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Managing Ecosystems for Women's Health and Sustainable Development: An Illustration from the Kumaon, Uttaranchal

RATNA M. SUDARSHAN

This paper examines gender issues in natural resource management, based on the experience of mining in the Kumaon, Uttaranchal. The method of analysis followed attempts a breakdown of activity patterns and responsibilities by gender. This is used to identify who gains and who loses with different patterns of resource use. It is observed that women's protests against mining in this area make the point that the disruption of traditional livelihoods has weakened the ecosystem. Some general observations on appropriate interventions for sustainable resource use and development are derived from this. It is argued that local communities as well as policy makers need much more information and education on the implications of ecosystem health for communities.

Context: Ecological Poverty and Development

It is often assumed that development is a unilinear phenomenon, that is, there is a single, clearly defined path of change that will transform poor economies into wealthy ones. Fundamental to this is the accumulation of capital, so that attention gets focused on incomes and savings right at the outset of any attempt to analyse a country's economic position. The focus on income and on 'economic poverty', however, has very definite limitations. Development approaches that do not take note of the ecosystems in which economies are embedded are unlikely to succeed in the objective of

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sustained growth. In addition to this, a conscious integration of a gender perspective is necessary for equitable and sustainable outcomes. This paper examines a development intervention in the Kumaon to illustrate the need for an ecological and gendered approach to development.

The basic problem that communities in the region face is ecological poverty as much as, if not to a greater extent than, income or economic poverty. Ecological poverty can be simply defined as 'the lack of a healthy natural resource base that is needed for a human society's survival and development', and the solution to it lies in recognising that 'healthy lands and ecosystems, when used sustainably, as they were for millennia, can provide all the wealth that is needed for healthy and dignified lives' (Agarwal 1998). Implicit in the latter statement is a recognition of the value of traditional knowledge systems and of traditional systems of managing resources. While recognising the importance of traditional systems, it has also to be acknowledged that old systems are not necessarily perfect, and one of the challenges is to use traditional knowledge without further entrenching established inequalities, a caveat that becomes especially significant when talking of gender concerns.

The Relevance of Gender

The interaction of men and women with the natural resource base of the economy tends to be systematically gendered. A broad division can be made between 'productive' and 'reproductive' activities. The sexual division of labour, as it has developed over time, gives primary responsibility for reproduction in all senses to women. Reproduction includes not just biological reproduction and child care, but also home maintenance (food production and processing, water collection, etc.) and wider processes of socialisation (Jackson 1993). People's aspirations are usually directed to the productive arena. However, a certain level of reproductive activity (a term that includes unpaid work done within the household, for care and nurture and household survival) is necessary for every level of productive activity. If adequate attention is not paid to reproductive needs, there is a potential check to, and possibly even collapse in, productive activity beyond a point, in much the same way as might happen if natural resources are degraded beyond a certain level (Taylor 1995).

Given the gender differences in responsibilities, if women (and their choices and priorities) are systematically undervalued, the resulting stress is bound to reduce the resilience of the system, and makes its impact felt in both the productive and reproductive dimensions. This point can be understood and illustrated at the level of households (where self-worth and individual health get eroded) or communities (communal spaces,

resource use and management). For example, uncultivated land in the ecosystem is especially important to women; it is the source of fodder, fuel, medicinal herbs, etc., all of which contribute substantially to activities in the reproductive domain.

While the ultimate objectives of development can be presented in many different ways, from a human point of view the assurance or achievement of better health is surely fundamental, and human health is closely bound with the health of the ecosystem. Insofar as female life spaces are more oriented to care and nurture than male spaces are, in consequence of established roles, female choices (in regard to natural resource management) may have superior health outcomes and thus direct us towards a growth trajectory that is associated with better health.

