

LAND DEGRADATION IN KENYA:
ECONOMIC OR SOCIAL CRISIS?

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Introduction

This paper examines, through the medium of one project, the nature of a serious paradox. Why is it that despite a rapid growth in research, institution building, training and investment--the "development" packages--we are able to witness an acceleration of environmental degradation in fields such as irrigation, soil erosion, catchment destruction and so forth? This study concentrates on one particular paradox, that of the so-called "desertification process". The research dimension of this paradox has been studied elsewhere by the author [UNESCO, 1979] but in this case a wider perspective is taken. By using the vehicle of a fairly typical multilateral project in the area of "desertification" it is possible to reveal the weaknesses of searching for a solution within an approach which excludes the political economy, or the system within which problems are defined and decisions taken. The conventional approach is to treat the environmental issue as the problem and to seek a technical solution. The repeated failure of these technical solutions is then usually attributed to some form of aberrant behavior such as economic perversity, ignorance, tradition or lack of "environmental awareness". If we step back one pace and pull the policy- and decision-making system itself into the array of variables, then the environmental "problem" fairly rapidly demotes itself into a set of symptoms of a malaise within the broader issue of the political economy. This, at least, is the conclusion drawn from the various studies of "desertification" in the semi-arid areas of the Third World examined by the author. There is no suggestion that the case presented in this paper, that of Kenya, provides a universal mode explaining the desertification process: that would be naive in the extreme. However, it shows conclusively that the technical perspective and the technological approach are totally inadequate in this case. Those who would refute the need for a broader approach must take upon themselves the responsibility of offering an alternative explanation for the paradox outlined above and the deepening crisis. The old portmanteau of "social factors" usually offered - tradition as an independent variable,

resistance to change, ignorance and so forth - posits a degree of irrationality which is unacceptable, flies in the face of historical evidence of change and, in short, tells us more about the people who offer these explanations than the behavior they are trying to explain. Geographers have long stressed the essential strength they derive from bringing physical and human factors together in their frame of analysis and the case that follows illustrates an urgent need for this synthesis for, all too often, what is found in reality is a contempt for politics on the part of the technical specialists and a tendency by the politicians to look to the technical people to provide both the palliatives and an aura of legitimate effort directed at solving an "environmental crisis".

The Origins of the Project

In 1977 the United Nations convened a global conference to consider the growing problem of desertification. This tended to give desertification an identity apart though, in effect, it is only another form of environmental degradation like soil erosion distinguished only by the fact that the end state tends toward desert-like conditions because it occurs in marginal and semi-arid regions. The conference agreed that there was insufficient evidence to attribute desertification to climate change [UNCOD, 1977] and, instead, identified "mismanagement" as the main cause of the problem. Mismanagement is a loose term for anything that leads to a localized, or more general, energy imbalance and a reduction in the productive capacity of the land. As an explanatory term it is extremely limited insofar as it explains only why a physical process has taken place. What is really needed for any remedial approach is to ask what brought about the human behavior which, in turn, initiated or accentuated the physical process. This may well have far wider implications than the simple assemblage of human and physical phenomena in situ where the manifestations of desertification are seen. However, the conference went no further than the basic mismanagement thesis, incorporating such terms as overgrazing, overpopulation, overcultivation, and so forth. In consequence the conference produced the customary "Plan of Action" which, inevitably, was couched in management terms: institutions, laws, land use practices and the like. This would then pave the way for a better system of land management through technology and control, education and awareness. Since it is a principal thesis of this paper that mismanagement is the manifestation, very often, of a wider and more fundamental malaise within national political economy, then a management approach is merely tackling symptoms. However, from the management perspective arose two fairly standard recommendations in the Plan of Action (Nos. 21 and 22) to "create, where it does not already exist, a national mechanism to combat desertification and drought" and "Programmes to combat desertification must be formulated, as far as possible, to fit with a land use plan established at the national level".

Thus a project of a fairly typical "institution building and strengthening" type emerged in Kenya as part of a national effort to apply the Plan of Action. This project forms a useful vehicle for illustrating how the technocratic approach functions, in this case seeking to make the official response more "effective" or "efficient". In a later section of the paper the perspective is widened beyond the narrow "management of the environment" view to one in which one asks why people behave the way they do and how environmental "management" behavior arises.

The technocratic approach is a very pervasive one and may be described as identifying secondary and dependent phenomena as basic or fundamental problems. By so doing those charged with the responsibility of decision making avoid, sometimes deliberately, and consequently fail to deal with, the elements giving rise to the manifestations of environmental crisis. This is not really surprising when one accepts that the primary causation often derives from political, social and economic inequalities. As a result of this failure to tackle real causes, the only possible consequences are: a worsening of the environmental crisis; control through increasingly oppressive legislation or a revolution in the countryside.

Although this critical, and sometimes deliberate, misperception of the problem operates principally at the national level it tends to be reinforced at two other levels. On the one hand global conferences, such as UNCOD, stress the technical or "mismanagement" aspects of the situation because to do otherwise would be to enter the realms of politics and be seen by many member countries to be touching matters of internal policy and sovereignty. Furthermore, the position papers and country studies presented at these gatherings are prepared by national governments or experts they commission so that the policy and political realities are built in implicitly and not considered as something to be examined as a possible contributory factor to environmental decline in their own right.

The second reinforcing agent is that of aid. Much criticism is levelled at the "inappropriateness" of aid [Sitwell, 1980] as a contributory element in environmental degradation. It is essential to remember that most aid is requested rather than offered. Consequently aid responds to problems already defined by the authorities in the recipient countries so that once more, the social and economic status quo becomes implicit. On the donor side there has been a long tradition of regarding technology, within a framework of technical assistance, as being somehow "neutral", or value-free so that if it fails to match the results achieved in the donor country that is "someone else's fault".

The purpose of this paper is to examine the framework within which the question of environmental degradation is identified and responded to. In the first instance the orthodox response is analyzed to reveal the consequences of internalizing and accepting as immutable the social, economic and political status quo and ignoring the historical processes by which these were created. The study will consider the consequences of working within such an approach from the point of view of the objectives which such an approach will naturally produce. In the second instance the decision-making structure and its social, economic and political norms become the central focus of the analysis so that many of the elements of the "problem" identified in the first level of analysis are reduced to dependent variables. Once more, the consequences of change at this more fundamental level will be considered and the issue of environmental destruction will be seen as part of an evolving historical process which expands the boundaries of the problem far beyond the national frontiers of Kenya.

Although Kenya is being used as a case study in this instance the comparison between the two approaches is one which will be recognizable

