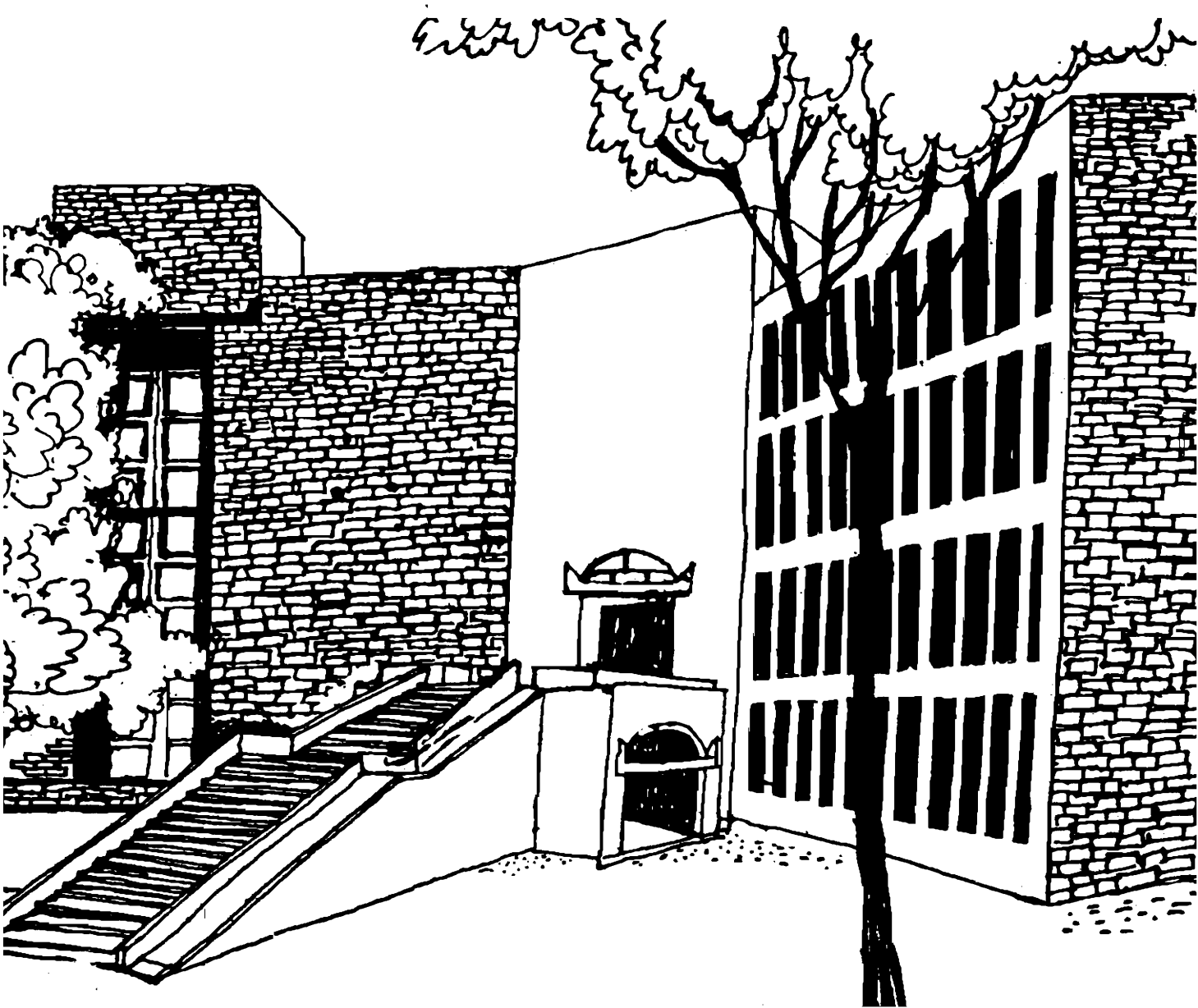




Working Paper



INCORPORATING ADIVASI ECOLOGICAL
KNOWLEDGE INTO RURAL CURRICULA

By

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INCORPORATING ADIVASI ECOLOGICAL KNOWLEDGE INTO RURAL CURRICULA¹

by Kristin M. Cashman² and William L. Gibson³

1. The authors would like to thank Professor A.K. Gupta, R.M.C.E.I. Chairman, for encouraging us to link Adivasi knowledge and formal education. We would also like to thank Professor Ranjit Gupta and Director P. Khandwalla of IIMA as well as Professor Lal, Director of the Tribal Research and Training Centre at Gujarat Vidyapith for their advice, input, and encouragement during the writing of this position paper.

