Forum

Sustainable Development In Kenya's Energy Sector: Opportunities for International Collaboration

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What constitutes environmentally and socially sustainable development?

The importance of this question has been made apparent by global social and environmental problems, including continued widespread poverty and misery, directly related to current patterns of economic growth. The Brundtland Commission has highlighted the urgent need to undertake a search for answers to the question, emphasizing the importance of international collaboration in the process (World Commission on Environment and Development, 1987).

While the need to pursue sustainable development extends to all activities, international collaboration directed towards expanding the array of "sustainable" energy options is especially required. This comment examines some of the opportunities for such collaboration with particular reference to Kenya's energy sector.[1]

1/ For an account of sustainable fossil fuel options in relation to the carbon dioxide problem, see Smil (1989). Some useful general sources on sustainable development in relation to the argument presented here are NacNeill, Cox and Runnalls (1989), Daly (1989) and Gardner and Roseland (1989).

Energy in Kenya

In Kenya more than 70% of total end-use energy now comes from wood and charcoal, burned primarily by the rural and urban poor for cooking and heating. Approximately 25% of end-use energy comes from imported fossil fuels and about 3% is electricity, used mainly by the "modern" industrial and commercial sectors and by a relatively small number of upper-middle and high income households.

The current demand for accessible wood energy in Kenya is outstripping the annual regrowth of wood biomass in many regions of the country. This is due to a rapidly growing population (about 4% per annum), to urbanization, and to a failure to replant wood biomass for energy purposes on a sufficient scale. This imbalance is contributing significantly to the destruction of the tree resource base and is setting the stage for a wood energy "crisis" with very serious social, political and environmental consequences. For most of Kenya's rural and urban poor, wood and charcoal are the only available and affordable energy options. Even in an optimistic economic growth scenario, many years of growth in real, equitably distributed per capita income will be required before electricity is an available and affordable option for the majority of Kenya's population.

Three characteristics of sustainable development: equity, efficiency and participation

Given this situation, what does the global debate about the nature of sustainable development offer in terms of new directions for international collaboration in Kenya's energy sector? The following discussion focuses on three characteristics of sustainable development stressed by the Brundtland report: equity, efficiency and participation.

Equity Means Wood Energy in Kenya

As a criterion for sustainable development equity has many implications,[2] one of which is the fair distribution of the benefits of international aid collaboration among the intended beneficiaries, who, by and large, should be the poor, not the rich.

Canada, along with other nations, has been a donor of aid to Kenya's energy sector for about 10 years (Canadian International Development Agency, 1987). However, the bulk of this assistance has been used in the construction of electrical generating stations and transmission lines. Canada's contribution to this type of aid has amounted to more than $100 million. In contrast, Canada's assistance to Kenya in the wood energy sector has been only 1-2% of this amount.

There is no doubt that international aid has significantly

2/ See the references in footnote 1, especially Gardner and Roseland (1989).

strengthened Kenya's electrical system and few would argue that electricity is unimportant or that no investment in a nation's electrical power system should be considered. But Canada's large contribution to the electrical sector is not significantly meeting the most pressing energy needs of the greatest portion, by far, of Kenya's population.

Future collaboration with Kenya should be reoriented to the need for a sustainable source of wood energy

Thus, considerations of equity lead one to argue that future Canadian collaboration with Kenya in the energy sector should be reoriented to address the urgent needs of the rural and urban poor for a sustainable source of wood energy. Large scale, sustainable management and safe, efficient use of wood biomass will directly benefit most of Kenya's population. Failure to achieve sustainability in wood biomass production is likely to degrade Kenya's environment to such an extent that the nation's ability to undertake any future development will be seriously eroded or even destroyed.

Mechanisms for International Collaboration in Kenya's Wood Energy Sector

Opportunities for collaboration in addressing Kenya's wood energy needs present themselves in three sectors of Kenyan society: government, non-governmental organizations and the private sector.

Government: Kenya's District Energy Strategy

Energy planning authority is being decentralized to the district level

National governments and donors generally have difficulty responding to the challenges of the wood energy sector; it is much easier to construct a large electric power plant than to intervene in the patterns of wood energy production and use by millions of households. Over the past decade, Kenya has worked hard to overcome the inadequacies of a centralized decision-making structure through the adoption of a decentralized development strategy, termed the "District Focus for Rural Development." Using this strategy, considerable and increasing amounts of authority are being decentralized, away from the government in Nairobi to over 40 district administrative locations throughout the country. At the district level, a development planning process involving representatives of the central government, politicians and, to a considerable extent, the public, is being implemented (Government of Kenya, 1985).

While the mechanisms for strong local-level involvement are still evolving, this "District Focus" is a significant step towards community participation in the definition of local development objectives and priorities. The Ministry of Energy has recently made a commitment to District Focus through the posting of District Energy Officers. As well, energy plans are, for the first

time, part of the current Five Year District Development Plans.[3]

The task description of the District Energy Officer emphasizes wood energy supply and end-use efficiency activities, reflecting the importance of wood energy at the district level. Other responsibilities include: improved distribution of kerosene for rural lighting (there are five million rural school children who have no light to do their homework); promotion of renewable energy technologies; and the identification of priority rural electrification projects as components in an overall package of linked infrastructure inputs for rural and urban areas.

