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Report On A Pilot Study In Environmental Communication

By

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REPORT ON A PILOT STUDY IN ENVIRONMENTAL COMMUNICATION

by

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REPORT ON A PILOT STUDY IN ENVIRONMENTAL COMMUNICATION*

Background

Indonesia is a nation of extraordinary ecological and cultural diversity. Several hundred different ethnic groups, speaking different languages and possessing distinctive cultural traditions, are spread over more than 13,000 islands. The Indonesian archipelago spans an incredibly broad range of terrain features, climatic conditions, flora and fauna. In 1971, the population was less than 120 million, but it is now over 160 million and will become 200 million before the end of the century. This rapidly growing population is now about 20 per cent urban and 80 per cent rural; but as further restructuring of the economy proceeds, urbanization and industrialization will markedly increase. Today agriculture still provides over half the employment and about 30 per cent of the Gross Domestic Product (GDP).

Much progress has been achieved in Indonesia over the past 20 years. Rice production more than tripled between 1968 and 1983, considerably outstripping population growth. Per capita income, too, has significantly increased, along with life expectancy. But delayed and indirect costs for these and other achievements are now being felt, especially in the environment. The programmes and policies that were needed to feed the

* Many people have made significant contributions to this study. Mr M S Kismadi, Special Assistant to Minister Emil Salim, has contributed substantively throughout the duration of the project. Dr Muswadi Rauf played a leading role in coordinating the design of research, and Ms Aini Situ Hanam coordinated the various aspects of data analysis. To them and to those who worked so hard and so well to coordinate and supervise the collection of data under difficult circumstances, we extend our thanks.
growing population, to reduce rural poverty, and to build and pay for the infrastructure essential to generate jobs and build a balanced economy with stable growth have also produced deforestation, erosion, and pollution by agrochemicals and industrial waste. The number and severity of such problems is rapidly expanding.

In recent years a concerted effort has been made to make everyone in Indonesia more aware of environmental concerns, in the hope that this would lead to a modification of attitudes and behaviour toward the environment in ways that would promote its conservation and enhancement. But in Indonesia, as elsewhere, campaigns and messages intended to change behaviour that affects the environment have fallen far short of their goals. Even where awareness of environmental issues has been increased, appropriate changes in either attitudes or behaviour have not followed.

Officials at the State Ministry for Population and the Environment (KLH) have identified several interrelated reasons for this disappointing state of affairs. In large part the difficulty is inherent in the situation. Behaviour that is detrimental to the environment often produce immediate, tangible benefits; the costs incurred in gaining these benefits are delayed, often indirect, and difficult to measure. Furthermore, the actions and attitudes that need to be changed are often embedded in strongly established cultural systems; proposed changes can represent discontinuities in lifestyles, subsistence practices, and world view. Among the general population, few people share the concept of environment held by those who propose and design campaigns to protect the environment. People often do not fully appreciate why they are being asked to make costly and inconvenient changes in their behaviour. On the
other hand, scientists, policy-makers, and extension workers seldom fully appreciate the many good and valid reasons people have for many of their accustomed practices.

National and international elites perceive both natural and social processes in one set of terms; scientists and technical specialists sometimes in another. And local populations often perceive such processes and their separate components in quite different ways from either group. Each sees something the other misses; and each is ignorant of something the other knows. Local conditions frequently generate specific sets of opportunities and constraints that aggregate analyses or broad policy positions cannot take into account. Yet, at the same time, rapid change has rendered some elements in traditional knowledge systems invalid and has made some other elements irrelevant.

Under current conditions in a nation like Indonesia, no body of traditional knowledge is adequate, nor can conventional, discipline-bound research hope to keep pace with the host of ecological, economic, and social problems that keep arising in hundreds of different locations, involving a bewildering array of cultural and environmental factors. KLH officials quickly began to realize the extent to which the enormous cultural and ecological diversity of Indonesia presented formidable barriers to effective communication about the environment, and they recognized that without better communication, it was impossible to devise effective solutions to many environmental problems or to motivate people to implement them. What was required was a better flow of information in two directions, both from the government to the people and from the people to the government. But how was this to be achieved?
The Ministry wanted to learn how to become responsive to diverse cultural and environmental factors, to generate appropriate and effective programmes, to use culture in a positive way to motivate people in terms of their own values and systems of meaning. They knew this kind of approach was necessary to promote practices that would protect the environment. But they could find no simple guidelines to follow.

