVIRONMENTAL LAW HANDBOOK 407, Sullivan, Thomas F.P. (editor), Fourteenth Edition. Rockville, MD.: Government Institutes, Inc. *See also* CALDWELL, LYNTON K., *Beyond NEPA: Future Significance of the National Environmental Policy Act*, THE HARVARD ENVIRONMENTAL LAW REVIEW, 203-239 (1998); HOUSE OF REPRESENTATIVES, COMMITTEE ON RESOURCES, 105<sup>th</sup> Congress, *supra* note 3. COUNCIL ON ENVIRONMENTAL QUALITY, THE NATIONAL ENVIRONMENTAL POLICY ACT: A STUDY OF ITS EFFECTIVENESS AFTER TWENTY-FIVE YEARS. (Executive Office of the President, November, 1996).

<sup>5</sup> SPENSLEY, *supra* note 4.

<sup>6</sup> BASS & HERSON, *supra* note 2.

<sup>7</sup> ECCLESTON, CHARLES H., THE NEPA PLANNING PROCESS: A COMPREHENSIVE GUIDE WITH EMPHASIS ON EFFICIENCY. (New York: John Wiley & Sons, 1999) (Citing Black’s Law Dictionary.)

The shortcomings of NEPA have been debated extensively in the last few years. Congressional testimony, as well as the review of NEPA's effectiveness by the President's Council on Environmental Quality (CEQ) in 1996, has pointed out clear patterns in the complaints about the law. Industry, agency representatives, and citizens have said that NEPA takes too long, it is too expensive, and it is sometimes redundant with other legislation, such as the Clean Water Act, that contains similar provisions. The science is often overdone, with practitioners many times duplicating academic standards that extend the timeframes to extravagant points. Critics as well as the CEQ call for "adaptive management" as an antidote—using science well enough to make an informed decision, monitor the effects, and attempt better results with the next decision.

Moreover, there is common agreement that public involvement and collaboration relative to NEPA has not worked well. Citizens often feel that decisions have already been made. Parties generally report being surprised, and not consulted until the process is well underway when it is difficult to influence its direction. Collaboration with other agencies, and with state and local governments, does not occur on a routine basis, and was the source of vehement testimony during congressional hearings.<sup>8</sup>

The final, serious flaw that critics point out with NEPA is the lack of attention to the human dimensions—the social, economic and cultural effects of decisions are seldom, or at least not systematically, considered as required by NEPA. As one testimony stated:

“We have to show in plain and simple actions that the environment, the economy, and the community are compatible. Our citizens are tired of the judicial gridlock and they're feeling left out of the process. They are willing and able to participate...Even the CEQ regulations very clearly cover the economic and community impact and the participation of the states; yet it's not at all implemented at the local level” (Wyoming Governor Geringer).<sup>9</sup>

In fact, these same hearings contained extensive discussion distinguishing “consider” from “integrate.” Some voices talked of the importance of “considering” social and economic effects of decisions, while the critics advocated for “integration” of social and economic effects with environmental effects. Rather than suffer the effects of pendulum swings on this question, people wanted more systematic attention to questions of integration between the physical and social environments. As early as 1981, the authors advocated such integration and described its applications.<sup>10</sup>

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<sup>8</sup> COUNCIL ON ENVIRONMENTAL QUALITY, *supra* note 4; HOUSE OF REPRESENTATIVES, *supra* note 3; SENATE SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS OF THE COMMITTEE ON ENERGY AND NATURAL RESOURCES, HEARING TO RECEIVE TESTIMONY ON EFFORTS BY THE FEDERAL LAND MANAGEMENT AGENCIES TO STRENGTHEN THE NATIONAL ENVIRONMENTAL POLICY ACT DECISION MAKING PROCESS, September 26, 1996, One Hundred Fourth Congress. (Washington, U.S. Government Printing Office, 1997.)

<sup>9</sup> HOUSE OF REPRESENTATIVES, *supra* note 3.

<sup>10</sup> KENT, JAMES A. & KEVIN PREISTER, *The Issue-Centered Approach to Social Impacts: From Assessment to Management*, SOCIAL IMPACT ASSESSMENT, No. 71/72, Nov.-Dec, 1981; Also published as, *Clinical*

## **The Problem Outlined**

Two stories of how NEPA has been implemented will set the stage for considering the major shortcomings of NEPA. Preister recently worked on an environmental impact statement (EIS) for a federal land management agency. Among the many community issues discovered, one was the need to plow a federally managed road around a lake. Without the road being plowed, residents had to drive an extra ten miles to town. In addition, winter recreation in the community was reduced because “flatlanders” could not gain access to mountain snow. The agency deleted this issue from the draft report because it did not directly relate to the decision being evaluated in the EIS and because staff wanted to keep the size of the report down. The manager also pointed out that it was not legal to use agency funds to plow the road. While the agency reasons were understandable in the context of agency goals and procedures, the consequence in the community was fragmentation and anger. For residents, failure to resolve the issue was a symptom of not being listened to or cared about. They related it to past sins of the agency and they took it to mean, “It just goes to show you.” In practice, this failure of connection led to a general resistance to the agency and its programs by residents. Agency staff, for their part, viewed residents as ill informed and getting in the way of their work. Even though it was not the agency’s role to resolve the issue, and even though the issue was outside the scope of the immediate EIS, the agency should have facilitated its resolution because it existed in the geographic area within the communities of place. The agency would have avoided “issue loading,” whereby the agency’s actions will be resisted by residents the next time there is an issue because of the current “sin of exclusion”.

Facilitating the resolution of the issue would also have prevented the issue from being appropriated by vested interest groups and used politically at the regional and national level. The road issue was just one of many in the community that remained unacknowledged and unresolved. What the agency failed to realize was that the legacy of missed opportunities had larger consequences than the obvious ones. Because the agency had not grounded its management to local issues, it was increasingly vulnerable to ideological debates at the regional and national level. It will continue to be impacted by these forces because the community is not on board to buffer it within formal political circles.

Contrast this story with one that occurred early in NEPA’s history. The Beaver Creek Ski Area, west of Vail, Colorado, came up for NEPA review in 1971. Despite enormous impacts and polarized political debate, it was given final approval in 1976, solely on the basis of an Environmental Assessment! It would be unheard of today for a project of this magnitude to be approved without an EIS, much less in only five years. The reason the process worked is that the Forest Service was committed to getting “off-site” and incorporating the widespread interests of the community. With the decline of mining, it

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*Sociological Perspectives on Social Impacts: From Assessment to Management*, CLINICAL SOCIOLOGICAL REVIEW, Vol. 2, pp. 120-132, 1984.

appeared the ski resort proposal would have good support for economic reasons, but people were aware that the jobs were lower paying and that, as Hispanics, they would be unlikely to participate in a meaningful way. By engaging author Kent and others to work directly in the community, the Forest Service facilitated a process to work out these concerns within the local culture.