These reflections lead to the understanding that one practical way of approaching the questions of development, ecological poverty and appropriate natural resource management is through an examination of the differences in male and female life spaces. These differences emerge through the combined impact of ascribed gender roles and livelihood patterns. It has been argued that 'for every individual and every family there is a "map" of the appropriate domains of women and men' (World Bank 1991: 3). These domains are largely determined by culturally ascribed roles and responsibilities, which give women greater responsibility for work within the home, care and nurture, and greater responsibility to men to provide food and shelter through work outside the home. The cultural acceptance that women should confine themselves and their activities to certain spaces has many implications, which include the existence of practices such as *purdah*, and norms of seclusion and restricted mobility. Another effect is to restrict women's participation in productive activity to certain types and areas of work only. Typically, women are found concentrated in low-paid, low-skilled home-based work, most often in the informal sector, with no clear status as workers and little entitlements to worker-based social security. The exact location of women in the productive arena thus depends partly on ascribed roles and permissible spaces, although it will also be determined by levels of education and skill, technology and organisation, and the mode of production that is prevalent. In addition, poverty and circumstances can induce women to undertake work in conventionally 'male' spaces. Norms of behaviour are not static, and the definition of appropriate spaces too is subject to change.

The existence of gendered spaces is an empirically observed reality and can be explained by reference to culturally ascribed roles interacting with patterns of livelihood. Boserup argues that this differentiation has been sustained over time because it contains an element of rationality:

In rural areas where production is partly or even predominantly for consumption in the family, there is a division of labor by sex and age.

Some tasks are performed by men, who teach the necessary skills to young men and boys; other tasks are performed by women, who pass their skills, both agricultural and domestic, to younger women and girls. This division of labor between the sexes is rational, because everybody needs half as much training and gets twice as much work experience as would be the case if everybody were to learn and perform all the tasks that are needed for subsistence production of goods and services. (Boserup 1995: 53)

That this division of labour is 'rational' does not, of course, mean either that it is equitable or desirable. The spaces that are occupied by men and women, and the value that is placed upon them, are constantly changing. For example, in the hill communities of the Himalayan region, the division of labour by sex has been greatly accentuated by commercialisation, which has generated off-farm employment for men and consequently reduced their participation in subsistence activities (Mehta 1996: 185). The factors that have contributed to reconfiguration of village spaces in Mehta's study include: forest legislation; development of markets and construction of roads; introduction of cash crops; and conversion of grazing land to cropland. These factors include policy changes and commercialisation. The process of change has both deepened divisions between men and women's work, and affected women more adversely.

The well-known Chipko struggles of the Kumaon provide some evidence of the non-overlapping nature of male and female life spaces. Village women, organised into groups, protested effectively against further deforestation. This action has been seen by ecofeminists as an example of the feminine impulse for resource conservation. But a recent assessment of Chipko has suggested that 'women fought to prevent the complete clearance of their forest as a *functional livelihood strategy*, not because of a desire to retain or return to some pristine "traditional" village life' (Mawdsley 1998: 46).

To summarise, gendered spaces originate in cultural norms. Differences in male and female spaces are accentuated by changes like greater commercialisation, which has widened the distance between men's roles and women's roles, and further devalued women's roles. Examining what is happening to female spaces is a useful way of understanding the nature of the development process.

The Kumaon Himalayas

This paper attempts to highlight community practices and gender issues at a sub-regional level, that is, the Kumaon, which is made up of six administrative districts with a shared political and social history. The

Kumaon region is in the Middle Himalayas, earlier in the state of Uttar Pradesh in India and now part of the new state of Uttaranchal. This Himalayan ecosystem is land based. It has been aptly stated that uncultivated land is as important in the economy of the area as cultivated land and forest:

In the UP (Uttar Pradesh) hills the uncultivated lands produce all the fuelwood, building timber and wood for tools, building stone, slates and sand; they yield most of the fodder (and so milk and most of the manure for cultivation), all forest litter (used as cattle bedding and then as organic manure), bamboos and fibres (for baskets and ropes and medicinal herbs); and they form the major part of catchments for the infiltration of rainwater to feed the hill springs. (Ashish 1989)

This basic ecosystem has been altered over the years with commercialisation and development interventions, and a limited degree of urbanisation. It is possible to define an ecosystem at several different levels, since one system will be a component of another and itself contain other systems (Kay and Schneider 1994). At each level there are many possible 'windows', each representing a different perspective. Taking the Kumaon as an example, for some questions, such as appropriate resource management, we need to step into the component ecosystems (village/watershed); for others, such as national policy on land use, afforestation and subsidies for industrial growth, we need to step outside into the larger ecosystem, that is, the state or the country within which the region is contained. 'Within the socio-economic and political hierarchies decision-making at higher levels constrains lower ones, whereas lower level systems aggregate to influence higher ones' (Murray et al. 1999: 5).