It became clear that "environmental communication" involved the total process by which information flows to provide both the public and various agencies with an adequate basis for action programmes that effectively promote development in a socially desirable, culturally appropriate, and ecologically sustainable manner. It then became apparent that designing effective environmental communications was going to be a very complex and arduous task, one that would require close and creative collaboration between specialists in the fields of communication, culture, and ecology; and between them and administrators, academics, and many different publics. It was also becoming evident that such collaboration was rare, not just in Indonesia but in academic and government circles internationally.

It followed that the necessary first step in generating an effective programme of environmental communication in Indonesia had to be locating diverse specialists needed to develop the programme and improving communications among them. To this end, the State Ministry for Population and the Environment (KLH) organized a seminar on Environmental Communication in Jakarta from 10-12 October 1983, with the East-West Center serving as co-sponsor.
This seminar brought together nearly 100 participants and observers from the government and international agencies, the natural and social sciences, religious organizations, conservationist groups, non-governmental organisations (NGOs) with experience in urban and rural development, and the mass media. Immediately after the seminar a small workshop was held to determine an action plan for translating the many ideas presented at the seminar into concrete programmes of research, training, and education to facilitate environmental communication in Indonesia.

Designing the Research

The problem confronting the workshop was that of deciding where to begin in the task of organizing and building from all the complex, diverse, and sometimes seemingly contradictory interests and concerns expressed at the seminar. Emphasis was placed upon developing a programme of research that would

a) begin immediately to meet some informational needs of policy-makers through a systematic, people-oriented method of data collection, and

b) lay the groundwork for a long-term, continuous, two-way educational process. The need for collaborative effort was imperative and recognized by everyone.

No one person, group, or point of view dominated the workshop sessions and everyone readily compromised to achieve consensus after open discussion.
There was also a shared commitment to adopt fairly simple and basic research approaches that could quickly be operationalized with existing levels of funding, skills, and shared understanding. It was felt that early efforts could be refined and expanded as work progressed. But everyone agreed that it was important to take some concrete steps as soon as possible. KLH and the East-West Center agreed to begin work at once to translate topics identified as priorities at the workshop into an action programme of research, training, and education in support of environmental communication in Indonesia.

The broad goal of this preliminary research was to obtain a more reliable and comprehensive estimate of how particular groups of people conceived their environment, how they behaved towards it, and how they felt about it. Because speed and comparability were both identified as highly desirable goals in data collection, survey research techniques had to be the primary mode of data collection. But because a more holistic view was also desired, it was decided that surveys would be supplemented with in-depth interviews and field observations on a wide range of potentially relevant topics.

THE LEBAK STUDY

The first of a series of pilot studies was conducted in the district of Lebak in West Java province. Lebak is one of the poorest and most isolated districts in West Java. The population is predominantly Sudanese and numbers about 700,000. Six villages were chosen as study sites, representing a fairly wide range of socio-economic and environmental conditions within the district. Two villages were
selected from the northern third of the district, two from the central portion, and two from the southern third. In each village a stratified random sample of 40 respondents was selected: ten men and ten women thirty-five years of age or older, and ten men and ten women thirty-four years or younger. The total sample size for the survey portion of the research was 240.

Each selected respondent was administered a questionnaire through a personal interview to elicit basic sociodemographic information, general value orientations, sense of efficacy, and to assess what information people have received on particular environmental topics (e.g., reforestation, check dams, etc.) and sources of that information (e.g., television, village chief, etc.). Then one half of each village age-sex cohort (N=120) was administered another questionnaire to elicit his or her household’s use of the land, the forest, and the water and the respondent’s attitudes and practices of environmental significance (e.g., garbage disposal, use of pesticides, etc.). The other half of the sample (N=120) was given yet another questionnaire eliciting their hopes, worries, and expectations in regard to personal life, local area, and the local environment.