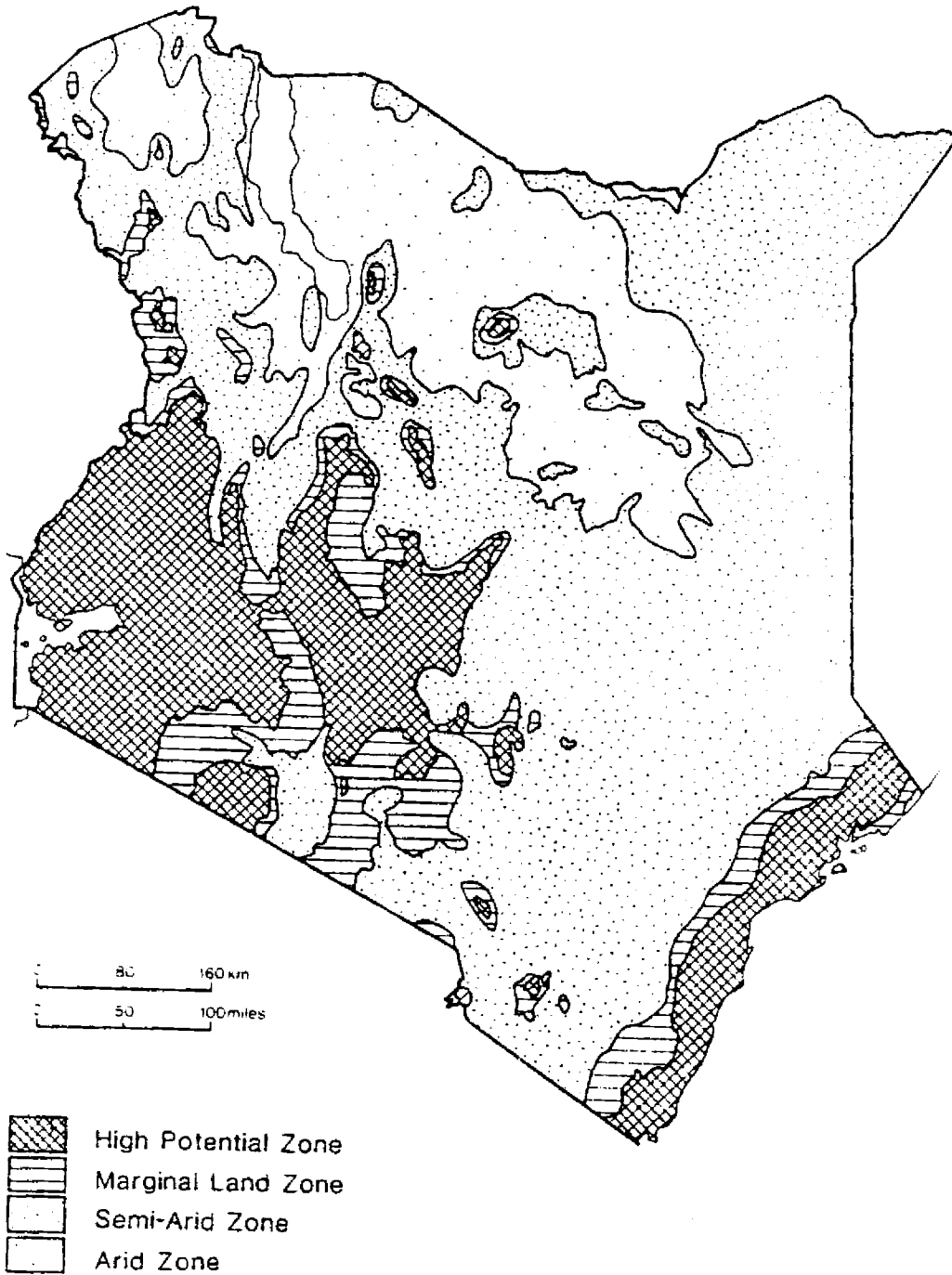


Figure 1
Ecological Potential of Kenya

to researchers in many countries. The fairly general nature of this conflict of approaches raises serious questions for those in the environmental sciences who, frequently, see the political economy of the situation in which they work as something divorced from their technical expertise (a soil is a soil is a soil, etc.) as well as being something slightly disreputable which interferes with the "scientific objectivity of their effort". It is critical that all such people realize and accept the fact that their efforts cannot be divorced from the political economy within which they work. Treating soil erosion as a purely physical problem may well deflect attention away from the real causal processes within the political economy which will, in turn, perpetuate those causes, e.g., short term profit-taking in the charcoal industry or the marginalization of the peasantry onto poor or steep lands by the inequity of the land holding system in a situation of virtually no subsistence alternatives (Honduras, for example). There is nothing to prevent anyone working in such a situation, but intellectual honesty should, at the very least, require that the realities are recognized and thought through. Not only is it foolish to hide behind such expressions as "I'm only doing a job" or "It's not my place to involve myself in other people's political situations," it is frankly quite untrue. Every aid worker is involved simply by being there and interfering in however small a way. Neutralism, or the technocratic approach, is inherently conservative stressing the status quo simply by excluding the political economy as a causal element.

The Environment and the Loss of Resources

Kenya is sharply divided into two contrasting physical zones. On the one hand four fifths of the country is classified as marginal, semi-arid or arid (Figure 1 ecological zones IV, V, and VI). In this region about one fifth of the country's inhabitants reside. The remaining four fifths of the total population of fifteen million are compressed into the high-potential areas (ecological zones II and III of the Central, Rift Valley and Lake provinces (Figure 2). There is a tendency to extend this physical division into a typology of environmental degradation so that losses in productivity and the natural resource base in ecological zones IV, V, and VI are attributed to "desertification". In the remaining areas the more traditional categories of "soil erosion" and "deforestation" are usually identified separately. Although it is true to say that the end state of degradation in these two physical regions may appear different, to assume that the causal process is different is quite wrong. Consequently the various projects initiated by Kenya under the U.N.E.P. aegis to "combat desertification" by institution building are in danger of dividing the effort by concentrating on one manifestation of a wider process. The newly-created Presidential Commission on Soil Erosion is a further example of this false division, this time in the high potential areas. So the physical preoccupation is confounded by an artificial spatial division of process.

The evidence of environmental degradation is widespread and often alarming in Kenya and is usually classified according to the following categories, although even at the purely physical level they are intimately linked:

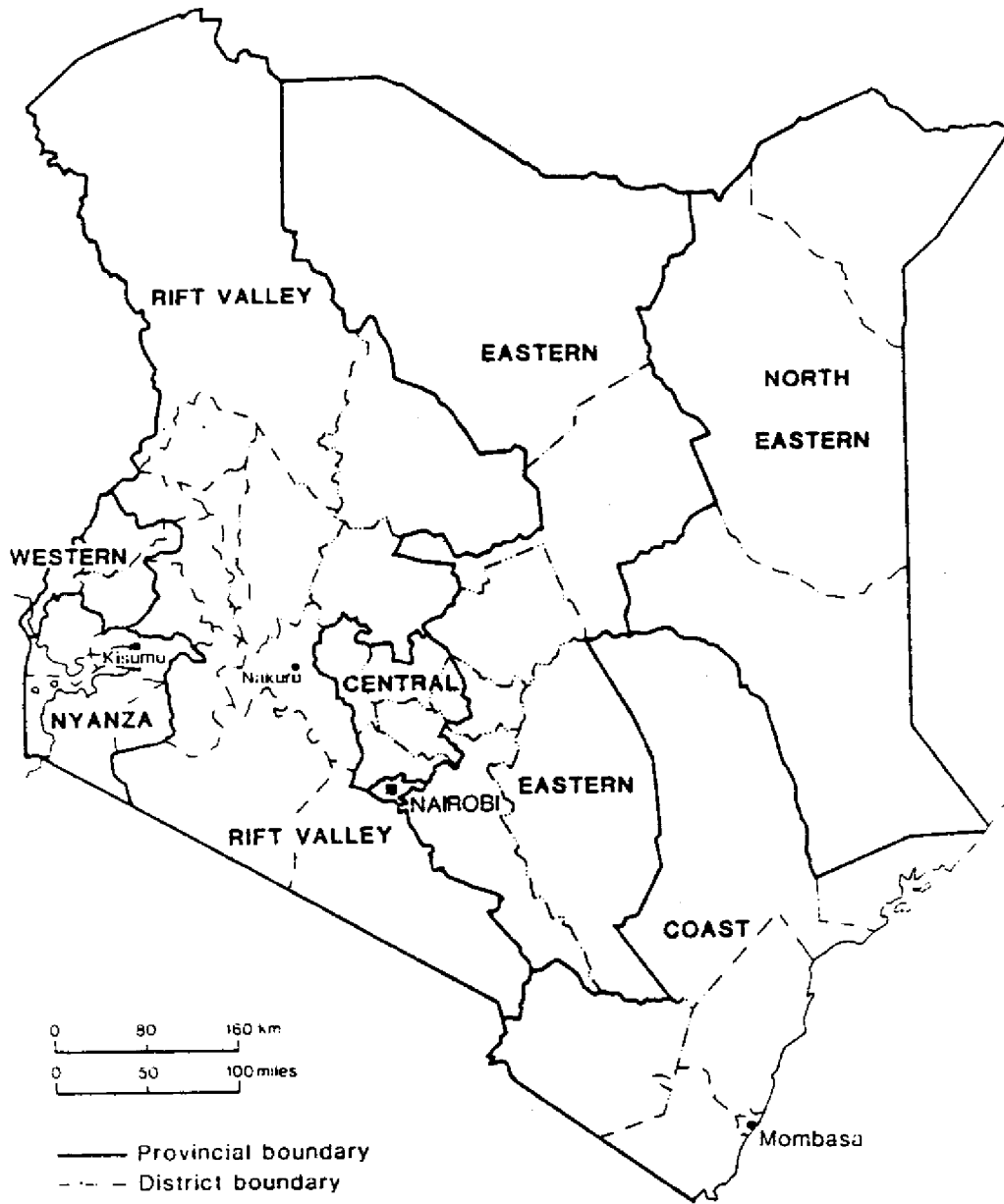


Figure 2
Administrative Boundaries of Kenya

Soil Erosion. This is very much in evidence on slopes over fifteen percent, near river banks (despite laws preventing the cultivation of both these land units) and in the marginal land (Ecological zone IV of Figure 1) where cropping practices, usually involving maize, have been taken by recent migrants. Most of this erosion is water induced but in the semi-arid, pastoral zone it is effected by wind after the soil has been exposed by overgrazing. The scars of soil erosion are widespread and the results may be seen in the declining per capita yields of subsistence food crops returned since 1970. The soil which has been stripped by water is now threatening one of Kenya's major development initiatives, the Tana River Irrigation Scheme where accumulations of silt are reducing the expected life of the dams to a fraction of that planned in the original cost-benefit analyses. As estimated three million tons of silt per annum is collecting behind the Gitaru dam whilst the heavy silt load has been responsible for the closure of hydro-power facilities as a result of damage to the turbine blades. Some rivers, such as the Perkera, have ceased to be perennial and are being turned into swampy terrain.

Deforestation. The gazetted forest reserves of Kenya are estimated by the Forest Department to cover 3.5 per cent of the national territory. However, since 1970 some 6,000 hectares have been legally excised from this reserve. There is no figure for illegal encroachments but an analysis of Landsat imagery in 1980 revealed that the actual area remaining under forest is now down to 2.5 per cent. Much of this land serves as catchment protection as it is to be found in the hilly headwaters of Kenya's main rivers. It is deforestation in the upper reaches of the Tana which is largely responsible for the downstream siltation of the dams. At present the gazetted areas provide only 200,000 cubic meters of wood against the country's estimated demand for 30 million cubic meters. There is no control over the taking of wood from ungazetted woodlands but large-scale stripping from hills and around settlements in ecological zones IV, V, and VI is clearly evident from air photo and satellite imagery. The Integrated Project on Arid Lands based at Mt. Kula in northern Kenya noted: "a decline in indigenous wood cover, a lowering of the water table and the spread of sand. The clearing of forests on the mountains of north Kenya has destroyed river regimes and threatened the livelihood of the people."

Overgrazing. The impact of overgrazing in the drier areas is at such a scale that it shows up clearly on Landsat images, being most concentrated around watering points and settlements, which are grazed bare. Possibly the most dramatic consequences are to be found in the Baringo area where animals are funneled into a narrow zone in passage to the markets of the south. This, plus the introduction of wholly inappropriate cultivation has ravaged the land and led to recent, horrifying gully erosion. In the 1975/76 drought 25 per cent of the livestock, worth 20 million shillings, died in the Eastern Province.

In Kenya's famous wildlife parks and reserves the battle against poachers has reached the level of a minor military campaign as animals are hunted for their meat. Throughout the country the uncontrolled (until October 1980) chopping of trees for charcoal production and export to Arabia is laying waste to marginal lands.

In making these observations one is continually aware of the qualitative nature of the comments which leaves one open to criticisms of

scare-mongering, exaggeration, and a lack of real evidence. The situation, however, is recognized in the studies of all interested ministries, is evident to even the untrained observer and is imprinted on the time series of Landsat images and written large in the declining food-crop yield figures for the subsistence sector. That environmental degradation is clearly recognized as present, serious and accelerating by the authorities is evidenced by the establishment of new ministries, departments and commissions, drafting of new legislation and the initiation of internationally-funded studies to tackle it.

The Conventional or Technocratic Approach

The main elements of this approach are presented in Figure 3 in a sequential form. A summary of the main characteristics of this approach would be as follows:

- a) It is ahistorical.
- b) It deals only with symptoms of much worse fundamental causal processes.
- c) It places environment above people.
- d) It leads to increasing polarization in the economy and the society penalizing people for actions resulting from their own poverty.
- e) It maintains a facade of technical objectivity and an appearance of concern.
- f) Those perpetuating the approach have a vested interest in its use though it is quite possible that they genuinely believe that they are acting in the "best interests" of the country as a result of the model of development to which they adhere.
- g) In the context of the political economy it presupposes no change.

In this approach the "environmental crisis" is the baseline problem as defined, and from this perspective all other components of the analysis derive. Fundamentally it is the environment which is sick and must be cured. The evidence, or symptoms of this malaise are recognized as widespread and alarming even though the components are not systematically monitored or the losses regularly quantified. If we start from this standpoint it is possible not only to trace a sequence of predictable responses but to predict the likely consequences of proceeding within this approach which puts the socio-economic system under the heading of ceteris paribus.

The various physical parameters outlined above, soil erosion, deforestation, etc., are seen as the evidence of a widespread physical problem. "Success" or "failure" in dealing with the problem will tend, naturally, to be measured in terms of how far these components of environmental destruction are brought under control. This is precisely the environmental-management approach outlined earlier in which the focus is upon control over the use of the natural resource base. Control, however, may be effected without consideration of the real reasons why mismanagement resulted in the first place and so the relief of pressure on the environment may well be at the cost of increasing pressure on a particular part of society, usually the weakest. Those in authority may