A host of mitigation measures were included in the Forest Service permit—one of the few such permits to include, respond to and resolve social impacts. As conditions of the permit, employee housing and recreation facilities were constructed to minimize impacts on local towns, and a 3000 acre parcel of land between Minturn and the Forest Service boundary was purchased in the Minturn Valley. This Vail Associates land, purchased with Land and Water Conservation funds for \$5.9 million, was deeded to the Forest Service to minimize development impacts by creating a green belt around Minturn. In addition, a worker conversion program was begun that resulted in over twenty Hispanic businesses being created. Several have remained successful up to the present time and created the means for many more Hispanic businesses to flourish. Rather than being displaced and victimized by development at a huge cost to society, Hispanics today are direct participants in the recreation economy. Although the commodity values off the national forest between 1976 and 1996 were about \$60 million, society realized a \$1.2 billion overall benefit because of this single Forest Service permit. Ed Larsh relates these events in delightful story form,<sup>11</sup> while Preister and Kent draw out the theoretical implications.<sup>12</sup>

### **Productive Harmony-Section 101 of NEPA Rediscovered**

With this background as context, this paper puts forth the proposition that the neglect of the policy intent of productive harmony laid out in Section 101 has limited the ability of NEPA to achieve its potential. In Beaver Creek, the productive harmony question was whether new development could address the decline of mining and contribute to the well being of local Hispanic villages. The USFS personnel of the time had the wisdom to use the NEPA process to create community-based solutions using ongoing issue resolution.<sup>13</sup> The “yes” answer to the productive harmony question concerning the impact from new development was not automatic but had to be worked out through the community’s organic survival system already in place for communication, caretaking, cultural maintenance and issue resolution. This process, begun in 1971 and matured over 30 years, is referred to as a social ecology approach to the implementation of NEPA.

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<sup>11</sup> LARSH, ED B., *Mack and the Boys as Consultants*, DOC’S LAB: MYTH AND LEGENDS OF CANNERY ROW (CHAPTER SEVEN) (Monterey, California: PBL Press, 1995).

<sup>12</sup> PREISTER, KEVIN AND JAMES A. KENT, *Social Ecology: A New Pathway to Watershed Restoration*. WATERSHED RESTORATION: PRINCIPLES AND PRACTICES, BY JACK E. WILLIAMS, CHRISTOPHER A. WOOD AND MICHAEL P. DOMBECK (EDS.) (Bethesda, MD.: American Fisheries Society 1997). See also NATIONAL GEOGRAPHIC, *Our National Forests: Problems in Paradise*, September, 1982; [www.naturalborders.com](http://www.naturalborders.com), “The Minturn Story” and “Mack and the Boys as Consultants.”

<sup>13</sup> Readers may refer to the training handbook recently issued by the Bureau of Land Management’s National Training Center for its course in community assessment entitled, “Learning Community: Linking People, Place and Perspectives” (Phoenix, Arizona), 1999.

Section 101 of NEPA is like a self-regulating rudder that guides policy makers toward equilibrium. Somewhere along the line, the NEPA ship lost its rudder. An over-emphasis on Section 102 has led to a focus on compliance—were the procedures followed?—and policy questions that should direct the EIS were never recognized or have become muted. Adherence to Section 102 at the expense of Section 101 has led to conflict, litigation, and stalled decisions. As Lynton Caldwell has stated:

“The EIS requirement alone is insufficient to achieve the intent declared in NEPA...The goals and principles declared in section 101 have been treated as noble rhetoric having little practical significance.”<sup>14</sup>

### Expanding the Call for NEPA Reform

NEPA was symmetrically fashioned—Section 101 laid out the policy intent and Section 102 laid out the procedural requirements for performing an environmental impact statement. For every “major federal action”, analyses of current conditions and a range of alternatives are to be accomplished, with mitigation measures at least listed and considered that will reduce negative impacts or enhance positive effects.

In Section 101,<sup>15</sup> the concept of productive harmony proposes an integration or a balance between people and nature, and, further, the benefits of the environment should be shared widely (and fairly) while maintaining environmental quality. Diversity and options are to be preserved. We also see Congress’ intent that citizens have individual responsibility to “preserve and enhance” environmental quality. These points are developed further below.

By contrast, Section 102<sup>16</sup> focuses on procedures by which the effects analysis is to be achieved. It is the action-forcing provisions of the law that calls for the creation of

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<sup>14</sup> CALDWELL, *supra* note 4, p. 205.

<sup>15</sup> Section 101(a) is worth quoting in its entirety:

“(a) The Congress, recognizing the profound impact of man’s activity on the interrelations of all components of the natural environment, particularly the profound influences of population growth, high-density urbanization, industrial expansion, resource exploitation, and new and expanding technological advances and recognizing further the critical importance of restoring and maintaining environmental quality to the overall welfare and development of man, declares that it is the continuing policy of the Federal Government in cooperation of State and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, *to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.*” (Emphasis added)

Section 101(c) states that

“The Congress recognizes that each person should enjoy a healthful environment and that each person has a responsibility to contribute to the preservation and enhancement of the environment.”

<sup>16</sup> Its major provisions state that all agencies of the federal government shall:

“Utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decisionmaking... [Section 102(A)]

environmental impact assessments for federal actions. Section 102 calls for interdisciplinary approaches that include the social sciences. In almost all cases reviewed by the authors, the social and economic portions of EIS are a few paragraphs that have little meaning for accomplishing productive harmony. For those that extend to a few pages, statistical measures from the Census or other secondary data are the stock and trade—outlining existing conditions and anticipated effects on the social environment for the alternatives, with little concern for integrating these findings with the physical and biological environments. The participation of residents in analyzing social and economic impacts is not to be found. Many of the efforts of reform have centered on streamlining the process and decreasing redundancy or irrelevancy rather than increasing citizen ownership and making issue resolution a centerpiece for a “living process.”