In addition to the survey interviews, six trained researchers conducted semi-structured in-depth interviews with key informants in each village and sub-district being studied. These interviews provide a broad historical and sociocultural context in which to interpret the survey results and to make more realistic recommendations for applying the results or analysis to training, educational programmes, and policy-making. They also serve to set priorities for
and to sharpen the focus of further research. Interview guides were provided to cover twelve key topical areas, including traditional systems of land classification, taboos and other cultural restrictions on resource utilization, traditional technology in areas such as crop protection, mechanisms of social control, social solidarity, and conflict resolution, etc.

Finally, an independent team of three scientists with professional training in biological/ecological analysis and epidemiology visited each village in the study and wrote a report on their impressions of the objective environmental conditions in each locality, providing an "etic" (outsiders, "objective") point of view that could be contrasted with "emic" (insiders, "subjective") point of view derived from the interviews. All data collection took place in late August and early September, 1984, ten months after the conference that generated the research.

An Overview of Village Culture and Society in Lebak

Our in-depth interviews highlighted three dimensions of village life that promote social integration in Lebak today: 1) folk/traditional, 2) Islamic, and 3) civic. Of these three it is the Islamic that constitutes the dominant force for social integration and social solidarity at the village level. Islamic holidays are numerous and celebrated widely and enthusiastically. Qu'ran study meetings are often the most important activity in village social life, bringing a sizable proportion of the population together once a week to share a meaningful experience. A variety of such interlocking and mutually reinforcing mechanisms make Islam a vital force in Lebak Village life, and one that is uniquely capable of mobilizing village
populations.

In contrast, the folk/traditional dimension seems to be highly attenuated and to be growing continuously weaker, while the secular/civic dimension has as yet been only moderately successful in penetrating deeply into the mental and social world of the villagers. The major means of socialization and integration for the secular/civic dimension is the public school system, a historically recent and still developing institution. Even now - in our 1984 data from Lebak - 17.5 percent of our respondents have never been to school at all, less than one half have completed elementary school, and only 21 percent have gone beyond elementary school.

The villages we studied seem to remain, on the whole, relatively closed and corporate communities. In some villages communal ownership of land still provides an important resource to the community as a whole. Although both the size of such holdings and the number of functions which they fulfill have been steadily reduced over the past twenty-five years, these traditional land use categories are still significant in some areas. Also, community solidarity is still reinforced by traditional religious ceremonies performed by the community, as a community, for the community. But many such ceremonies, once common, have fallen into disuse. Only a harvest festival, perhaps, is still widely and enthusiastically celebrated in Lebak - and this is merging with Islamic practice.

Village closure is physically expressed in tightly nucleated clusters of homes that are physically set apart from other communities. Scattered settlement patterns are virtually non-existent. There is still a tendency in some places to further promote and protect
community solidarity and cohesion by preventing "outsiders" from owning or working village land. And a highly organized communal structure is still typically interposed between the individual and the outside world.

Resorting to police or lawsuits, making a complaint to higher authority, or seeking any kind of extra village sanction or support is very rare and widely disapproved. The primary goal of conflict resolution of any kind is to maintain social harmony within the community, and the major mechanism for achieving this end is mediation. Private arbitration remains a culturally prescribed means of resolving all manner of disputes. The most effective mechanism of social control appears to be public opinion within the village. Deeply held religious beliefs also provide powerful psychological reinforcement to a moral life. Love of God and a strong sense of community are, for most villagers, adequate motivation to behave in socially acceptable ways.

Villagers' Behavior, Attitudes, and Perceptions Relating to the Environment

Only a few highlights of the findings concerning the interaction of the villagers with their environment can be presented here. Because agroforestry is a very important land use category in Lebak, the ways people used the forest and their attitudes and beliefs regarding these practices were of particular interest. And the forest indeed does seem to be a valued resource to most villagers, regardless of occupation or socioeconomic level. In fact, 79 percent of the respondents reported taking something from the forest.