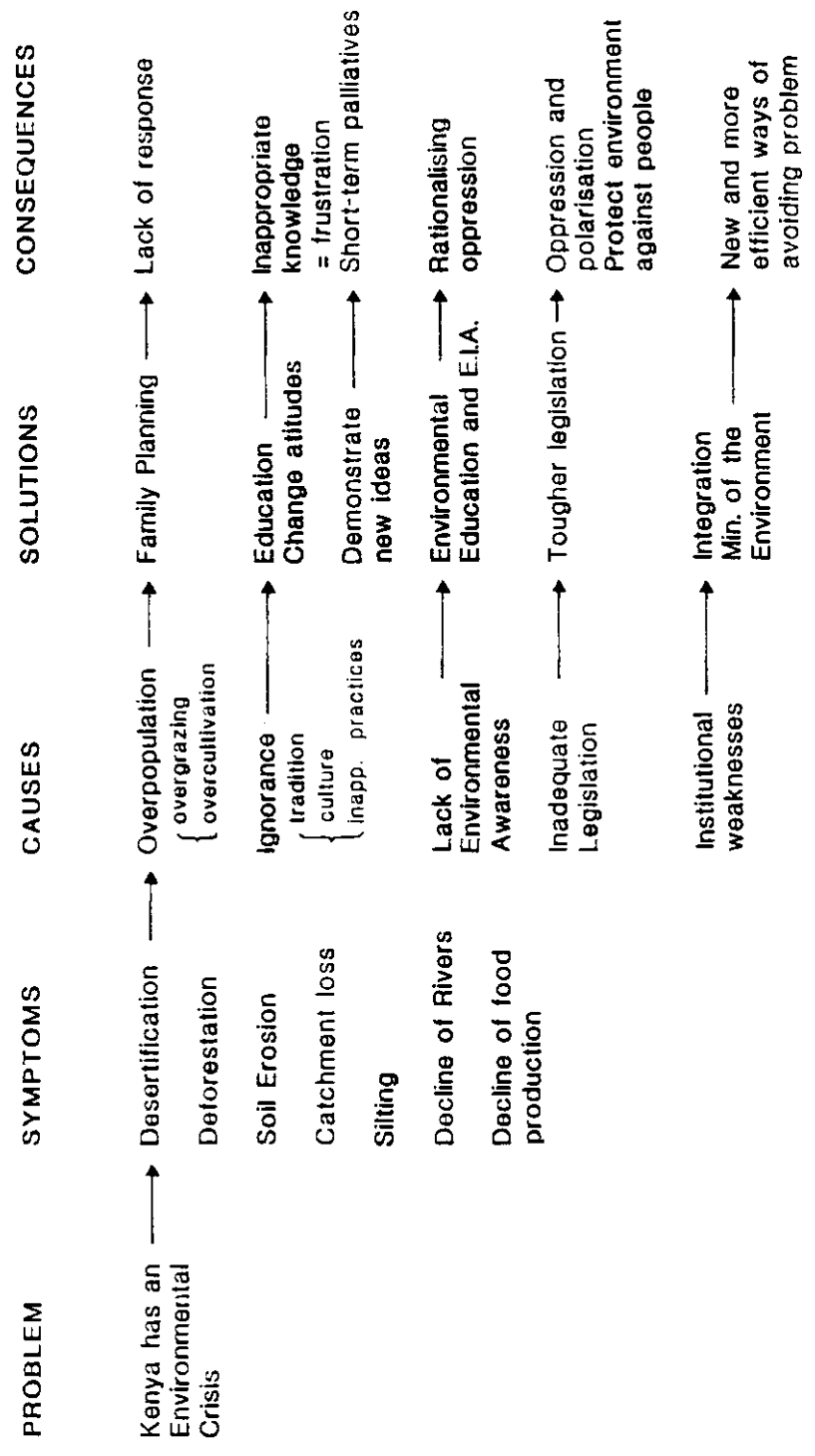


Figure 3
The Technocratic Perception: "Environmental Protection"

justify their approach by resorting to the argument that they must act as trustee of the natural resources for generations yet to come and that the authorities have a duty to protect the environment against what is generally termed "abuse" or "mismanagement".

In short, the social, economic and technical factors will "explain" the environmental dilemma rather than the environmental situation being evidence of a social, economic or political dilemma.

At the center of this framework of explanation in Kenya, as in many other countries such as Nepal and Guatemala, is placed the issue of population. This is manifested throughout the press and in government statements, of which the following are typical:

Kenya will enter the 21st century with about 34 million people.... Most of the problems that will continue to face this country well into the next century are closely related to the present high population growth rate of about four per cent per year - a situation that is referred to in some circles as the 'Rabbit Syndrome'...such a population growth rate, doubling after only 17 years, would continue to complicate planning efforts, quicken the depletion of scarce resources and undermine economic prospects. It is undesirable.... Today the average land holding in the high and medium agricultural potential areas of Central, Rift Valley, Nyanza, Western and Coast provinces is about 0.55 hectares per person. This is likely to drop to about a quarter of a hectare by the turn of the century. [Daily Nation, November 19, 1980]

A conference on desertification in Kenya held in 1977 was told by a representative of the Ministry of Agriculture that four districts in the Nyanza area would run out of additional land for subsistence between 1983 and 1995. The Ministry of Lands and Settlements (as it then was) stated in 1977 that by the year 2000 the "surplus" rural population, based on an estimate of available land for subsistence, would be six million: an almost unimaginable figure. In the marginal lands the growth rate is estimated, through in-migration at ten times the national figure.

Overpopulation is, of course, a relative term and in this case is a measure of access to land for subsistence and the provision of alternative employment opportunities and not just a simple matter of dividing the total stock of land by the number of rural families. This is an area to be explored in the second part of this paper but here it will be sufficient to say that the term "available" land assumes the present distribution pattern of the land, the present unequal access and the present mix of cash versus subsistence crops.

The second major "cause" emerging from this approach may be subsumed under the heading of Ignorance, Tradition and Attitudes. This has close associations with the official thinking about the "population problem" revealed in the use of the term "Rabbit Syndrome," i.e., mindlessness and unthinking behavior with no regard for the wider or longer-term consequences. This is best revealed in terms of the pastoralists who are blamed for accentuating or even causing desertification, attributed to a set of cultural attitudes stressing the benefits of accumulation of stock

numbers for reasons of "pride, prestige and wealth". These criteria are seen as deriving from traditional forces so that "tradition" alone is the explanation of behavior, i.e., it is an independent variable. Superimpose on this rigid cultural framework rapid technological changes resulting from veterinary and water development, as well as the impact of human health care, and one has a formula for mindless accumulation and rangeland destruction. Similarly much destruction in the high potential and marginal zones is attributed to "inappropriate practices" (growing maize in dry areas, vertical strip farming on slopes, etc.), ignorance, the "short term mentality of the peasant farmer" and "low levels of environmental awareness". Thus the dead hand of the past is, in conjunction with uncontrolled exogenous technical change, creating a situation of catastrophe in which elements of the population seem embarked on a course set towards their own destruction and that of much of Kenya in the process.

The next causal variable is that of legislation. There are fourteen acts relating to the environment but in general they are criticized because they are rarely implemented; they overlap; they contradict one another; the fine levels were set over twenty years ago and are basically "colonial" statutes. In other words they provide inadequate protection for the natural resource base at the present time. As the principal means of effecting control over the environment the legislation is clearly inadequate at the present time since the situation is so clearly out of control. Part of the reason for this inadequacy is attributed to the "low level of environmental consciousness" of many politicians (who make the law and who recently threw out the revised Forest Act), the judiciary and those charged with implementing the law in the field.

Within the decision-making structure itself certain weaknesses are recognized but, not unnaturally, these are measured against such parameters as effectiveness and efficiency rather than general relevance or appropriateness. Thus emerge such elements as lack of coordination and integration, the sectoral system versus regional or horizontal linkages, over-bureaucratization, slowness, etc. The principal dysfunction is seen as being that between the comprehensive nature of ecological systems and the divided systems of decision making.

Finally there are comments about the inadequacy of research: the lack of social research, the lack of coordination between researchers and decision makers and the export of many research findings.

Given this assemblage of "causes" it is now possible to derive the package of "solutions" offered, and see them in a clearly-defined context. They will be familiar to most environmental scientists and social scientists with aid experience.