In addition to the shortcomings typically described in the literature the following five problems from a social ecology standpoint must be added:

1. Insufficient issue scoping. Mailings, meetings and scoping too early in the process to solicit public issues are inadequate to prevent surprise and avoid conflict. They also fail to identify the full range of interests related to the geographic areas affected by a proposed action.
2. An over-reliance on meetings at the expense of informal networking. Meetings as the primary means to assess public interest are not reliable. Meetings set up dynamics of polarization because they are perceived as the opportunity to advocate for particular interests. Hence, it is not a setting for mutual problem solving, but one of jockeying for position vis-à-vis others perceived to have different or competing interests. Moreover, meetings attract organized groups or renegade voices that do not reflect the broader and often more practical interests of the community at large. The vested interests tend to capture the public process and drive out moderate voices. Many citizens and professionals have commented over the years that public meetings are not safe, that they feel “beat up” for going, and that meetings will not generate positive or productive outcomes.

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Identify and develop methods and procedures, in consultation with the Council on Environmental Quality established by title II of this Act which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations; [Section 102(B)]

Include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on—

- (i) the environmental impact of the proposed action;
- (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,
- (iii) alternatives to the proposed action,
- (iv) the relationship between local short-term uses of man’s environment and the maintenance and enhancement of long-term productivity, and
- (v) any irreversible and irretrievable commitment of resources which would be involved in the proposed action should it be implemented.” [Section 102(C)]

3. Issue stacking. Issues tend to be catalogued and saved for analysis rather than resolved. Over the period of time taken for the NEPA process (scoping, alternative development, effects analysis, mitigation opportunities), controversy is generated. This dynamic is compounded by formal groups that continue to influence the process, thereby hardening positions and contributing to further entrenchment. Opportunities for dialogue, early issue resolution and building public support become precluded. This finding is supported by two of the prominent reviews of NEPA effectiveness.<sup>17</sup>
4. Insufficient time for citizens to develop ownership. Many times, agencies are driven by internal deadlines, imposed from higher levels of the organization or by constraints posed by other projects. The results often are that citizen participation and/or review is shortchanged. Although the law requires a minimum amount of time for review (60 days for a draft environmental impact statement), citizen groups often complain that they do not receive a draft Environmental Assessment (EA) or Environmental Impact Statement (EIS) until well into the review period. Agencies may meet the letter of the law—the appropriate time between issuing the document and the inception of the next steps—but an effective process to allow citizens to own the analysis, understand the implications of the analysis and affect the preferred direction is not achieved.
5. Lack of commitment to community-based solutions. Citizen-based partnership and stewardship efforts have proliferated during the last ten years. Reaching the scale of a true social movement, numerous states have witnessed the rise of local groups on a watershed or subwatershed basis coming together with their elected officials and federal agency representatives in order to create a collaborative, integrated approach to ecological restoration. Sometimes watershed groups are spawned by state governments, such as Oregon, California, and Maryland, but many times they have arisen independently from citizens, and they always have a citizen-driven component. The shift from political gridlock to practical solutions is profound when one considers the rancor and the devastation to the social fabric created by environmental issues in the U.S. West during the last thirty years. One of our colleagues in his speeches describes the history of the conservation movement, the growth of natural resource science schools, and the environmental legislation spurred after 1960, one effect of which has been that citizen responsibility for environmental stewardship, as called for in NEPA<sup>18</sup>, has been abrogated. As Aldo Leopold pointed out long ago,

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<sup>17</sup> CALDWELL, *supra* note 4; COUNCIL ON ENVIRONMENTAL QUALITY, *supra* note 4.

<sup>18</sup> Section 101(b) continues by stating:

“...it is the continuing responsibility of the Federal Government to use all practicable means...to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may--  
(1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;  
(2) assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;



“There is a clear tendency in American conservation to relegate to government all necessary jobs that the private (sector) will not perform.”<sup>19</sup>

The last decade has seen widespread interest in reclaiming the stewardship ethic, an ethic that has been alive and well within the culture of the West. These points are expanded on more fully in Preister and Kent.<sup>20</sup> These community-based experiments are reflected in the policy of *Enlibra* recently espoused by the Western Governor’s Association. In short, although on occasion, practitioners of NEPA have chosen a collaborative approach, with relevant partners maintaining their NEPA requirements, on balance, the utilization of NEPA to achieve community-based solutions has very much been the exception rather than the rule.

From an agency standpoint, it has become increasingly important over the years to improve NEPA compliance because of the huge amount of time and money required to prevail over legal resistance. The number of lawsuits related to NEPA compliance has created entire budgets and assigned staff. Of the 456 EISs filed by federal agencies in 1991, for example, 85 had lawsuits filed against them.<sup>21</sup> The motivation of many agency staff is to avoid the cost and disruption of court involvement in their affairs by “bulletproofing” their NEPA work—hence, the focus and reliance on Section 102. Moreover, “prevention” efforts oriented to problem-solving and collaboration-based approaches are difficult to fund, while legal budgets for disrupted NEPA processes appear to be ample.

Reliance on Section 102 is not enough to transcend the social and political realities that beset NEPA. One of the major framers of NEPA, Lynton Caldwell, in a recent review of NEPA effectiveness, stated that if NEPA is to achieve its intent, it must be used

“to bring the active political will closer to what appears to be the nation’s latent preference. This requires a public reassessment of priorities and a process of social learning towards an understanding of the necessity for the welfare of present and future human generations.”<sup>22</sup>

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- (3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
  - (4) preserve important historic, cultural and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice;
  - (5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life’s amenities;
  - (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.”

<sup>19</sup> LEOPOLD, ALDO, *A SAND COUNTY ALMANAC* 249-250 (Oxford University Press 1966) (1949). Thanks to Gary McVicker, Colorado BLM State Office for reference to this quote.

<sup>20</sup> PREISTER & KENT, *supra* note 12.

<sup>21</sup> BASS & HERSON, *supra* note 2.

<sup>22</sup> CALDWELL, *supra* note 4, at 216.

Moreover, the importance of the policy aspects of NEPA was given extra weight recently with presidential Executive Order 12898 on Environmental Justice. The order directed federal agencies to use the NEPA process to address minority and low-income issues when considering “major federal actions,” utilizing non-traditional ways of including non-traditional publics and eschewing disproportionate impacts on these populations.<sup>23</sup> Problems must thus be looked at within a social and cultural context.

### **Social Ecology: A Conceptual Re-Development of NEPA’s Potential**

An earlier article<sup>24</sup> developed the theory of social ecology as it applies to natural resource management. That article presented the figure below as a way to exemplify the unity between physical and social environments. Social ecology is the process of understanding the relationship between the physical and social environments as it relates to productive harmony, then acting to create adaptive change through cultural alignment between informal community systems and formal institutional systems. Social ecology is therefore both a science of understanding and of action.