Firewood was taken from the forest by 76 percent of the total sample (N=120), and by 97 percent of those who took things from the forest.
forest (N=94). While most people who took firewood said they only collected branches, 5 percent admitted cutting branches and 11 percent admitted illegally cutting trees. Yet, of those who expressed an opinion on the subject (68 percent), over 81 percent thought that cutting trees might cause problems while only 19 percent thought it would not be a problem. Other forest products commonly taken by villagers were bamboo (37 percent), foodstuffs (35 percent), housing material (29 percent) and animals (4 percent).

The respondents were also asked what they perceived to be the effect of slash and burn practices upon the environment. From the total sample, only 13 percent thought the effects were good and 37 percent thought they were bad, but nearly half the sample had no opinion. In the two southernmost villages, where slash and burn is still widely practiced, however, those with no opinion fell to 35 percent and those who felt the effect was good rose to 30 percent, while those who felt the effect was bad dropped to 34 percent. Similarly, 44 percent of the respondents from the Southern third of the district thought slash and burn was necessary to their communities while only 4 percent of those from the northern third of the district thought it necessary.

The use of agricultural chemicals is rapidly increasing in Lebak and so the practices, attitudes, and beliefs associated with them become important considerations. Over 90 percent of those respondents who farm reported using chemical fertilizers. About equal numbers of farmers use mostly chemical fertilizer (44 percent) or mostly organic (42 percent), with a smaller number using about equal amounts of both. While few villagers seem aware of any potential ill effects of using chemical fertilizers, attitudes toward pesticide use are even more worrisome.
Nearly half (49 percent) of all respondents believe that the effect of pesticides upon the environment is good, while only 19 percent believe the effect is bad. Only in the northern third of the district do those who believe the environmental effect of pesticide use to be bad (24 percent) outnumber those who believe it to be good (11 percent). In the remaining two thirds of the sample, however, 68 percent believe the environmental effect of pesticides to be good and only 15 percent believe it to be bad.

Almost all villagers feel that their water supply is either "clean" (74 percent) or "clean enough" (23 percent), and nearly everyone (99 percent) reports treating the water they drink, usually by boiling it.

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Table 4 - Sources of Drinking Water

The total does not add to 100 percent because some people commonly use more than one source.

But only 34 percent of the respondents reported using a latrine for defecation and another 43 percent primarily use a river, pond, or gutter for that purpose, while yet another 17 percent most commonly, use a field. And one third of the households also use the river to dispose
of garbage. Such sanitation practices, combined with the rapid increase in the use of a number of agricultural chemicals in both low-land and upland fields and the growing use of both chemical and organic poisons in fishing, suggests that to some unknown extent a variety of noxious agents may be contaminating any or all water sources.

Knowledge of the Term for Environment, Awareness of Environmental Programmes, and Perceptions and Behavior Regarding the Environment

In recent years the Indonesian government has been publicizing the concept of environment or lingkungan hidup in Bahasa Indonesia. Among the Lebak respondents, 42 percent said they had heard about lingkungan hidup. More men (56 percent) than women (28 percent) had heard about it, and more younger people (under 35, 49 percent) had heard than older people (over 45, 34 percent). But educational level was even more important in this regard than age or sex (with which, of course, it is highly correlated). Only 24 percent of those with no schooling had heard of the term compared to 84 percent of those who had received some education beyond elementary school. Government workers (38 percent) were most likely to have heard about the term, followed by students (67 percent), farmers (43 percent), petty commerce and laborers (33 percent), and housewives (24 percent). Up to a level of Rp. 500,000 per year (about US $500), income does not appear to make any difference, but beyond that level the higher the income, the more likely it becomes that people will have heard about the term.

Knowledge of the term lingkungan hidup seems to be related to a broader range of knowledge about the environment and to perceptions of environmental issues. Those who had heard of the term were far more
likely to have knowledge about pesticides (88 percent) than those who had not (56 percent). They were also more likely to be aware of undesirable effects of pesticides (29 percent) than others (17 percent). Similarly, those who had heard of the term for environment were more likely to know about slash and burn (74 percent) than those who hadn't (40 percent) and more likely to perceive undesirable effects upon the environment as a result of the practice (77 percent to 52 percent).