The District Energy Officer is to work with the Ministries of Agriculture and Environment on energy-related training packages for their extension officers, on an array of out-reach activities (including the distribution of large amounts of seed of agroforestry tree species and demonstrations of improved agroforestry techniques) and on district energy information gathering.

Thus, the Ministry of Energy's district activities provide a new and promising opportunity for donors to redirect their energy sector assistance away from large energy projects towards the energy needs of Kenya's rural and urban poor — a much more equitable distribution of such assistance.

Non-Governmental Organizations

Significant energy projects have been initiated by non-governmental organizations

Complementing the government's efforts in the wood energy sector are the activities of Kenya's many non-governmental organizations (NGOs). Such organizations are relatively small, flexible and oriented towards the "grass-roots" in their concern to meet the needs of the country's poor. NGOs are able to undertake some (but not all) types of wood energy projects more efficiently than government bureaucracies. Many locally significant energy projects, with potential national significance, have been initiated by NGOs. Examples include agroforestry projects, village woodlots and the dissemination of fuel-efficient charcoal and wood burning stoves.

In the past, Canada has provided some useful, albeit modest, support to such organizations. But the full potential of NGOs to contribute to development is far from realized, due to lack of financial support by the Kenyan government and donor countries. This is partially due to the tension between the Kenyan government and the NGOs with respect to donor funding. The government is concerned that significant external support, badly needed for its own programs, might instead be channelled to NGOs. This tension could be largely resolved through more effective communication between NGOs and the government. In

3/ See Government of Kenya (1989), particularly the District-specific annexes.

fact, due to the requirement that NGO projects be reviewed and approved at the District level, this is already happening. As well, the Ministry of Energy has encouraged the registration of a "Quango," a quasi-NGO, with a mandate to seek donor support and to support directly the wood energy activities of District Energy Officers.

Thus the provision of greater support for the energy activities of non-governmental organizations is a second way in which donors can seriously address the energy needs of Kenya's rural and urban poor. In the future, NGO activities should become more closely linked to the government's district energy strategy through the office of the District Energy officer.

The Private Sector

Kenya's urban demand for charcoal is growing at the same rapid pace as urbanization itself, about 10% annually. Many small private entrepreneurs are currently supplying Kenya's urban areas with charcoal, but they are doing so in an ecologically unsustainable manner. Much of the charcoal is believed to be coming from uncontrolled cutting of trees in Kenya's fragile arid and semi-arid areas. In contrast, some Kenyan farmers cultivate trees as a cash crop for sale as poles and charcoal and they do so in a sustainable manner, on small wood lots, using nitrogen-fixing species such as black wattle, on a 5-year growth cycle (Kinyanjui, 1987).

This provides another opportunity for donors to address the wood energy needs of the urban poor. Aid could be in the form of a rotating fund for low interest loans, administered through Kenyan banks, to encourage controlled and sustainable wood energy production by farmers and other organizations, including cooperatives. A shift away from Kenya's current (largely ignored) price controls on charcoal would be required to provide the necessary financial incentives for such entrepreneurs. Price increases for wood energy would recognize the resource value of trees for Kenya, while a parallel effort to disseminate fuel-efficient charcoal stoves would reduce the impact of these price increases on the poor.

In summary, donor support of the wood energy efforts of Kenya's District Energy Strategy, NGOs and the private sector, at a level comparable to past investments in the electric power sector, appears likely to be more successful in meeting the pressing energy needs of Kenya. It would do so in a more equitable and participatory manner than bilateral support for electric power projects.

Energy planners have traditionally focused on increasing the supply of energy. During the last 10 years, the social, environmental and economic benefits available from using energy more efficiently have become clear and, in some countries (though not in Canada), have been seriously pursued.

Enormous scope for increased energy efficiency in industrial economies and the Third World

The enormous scope for increased energy efficiency, both in supposedly efficient industrial economies and in the Third World, is largely unrecognized. The Second Law of Thermodynamics leads us to see that, overall, current energy systems are less than 10% efficient (Study Group, 1975). There is an enormous, as yet untapped, opportunity for creative efficiency and the elimination of a host of intractable social and environmental problems.

It has been argued (Lovins, 1989) that,
(1) if the industrialized nations allowed market forces to determine the full adoption of existing, money saving energy efficiency measures, and
(2) if the investment in infrastructure in the developing nations of the world maximized energy efficiency,
then a world economy of 8 billion persons, with a level of global economic activity nearly 5 times that of 1975 (a 10-fold increase on the part of developing nations), would use about one-third of 1988 global energy consumption. In such a scenario, the CO_2 level of the atmosphere in 2030 would be barely above today's and rising only very slowly, thereby controlling this component of future global warming. In short, while there are other reasons why this type of global economic development may be impossible or undesirable, the efficient use of energy potentially removes many of the adverse constraints on global economic development associated with energy use!