This figure was inspired by NEPA’s Section 101 that calls for productive harmony between people and nature.<sup>25</sup> Productive harmony is defined as a healthy, balanced state of an environment where both social and physical resources have high levels of persistence and diversity, enabling their sustainability.<sup>26</sup> As we have seen, Congress explicitly recognized the link between the health of the physical and social environment. In a social

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<sup>23</sup> The order reads, in part: “In accordance with Title VI of the Civil Rights Act of 1964, each Federal agency shall ensure that all programs or activities receiving Federal financial assistance that affect human health or the environment do not directly, or through contractual or other arrangements, use criteria, methods, or practices that discriminate on the basis of race, color, or national origin. Each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. section #321 et.seq. . Mitigation measures outlined or analyzed in an environmental assessment, environmental impact statement, or record of decision, whenever feasible, should address significant and adverse environmental effects of proposed Federal actions on minority and low-income communities.” Cited in WHORTON, MANDY & DENNIS SOHOCKI, FAIRNESS MATTERS: AN INTRODUCTION TO ENVIRONMENTAL JUSTICE. (Denver, CO: Environmental Innovations 1996).

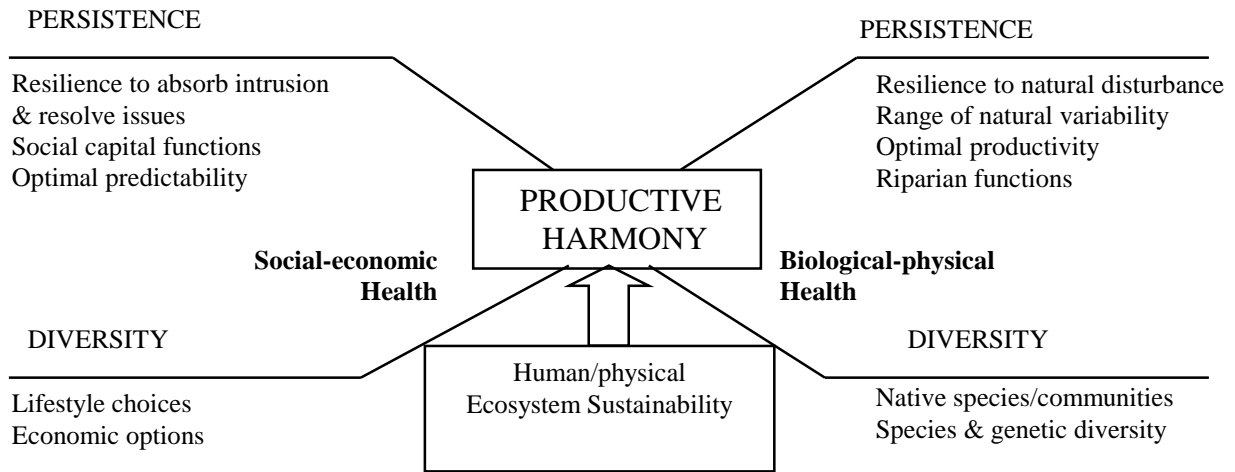
<sup>24</sup> PREISTER & KENT, *supra* note 12.

<sup>25</sup> This model was assembled in 1976 as a result of the Beaver Creek EA (PREISTER AND KENT, *supra* note 12) and has been used successfully over the last 25 years in numerous EAs and EISs. The model has been incorporated into the BLM-National Training Center courses entitled: “Community Based Partnerships for Healthy Ecosystems”, and “Learning Community: Linking People, Place and Perspectives”. In addition this model has received national recognition through an Assistance Agreement (Number 1422-P850-A8-0015) with the National Headquarters of the Bureau of Land Management for the “purpose of refining and demonstrating community assessment methods to help the BLM and its partners address social and cultural criteria for more effective public participation and collaboration when making planning and other decisions—a key element in building capacity for community-based approaches to land and resource management.”

<sup>26</sup> PREISTER & KENT, *supra* note 12, p. 30.

Figure One:  
Productive Harmony of the Physical and Social Environments

SOCIAL ENVIRONMENT
PHYSICAL ENVIRONMENT



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ecology approach, it is recognized that people are part of the ecosystem, and that long-term sustainability depends on human communities being a part of decision-making and having a stake in sustainable practices. Consequently, efforts to understand the social environment, often lacking, are crucial to undertake in conjunction with biophysical resource assessment. The goal is land management practices that sustain both physical environment and human communities. We call this a biosocial approach to ecosystem management.<sup>27</sup>

Social ecology seeks to: a) understand the relationship of people, their culture and their resources; b) identify the adaptive strategies people are using to survive or absorb change; and, c) facilitate action whereby new strategies can take hold. Key to successful adaptation is cultural alignment between formal systems of agencies and organizations and the informal community systems by which residents survive. When formal and informal systems are in alignment, we say the level of “productive harmony,” is high, enabling sustainability over time. When formal and informal systems are not in alignment, productive harmony is low, conflict is high, and successful action on the ground is stymied. For public land management, it is important to:

1. Recognize the local, regional, national and global trends that affect, or are affected by, natural resource decision-making;

<sup>27</sup> PREISTER & KENT, *supra* note 12. KENT, JAMES A. & KEVIN PREISTER, *METHODS FOR THE DEVELOPMENT OF HUMAN GEOGRAPHIC BOUNDARIES AND THEIR USE*, (US Department of Interior, Natural Resources Library, 1999, page 4); also at [www.naturalborders.com](http://www.naturalborders.com). See also KENT, JAMES A., DAN BAHARAV & EVE BAHARAV, *ECO-MAPPING: PLANNING AND MANAGEMENT OF BIO-SOCIAL ECOSYSTEMS*. (Boulder, CO: Thorn Ecological Institute 1991).

2. Understand the survival, cultural attachment and caretaking issues that are important to informal networks in the communities;
3. Communicate in culturally-appropriate ways with a wide range of citizens so that people understand how their interests are being affected;
4. Create collaborative action between citizens and agencies so that stewardship is widely shared.<sup>28</sup>

Figure Two below shows the process for using the Policy Section (101) of NEPA to drive the documentation requirements of Section 102. It graphically embodies the concept of Productive Harmony. Productive harmony asks the question whether the physical and social environments have high states of persistence and diversity, and then whether a proposed action contributes to or detracts from that state. The figure shows that if environmental assessments and environmental impact statements are driven from analyses of productive harmony, they will be focused and disciplined, and able to resolve issues as they emerge rather than collecting issues for further controversy, which is the norm today. The concepts shown in Figure Two offer several advantages:

- Issues can be identified early, included in analysis, and routinely resolved early—building citizen and agency capacity to mutually interact for bio-social ecosystem health;
- Analysis can be appropriately focused;
- Environmental Justice considerations are easily flagged and incorporated;
- Considerations of community health have equal status with considerations of ecological health in addressing sustainability;
- Community-based planning and action can more easily be shaped around collaborative stewardship enterprises.