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People should develop along the lines of their own genius
and the imposition of alien values should be avoided
Jawaharlal Nehru

RESEARCH SUMMARY

Regardless, of one's affiliation with the beliefs of Jawaharlal Nehru, the deterioration of India's forests has been linked directly with the erosion of Adivasi (aboriginal inhabitants of peninsular India) cultures and their vulnerability to outside elements (see Shiva, 1988; Pereira, 1991; Linden, 1991; Jain, 1991; Backmann, 1993). Education for Adivasis, who normally speak their own language distinct from India's dominant regional dialects, has been identified as a solution. But this, too, is beset with difficulties; education has to be combined with learning a language inculcated with values and norms that differ markedly from Adivasi culture. "...the average teacher has had no training whatsoever in any techniques of relevance to the everyday life of tribal children" (Furer-Haimendorf, 1985:127). As a result, the dropout rate among tribal children is high (R. Gupta, personal communication, 23/2/93).

On the other hand, if the "system" is successful in educating tribal children, generations of Adivasi traditional ecological knowledge (ATEK) can be lost in the process. The authors in Jain (1991) describe how Adivasi societies are intimately related to the ongoing maintenance of biodiversity and the conservation natural resources. These people have evolved a knowledge system around their historical access; biodiversity is common property, and knowledge related to it is part of the intellectual commons (Shiva, 1993:556). But because of its inherent structure, conventional education does not recognize that for tribal communities knowledge and biological resources are inalienable.

Following the recommendations of Pereira (1991), von Furer-Haimendorf (1985) and Ranjit Gupta (1979) we hypothesize that incorporating a learner's perspective by infusing ATEK into rural curricula will improve the relevance of education and reduce drop-out rate among Adivasi youths. Equally important, it may be one method of building self-esteem and preserving valued ATEK (see Pereira and Seabrook, 1990; Jain, 1991).

By adapting approaches developed by Wigginton (1985), A.K. Gupta (1992a), and Cashman (1983, 1989a) linkages will be forged between India's formal education and those nonformal processes that Adivasi communities have created over centuries regarding natural resources. The researchers will collaborate with teachers, students and the community elders to identify and document ATEK and experiment in curriculum design to create a living testament of valid ATEK that will complement existing educational curricula.

The purpose of this research is not to repeat the extensive analyses that exist on the existence and value of ATEK. Rather, the aim is to focus on Adivasi tribal culture as a source for educational material on alternative environmental philosophy.

INCORPORATING ADIVASI ECOLOGICAL KNOWLEDGE INTO RURAL CURRICULA

I. Background

Adivasi traditional ecological knowledge (ATEK) is the distillation and summation of experience which forms the basis of group decision-making in the face of familiar and unfamiliar problems and challenges (Warren, 1992; Cashman, 1991). ATEK, which includes local perceptions, wisdom and experience, is a valid plant-animal-human interaction science (Sen, 1992; Pereira, 1992; Hardiman, 1987; Posey, 1985).

An emerging consensus among the global scientific community is that indigenous groups, such as the Vasava Adivasis in the Bharuch District of Gujarat State, have long-evolved and direct cultural ties to the landscape. Therefore, India's aboriginal cultures have effectively maintained and enhanced biodiversity (A.K. Gupta, 1992b; Jain, 1991; Pereira, 1992; Posey 1985; Mooney, 1983; Brush et al., 1980). As concerned scientists we can hardly move fast enough in preserving this knowledge (Linden, 1991). India's Adivasi cultures represent data banks of evolving adaptive solutions to the problem of existence in fragile environments (A.K. Gupta, 1991; Jain, 1991).

Why is assuring India's tribal communities of their heritage so important? As thirty-three of the thirty-five authors in Indian Ethnobotany (Jain, 1991) point out, India's Adivasi communities play, perhaps, the most crucial role in the nations race to preserve its vast biodiversity and natural resources. The loss of Adivasi culture means the loss to future generations of potentially adaptive mechanisms as well as maladaptive responses. This, in turn, may reduce the probability of survival for all

(Barnett, 1988). Unfortunately, the informal structures that indigenous societies have developed for maintaining diversity are under tremendous strain.