Taking the region as a whole, increased cash inflows resulting from commercialisation and trade have not improved the productive capacity of the hill economy. On the contrary, extensive deforestation resulting from the demand for timber has made people's access to fodder and fuel more difficult, and has affected the quality of soil and the availability of water. In terms of the economic status of people living here, communities are largely poor. Livelihoods are still mainly based on subsistence farming and animal husbandry, but this is increasingly inadequate to support households, and gets supplemented with income from wage labour or seasonal home-based work. Migration, mainly male, has been a major coping strategy.

The incidence of tuberculosis is very high, presumably with poverty being the primary cause. Water-borne diseases are also widespread, and in this case the primary cause may be the combination of poverty and water pollution. Environmental degradation has intensified existing health problems and the health infrastructure is poor. Less than 12 per cent of

villages have the minimal health facilities of a family welfare sub-centre. Fifty-three per cent of villages are more than 5 km from any hospital. Given the topography of the area, distances of this kind, which are not daunting in an urban and plains environment, are equivalent to very limited access. Tables 1 and 2 summarise the health facilities available.

Table 1
Health Infrastructure in the Kumaon, 1992-93

<i>Facilities</i>	<i>Number</i>	<i>Population/facility</i>
Hospitals	322	9,140
Beds	3,998	736
Primary health centres	119	24,732
Subcentres	720	4,087

Source: State Planning Institute. 1993. *District Statistical Handbook (Uttaranchal)*, pp. 172-73. Lucknow: Government of Uttar Pradesh.

Table 2
Distance from Health Facilities: Kumaon, 1992-93

<i>Distance from facility</i>	<i>Hospitals and/or primary health centres (% of villages)</i>	<i>Subcentres</i>
In village	3.8	11.7
< 1 km	4.3	6.8
1-3 kms	20.0	25.8
3-5 kms	18.6	20.4
> 5 kms	53.3	35.3
Total	100	100

Source: State Planning Institute. 1993. *District Statistical Handbook (Uttaranchal)*, pp. 174-77. Lucknow: Government of Uttar Pradesh.

Patterns of Life: Agrarian Communities

As the ecosystem gets modified over time, the patterns of life change, and in different ways or in different degrees for men and women. These changes in the Himalayan region have been associated with varying degrees of adaptation and resistance by the people.

With land being the major source of livelihood, supplemented by animal husbandry, activities centre around these. Cattle provide manure, so there is a symbiotic relation between land and animals. Migration provides supplemental income. There are clear differences in the economic roles of men and women, differences that are less sharp in the very remote areas, but that have been accentuated by the inflow of cash and the start of developmental activities. One simple way of trying to understand the

larger issues of ecosystem management is to start by looking at the patterns of life of men and women.

The descriptions given below are based on a study of the impact of mining (largely magnesite and soapstone) in the region (ISST 1991). This study used a combination of qualitative and standard household survey methods in collecting data. The area is one of relatively low social differentiation, in the sense that primary economic activities are not very different across different social castes. However, the same method that is used here to differentiate between the activities and responsibilities of men and women could be used to differentiate between social groups as well.