In addition to being apparently more aware of environmental issues and more sensitive to environmental dangers, those who knew the term for environment seem to behave in more environmentally responsible and appropriate ways. Compared with those who had not heard about the term for environment, those who had heard it were about equally likely to use latrines for defecation (51 percent to 49 percent) but much less likely to use a river or pond (39 percent to 61 percent), a field (25 percent to 75 percent), or other unsanitary places (29 percent to 71 percent). They were also much more likely to use a waste box to dispose of trash and garbage (64 percent to 36 percent) and much less likely to use a river (32 percent to 68 percent) or a field (36 percent to 64 percent) for that purpose.

Using those 101 respondents who had heard about lingkungan hidup as a basis, we investigated how many of them knew about 10 other government sponsored programmes related to the environment and the sources from which they got their information. By and large, those programmes that most directly affect the life of rural people were the best known.
Table 5 - Knowledge of Government Sponsored Environment Programmes

Government workers and officials were, as expected, an important source of information, mentioned 142 times by respondents. But the mass media were more important than anticipated: television (136), radio (121), newspapers (88), magazines (41). Religious and other informal leaders, on the other hand, were not a significant source of environmental information, with only 32 mentions.

Value Orientations

The interest in studying values derives from the assumption that implicit differences in values between various groups engaged in environmentally significant activities constitute a barrier to effective communication. Because the goal is to promote better communication between groups, the criteria of comparability was important in choosing a useful
model. The framework employed in this study is derived from earlier work by Florence Kluckhohn and colleagues. It is assumed that all human groups face a limited number of universal human problems to which a generalized solution must be evolved. Three such problem areas were the focus of this study:

(a) man’s relationship to nature;
(b) man’s relationship to other men;
(c) man’s relationship to time

It is further postulated that there are three general types of solutions to each of these problem areas. Each type of solution represents both a perceptual stance toward life and a related class of preferred behaviours. A position taken toward a class of problems and behavioural choices is often implicit and deeply internalized. It is further assumed that each position is present in every society, but that the relative emphasis varies from culture to culture, from time to time, and by virtue of a variety of demographic characteristics. The alternative positions were derived by Kluckhohn from the ethnographic record.

Experience has shown further that value orientation positions are not always independent of content areas, that the relative preference for one value position over another may shift depending upon the domain
of life to which it is applied. This is especially likely to be true in times of change. The value orientation questions have therefore been categorized into three broad and universal domains:

(a) Economics and Business,
(b) Personal/Social concerns, and
(c) Community/Government.

For the Man and Nature problem area three positions have been identified: submission, harmony and dominance. The position of submission to nature typically involves a high degree of fatalism. Causality is generally perceived to be extended to social actors and is essentially capricious. The position of harmony with nature sees human beings as an integral part of their environment. Success or failure are perceived to occur in direct proportion to the extent to which one keeps attuned to the natural and social setting. Emphasis is upon balance, flexibility, and the maintenance of relationships. Modern western civilization, on the other hand, vividly illustrates a strong position of dominance over nature. People speak of "conquering" space, diseases, and the wilderness, of "controlling" rivers and crime and inflation, even of social and genetic "engineering". This position is now widespread in government and techno-scientific circles around the globe. The very concept of "development" would appear to presuppose
a position of attempting to dominate the natural world in both its physical and social aspects.

Where do the Lebak villagers stand in terms of these three positions? They are much less fatalistic than the common stereotype of them would suggest, but in comparative terms, they are more submissive than many other groups. In the domain of Economics/Business the responses indicated dominance, 42 percent; harmony 30 percent; and submission, 27 percent. Higher education increases dominance (no education, 33 percent; beyond elementary school, 49 percent) and reduces submission (no education, 35 percent; beyond elementary school, 19 percent). In response to the same set of questions, however, a sample of American college students, foreign service officers, and military personnel scored dominance, 93 percent; harmony, 4 percent; and submission, 3 percent.