Although India's Adivasis hold the key to maintaining and improving biodiversity and natural resource conservation, it comes as a surprise for most of the world to learn that more than 68 million Indians belong to tribal communities as distinct from the great mass of Hindu caste society. These Adivasis, as they are known in India, have origins which precede the Vedic Aryans and even the Dravidians of the south. For thousands of years they have lived undisturbed, most would believe, in India's hills and densely wooded regions. But others believe that centuries ago the process of marginalization began when tribal communities were forced into those regions regarded as unattractive by the dominant peasantry of India's more aggressive populations (Pereira, personal communication April 28, 1993). Because of this peripheralization, many groups still speak tribal languages not understood by the politically dominant people, and they follow ancient customs foreign to both Hindus and Muslim alike.

Obviously there was some contact between the Adivasis and the Hindu villagers of the open plains, but this rarely led to friction since there was little or no competition for resources and land. All this changed dramatically when improved communications opened up previously inaccessible tribal areas and rapid growth of the Indian population led to pressure on its land resources. In the space of just 40 years the vast majority of Adivasis have been dispossessed of their ancestral land and

turned into impoverished laborers exploited by all and sundry.

A shocking tale of exploitation and dispossession has unfolded with the connivance and even encouragement of officialdom (von Furer-Haimendorf, 1986). It's a record which the government would prefer to forget about and which it vehemently denies exists (see Ghati, 1992). Instead, it points to the many schemes to improve the condition of its aboriginals. Undoubtedly some of this has actually got through but much of it has disappeared in various corruption scams (Hardiman, 1987).

Given the pressure for land, many doubt that any genuine effort can be made to improve the lot of the Adivasis in peninsula India. (Kurien, 1992). Like the many Native American cultures in the United States, what is far more likely is that the erosion of Adivasi culture and tradition will continue until they eventually 'disappear' as distinct tribes (Cashman, Sandor, and Salvador, 1992; Sen, 1992).

II. The Context

High drop out rates among Adivasi youths in India during primary and secondary school are extremely high and can be attributed to a) irrelevance of what is taught for day to day living; b) poor teacher motivation coupled with inadequate teaching infrastructure; c) pressure on children to help earn family livelihood necessitating trade tradeoffs between learning and earning; and d) lack of reinforcement at home for continuing education especially when it is perceived as irrelevant. Parents point to the high unemployment among other Adivasis despite having an education to support their actions.

Ranjit Gupta has long advocated studies for developing Adivasi education from their perspective (see Vyas, Moulik, Desai, and Gupta, 1979). In his section on "Health and Education" in Rural Development for the Rural Poor: The Dharampoor Project, R. Gupta cites Piaget's findings on child intellectual development to improve Adivasi education. Piaget, Panda (1988), Chand (1993) and others support the conclusion that intelligence is enhanced when material is introduced in relationship with a child's social and physical experience. Following this, R. Gupta (Vyas, Moulik, Desai, and Gupta, 1979:113-129) advocated further studies on how ATEK could be integrated within formal education, to make learning more meaningful to Adivasi children. In 1979 R. Gupta (p.120) framed one of the general theses of this study:

A qualitative study of the relevance of school education from tribals' point of view should be made. This will include interalia a study of where and how the students passing out from the local secondary schools are placed and what has been the contribution of education in this direction.

III. The Problem: Expounded

It has been suggested that modern educational curricula has done little to enhance and may even disrupt valuable knowledge systems that belong to rural people (Vyas, Moulik, Desai, and Gupta, 1979; Goonatilake, 1982; Pereira, personal communication; Panda, 1988; Cashman, 1989; Linden, 1991). We believe that if the developed world is to help indigenous people preserve their heritage it must first recognize that this traditional knowledge has value. An indication of the value of ATEK is its record, which extends back to ancient times, of successfully sustaining particular cultures under extreme environmental condi-

tions (Gupta 1993; Gadgil and Berkes 1990; Goonatilake 1984).

Disruption stems from the fact that the environmental and cultural conditions of India's Adivasis are totally unlike those under which imported Western science and education took root and grew. 'Development' personnel, charged with "uplifting" the status of "backward" tribal groups¹ often fail to question, if not the value of their inputs then at least, the appropriateness of the paradigm from which their judgments stem (Cashman, 1991).