Figure Two represents a method to exit our current environmental dilemmas and the problems posed by the current implementation of NEPA. Section 101 can be used to address social justice, environmental justice and productive harmony requirements. Such an interpretation allows:

1. non-traditional ways of involving people that is consistent with their culture;
2. early resolution of issues so that agreements can be worked out through the NEPA process; and,
3. off-site and community health considerations to become important elements in the decision.

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<sup>28</sup> PREISTER, KEVIN, PREPARING FOR CHANGE IN THE HIGH DESERT OF CENTRAL OREGON: USING HUMAN GEOGRAPHIC BOUNDARIES TO CREATE PARTNERSHIPS, A REPORT TO THE CENTRAL OREGON INITIATIVE OF THE FOREST SERVICE AND BUREAU OF LAND MANAGEMENT (James Kent Associates and Social Ecology Associates, July, 2000).

A case is being made for an approach to biosocial ecosystem management and to NEPA that understands and builds into decisionmaking considerations of community health. In other writings,<sup>29</sup> the authors have described the methodology necessary to create this understanding. Although not repeated in detail here, three concepts are central to this approach:

1. Community interests must be issue-driven, that is, based on actionable statements made by citizens and integrated with management concerns of agencies and formal groups. A focus on the actionable disciplines the socio-political process to avoid the pitfalls of ideological holy wars. Actionability allows for the decision space to be expanded in a manner that citizen empowerment takes place.<sup>30</sup>
2. Horizontal informal networks form the structure by which communities sustain themselves. Networks are informal arrangements of individuals who support each other in predictable ways. The more the informal system of community is made visible to the formal system, the more cultural alignment between these social segments can occur.
3. Human-geographic boundaries are natural management boundaries. At the neighborhood, community, and regional level, people identify with their landscape and have common, though often unvoiced, agreement about these boundaries.<sup>31</sup> In recent years, because of advances in GIS capability, James Kent Associates and Social Ecology Associates have begun providing Human Geographic Map (HGM) layers to the biophysical layers. In addition to maps that show land use, wildlife, vegetation, soils, land ownership and administrative boundaries, we now have social/cultural maps that show how residents in communities distinguish one area from another. The HGM layers can also show gathering places, communication pathways, civic protocols, key communicators, and major issues so that ongoing dialogue and action can be maintained at the grassroots level. These maps are extremely useful because they reveal the cultural lines within which people already mobilize to meet their interests.

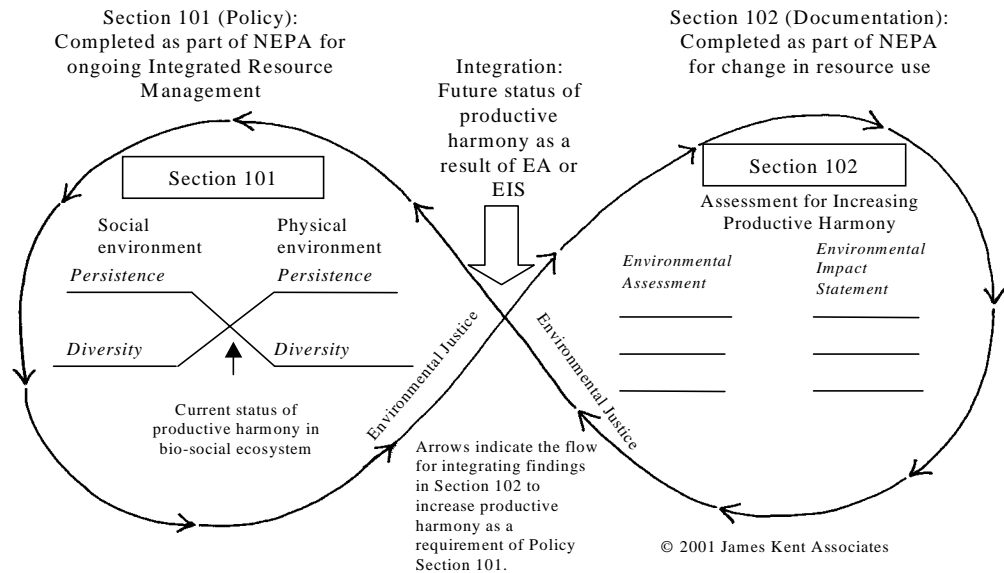
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<sup>29</sup> PREISTER & KENT, *supra* note 12; KENT AND PREISTER, *supra* note 10 and *supra* note 28.

<sup>30</sup> Issues are thus citizen issues and distinguished from management concerns so as not to confuse the grounding of the action. Issues belong to the people, concerns belong to the government, agencies and formal groups (KENT & PREISTER, *supra* note 10).

<sup>31</sup> QUINKERT, KENT, JAMES A. KENT, & DONALD C. TAYLOR, THE TECHNICAL BASIS FOR DELINEATION OF HUMAN GEOGRAPHIC UNITS. (Denver, Colorado: SRM Corporation for U.S. Department of Agriculture, April, 1986).

Figure Two:  
The National Environmental Policy Act--  
Optimizing Productive Harmony Between the  
Social and Physical Environments



The boundaries are appropriate management units because they match the culture. Rather than experience the continued fragmentation that comes from an assortment of programs based on overlapping agency and political boundaries, we now have the

ability to “staff the culture.”<sup>32</sup> That is, there is an emerging capability of treating the land base and its people as one unit and of integrating concerns of community health with those of ecosystem health thus creating habitat continuum for both social and physical environments.<sup>33</sup>

We see in the foregoing description an approach to NEPA compliance that is less costly from a dollar and resource perspective, more inclusive, more citizen based, more oriented to collaboration, and more capable of yielding decisions that are not challenged and able to be implemented.