Within the Personal/Social domain, the dominance position is even stronger at 48 percent. Harmony was at 25 percent and submission at 26 percent. Once again, education increases dominance (no education, 39 percent; beyond elementary school, 59 percent) and reduces submission (no education, 44 percent; beyond elementary school, 11 percent). But in the domain of Community/Government, a distinct shift takes place. Harmony is the preferred position at 44 percent with submission next at 32 percent and dominance a weak third place at 22 percent. For
Lebak villagers in this domain, education did not increase the dominance position, but harmony (no education, 33 percent; beyond elementary school, 50 percent). Education did, however, as in the other two domains, reduce submission (no education, 45 percent; beyond elementary school, 29 percent). For Americans, by way of contrast, the dominance position was still a strong 59 percent in this domain.

In examining the relationship of the individual to his or her fellow human beings, emphasis is placed upon competing notions of the proper allocation of authority and responsibility for making decisions. At issue is the way the individual perceives his or her relationship to other members of the social group. The three alternative positions in this value orientation - or "problem area" are:

- **lineal** (hierarchical)
- **collateral** (peer-oriented)
- **individualistic**

The lineal position is characterized by superior-subordinate relationships embedded in representative roles that constitute definite position in the hierarchy of rank-ordered positions. Group goals have primacy, and there is often heavy emphasis upon continuity of the group through time. Traditional East Asian cultures and European aristocracy offer well-known examples of lineality. The collateral position is also
characterized by the primacy of group goals and standards, but with emphasis upon group decisions, ideally made by consensus achieved through discussion. The Israeli kibbutz provides a good modern example of strong collaterality.

The individualistic position, in contrast, stresses the uniqueness and autonomy of each human being, who is thought to have the right and even the responsibility to make personal decisions about the proper ends and means of social actions. The very term "individualism" was coined to describe American society. The primary American myths of the cowboy and the private detective illustrate the American belief that the highest human potential can be achieved only by liberating the individual from the demands of conformity to group standards and group goals.

The Lebak villagers were surprisingly individualistic in the domains of Economics/Business (44 percent) and Personal/Social (58 percent). And, again contrary to expectations, higher education is not associated with greater individualism. But paralleling the pattern found in the Man-Nature value orientation, there is a dramatic shift in the relative weight of alternative positions in the domain of Community/Government. Here the individualistic position slumps to a weak third place (19 percent) behind the lineal (39 percent) and collateral (42 percent) positions. These shift away from dominance and individualism toward harmony, collaterality, and lineality in the Community/Government domain are
congruent with the in-depth interview data that emphasized the paramount value of social harmony in community affairs.

In the value orientation area of Time, the three alternative positions are simply past, present, and future. The past position entails great respect for precedent and tradition accompanied by an emphasis of past glories over future possibilities. The present position is characterized by a high degree of sensitivity to the current situation. People look for and respond to cues provided by immediate conditions. Living in a "timeless ahistorical present", such people are very flexible shifting thought and action to cope with current desires and influences.

The future position emphasizes planning, investment, willingness to innovate, a belief that everything can and should be improved, and a tendency to set goals and work steadfastly towards them. Time is valued not for its own sake, but as a resource that must be used to become valuable.

In all three domains under consideration, the Lebak villagers exhibited a preference for the future time position. This was especially strong in the Community/Government domain (56 percent) and, compared with other groups, relatively weak in the domain of Economics/Business (40 percent). Higher education consistently weakened the past position to a significance degree, but both the present and the future positions were increased by education. Although Lebak
remains, in relative terms a conservative peasant society, a more modern outlook, is undoubtedly growing under the combined influences of education, mass media, and greater mobility.

Hopes, Worries, and Expectations for Personal Life and the Environment

Through a series of open-ended questions, 120 respondents were asked about their personal hopes and aspirations. What would make them happy? An overwhelming number of responses (100) were concerned with their personal economic situation. These people want to be self-sufficient in food, clothing, and housing, to be gainfully employed and free of debt. Many other responses (90) referred to family life. People want happy and prosperous families, devoted children of good character who will be successful in life. Other responses involved personal character (33) or public welfare (27).