A typical day in the life of a village woman has been described as follows:

The typical village woman rises early, while it is still dark outside. The first jobs of the day include grinding the wheat (where there are no power driven flour mills) and bathing in the spring—which often means a long trek from the house. Drinking water will be brought home—either from natural springs or village taps. Making tea, milking the cows, giving them grass, collecting cow dung, etc. all follow. Food will then be cooked, and eaten: then begins the day in the fields. Where there is more than one woman, jobs will be shared. If there is no-one to look after young children, they are left locked in a room till the mother returns. Evening chores include tending to the cattle, cooking, etc. Where there are no other facilities, in the evening the woman will thresh the wheat. During peak agricultural seasons, clothes are washed infrequently—say once a week—and sometimes women would comb their hair only once a week or fortnight. Traditionally, women of a village would help each other and work jointly to complete the work. Now those who can afford it employ wage labour. (ISST 1991: 142)

The absence of men in the above account is not intentional; yet it reflects the distance that exists between the world of men and women living together. In the more remote areas, men do contribute to such activities as fetching water and animal husbandry. But commercialisation has resulted in a sharp separation of spaces, with men being largely confined to activities revolving around the earning of cash income.

One of the most basic determinants of well-being is the quality of nutrition, and in this area simple food is cooked and eaten. The composition of the diet is largely determined by what can be grown at home, including the cereal, vegetables, fruit and milk. The quality of food eaten naturally varies according to the general economic situation of the household, which partly determines the extent to which home produce can be supplemented with produce from the market. Nutrition depends on the diet, and the actual intake is influenced by the tradition that women eat last.

The men and boys receive the first servings followed by older women, so that intra-household allocation of food is influenced both by age and sex. In poorer villages there is a widely observed tendency for women to eat mud, stones, coal or the bark of trees—habits that may appear strange but simply reflect deficiencies in calcium and iron. The same causes lead children to nibble at paper, cloth or mud. Such nutritional deficiencies result in poor health, early aging and short lifespans.

This situation is made worse by social taboos that are still observed in very conservative families. Pregnant women are not given vegetables, pulses or milk. Eggs and fish are likewise banned. During a menstrual period and 11 days after delivery women are considered ritually impure, and hence have to sleep and live separately, but this does not exempt them from doing heavy jobs. Restrictions are particularly severe after childbirth. As one observer put it:

Traditionally a lot of restrictions were placed, as far as food was concerned, on the mother of a newly born child.... The mother cannot eat 'heavy' things such as jaggery, lentils, garlic, onion, chillies, etc., because these things being heat producing are harmful for the delicate limbs of the child. Similarly things which have a 'cooling' effect are also omitted, such as curd, rice, bananas, urad dal, cold water, etc. Green vegetables and various other vegetables are excluded as green vegetables upset the child's stomach. It is also believed that greasy things are not good for the child's throat, and also lungs, hence ghee, etc. are also excluded. (Bhatt, no date)

Women's workload is liable to change with age. It is probably heaviest in their younger years and after marriage. Generally, the age at marriage for women does not exceed 25, and many girls are usually married off at 15 or 16. As women grow older and if they live in households with married sons, these burdens are passed on to younger women. Table 3 uses descriptions of men and women's lives to bring out the relation between gender differentiation in activities and health outcomes, as well as possible non-medical responses through ecosystem management. It is intended to be illustrative and is not based on a comprehensive account of time use by men and women. It is also a static representation, that is, it does not trace the possible feedback effects from such interventions to daily activities and health risks. But it may be inferred that gains in health status would lead to higher productivity, releasing time and effort for new activities or some much-needed leisure. Over time, one can expect larger changes: for example, better health with lower mortality and morbidity is likely to lead to a reduction in fertility; better resource management and lower rates of population growth together could stimulate ecological regeneration and tend towards a sustainable development path.