## Two Stories from the Field

A significant breakthrough in the application of the productive harmony policy expressed in NEPA Section 101 took place in 1996 (see Figure 2). The George Washington/Thomas Jefferson National Forest was in the fifth year of an Environmental Impact Study addressing the impacts of alternative power line corridors on Forest Service land when an “issue of significance” was recognized in the social/culture sector. The issue of significance, called *culture attachment*, was raised by area residents regarding a proposal for a 765 kV transmission line from the Wyoming substation in West Virginia, to Cloverdale, Virginia. The issue was given standing by the US Forest Service and JKA was placed under contract to accomplish two tasks: (1) to define culture attachment, since no definition existed in the literature; and (2) to apply the definition to the project territory between the two sub-stations, consisting of thirteen corridor alternatives for sighting the power line.<sup>34</sup>

To define culture attachment, JKA entered the routines of the people and using seven culture descriptors drew Human Resource Unit Maps of the study area.<sup>35</sup> The HRU map

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<sup>32</sup> See, e.g., PREISTER, *supra* note 28 for a report on the Central Oregon Project, or review it at [www.naturalborders.com](http://www.naturalborders.com)).

<sup>33</sup> KENT, JAMES A. & DAN BAHARAV, HABITAT CONTINUUM, CORRIDORS, AND HUMAN DIVERSITY. (Blacksburg, VA: Virginia Polytechnic Institute, Society for Conservation Biology 1992).

<sup>34</sup> James Kent Associates has worked for over 30 years with the US Forest Service addressing the social, culture and community interface of their decision making concerns. Between 1976 and 1981 James Kent headed a team of his consultants and Forest Service employees to develop and implement a program of “socially responsive management” within the Forest Service. Kent received the US Forest Services 75<sup>th</sup> Anniversary Gifford Pinchot award in 1981 for his “significant contribution to forestry and conservation”. It was during this work that the first Human Geographic Maps and an issue management system were introduced into Regional Forest Plans to improve the involvement of citizens in resource decisions that affect them through the use of informal networks in the communities. See KENT, JAMES A., RICHARD J. GREIWE, JAMES E. FREEMAN AND JOHN RYAN. SOCIAL RESOURCE MANAGEMENT GUIDELINES; A TEN-STEP PROCESS FOR A SOCIAL IMPACT ASSESSMENT, (USDA-Forest Service Surface Environment and Mining Division (SEAM), Ogden, Utah 1970); and QUINKERT, ANTHONY, ET. AL. THE TECHNICAL BASIS FOR DELINEATION OF HUMAN GEOGRAPHIC UNITS, (Small Business Innovative Research Project, Grant Number: 85-SBIR-8-0069, United States Department of Agriculture, 1986).

<sup>35</sup> KENT, GREIWE, FREEMAN & RYAN, *supra* note 34.

displays the cultural boundaries that distinguish the various human habitat areas.<sup>36</sup> They are naturally occurring boundaries within which people that share similar values, attitudes and lifestyles have their greatest strength and resilience. This mapping of the social ecosystem provided the context within which the definition and assessment of the concept of cultural attachment took place. Seven distinct cultural geographic areas were identified.<sup>37</sup>

A result of this physical, social and culture interaction with the land and the human habitat was a definition of culture attachment. *Culture attachment is the cumulative effect over time of a collection of traditions, attitudes, practices and stories that ties a person to the land, to physical place, an to kinship patterns.*<sup>38</sup> Culture attachment is a result of having lived in an area-and having had your ancestors live in that area. It is the result of making everyday decisions within the context of land, place and kinship. While the reviewed literature had discussed these three elements of land, physical place and kinship patterns as separate entities, it became apparent that they were intricately tied together in a dynamic ecosystem where cultural attachment existed. Where cultural attachment was weakened one or more of these elements had been intruded upon and participation and control over them had been eroded. It was found in people's talk that there was constant attention to keeping these three elements in harmony.<sup>39</sup>

To identify the areas in which cultural attachment was practiced and to assess its extent, five cultural attachment indicators were developed from the culture descriptors.<sup>40</sup> The five cultural attachment indicators are: (1) Kinship-primary commitment to his/her kin; (2)Place/ work orientation-primary commitment to place with work, recreation, family activities centered on geographic place; (3) Relationship to land-primarily based on intrinsic value which is more important than its economic value (living off the land and not on it).<sup>41</sup> (4) Genealogy of homeplace—people make choices in their daily lives based on the genealogy of their homeplace, and (5) Absorption—people have developed a

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<sup>36</sup> KENT, JAMES A., JOHN RYAN, CAROLYN HUNKA, & ROBERT SCHULTZ. CULTURE ATTACHMENT: ASSESSMENT OF IMPACTS TO LIVING CULTURE, APPENDIX M: APCo 765 kV TRANSMISSION LINE ENVIRONMENTAL IMPACT STATEMENT, (George Washington/Thomas Jefferson National Forest, Roanoke, Virginia, 1996); See also [www.naturalborders.com](http://www.naturalborders.com) same title)

<sup>37</sup> *Id.* at .8-10.

<sup>38</sup> *Id.* at 11.

<sup>39</sup> See HICKS, GEORGE L, APPALACHIAN VALLEY, (Holt, Rinehard, and Winston, New York, 1976) and BILLINGS, DWIGHT, ET.AL., *Culture, Family, and Community in Preindustrial Appalachia*, APPALACHIAN JOURNAL, Winter 1986, pp. 154 to 170.

<sup>40</sup> To understand the relationship between cultural descriptors and cultural indicators, see PRESTON, MICHAEL, THE BOGGY DRAW ANALYSIS AREA, SAN JUAN NATIONAL FOREST, OCTOBER 2000. The Boggy Draw area is located in the Mancos-Dolores Ranger District. The forthcoming Environmental Assessment updates eight allotment management plans. Appendix 1 displays the Matrix of Productive Harmony Indicators: San Juan Boggy Draw Unit Allotment Management Plans.

<sup>41</sup> PREISTER, KEVIN, ET.AL. THE RED COCKADED WOODPECKER AS AN ASSET: CREATING COMMUNITY BENEFITS FROM HABITAT RESTORATION, (U.S Army Environmental Center for The North Carolina Sandhills Conservation Partnership and U.S. Army at Fort Bragg, Hoke County, North Carolina. December 2000, page 19). See also [www.naturalborders.com](http://www.naturalborders.com) same title]



process of absorbing soft change (as distinguished from hard change) into their environment

The link between cultural attachment and powerline corridors became operative when assessing the impact of the intrusion on the cultural landscape of the area. An intrusion is an outside force brought into an area that will create a significant long-term change in the relationship between people and the land. Such change cannot be absorbed into the existing culture, thereby changing that culture. That change is measured by changes in the five cultural indicators listed above which in turn change the cultural descriptors.