Kenya is at a relatively early stage in the development of its industrial, transportation and commercial sectors. In the years ahead, with the help of international funds, large investments will be made in this infrastructure. In the light of the above, it is essential that this infrastructure be energy efficient.

Canada has recently provided seed funds to the Kenya Association of Manufacturers to assist it in orienting its member industries towards the establishment of energy efficiency targets. While this constitutes a useful beginning, far more resources are required to move Kenya's economy towards energy efficiency. Measures such as a rotating fund providing low interest foreign exchange loans to industry and assistance to the government for removal of duties and taxes on imported energy conservation technology would help local companies become more energy efficient. Energy conservation training programs for local technical college instructors and for Kenyan consulting companies

would also assist in this process. As demonstrated in Canada (and, more so, in energy efficient economies such as Japan, West Germany and Sweden), energy efficiency opportunities exist across all sectors of the economy, not only in the industrial sector.

Efforts to improve energy efficiency thus present new and worthwhile opportunities for collaboration between Canada and Kenya: to contribute to sustainable development, provide major savings in the cost of imported fuels, defer investment in new energy production facilities and increase Kenyan competitiveness in the international market. Funds on a scale previously associated with the construction of power plants to produce energy are now required for the task of saving energy.

Participation for Sustainable Development

The importance of participation by the intended beneficiaries of development projects in their planning and implementation has been noted. There is another level of participation to be considered: participation in knowledge development as the prerequisite for collaboration on bilateral development projects.

In working together to solve the challenges of sustainable development, new patterns of collaboration between nations need to be established to overcome suspicion and prejudice and to develop a balance in the exchange of knowledge and ideas. Traditional bilateral aid is often a process in which projects are conceived in the donor countries — often with commercial interests of one kind or another in mind — and, through a process of salesmanship, are planted in the receiving countries with support from willing local people. Such projects, especially in the energy sector, are generally large, are delivered via the central government, involve little participation by local constituencies and too often lead to an array of environmental problems and continuing inequities.

Indeed, when it comes to undertaking international assistance that responds to the needs of the poor, we in the industrialized nations usually simply don't know how. We know how to build power dams, but we don't know how to assist the hundreds of millions of individuals presently experiencing shortages of wood energy. Moreover, even local bureaucrats who have been trained in industrialized countries are often unable to help. We are all learning what sustainable development is about.

Bilateral knowledge development must precede the setting of energy policy and aid projects

As an example, agroforestry — involving the interplanting of shrubs and trees with food crops, the shrubs and trees being carefully selected to complement, not compete, with these crops — is widely viewed as an important farming method that addresses food production, wood energy and environmental needs all in one package. Research findings are promising and agroforestry field trials are underway in many countries through-

out the world. But the most promising examples are generally small efforts, often operated by NGOs. These efforts, rarely well-documented, appear often to be specific to given cultures or even to personalities. No one knows the extent to which local success can be expanded to a national program or transferred to other countries. There is an enormous amount of **knowledge development** required before policy statements regarding the importance of agroforestry in the wood energy sector can be translated into effective, national scale activities in the field.

In the bilateral assistance process, much more effort must be given to a pre-project process of learning about the nature of the problem to which the cooperation and assistance is addressed. This learning process should include a careful investigation of the strengths and weaknesses of previous or existing projects of a similar nature. An equity impact assessment should be undertaken, along with an environmental assessment, prior to project definition. The key point regarding participation is that this learning process should be undertaken jointly, by both partners. Fully bilateral participation in this knowledge development process, undertaken prior to project definition, will greatly increase the effectiveness and sustainability of the international development process.

Such an approach requires more resources to be allocated to patient, in-depth prerequisite studies. This calls for greater involvement in the **field** by all concerned parties and careful listening to the quiet, but obviously knowledgeable, statements by rural and urban dwellers about their needs and priorities. It requires new mechanisms for linking donor resources and knowledge with the critical appraisal and the involvement of people from local organizations. It is necessary to foster the capacity to "hear" and then address the needs and priorities of the aid-receiving communities.

Kenyan district development focus provides a promising mechanism for the delivery of energy project aid at the "grass-roots" level

In Kenya, the district development focus, which extends to the local level and encompasses the activities of NGOs, provides a promising mechanism for identifying needs and delivering resources to the "grass roots." In the Canadian context, this concern for participatory knowledge development in advance of projects suggests that substantially greater resources should be directed to such organizations as the International Development Research Centre, with its concern for research support in the Third World. It also suggests that special programs of the Canadian International Development Agency (either new programs or programs such as those of the Institutional Cooperation for Development Section) might be directed towards such pre-project studies in explicitly identified high-priority areas of bilateral assistance. As well, project funds might be directed more towards organizations, both in Canada and the receiving countries, with a demonstrated capability to interact at the "grass-roots" level —

sensitively, slowly and patiently. Non-governmental organizations and specialized consulting agencies exhibiting these characteristics are worthy of consideration for such support.

Very promising new opportunities exist for international collaboration in support of sustainable development in the energy sector. We must work to ensure that, in the words of Walt Kelly's Pogo, they are not "insurmountable opportunities."

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