Table 3
Activities and Environment: Health in Rural Kumaon

<i>Activities</i>	<i>M/F</i>	<i>Health risks</i>	<i>Interventions</i>
Preparing meals: cooking, grinding wheat, threshing wheat	F	Time/energy; eye-sight, lungs affected by smoke from chulah (stove)	Technology; kitchen/stove design
Water: • bathing, drinking, household chores and cooking (reproductive) • irrigation (productive)	F	Time/energy; water-borne disease	Distance to water source; quality of water; sanitation
Serving meals	F	Inadequacy of food, specially for women	More food for all; changing customary practices
Agricultural labour and animal husbandry	F/M	Time/energy	Methods; soil fertility, fodder; water (cattle health)
Non-agricultural labour	M	Energy, occupational hazards	Conditions of work; type of work
<i>Environment</i>		<i>Health risks</i>	<i>Interventions</i>
Water pollution	M/F	Water-borne diseases	Keeping water sources clean; reforestation
Poverty: poor diet	M/F	Low levels of energy; susceptibility to tuberculosis: high morbidity; early aging; short lifespans	Resource management to improve food supply?
Illiteracy, lack of access to information, social taboos (e.g., after childbirth)	M/F	Low hygiene	Health and general education

Within this land-based rural ecosystem, new subsystems have been created by development interventions such as mining. For example, in Jhiroli, an area turned over to magnesite mining, the traditional land-based economy has been almost completely replaced by mining and related activities. While only men work at the mine, women's lives too have completely changed. Most importantly, since mining has displaced agriculture in the area, most women find themselves without land/work. After fetching fuel and water, and fodder if there are animals, women have to occupy themselves at home. But time and leisure, without any change in the information and knowledge levels of women, means that neither child care nor home management are benefited (ISST 1991: 145). Neither have new aspirations for new roles been generated among this group of women.

In other mining areas, agriculture coexists with mining. This results in a conflict of interest between women, whose lives continue to revolve around land and agriculture, and men who may get drawn into the cash economy. New health problems are added to the old, as shown in Table 4. Women's protests against mining in this area seem to make the point that this intervention, by disrupting traditional livelihoods, has weakened the ecosystem. This is a concern with sustainability, or reproduction in a broader sense, that is sharply differentiated by gender.

Table 4
Mining in the Kumaon: Impact and Response

<i>Impact</i>	<i>Who benefits, who loses</i>	<i>Effects on health</i>	<i>Possible ecosystem responses</i>
Employment: new employment generated (casual, daily wage)	Additional employment shared between locals and migrant labour; male space	Increased cash inflows may mean an increase in resources available for treatment	Increase health facilities
Expansion of health infrastructure: new hospital	Beneficiaries are mainly mine labour and families	Not known	Encourage access to and use of new facilities
Environmental effects: land subsidence/slips, loss of soil fertility, loss of topsoil, dumping of overburden in streams, dust pollution, water pollution, destruction of forest, drying up of water sources (due to blasting of rock)	Perceptible impact on CPRs and reduction in livelihood based on this; female space adversely affected; Lower food availability from cultivated fields	Diarrhoea and dysentery caused by water pollution (greatest effect on cattle health); occupational health hazards to mine workers; accidents due to open pits (mainly children); food security reduced	Ecosystem response will differ according to whether male or female viewpoint prevails; Male: seek higher wages, and more development interventions (schools, hospitals) Female: resistance to any change in land use
Social effects: change in lifestyle caused by presence of outsiders	Intrusion of female spaces	Daily routines may now need greater expenditure of time and energy to maintain privacy	Over time, outsiders will become part of the ecosystem; but in the short term, their presence results in an additional source of friction for women

Patterns of Life: Urban Communities

Urban areas in the Kumaon have developed largely around trade and administration. Productive industrial activity is largely absent. Links with

the agrarian ecosystem are weak, although not non-existent: most families may receive some food from their villages and send home gifts of cash. The main source of income is likely to be a salaried job, trade or ancillary professional activities such as of doctors and teachers. A fairly large 'floating' population of casual wage labour is also usually found. Since movement between rural and urban areas is easy, there has been no growth of slums in the urban areas. Levels of income are therefore varied, but most new work has gone to men. Women in urban areas, if educated, may be teachers. The large majority may be non-workers (that is, not in paid work) although, of course, responsible for housework and home maintenance.