In areas where cultural attachment is strong, because individuals have consistently made choices over time that supports their culture, an intrusion is a threat to the living culture. An intrusion weakens and potentially destroys the relationship between people and land, place, and kinship patterns by disrupting the cultural “membrane” which protects these relationships. A biological metaphor to describe intrusion is the cell. A cell is a self-contained living unit of matter that has a membrane, which allows certain substances into the cell and prevents other substances from entering. The cell will absorb what it can and fight off what cannot be absorbed through osmosis. When the cell is breached internally by a mutation or by an external intrusion, the cell loses its ability to control osmosis. Once control is lost, anything can enter the cell. The biosocial ecosystem principle that emerges is that any outside-generated intrusion (hard intrusion) that breaches the boundary of a culturally attached area will be destructive to the human habitat.<sup>42</sup> Change that comes in through the culture (soft intrusion) has a better chance of being accommodated/absorbed and is therefore non-intrusive. Healthy cultures have an ability to absorb some changes and reject others that threaten their ability to remain intact.

JKA found that the powerline would be a hard intrusion of such force that culturally attached communities could not absorb it. Two communities were found to have high cultural attachment; two had high/medium; two medium and one medium/low. These rankings were applied to the thirteen corridor alternatives for the American Power Company corridors. The two high ranking culturally attached areas—Peters Mountain, a 125 mile long stretch of unbroken forest canopy with human occupants; and Walker Valley—were found to be in productive harmony and therefore in culture alignment. The productive harmony would be threatened and destroyed if these areas became powerline corridors, where homes would be moved, large forest areas would be cut for corridors, pesticides applied to the undergrowth, and service roads would open up the areas to further outside intrusion.<sup>43</sup>

The US Forest Service agreed with the productive harmony analysis and along with the other assessments involving streams, ground water, old growth wildlife, soil erosion, etc. It declared a “no action” alternative, meaning the agency will not allow the proposed 765,000-volt line to cross the national forest. The Forest Supervisor, Bill Damon, said: “One of the key factors in my decision was how the line would affect people living in

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<sup>42</sup> KENT & PREISTER, *supra* note 27, p. 4. See also [www.naturalborders.com](http://www.naturalborders.com).

<sup>43</sup> KENT ET.AL. *supra* note 36, pp. 21 to 27.

certain remote, rural communities such as Walker Creek Valley in Giles County, and the West Virginia side of Peters Mountain, where the “cultural attachment” to land and lifestyle are strong.”<sup>44</sup>

The importance of this Forest Service decision was two fold: (1) it recognized that off-site community areas (impacts on non-Forest Service land) must be studied as a part of NEPA application to understand the consequences on human habitat of the Forest Service action on their land and; (2) it was based on maintaining and enhancing the human habitat in the culturally attached areas by not allowing a major intrusion to disrupt the productive harmony enjoyed by these communities. *The Forest Service understood that culturally attached areas **do not** lend themselves to mitigation.* Since cultural attachment is non-economic and non-transferable, it cannot be mitigated through reimbursement or relocation of individuals or families.

This NEPA work recognized three important principles: (1) that humans are a part of a habitat continuum and can be understood using the science of discovery; (2) that economic assessment does not produce the eloquence or science necessary for understanding the social ecology dynamics of communities; and (3) that this Environmental Impact Statement is the first to treat living culture as an “endangered species.”

The second story involves the U.S. Marine Corps that has been practicing amphibious training on the beaches of Hawaii since World War II. For an EA begun in 1997, it wanted to sustain its training options at Makua Beach in a cooperative manner with the community, and to be sure that community impacts and environmental justice issues were adequately addressed. JKA engaged in informal community contact and description by entering the routines of the local communities. The multi-disciplinary team members included:

- a cultural resources specialist with fluency in the Hawaiian language;
- a sociologist/legal expert with extensive experience integrating socio-cultural information into the NEPA process;
- an economist with broad community development experience; and,
- a multi-disciplinary environmental scientist as principal investigator.

The team found many issues of which the NEPA study group was unaware. Primary among them was the lack of compensation for families displaced from the Makua Valley in the original military take over during World War II. Early community work identified the informal networks and their cultural maintenance, survival, and caretaking systems. In addition to identifying citizen issues, the JKA team also described the “civic protocols” necessary for ongoing successful interaction with the many sub-cultures in the area.

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<sup>44</sup> MCCUE, CATHRYN & GREG EDWARDS, *Forest Service Rejects Power Line*, THE ROANOKE TIMES, June 19, 1996, at A1.

Prior to JKA's involvement, the NEPA process was being "captured" by organized militants from the urban zones of Hawaii. The strategy of the militants was to disrupt NEPA by advocating for the importance of Makua as a sacred beach. As community workers identified elders in the local communities, the elders did not support the notion of a sacred beach—"What, you think we didn't walk on our beaches?" They pointed to specific sites on the beach that were culturally important and could not be disturbed by any civilian or military activity. As this level of detail was injected into the EA process, the militants were less able to dominate the process and to bring forward their ideological agenda. They had to be more responsible or lose standing in the informal community because the latter understood: "how the training activity, through enhancements to the culture, can directly benefit community members. Therefore, the training becomes a mutual benefit, with the community networks standing between the military and the activists."<sup>45</sup>

Clarifying issues and devising ways to mitigate impacts based on informal approaches to community input (i.e., oral history interviews and community description) addresses Environmental Justice (EJ) requirements in the NEPA process and builds citizen ownership.<sup>46</sup>

## **The Promise of the Future**

"In America's future, the quality of life will depend upon the extent to which the government and people of the United States make the principles declared in NEPA a practiced reality. Its principles must be applied in actual public administration."<sup>47</sup>

In the future, the productive harmony aspect of NEPA requires that citizens take charge of cultural and environmental enhancement and recovery. The role of government becomes one of expediting and facilitating, not one of command and control. Agency personnel will need to create a climate and structure that develop community capacity to be full participants in the NEPA process. Attention to Section 101 will create a new language structure—enhancement rather than penalties; issue resolution instead of issue stacking;

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<sup>45</sup> MERRITT, RICHARD O. AND ROY WHITEHEAD, JR., INCLUDING THE EXCLUDED POPULATION IN MARINE CORPS ENVIRONMENTAL DECISIONS. (Quantico, VA: Marine Corps Gazette, 2000, Volume 84, Number 10, at 42.