The "Rabbit Syndrome" naturally leads to a program of intensified family planning aimed at counteracting ignorance and offering a way out to families caught in a population trap. For the government fewer people added to the population each year is, to a great extent, its own way out of the situation of environmental destruction as it will reduce future potential increases in the pressures on available land for subsistence. It is a solution which enables other solutions to be avoided and maintains the status quo. It is, superficially, an attractive approach, despite the various ethical dilemmas, for undeniably fewer people must mean less pressure on the land. However, fewer children can mean more

pressure on the poor for reasons outlined in the second part. The family planning approach is the keystone and thus a central element of a perspective in which the environment assumes the central position rather than the disadvantaged people trying to live on and from it, even though the program appears to focus on the well-being of people.

To tackle Ignorance, Tradition, and Cultural Attitudes the natural solution appears to lie with education. This last term is rarely clarified in terms of what values the education seeks to inculcate. The best one can detect is something entitled environmental education which seeks to disseminate concepts and practices appropriate to putting the use of natural resources onto a sustainable basis. This involves sweeping away old and outmoded attitudes leading to destructive behavior so that people (since one is countering "ignorance") become aware of the consequences of their actions. If they are educated in this regard, then the legislation (toughened and smartened up) will have every excuse to deal firmly with them if they carry on in the old manner. The old ways must go, whether they be manifested in tribal institutions (banned in Kenya in the summer of 1980) or the "cattle complex". In their place will come new concepts of resource management and a stronger national consciousness and national economy. The lack of environmental awareness will be offset by an Environment Enhancement and Protection Bill due to be presented to the Kenya Assembly this (1980/81) session. This will set basic standards and establish a legal framework to give the government authority to act as trustee of the environment through the enactment of Environmental Impact Assessment procedures. Films, television, radio and other media presentations will instill the message of environmental awareness at a basic level throughout the country.

Inadequate legislation is overcome by drafting new laws and creating strengthened bodies to see that these laws are enforced. Recently there has been a spate of attempted new legislation and more is in the pipeline (a new Water Act for example). These revised, toughened and coordinated acts will provide a legislative basis to ensure adequate protection for the environment against the people who are currently abusing it. Significantly these new acts are meeting considerable opposition in the National Assembly and the Forest Act, as revised, was rejected totally. Such behavior is explained by a need to "educate the politicians in the context of conservation", i.e., ignorance again.

The institutional reforms, wherein the author's project was born, seek, like their legislative counterparts, to give the authorities a more effective vehicle for "environmental management" through improved bureaucratic efficiency, innovative and integrative marginal adjustments such as commissions, regional initiatives, interministerial programs (the Arid and Semi-Arid Land Program) and so forth. This is almost entirely an efficiency exercise to avoid duplication, sharpen the spatial variable in planning or, at best, to allow a level of integration reflecting the way factors interrelate in an ecological system. The project with which the author was concerned identified, therefore:

- i) desertification as a separate process; and
- ii) desertification as a process amenable to an institutional solution or, at least, requiring a specific institutional response.

It is true that much can be done to make present decision making and implementation structures more effective or integrative but their effectiveness can only be relative to the way the problem they are handling has been defined. It is rather like building a car which can only be driven in reverse. Everything functions, it looks right but when driven it injures people and increases the distance to one's destination as it is being used incorrectly. The pedestrians get hurt but there are various remedies to patch up the broken pieces. Soon, however, it will cease to function as the strain is too great.

An Alternative Approach

Here the political economy becomes a variable alongside all the technical and institutional elements outlined in the previous approach. In the case of Kenya this allows us a new level of explanation which will render most of the causal elements of Approach I to become dependent variables, i.e., the "problem" is not a physical one, only the symptoms are physical. It must be stressed that the development of this level of explanation offered below is specific to Kenya, though the seeking of solutions and explanations at this level is more universal. So, even if no universal model of explanation emerges, the case for a wider basis of explanation for environmental degradation is convincing.

The explanation of what is occurring in the Kenyan environment now derives from an historical process which has passed through several phases to produce the economy and society of Kenya today. It is this political economy which offers us the causes for the environmental malaise.

Kenya has gone through not only the colonial experience involving the sudden intrusion of imperialism and a colonial administration and an attendant set of social, political, and cultural values of a pervasive nature, but also has experienced a particular form of settler colonialism setting a precedent for dividing the country into the camps: the commercial crop, large farm areas and the over-crowded native reserves with their subsistence crops. This peculiar form of political economy associated with a system quite incontestably based on a notion of inequality made the transition to independence with little structural modification except that the large landowning class was, to some extent, indigenised. This gives us the root of the problem as we are now able to redefine it: grossly unequal access to land in a situation of almost no alternative forms of security and in an economy geared to a model of development based on modernization, fueled by foreign exchange, blocked off in the towns and paid for by cash crops grown by a rising capitalist class.

During colonial times Kenya was clearly divided into the "Scheduled Areas" and the "native reserves": in the former, only Europeans were permitted to hold land and gain title on either freehold or 999-year leases. The reserves, into which the bulk of the rural population were confined by legislation, were rapidly overcrowded and the land, perforce, was allocated almost exclusively to subsistence crops. The overcrowded reserves were, in turn, a convenient source of cheap labor to subsidize the cash crop sector in what came to be called the "White Highlands".