What about the respondents' fears and worries? These too focussed upon personal economic situation (59) and family welfare (34). But a sizable number of responses (24) expressed worry about a deterioration of the social environment: crime, religious disturbances, teenage problems, etc. Many people also worry about degeneration of personal character (24), political turmoil (12), population and environment problems (8), and natural disasters (7).
After eliciting these descriptions of the desirable and undesirable possibilities that the Lebak villagers envisioned in their personal lives, a picture of a ladder was presented to each respondent. The top of the ladder was said to represent the best imaginable life and the bottom the worst – as just described by the respondent. Then each person was asked to rate the quality of his or her personal life by locating where they felt they stood on this ten-rung "ladder of life". They first rated where they felt they were at the present time, then where they felt they stood five years ago, and finally where they expect to be five years from now. These ratings provide a subjective assessment of the quality of life in the villages as perceived by the villagers themselves and also reveal the trajectory of such assessments. Are things that matter, on the whole, getting better or worse in the villages?

The Lebak villagers rate their personal lives slightly below the middle ground, but they feel that there has been an improvement during the past five years (mean score up 1.4 steps from five years ago) and they expect this improvement to continue (up 1.7 steps five years from now). When asked to assess the local area in the same way, just as much progress was perceived, with a positive difference of 2.9 rungs of the ladder in the mean scores from past to future. To explain their optimism for the local area, people emphasized expected improvements in agriculture, education, and transportation as the three main
factors.

Then, using the same format as before, people were asked to think specifically about their local environment. What did they want to see happen there? A large number of responses (100) expressed the hope for one or another kind of development in the physical infrastructure. People want good roads and transportation facilities (21), electricity (16), and they dream of more and better mosques, factories, hospitals, theaters, sports stadiums, dams, and market-places being built in Lebak, along with better housing.

The next largest group of responses (43) referred to the surrounding atmosphere, which has both physical and social dimensions. The people want to live in peaceful, safe, secure surroundings (18). But some also want to see the bustle of purposeful activity, and hope the small towns will become bigger and busier (14). Other responses (35) mentioned protection of the natural environment. People especially want reforestation, greenery, and restrictions on tree-cutting (21). Another sizable category of responses (29) mentioned improvements in agriculture and animal husbandry. Yet others (27) expressed hopes for their environment primarily in human or social terms. They want local officials to be honest, fair, and responsive to the people, and for the people to be united and help each other, and so on.
In speaking of their worries about the local environment, deterioration of the natural environment was a major concern (41 references). In particular, people expressed concern about tree-cutting and deforestation (13) and possible water problems (shortages, pollution) (12).

Another and related area of concern was natural disasters (35), including floods, landslides, erosion, fire, drought, and famine.

But many respondents also expressed concern about some aspect of the social dimension of their environment. People worry about criminality and insecurity (21), moral degeneration (12), the quality of local officials (10), religious disturbances (7), and war (4). Still other responses mentioned fear of some form of deterioration in the physical infrastructure (18), general misery (14), personal family and economic problems (13), agricultural problems (12), unhealthy surroundings (11), unclean lavatories (8), and overcrowded housing (5).

In evaluating the local environment, a slight improvement of 0.8 steps was perceived from past to present and another small improvement of 0.8 steps is expected over the next five to ten years. But ratings were mixed within and between villages, sometimes in unexpected ways. Close examination of these findings raises the very basic question of precisely what people were evaluating under the label of "environment".

Those of us with biological training or professional backgrounds in environmental assessment do not usually consider social factors such
as crime rates, moral standards, job opportunities, commodity prices, religious harmony, quality and accessibility of schools, or transportation linkages as key parts of the local environment. Yet such considerations accounted for well over half of the Lebak villagers' freely expressed hopes and worries regarding the "local environment". And when we asked respondents what reasons they had for their assessments of the local environment, about 55 percent (61 of 111) positive responses clearly referred primarily to socio-economic considerations, although 25 of 34 pessimistic responses fell within the narrower, more biological definition of environment.

This data highlights the complexity of communicating about "the environment". The concept seems to be vague and multi-faceted even within a single cultural group sharing a similar physical setting. But the conservation and sustainable use of natural resources is an important part of the more varied and holistic perspectives. It tends to dominate the fears and worries about the environment, but is largely implicit in many people's thinking about their hopes and aspirations.