Most men may have gained in status by the move to urban areas. Women may have 'gained' in a derivative sense (that is, their spouses have gained status), but have faced many losses too. These include loss of traditional occupations, of traditional spaces and mobility, and most often no compensating acquisition of new skills. With this loss disappears the ability to use 'in-between' spaces, for example, the practice of herbal medicine. The level of dependence on the spouse/immediate family goes up, with the loss of traditional networks within the larger community. The incidence of domestic violence is reportedly high, as is the level of seclusion.

Women's health is most affected by the environment of the house. In particular, factors like the kitchen and type of *chulah* (stove), whether there is a kitchen garden and whether the woman has effective access to it, and whether there is any possibility of earning supplemental income through home-based work. Table 5 summarises urban health risks and possible responses.

Health Outcomes and Inputs

We have tried to show how health outcomes and resource management are connected. The former can be related partly to activities and partly to risks inherent in the environment, and these can be differentiated by gender. External factors, such as a change in land tenure policy or a change in subsidies given for industrial development or mining, can trigger off a sequence of changes in resource use, and hence in health outcomes.

In a dynamic context, the state of human health is clearly a major determinant of ecosystem productivity and sustainability. In the example of the Kumaon, the widespread incidence of tuberculosis and water-borne diseases results in a weak population, with low energy levels. This exists in combination with ever-increasing burdens of work, whether the drudgery is incurred in covering greater distances to water sources and longer time spent in collecting fodder and fuel (by women), or arduous (non-agricultural) manual labour (by men). As things stand, the prognosis is

Table 5
Activities and Environment: Health in Urban Kumaon

<i>Activities</i>	<i>M/F</i>	<i>Health risks (or gains)</i>	<i>Interventions</i>
Cooking, cleaning, other house chores	F	Time/energy; smoke	Availability of water, fuel; type of stove
Kitchen gardening	F	Food security	Increase women's control and access to resources, inputs
Tending cattle	F	Time/energy (milk)	Availability of fodder, water
Home-based work	F	Time/energy (cash inflow)	Increase women's control over income, physical design and environment of the house
Other factors: consumption of liquor by men tends to be high with greater access to cash	F	Domestic violence	Strengthen women's support groups
New occupations: non farm	M	New health risks (occupation related)	Improve work conditions, safety standards
<i>Environment</i>	<i>M/F</i>	<i>Health risks (or gains)</i>	<i>Interventions</i>
Loss of traditional spaces and occupations; new lifestyles	M/F	Reduction in availability of home grown food, medicinal plants; erosion of traditional social networks	Regenerate some spaces; strengthen social capital

bleak. Any systemic change that improves the health status of the people will greatly increase productivity.

Managing Ecosystems for Health

From this last statement it can be argued that a good way of encouraging gender equity and sustainable development, and of ensuring better health outcomes, is to consciously manage ecosystems for health. This is itself a form of intervention, in greater or lesser degree, to the extent that the approach does not emerge 'naturally' from within the ecosystem. Having recognised this, the approach can tend towards one extreme, of being externally imposed and top down, or can attempt to be participatory and gender sensitive. To argue in favour of participation is to argue in favour of a process. Outcomes cannot be guaranteed. Intervention then has to restrict itself to providing more information and knowledge, and influencing the environment within which people make their choices.

One such participatory approach is that of AMESH (Adaptive Management for Ecosystem Health) (Murray et al. 1999). This approach recommends a process of identification of a common vision through discussions with different stakeholders. This may not be enough to ensure that a gender perspective is integrated into the process. Addressing all social differentiation is complex. In seeking to be sensitive to gender it is necessary to ensure the inclusion of the views of different groups of men and women. A way has also to be found to give greater value to traditionally ignored and undervalued (female) behaviour and choices.

It is not difficult to show that if greater vitality could be imparted to degraded ecosystems, many of the health problems that people face, especially women, will be much improved, if not eradicated. The real issue may be the viability of this approach. This can be questioned by suggesting that people want survival before a better quality of life. But it has been rightly pointed out that livelihood and health are strongly correlated.