The foregoing describes a multi-pronged and circular problem: the erosion of valuable ATEK as a result, in part, of a formal education process which, in turn, leads to low self-esteem and high drop-out rates among Adivasi youths and, ultimately, enculturation -- the loss of tribal heritage.

This research will connect formal education to the biological and cultural diversity that exists in the regional landscape to foster interrelatedness and process thinking (Schumacher; 1975, 1977; Capra, 1988). "The developed world's disastrous mismanagement of the environment has somewhat humbled their arrogance and some scientists are beginning to recognize that the world is losing an enormous amount of basic research as indigenous peoples lose their culture and tradition" (Linden, 1992:40).

IV. Objectives

Following Matthai (1983, 1985), Herrera (1981) and Gupta (1991) this research will consider three essential elements of educational and ecological innovation in relation to ATEK. One, the participation of the Vasavas, an Adivasi group in the Bharuch

1. For an example of this attitude see Ganesan et al., 1989.

District of Gujarat, in the process of generating, abstracting, assimilating and diffusing local ecological and related knowledge. Two, investigating how this knowledge can be integrated into the educational system. And, three, if successful, similar initiatives can be fostered among Adivasi groups elsewhere in India. From this position, we will address eroding ATEK and high Vasava student dropout rate by:

- a) following an approach similar to the **Foxfire** approach of teaching students to document their traditional culture (see Puckett, 1989), the researchers will explore possibilities of evolving a network of teachers interested in linking indigenous ecological knowledge with current curriculum and pedagogic approaches in education;
- b) identifying ways of embedding ATEK, especially that pertaining to natural resource conservation, in formal education;
- c) establishing linkages between curriculum and the local ecological and sociocultural context of the learners;
- d) involving local teachers, students and the Vasava community in the collective search for symbols of pride, excellence, experimentation and sustainable resource use; and
- e) to feedback experience gained during this experiment at the field level on curriculum design and teacher training to higher levels of education and encourage similar projects elsewhere (see Matthai, 1985).

V. Implications for Educational and Ecological Innovations

The basic approach used with the teachers and students will be modeled after the **Foxfire** approach pioneered by Elliot Wigginton (1985). Since its inception in the 1960's **Foxfire** has become a popular and respected vehicle for the preservation and dissemination of southern Appalachian (a major, but isolated, mountain range in the U.S.) traditions and folk wisdom. The **Foxfire** movement developed a thriving publication which attests to its role as the vehicle through which the larger society has learned

about and come to appreciate native Appalachians (local people from Appalachia mountains).

Foxfire has produced and published anthologies of Appalachian folk culture (Cashman will be donating the complete set of ten Foxfire books to the R.M.C.E.I. at the completion of her tenure). Undergirding the **Foxfire** process is an educational process that embodies the pedagogy advocated by John Dewey early in the 20th century. Under the tutelage of schoolteacher, Elliot Wigginton, hundreds of young Appalachians have been engaged in the collection and publication of local history and culture. The **Foxfire** educational program not only links the school life of students to their out-of school experience in a meaningful way, but also gives them vital academic and personal growth skills.

Cleverly or unwittingly, Wigginton had turned to advantage a liability of small rural boarding schools and surrounding communities -- their paucity of meaningful and engaging things to do. He did it, in large part, by making rurality itself -- its traditional practitioners, folk patterns, and survival acts -- a source of adolescent activity and interest.

Psychologist Erik Erikson, supported by Panda's (1988) research on Adivasi education, has observed that socially suppressed, exploited, or excluded ethnic or subcultural groups tend to accept "the evil image" they are made to represent by those who are dominant. Erikson's and Panda's research on identity suggests that such a negative cultural identity, imposed by the stereotypes of the dominant culture, gives rise in the adult personality to phobias and compulsions -- pathologies that symbolize the ego's attempt to live down the cultural past.

As Table 1 indicates, the students participating in the **Foxfire** experience reported that they, primarily, gained affective/personal growth skills. The testimony of a large majority of the native Appalachian young adults formerly in Foxfire suggest that the Foxfire experience was effective in building and reinforcing positive counter-stereotypic cultural images that belie this malignant view.