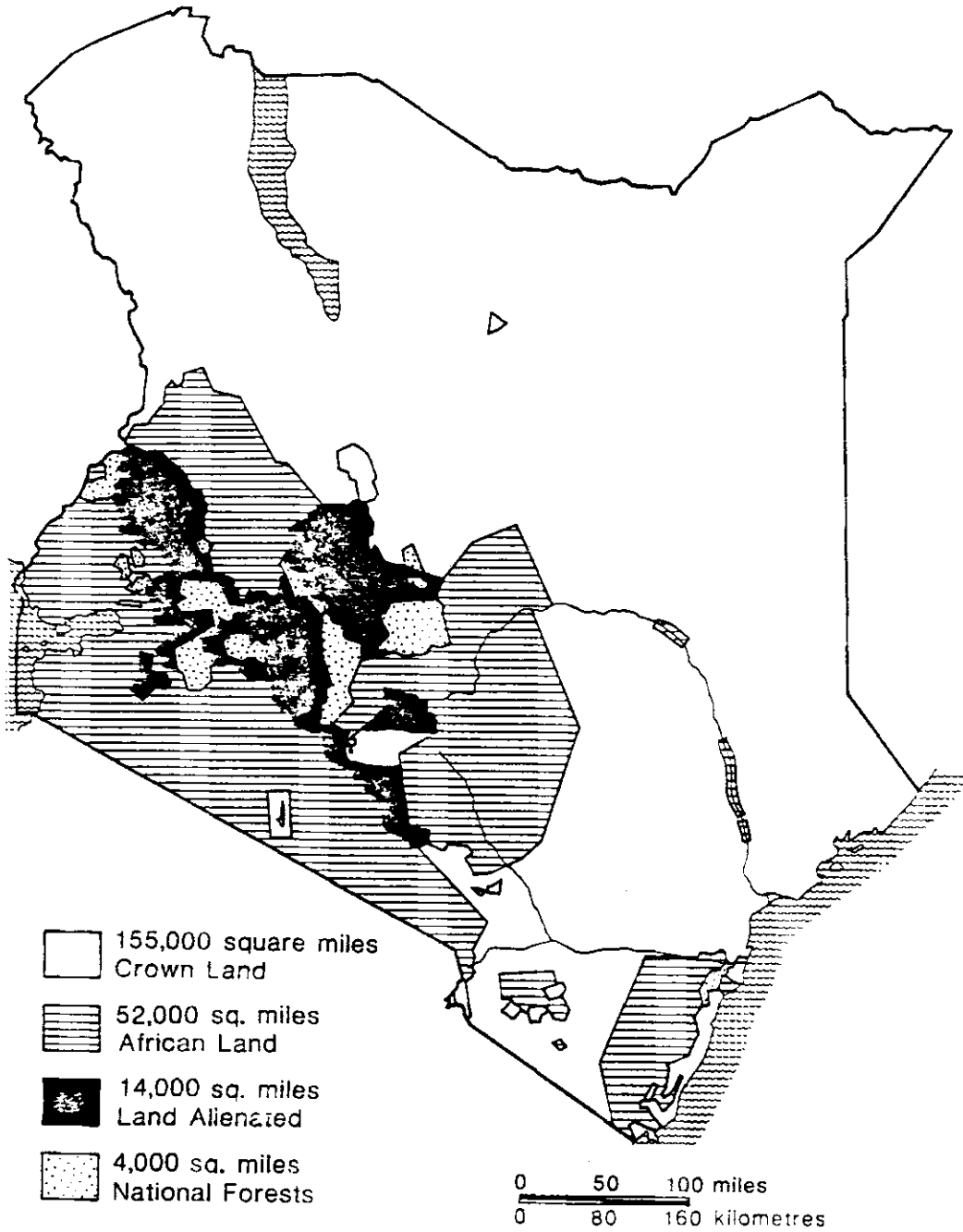


Figure 4

Colonial Land Classification in Kenya

The initial apportionment of land along these lines was itself based on a particular coming together of events which needs to be understood if the contemporary "environmental problem" is to be comprehended.

The colonial government arrived in Kenya in the wake of two devastating events resulting from the European intrusion: the Masai herds were almost wiped out by the virus of Rinderpest entering from German East Africa whilst the Kikuyu were struck down by an epidemic of smallpox. This left a large amount of good land apparently unused. By alienating this land, first to a variety of remittance men and fading aristocrats still wedded to the concept that the only respectable source of income was from land, and later to demobilized soldiers, a pattern of differentiation along class, spatial, and initially, racial lines was clearly drawn. This exclusive zone of white privileges was delimited in 1906 and extended until the Carter Commission boundaries were fixed by law in 1938/39 [van Zwanenberg, 1972, p. 7] creating the dichotomy of two Kenyas which was to prove very pervasive. At its peak the colonial government had allocated land along the following lines: 14,000 square miles for European settlement, 52,000 square miles for African farming, 10,000 square miles for forest and lakes and 149,000 square miles of "Crown Land" which included virtually all the communal grazing of the pastoral nomads (though vast tracts of Masai dry-season range was sold off in the Laikipia area for European ranching).

By allocating 14,000 square miles, virtually all of it in the highest potential category, to 3,500 European farmers and planters and only 52,000 square miles of land to 4 million Africans (1948) the safety value for expansion was screwed down. The options were: labor for the European farms in the White Highlands; seek employment outside the farming sector or try and locate new land within the reserves or squat on European land. Not surprisingly pressure in the reserves grew rapidly and, to the colonial authorities the situation appeared in the following terms: "The humane impulses of the colonial government put an end to those harsh Malthusian factors; tribal wars, disease and famine which, hitherto, had maintained a population balance. In due course, population increase brought about pressure on the land, overcropping and, in consequence, soil erosion" [Clayton, 1964, p. 143 *my italics*]. Thus, soil erosion was seen as a natural phenomenon arising from the good intentions of colonialism which had led to overpopulation. The fact that the people had no good land onto which to expand, in itself directly the result of colonialism also, is conveniently overlooked, even though over one million acres of the land taken up by Europeans remained totally underdeveloped as late as 1942 [van Zwanenberg, 1972, p. 9].

The "causes" of soil erosion were identified by the Agriculture Department [Clayton, 1964, p. 11] as "population growth, the breakdown of shifting cultivation, the inheritance system, primitive farming methods and the absence of rotation of manuring." So it was largely a technical problem arising from a basic human process (uncontrolled breeding) to which was added a cultural dimension necessary to explain what, to European eyes, appeared perverse and irrational behavior:

Farmers are well known for their conservatism. The African agriculturalist is no exception and is very tenacious of the customs and methods practiced by the forefathers...the poor farming methods and soil-depleting practices prevalent among peasant cultivators stem from

ignorance, custom, and lethargy...the main obstacle to be overcome is the native's lack of understanding of the need for the prevention of soil erosion [Clayton, quoting Agriculture Department, Nairobi].

Somehow the African had failed, because of the dead hand of his own tradition and culture acting as independent variables, to respond in other than a purely mechanical way to the benefits of colonialism. The agriculturalists were now seen as agents of salvation able to rescue the African from himself, with a package of technical remedies. The authorities, meaning the colonial government, were, interestingly, seen by the agriculturalists as a reactionary element because, it was stated: "...in relation to the development of (African) agriculture, the administration have, on the whole, been conservative, seeking to maintain the status quo with regard to the social framework" [Clayton, 1964, p. 41]. In retrospect this seems an astonishing stance when one considers the wholesale intervention which had been carried out by the authorities in order to become an "authority" in the first place: "pacification", new rulers, appointment of chiefs, taxes, apportionment of land, missionary activity, etc.... Leys described this stance as follows:

On the other hand there was another sense in which the 'peasant' mode of production would continue indefinitely, so long as the capitalist mode of production remained dominant. They would be required to absorb an increasing proportion of the adult population, and to continue to make available cheap labor and cheap produce. For this reason it seems useful to continue to keep them in view as modes of production still distinct from capitalism [Leys, c. 1976, p. 175].

What the authorities were anxious to maintain was the status quo post bellum: white supremacy, a cheap labor pool, the export crop economy. Africans were discouraged from, and in some areas forbidden, the cultivation of perennial cash crops because of their "lack of knowledge and the threat of disease to the European crop". Annual cash crops, particularly maize, were also discouraged on African farms as they did "nothing to solve the serious problem of depletion of soil fertility which is facing the native reserves. On the contrary (this) aggravates it by increasing the produce surplus to family needs which is sold out of the reserves. Nothing is returned to the soil to make up for this annual drain of plant foods." Before the last war the thrust by the agricultural officers was to introduce mixed farming and soil-conserving practices and the fact that very little response was elicited from the African farmers was attributable to "the native's lack of understanding of the need for the prevention of soil erosion". Indeed, attempts to introduce some "conservation" measures met with widespread civil disobedience, passive resistance and, occasionally, hostility. The Wakamba, for instance, marched on Government House in 1938 as a protest against compulsory destocking "which was being attempted as a means of combating severe soil erosion conditions". In 1946 they threw themselves in front of tractors terracing their land. The reaction of the Agriculture Department was predictable when one bears in mind their conceptualization of the "problem": "...unless some pressure is applied to urge improved methods and practices, and unless such pressure is continuously applied...it will not be possible to save the fertile areas

of Kenya from deterioration...without the application of compulsion under legislation to enforce improved agricultural practices" [Clayton, citing Agriculture Department 1940's]. The education role was yielding to the policing function.

Thus the position was polarizing rapidly and the gulf was indicated by a remark made by the Agriculture Department some years later when the back of the resistance had been broken by force. They wrote: "Things have improved greatly...the agricultural officer is no longer regarded as a person deputed by government to spy out good land". That the people should suspect this after the alienation of over 8.5 million acres was not too surprising. They felt that the trickery of a concept of land ownership had been foisted on them by a government which indulged in several punitive military missions at a disastrous time in their history.