Spatial variations in disease patterns, such as national and neighborhood variations, are often the consequence of interaction between the socio-economic and cultural context of life and the biophysical environment. Three broad parameters are clear: poverty; illiteracy; and gender oppression.... A gender-sensitive environmental health policy would necessarily include approaches to poverty alleviation, the promotion of literacy, and the eradication of gender bias, both locally and nationally, as important factors in the creation of life conditions that are healthy for women. (Kettel 1996: 1371–72)

With this kind of understanding, health and livelihood are not really conflicting objectives, because good health is not possible without a reasonable livelihood. Neither good health nor reasonable livelihood is possible for women without a reduction in some underlying causes of gender inequality. These underlying determinants are not removed with economic growth. For example, it is perfectly possible for women who are economically secure and educated about health issues to seek no help for medical problems because of a deeply rooted cultural perception that women should efface themselves.

However, there are different routes to better livelihoods, and one could distinguish between a more market-oriented, commercial route and one that is more oriented to sustainable natural resource management. The real issue in managing ecosystems for health may be not the apparent 'health or livelihood' dilemma, but rather how to persuade people in favour of a certain pattern of development. The problem is a real one because markets are strongly recommended in macro policy prescriptions.

For example, in the context of the UP hills, it has been observed that both men and women look upon a 'secure income, preferably from a

government job' as essential to survival, and appear to have lost faith in the ability of the land to generate an adequate livelihood (Mawdsley 1998: 47). On the other hand, a different view argues that in this land-based ecosystem better resource management could yield substantial dividends:

Cultivated lands yield only a fraction of the total materials people use for even basic subsistence. For example it takes about one and a half kilos of fuelwood to cook the 500 grams of grain which is the average daily ration in India, and it takes upto 5 kilos of green fodder to produce half a kilo of milk. These materials come mainly from uncultivated community lands.

Simply by improving the management of these uncultivated lands, yields of fodder, fuelwood, etc can be raised six to ten times. Such increases represent a rise in the population-supporting capacity of the land, and/or improve the lot of the poorest sections of the rural community. (Ashish 1992: 5)

Educating people on the interactions between cultivated and uncultivated land, forest, pasture, and people's well-being may be the way to persuade them to choose a particular direction.

It can also be argued that preferences expressed by people do not indicate that they give health per se a very high priority. For example, a woman may choose to save time or money and hence 'use contaminated water for which she does not have to line up or to pay' (Rathgeber, no date). One might question whether this behaviour reflects choice (that is, saving time or money is preferred to better health) or ignorance (not knowing that water from the pump is cleaner and healthier). Assuming that it is more likely to be the latter, we have a policy prescription here: the need for education.

Indeed, any effort to manage ecosystems for health can be successful only if it is compatible with people's own choices. That is, to return to the 'participatory vs. top down' issue, people cannot be 'told' to manage ecosystems for health, they have to 'decide' to do this. Viability will depend on whether the conditions in which this is likely to happen exist or can be created.

Participation and Policy

Although this review of the implications of ecological poverty seeks to emphasise the close relationship between health, development and the ecosystem, appropriate interventions are difficult to identify. It is attractive to attempt to use participatory processes, which seek to integrate different perspectives through a social process of conflict resolution and

compromise, so that in the end a common vision for the future is generated. However, in a very heterogeneous society, this may not be an adequate way of incorporating gender and social difference. The different stakeholders are very unequal in very many ways, and so their views and values will neither be articulated with equal clarity nor be given equal value. Some external mediation is almost inevitable, so that participation has to find support from a policy framework.

The policy framework is itself the outcome of the policy-making process, which uses its own techniques of mediation between competing needs. However, the policy-making process as it exists does not necessarily incorporate the knowledge or values that would be needed to guide choices in favour of giving eco-health a high priority. If then participatory processes of development and the policy framework are to have a shared vision, both need to work towards creating an environment of change. The analysis in this paper suggests that people as well as policy makers need much more information and education on the implications of ecosystem health for communities. It is important that all stakeholders receive the same inputs, else we may find ourselves in a situation in which suggestions for resource use and management emerging at a macro or national level stand in opposition to choices that emerge locally, through a participatory, gender-sensitive 'ecosystem for health' approach.

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