When people were asked what could be done to make things improve instead of worsen, in regard to the local environment, four central themes emerged from their answers:

1. improve the attitudes and behaviour of the people (41)
2. improve existing government development programmes (39)
(3) improve and expand information and education programmes on environmental topics (29)

(4) improve the attitudes and behaviour of government officials (22)

When asked what specifically the people can do to help improve the environmental situation in the future, by and large the respondents did not have much to say. Most responses were rather vague, i.e., "the people should help each other". Only a relatively small number of suggestions mentioned concrete and practicable actions that could be taken in such areas as neighbourhood beautification (15), sanitary measures (13), improved cultivation techniques (11), and restricted tree-cutting (6).

But when asked what they thought the government could do to improve the environmental situation in the future, people responded by pouring out their ideas. The predominant theme (70) was that the government should provide more information about the environment, especially in regard to health, agriculture, forests, and other topics highly relevant to local conditions.

Another strong theme (63) was that the government should vigorously implement specific development programmes of environmental significance, such as reforestation, irrigation, agriculture, health, and soil fertility. The next most common theme (46) was development of the physical infrastructure. People want to live in a milieu that includes electri-
city, good roads and bridges, lavatories, water pumps and wells, waste disposal facilities, and a sound agricultural economy.

The distribution of responses to this series of questions reveals that the villagers of Lebak look to the government to take the initiative in improving local conditions and to play a major role in solving local problems. In response to another question asked elsewhere in the research, only 44 percent of the respondents thought that the primary responsibility for the quality of life in local communities rests upon the villagers themselves, while 56 percent said that the government must take all or most of the responsibility for improving community life, including - and perhaps especially - in regard to the environment.

Although this has been only a pilot study, and the findings are tentative, several important points already emerge fairly clearly. The first and most basic finding may be the extent of ambiguity and confusion that surrounds the concept of environment and the words used to refer to it. It also seems clear that the mass media represent the most effective means of raising public awareness of environmental issues. But at the same time it appears that such awareness is not itself sufficient to produce constructive changes in attitudes and behaviour. This necessary step would seem to require much more active participation by local, traditional and religious leaders in the communities, but these people do not yet seem to have been mobilized in the effort to
protect and improve the environment.

It would further appear that the only mechanism of social control powerful enough to eliminate many kinds of environmentally detrimental behaviours is public opinion within the villages themselves. Not until the majority of villagers are convinced that certain categories of behaviour are "wrong" or "bad" will these acts effectively be stopped. Neither government nor vigorous action by an aroused minority can have significant impact unless the thrust of their arguments are congruent with the feelings and beliefs of the villagers. But again, without the active support of local traditional and religious leaders, changing public attitudes on many of these environmental issues will probably be a long and difficult process. It might take many years for education and informational programmes to generate strong public support for comprehensive protection of the environment.

This pilot study strongly supports the notion that better communication can play a vital role in helping to make things get better instead of worse in the local communities and the local environment. This indeed is the perception and desire of the villagers themselves. Many villagers are already aware of some environmental dangers. Deforestation and the attendant threat of natural disasters, for example, are a cause for concern in Lebak. Many people would like to do more to solve their own problems and improve their communities and
the environment, but they often are genuinely unsure as to what they can or should do and how best to do it. They recognize that they need more information about many aspects of the environment, especially those things directly related to health, safety, and the sustainability of agricultural production.

The villagers of Lebak are not fatalistic and they do have a strong future time orientation. But they feel, with some justification, that they lack adequate information and resources to make a significant impact upon the massive problems that confront them. They want the government to listen to them, to help them, and to inform them. They too recognize that only through better communication, and working together effectively, can the people and the government achieve their shared goal of development that is socially desirable, culturally appropriate, and ecologically sustainable.

High quality, inter-disciplinary, people-oriented, policy-related, cost-effective research is necessary to enhance this communication process, but it is easier to advocate such a research programme than to create it. Together, the KLH and the East-West Center have taken a modest first step. There is now much room for improvement in theory, concepts, and methodology. Yet we must move forward, doing the best we can right now while helping each other learn to do better in the future. The problems are too urgent to be left alone.