<sup>46</sup> This EA has not been released, as of this date, by the Marine Corps Base Hawaii. The supporting documents submitted by JKA include: JAMES KENT ASSOCIATES AND INSTITUTE FOR SUSTAINABLE DEVELOPMENT, APPENDIX G: DECISION SUPPORT DOCUMENT: COMMUNITY RESOURCES SUMMARY AND RECOMMENDATIONS, MARINE CORPS AMPHIBIOUS TRAINING AT M~KUA BEACH. (Prepared for Commanding General, Marine Corps Base Hawaii, *Environmental Assessment for Marine Corps Amphibious Training in Hawaii*, June, 1998); and GUIDELINES FOR COMMUNITY INTERACTION (Developed as Part of an Expanded Culture Assessment, Environmental Assessment Project for the Marine Corps Amphibious Training in Hawaii, July, 1998).

<sup>47</sup> CALDWELL, *supra* note 4 at 206.

cooperation rather than power politics; empowerment rather than reaction; and public ownership rather than public involvement.

In the past, productive harmony could not be operationalized because the social ecology theory, as discussed in this paper, was not developed to a stage of scientific reliability.<sup>48</sup> The concepts of citizen issues, informal networks, and human geographic boundaries are useful for bringing forward the natural community systems that are the repository of local culture. As the social environment is made visible, it can be acted upon by treating it as a resource in efforts to foster biosocial ecosystem enhancement and recovery. Moreover, GIS technology allows a multi-disciplinary display of many kinds of information, including the social, permitting for the first time a truly integrated resource management approach to analysis and action.

As the decisionmaking landscape has changed over the last 30 years, it is the social, cultural and economic aspects of decisions that most trouble people and is driving current resource decisions. Professionals around the country have repeatedly said that the physical side of the equation is covered--the science is there with the capability to meet the demands of NEPA. At the same time, these professionals express a hunger for better understanding of the social environment. In a short fifteen years, the question has shifted from "Why" to "How" as far as understanding the social environment. It is still the case, that the community side of NEPA remains severely underfunded. Except for legal budgets to combat ever-present lawsuits, little budget is allocated for proactive or preventative approaches with NEPA. We predict this will rapidly change as understanding increases of the necessity to seek productive harmony between the social and physical environments.

We have identified six "learning blocks" necessary for successful implementation of the process we are advocating.

1. Understanding the rise of geographic democracy and its effects on public decision-making. Geographic democracy refers to the increasing importance of "communities of place" in family and individual decision-making, supplanting career and economic advancement in many cases in favor of geographically-based

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<sup>48</sup> For other published sources for the theoretical developments related to social ecology, SEE JAMES KENT ASSOCIATES, *Workshop Conducted on NEPA Compliance for the Environmental Affairs Division*, Marine Corps Base Hawaii, *Summary and Recommendations Report*, October 6, 1997; THINKING BEYOND OUR BORDERS: A BIO-SOCIAL ECOSYSTEM APPROACH TO RESOURCE MANAGEMENT ON PUBLIC LAND, (Presented at National Military Fish and Wildlife Association Training Session, Wildlife Management Institute's 59<sup>th</sup> North American Wildlife and Natural Resource Conference, Anchorage, Alaska, March, 1994); ISSUE MANAGEMENT HANDBOOK, WASHOE COUNTY ISSUE MANAGEMENT SYSTEM, (Washoe County Department of Comprehensive Planning, Reno, Nevada; June, 1993). See ALSO KENT JAMES A. & JOHN RYAN, DOCUMENTATION OF THE METHODOLOGY USED IN DEVELOPING GUIDELINES FOR A SOCIAL IMPACT MANAGEMENT SYSTEM FOR CITY AND COUNTY OF HONOLULU. (Honolulu, HI: Honolulu Department of General Planning, March, 1980); A SOCIAL IMPACT MANAGEMENT SYSTEM FOR HONOLULU: FINAL PHASE TWO REPORT. (Honolulu, HI: FUND Pacific Associates, July, 1981).

life-style choices. Geographic democracy also recognizes the democratization of information, technology, and decisionmaking.<sup>49</sup>

2. The use of Section 101 for integrated bio-social resource management, issue resolution, and collaborative stewardship efforts;
3. Culturally appropriate methods of issue scoping, based on face-to-face and word-of-mouth qualitative techniques, in order to build citizen and agency capacity. The ability to relate and engage translates to mutual empowerment;
4. Fulfilling Environmental Justice (EJ) requirements under Executive Order 12898 for decisions affecting low-income and minority populations by using natural systems to communicate and by minimizing the use of formal meetings and written material.<sup>50</sup>
5. Creating issue-driven and user-friendly Environmental Assessments (EAs) and Environmental Impact Statements (EISs) to generate social capital for society, therefore increasing the public benefits at less cost.<sup>51</sup>
6. Instituting “issue-tracking” mechanisms so citizens can understand how their interests are being addressed, thereby building public ownership for project alternatives, stabilizing decision-making, and increasing citizen responsibility in resource development, recovery and enhancement.

We have presented a theoretical rationale, a methodology, case examples, and a future course of action that will bypass gridlock, reduce costs and increase citizen ownership in the NEPA process. We expect a time when the NEPA process will operate within a knowledge and wisdom framework, rather than simply within a data crunching and information framework<sup>52</sup>; a time when citizens’ interests, perspective, and local knowledge drive the analysis effort in addition to the best science<sup>53</sup>; and a time when questions of productive harmony are the ones that discipline the public discourse, rather than relying on compliance with its inherent conflict-generating qualities.

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<sup>49</sup> FRIEDMAN, THOMAS L., *THE LEXUS AND THE OLIVE TREE: UNDERSTANDING GLOBALIZATION*. (Anchor Books 2000).

<sup>50</sup> MERRITT & WHITEHEAD, *supra* note 46.

<sup>51</sup> PUTNAM, ROBERT D., *Bowling Alone: America’s Declining Social Capital*. JOURNAL OF DEMOCRACY, 1995 6(1): 65-78.

<sup>52</sup> NATIONAL TRAINING CENTER, *COMMUNITY BASED PARTNERSHIPS AND ECOSYSTEMS FOR A HEALTHY ENVIRONMENT*. Training Handbook for Course Number 1730-31. Phoenix, AZ: National Training Center, Bureau of Land Management, 2000.

<sup>53</sup> U.S. DEPARTMENT OF THE INTERIOR, *A DESKTOP REFERENCE GUIDE TO COLLABORATIVE, COMMUNITY-BASED PLANNING*. Bureau of Land Management and the Sonoran Institute, 2000.