The conflict developed inexorably towards violence and frustration which erupted in the so-called "Mau-Mau" disturbances between 1952 and 1955. The authorities had noted before the uprising that: "Many (agricultural) leaders are reluctant to initiate changes which may lead they know not where and, quite possibly, cause political trouble at the same time. More specifically they shrink from the heavy responsibility of encouraging the growth of a landless class." Yet when trouble came the authorities managed to perceive the event as, somehow, unconnected with anger, frustration and lack of access to resources. Clayton (p. 43) notes that the conservation work had to be suspended during the "civil war" as though the events of the early 1950's had little direct connection with the action of the authorities in creating and perpetuating the gross inequalities over access to land. After all the Agriculture Department was an arm of that same government which had taken the land in the first place.

The superior military power of the colonial authorities, in conjunction with those Africans who openly supported the colonial status quo or what it might yield them eventually, broke the organized resistance of the "Mau-Mau". After that it was easier to impose the technical changes as the political, or wider, battle had been won and the colonial system had prevailed. Not surprisingly the agricultural authorities saw the events of Mau-Mau from their own perspective as "a 'blessing in disguise' for, without it, large-scale financial help from the British government and whole-hearted support from the Administration would have been unlikely". Thus developed the Swynnerton Plan which, through consolidation, mixed farming, cash cropping and farm planning was to produce freeholders and yeoman farmers with established minimum cash incomes and good farming practices. This, however, would take care only of a proportion of the farmers as the planned farms were considerably larger than many of the holdings in existence. However, this emerging propertied group would have a vested interest in stability and continuity. No provision, however, was made for the millions to come, but the land had now been protected against the people: that was the shape of things to come. There was no way the consolidated holdings could absorb even the existing landless.

As the country moved towards independence in 1963 a powerful landowning African community began to emerge clearly as the inheritors of colonial rule. Those without land, but with adequate cash resources, could acquire land from the newly-created freehold market. At independence aid funds were made available to buy out those Whites who

wished to leave and the way in which these funds were disbursed set the pattern for a continuing marginalization of a large proportion of the rural population. In essence the transition to independence was made with the minimum of structural change so that, to a considerable extent, the inequalities of the colonial land holding pattern were transferred into African hands. As Leys has observed: "...the policies pursued in the 1960's ensured that...there would be a structure of agrarian interests and an institutional apparatus strong enough to resist pressures for radical change" [Leys, c. 1975, p. 65]. Although various settlement schemes eventually absorbed around 400,000 Africans on small and medium-sized plots around the periphery of the former European areas, a growing proportion of land was passing into the hands of the "credit-worthy", an emerging powerful class with an interest in perpetuating the colonial divisions. In 1965 the distribution was 28 per cent capital outlay for farm purchase by cooperatives, 33 per cent by partnerships, 24 per cent by companies and 14 per cent by individuals. After this date the emphasis was placed increasingly on the more "credit-worthy" as small-scale settlers and cooperatives defaulted heavily on their loans and shifted from cash to food crops. So by 1978 the large farms in African and European hands now occupied 266 million hectares, and the small farms, with a population of 10.3 million persons (0.25 ha/head) 3.45 million hectares. (About 7% of the holdings occupy 35% of the land.) The average size of the large holdings is 700 hectares and 30 per cent of the small farms are below 1 hectare. The large farms produce approximately 55 per cent of value of Kenya's gross marketed farm output. Although no figure exists for landless people outside alternative employment 99,000 holdings are classified as having no cash income whatsoever. The number of large holdings, especially below 400 hectares, is growing. Over the period 1961-5 to 1976 there has been a steady decline in the index of food production per head: 1961-5 = 100; 1972 = 92; 1973 = 88; 1974 = 86; 1975 = 86; 1977 = 85 [FAO, 1977, p. A-11].

It is now possible to reconstruct the diagram illustrated above as Figure 3, so that we redefine the "problem" in the context of the political economy (Figure 5). The central issues now emerge as: unequal access to land resources; the 'foreign-exchange/import based model of development'; a lack of alternative forms of security other than land, and; no real alternatives to land-degrading activities for a growing number of rural poor. In other words the problem is the model of development which rewards private accumulation and allows a proportion of the population to fall out of the bottom end of the system.

The "environmental crisis" thus can be recognized as a symptom of this deeper malaise and people replace objects as the focus of concern. The export cash crop sector continues as the mainstay of development along with tourism (though it has been suggested by the tourist authorities at a recent conference in Mombasa that Kenya actually loses money in this sector). The earnings from cash crop exports provide the foreign exchange to maintain the urban economy with its high propensity to import: between 1970 and 1978 Kenya's bill for imported fuel rose from 15 million K pounds to 118 million K pounds and the cost of imported foodstuffs rose from 9 million K pounds in 1970 to 21 million K pounds in 1978. At a time when the country's visible balance of trade deficit has grown from 64 million K pounds (1970) to 304 million K pounds (1978) the response of those promoting this model of development is to retrench (grow sugar for fuel alcohol, grow more and different industrial crops), thus resisting pressures to put more land under subsistence crops. At

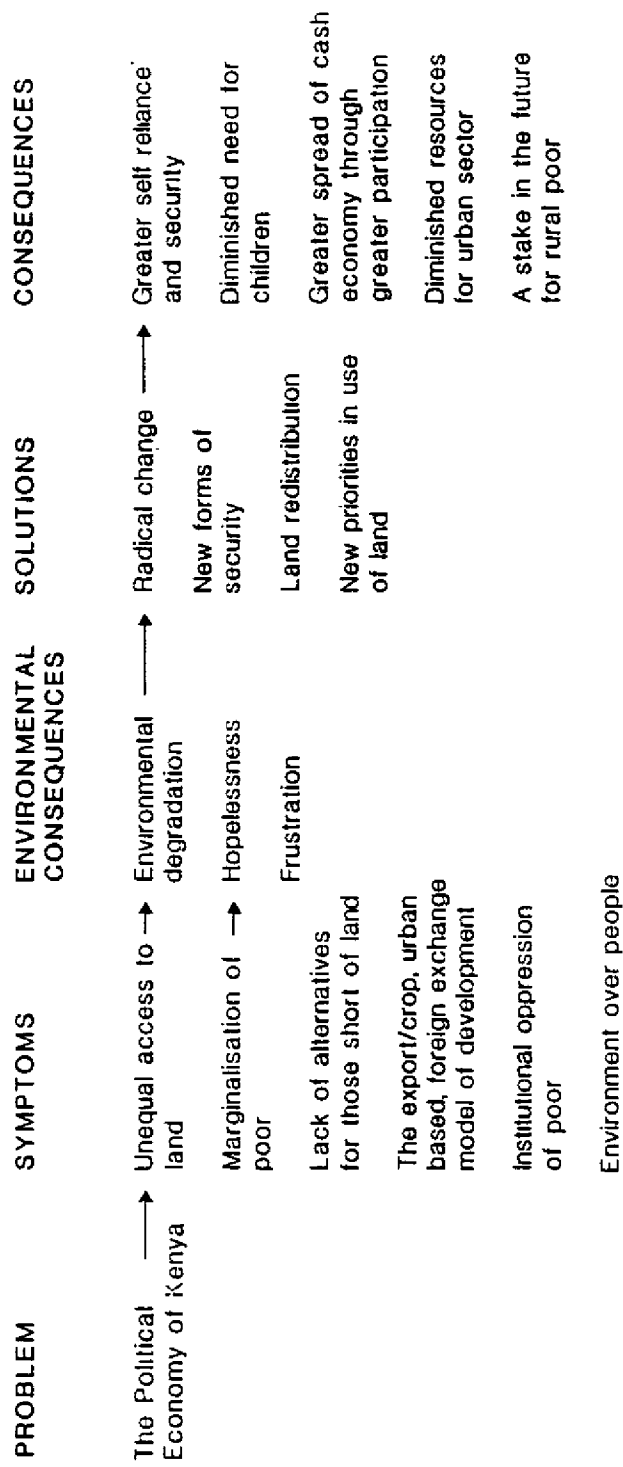


Figure 5
An Alternative Perception

the same time statutory marketing boards for staples keep the price down to the urban population and tax the rural poor even more.