Table 1: Affective/Personal Growth Enhanced by Foxfire

Skill	%
Cultural Identity	74
Appreciation/Awareness of Elderly	71
Self Confidence	48
Interpersonal Relations	56

source: J.L. Puckett. 1989. Foxfire Reconsidered: A Twenty-year Experiment in Progressive Education. University of Illinois: Urbana.

IV. Methodology

It may seem hypocritical for us well-fed, well-educated outsiders to attempt a fusion between formal education and Vasava TEK. However, our aim is to avoid an exploitative approach -- one that extracts information without reinforcing its local creation and augmentation. ATEK is more than an existing stock of information; it is also the indigenous capability to develop and enhance this stock. Specifically, we are concerned with indigenous agricultural systems -- their existing state and their potential for suggesting alternative philosophies.

The ecological context of Adivasi resource management will be the focus of the researchers who will live in the study area

for a period of time. Ethnobotanical information will be gathered simultaneously along the lines described in Jain, 1987 (see sketch in Appendix). Following the methodology described by Saravia (1992), Wigginton (1985), A.K. Gupta (1992a), and Cashman (1983, 1989) we will investigate the sociocultural aspects of the Vasavas' TEK. The researchers will design local biodiversity initiatives and will work closely with the school system to administer them so as to collect data, in addition to our own observations, on Vasava farming systems, including local fauna and flora. This information will be used to confirm their own findings and to indicate new areas of exploration. The researchers will collaborate with the community schools on the emerging curriculum and then integrate it with their other studies on curriculum reform at higher level of education.

Of course some Vasava TEK can be transcribed through methods described in the previous paragraph but much if it is seamlessly interwoven with their way of life (Pereira and Seabrook, 1990; Jain, 1991; Sen, 1992). As a result, Nabhan (1985), Altieri and Merrick (1988), Alcorn (1992), and others believe ATEK is best kept alive in the culture that produces it. We recall the plight a Warli Baghat (traditional healer) conveyed to them during their visit to south Gujarat. Entranced by images of a better life outside, the young turn away from their elders, and thus break an ancient yet fragile chain of oral tradition (Cashman, 1989). This baghat found it difficult to persuade young tribals that much could be gained through building on the tradition of their parents.

Therefore, the local schools will be directly involved, not only with the identification phase of Vasava TEK but with course design; teachers and students of primary and secondary schools will have a stake in the product as well as the process. Activities related to the documentation phase include:

living within the community to more fully participate in learning about the Vasava ecological knowledge system;

organizing biodiversity forays for children and adults so as to begin collecting information concerning practices involving the local fauna and flora;

identifying knowledge related to activities carried out by farmers/innovators/entrepreneurs (Gupta, 1993) and document tasks step by step as the activity proceeds (Cashman, 1989);

synthesizing and analyzing results of these activities using the farmer/innovator/entrepreneur's vernacular, classification and terminology; and

investigating Vasava culture in relation to TEK.

One limitation the reader may voice is, "Wouldn't these amateur high school student research endeavors have difficulty measuring up to professional standards of inquiry and documentation of professional folklorists and ethnobotanists?" We would certainly be prepared to concede to this objection. At the same time, however, we would counter that the purpose of these student projects is not primarily the production of sophisticated ethnographic research. Neither would we claim this project, nor the variants it hopes to encourage, aspires to or rivals scholarly investigation. Following Matthai (1985), the reasoning behind this research experiment, primarily lies in the utilization focus on cultural heritage as a motivational force for learning basic skills. The researchers have experience indicating that collaboration in documentation and subsequent publication of local

folkways can have substantial payoff in reengaging alienated students in learning. An additional payoff includes adapting school programs towards more interdisciplinary and relevant teaching (Wigginton, 1985; Panda, 1988; Puckett, 1989).

Emphasis in the students' projects will be on documenting processes, making them replete with numerous photographs and meticulous diagrams; thereby distinguishing the Vasavas' or any other Adivasi group's, "brand" of cultural preservation from that of other ethnobotanists, historians or folklorists. It is in these process assignments we hope to reach fairly high levels of sophistication for the analysis of cultural data in addition to providing descriptive accounts of 'how to do it.' There will be a sustained attempt to get down to the user's level, their culture and to describe the process under study not only in the user's terminology, but from the actor's perspective and with their specificity. The reader may, accurately perhaps, label this as *salvage ethnography* of traditional Vasava culture; but it is one that will be committed to a functional and just mode of cultural preservation.

From the outset, our focus will be on Adivasi folk culture. In the introduction to the first Foxfire book, Wigginton (1985:38) described, then, what we hope will be a unique contribution that can be made by young Adivasis in the preservation of their culture. "Daily our grandparents are moving out of our lives taking with them, irreparably, the kind of information contained in this book." Here we emphasize that the "logical researchers" -- those saving the copious yet disappearing Adivasi

oral legacy -- will be the Vasava children and grandchildren not university researchers from the outside. The benefit to Vasava youths would be an invaluable, unique knowledge about their roots, heritage, and culture.

The approach described here makes sense for three reasons. First, it is not at all unlike the successful approach pioneered by A.K. Gupta in his work collecting data on farmer innovations in Gujarat (see Gupta, 1992a) nor Cashman and her work with African students in creating an agricultural testimony (see Cashman, 1989). Second, as Cashman (1989) found in her work with indigenous groups in West Africa, Vasava children should have a natural rapport with their elders, who are typically reticent with strangers (Jain, 1991; Lal and Desai, 1982). Third, if Vasava children do not collect the oral history and traditions of their people, who else will?

In the final stages of this project we would shift our focus from direct sponsorship and skills training to the development of teacher training and instructional materials intended to support similar work elsewhere. The development of teacher training and instructional materials will be done to further strengthen other projects as well as provide prospective new projects with a concise distillation of this experimental experience.

One essential feature of using an approach similar to **Fox-fire** should be its strength as a vehicle for personal growth, resulting from the collaboration between the Vasava youth doing the interviewing and their elders being interviewed. The wisdom and experience the elderly have to offer is not tapped by any schools in India, much less elsewhere in the world especially in

the West. Yet it is, at least in this case, particularly relevant to the education of the nations youth. For the most part we believe Vasava elders can teach students the simple but important truths about life through the courage and dignity they bring to old age rather than their preachments. At its highest level this research may develop an approach to help tribal youths discover and appreciate their cultural inheritance, while enabling young and old alike to understand the depth and variety their contributions can make to the educational process.

VII. Summary

In summary, the researchers will work closely with the local community and school system in the process of collection and documentation as well as in the design of the product: curriculum and other educational material inclusive of ATEK.

This research is primarily a heuristic process, whereby the participants influence every stage; the researchers are present, for the most part, as facilitators. Thus, as a result of combined creativity (of the research team and local principals, teachers, students, and community elders) information will be collected, synthesized and incorporated into local curriculum. Preliminary contacts with schools and community members have resulted in an eagerness to cooperate in this regard.

Infusing traditional ecological knowledge into the schools is not merely a semantic exercise, i.e. taking informal education and calling it formal because it operates from a public building. We will be relying on strengths of traditional learning (e.g. its heuristic approach) and its site-specific content to further the

learning of subjects such as mathematics, chemistry, physics, biology, and agriculture. The salient feature of this type of course design will be its basis in problem-solving and its support of cooperative decision-making. As Yoder (1991) describes in her study of the American Amish, in the biodiversity initiative, for example, the 'winners' will not be those who are most collect or document the most data, but those who can cooperate most creatively, innovatively and effectively within their group. The problems in the courses will be devised such that indigenous knowledge is fostered and reinforced concomitantly with the 'three R's.'

If a specific ecological knowledge system is worth preserving, society should invest in its preservation and augmentation. This entails analytic, insightful professionals becoming apprentices with the informal experts to observe, analyze, and synthesize underlying TEK, all the while in collaboration with the local communities.

VIII.

Output

A research product will be the development of a prototype: a process of mutually synthesizing classroom curricula with Adivasi TEK. By considering the research as a two-way, heuristic endeavor, its purpose comes back around to our initial point -- identifying Adivasi ecological knowledge and related cultural systems. Yet, ideally, the process described here creates a living testament of India's original inhabitants by Adivasis themselves and not solely by outsiders. In order to do this we must respect the guidance of members of the Adivasi culture in defining what these concepts mean to them and for us, the larger community.