In this context access to land is the only form of security open to the growing community of the rural poor for there are no pensions, no social security and a diminishing ratio of jobs to people. As settlement is now over as a policy (indeed the department has been abolished with the changes of January 1980) and few peasants have the capital or security to purchase land, they have little option other than to move onto hillslopes, into forests and out into the dry zones. What is seen even by those involved in it as collective madness and desperation is still individually rational and unavoidable. Similarly livestock keepers see no other security than accumulation of herds, a practice encouraged by urban investors who now run investment stock in the care of pastoralists. Ranching may solve the problem for a few but that, along with encroachments by cultivators (Baringo) and large-scale wheat farmers (Narok), merely compounds the problem for those who remain.

In these circumstances it is not surprising that many flout the law; they have no realistic alternative. Similarly it is not surprising that most of the laws are never enacted; it is quite unrealistic to use coercion against people who have no viable alternatives open to them. These same people, perforce, look upon children as their only security in old age and the more one has, the better eventual prospect whatever the immediate cost. As women cannot inherit land and are less likely to secure paying jobs, the need is for male offspring so this, too, accentuates the pressures for large families. This process of breeding security may now be observed operating in the context of a desperate gamble whereby parents are realizing capital by selling land, cattle, etc., in order to pay school fees to broaden their options. Since the wealth is blocked off in the cities, education is seen as the key with which to enter this privileged realm. Seen in this context the family planning approach is an irrelevance; worse, it is a threat as has been seen in the resistance shown under similar circumstances in India. Its value can only be to the successful who may secure their future in other ways.

"Tougher and more comprehensive" legislation favored by several ministries becomes an instrument of oppression in these circumstances. Legislation exists, or should exist, to protect the environment from willful abuse by those fully aware of their actions when acceptable alternatives are open to them. Otherwise it adds to the burdens and hopelessness of the rural poor who may not be expected to tolerate it in docility for long.

So as matters stand good land is sold in a last-ditch stand to break out of the rural poverty trap. Those who sell move to the margins and fuel the destruction; those who buy consolidate their hold on the resources for production, or simply realize the wish of many of the "successful" in Kenya for a place in the country or even somewhere to be buried. Thus the two Kenyas drift apart. Clearly no amount of institutional tinkering through commissions, integrated programs, Ministries of the Environment and the like can do anything to change the basic cause of the problem, although a little time may be purchased by demonstrating conservationist ways of actually using hillslopes, riverbanks, and so forth without damage, as is said to be done in China. Only a radical reappraisal of basic policy: the model of development;

offers any hope at all. There must be real alternatives for those degrading the environment.

There are several potential alternatives which merit consideration. One is to permit a considerably larger proportion of the rural population than hitherto to participate directly in the cash crop economy using cooperative production methods and by reallocating land from the larger holdings. There is reluctance on the part of the authorities to accept this as the record of cooperatives has been bad in Kenya. But if the real rewards for labor were forthcoming and if more of the budget could be redirected to production at this level rather than in subsidizing the urban economy and encouraging the accumulation of capital at a higher level, then some alternative form of security for the poorest element may emerge based on cash. Naturally those who have cornered the market will be less than happy with an arrangement which must incorporate some form of land redistribution. However, the option on their property may have a very limited life anyway if action is not taken. The fact that the ostrich is a Kenyan bird should not influence policy making.

During the 1960's and early 1970's those in a position of privilege were able to avoid direct confrontation with those being locked into the lower end of an unequal relationship by offering some land on the settlement schemes, through the development of irrigation schemes and by the various Tripartite Agreements which required employers to increase their labor force by 10% regardless of need. Now things are different for there are no more settlement schemes, employers cannot go on absorbing staff indefinitely, the government is reluctant to tax its allies (40% of those assessed for income tax do not pay) in order to expand the bureaucracy and there is a limit to the amount of irrigable land. Education is, as often as not, a path to frustration. One remaining potential safety value is the Asian holding in the wholesale and retail sectors which is a steady target for sniping with regard to "Africanization".

The incorporation of a greater proportion of agriculturalists into the cash crop economy is not, of course, without difficulties. It might tend to weaken the capacity of the poorer sections of the rural population to withstand seasons of poor harvest, due to the historically well-established tendency for cash crop production to occupy higher quality soils. Then there are the familiar international market disadvantages of reliance on export crops; for example widely fluctuating prices, instability of incomes at the producer level, and tendency for prices in real terms to decline in the long term. This first alternative would only indeed make sense within the continued thrust of the present development model.

A second alternative would be to abandon the export-crop/foreign exchange model of development favoring plantations, perennial crops and luxury products. Thus priority would be given to the basic subsistence security of the mass of the population. This would, of course, bring the cities to their knees immediately and render most non-farm employment redundant as the means to pay salaries would disappear. Only a Chinese "back to the land" approach could deal such a transformation.

Ideally some combination is required which allows for either an industrial crop based smallholding providing a sufficient income to allow farm families to buy food crops from the surpluses of other farmers

concentrating on the production of basic staples, or mixed holdings. Perhaps then an alternative form of security will exist which will eliminate the need for large families. All this would require considerable planning and control but at least it would be working towards a more positive future for all, especially as virtually all Kenyans equate land with security. To some this may appear like the Swynnerton Plan all over again, but it must be remembered that that plan was conceived within a framework of accepted gross inequality and even recognized that many would be left "outside". Any future change would have to be enacted within the context of greater equity, a focus on the really poor and a new sense of opportunity for the hopeless.

As Leys pointed out in the conclusion to his study, Underdevelopment in Kenya, such a reformist approach, like that being propounded by the I.L.O. with regard to unemployment [I.L.O., 1972] may be naive and totally unrealistic. Is it remotely conceivable that a power structure will set about dismantling, through land reform and a greater emphasis on self-reliant models of development, the very system which gives it its power, privilege and status? Like the I.L.O. study, this broad evaluation can draw attention to the seemingly inevitable conflict inherent in the present contradictions but then a profound process of cognitive dissonance somehow always allows those in power to retreat into an alternative explanation of evidence and avoid the unthinkable.

And so we return to where we started, comparing the technocratic and the broader approaches. Clearly, even by its own measures the technocratic approach is failing as the "environmental crisis" deepens and even global conferences fail to make any real impact. By its own measures also the political economy of Kenya serves its masters well as the gulf between rich and poor widens even though the national economic weaknesses of the large-farm/export crop sector are even more glaring than they were in colonial times, for the cost is carried by others. At present the approach of the authorities represents an elaborate mechanism for rearranging the ways of avoiding the real issues under the guise of environmental protection and its attendant allies. But this will have to face far greater pressures as the range of palliative measures diminishes.

Frequently those in the technical fields actually resent or resist more profound explanations of the causation of physical phenomena with derisory accusations of "politics" or simply that they cannot be held responsible for what non-scientists do to abuse their skills and advice. Worst of all is the statement that they are "simply doing a job and doing it well." Indeed the technocratic approach, rather like neo-classical economics, is often seen by its practitioners as being apolitical. In fact, it operates on the premise that the political economy as a variable is held constant. There can be no hope of real improvement until it is clearly recognized that there is a political economy of soil erosion.

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