Since 1972, Doubleday Books has published ten books in its Foxfire series. Foxfire 2 through Foxfire 6 (1973-80) each contain a potpourri of fresh topics drawn from the "affairs of plain living" (Puckett, 1989). Foxfire 7 (1982) broke the pattern of the previous volumes, focusing exclusively on a single theme: indigenous mountain religions. Foxfire 8 (1987) described on Southern folk pottery, Foxfire 9 (1990) covered traditional healing, home remedies and folk mythology, and Foxfire 10 (1993) detailed the folklore of survival during the U.S. dust bowl and great depression era of the 1930's. There is no reason not to believe that publications of this nature can't be reproduced in India from this research endeavor.

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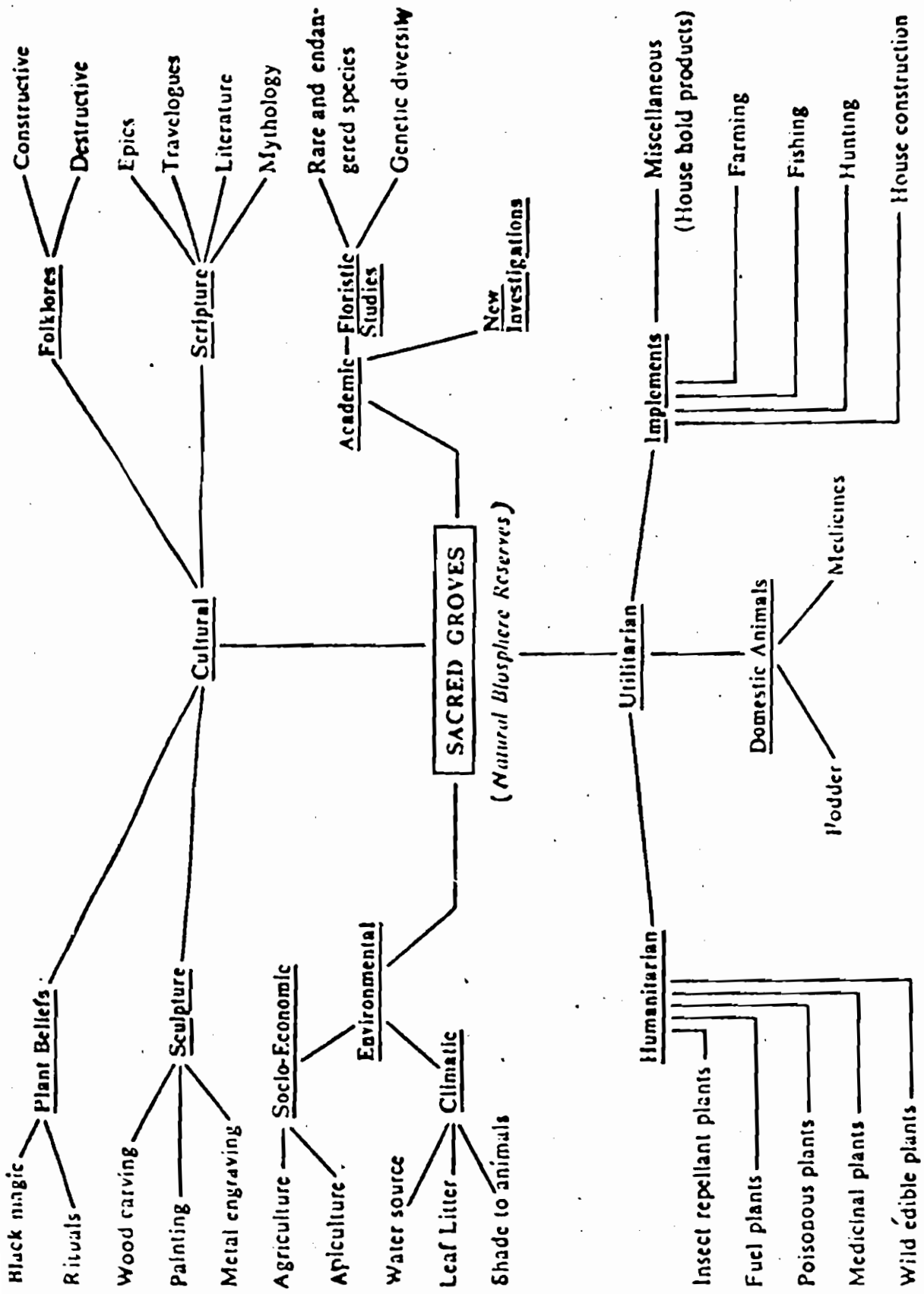
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