INTEGRATING RENEWABLE ENERGY AND SUSTAINABLE DEVELOPMENT [a]

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Renewable energy is not a goal; it is only an instrument to achieve the goal of sustainable development (Sudevelopment[c]). Like all instruments, it must be appropriately designed and effectively wielded. Thus, renewable energy cannot ***ipso facto*** ensure Sudevelopment. Renewable Energy must find a place in national energy policies in such a way that it is compatible with the goal of Sudevelopment. This paper is devoted to locating the sub-set of Renewable Energy in the set of national energy policies.

The goal of Sudevelopment implies the criteria of

- economic efficiency,
- equity/access (particularly for the poor, women and rural areas),
- empowerment/self-reliance,
- environmental soundness and
- peace.

The achievement of Sudevelopment must take into account important (global and national) trends and constraints. The main trends are

- globalization,
- marketization,
- democratization,
- corporatization (of utilities) and
- changes in external funding (both with respect to the magnitude and sources of this funding).

The crucial constraints are

- the declining availability of capital (internally from governments and externally from Official Development Assistance) and
- the cut-backs in government spending.

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[c] In Sanskrit, the ancient Indian language, the prefix "SU" stands for "Good"; hence, “Sudevelopment” means "Good Development".

The trends and constraints lead to a set of considerations that sustainable energy strategies must take into account:

- ensuring access to modern energy services for all (implying an obligation to serve);
- indigenous capacity building;
- a focus on energy services (rather than mere energy consumption) particularly for the satisfaction of basic needs;
- utilizing a rationally derived mix of "cleaner" centralized sources (not only the conventional sources but also the next generation of fossil-fuel-using technologies), centralized and decentralized renewable sources, and efficiency improvements.
- the establishment and maintenance of a level playing field (elimination of permanent subsidies and reflection of external (social and environmental) costs in pricing);
- the promotion and safeguarding of competition within the mix;
- a role for the private sector;
- a role for stake-holders outside the private sector (environmentalists, current and potential consumers, etc.); and
- utilization of measures (including technological advances and innovative financing) that are low-cost or no-cost to the treasury.

The emphasis on a rationally derived mix of conventional sources, renewable sources (centralized and decentralized) and efficiency improvements means that Renewable Energy Technologies (RETs) must win for themselves a rightful place in the mix. The necessary condition for this objective to be achieved is the establishment and maintenance of a level playing field and the promotion and safeguarding of competition within the mix. This requires -- as pointed out -- the elimination of permanent subsidies and reflection of external (social and environmental) costs in pricing).

In addition, it must be recognized that, unlike conventional centralized energy sources, most renewable energy technologies have not yet matured. And, since their costs are declining because of technological advances and organizational learning, they must not be compared on the basis of their current costs. Their place in the mix must be determined on the basis of their future costs after technological advances and organizational learning.

It also follows that special renewable energy policies must be put into place and implemented

- to ensure that the future costs of renewable energy technologies are taken into account when they are compared with conventional energy technologies, and
- to promote technological advances and organizational learning. If subsidies are used as a policy instrument, they must be time-bound (and not a permanent crutch) and

they must be justified on the basis that they are promoting technological advances and organizational learning.

However well-crafted the generic energy strategies, they will not succeed unless the barriers that they face are identified and specific policies designed to overcome them. There is a market sub-set of barriers to new, sustainable energy options:

- subsidies (open and hidden) to conventional energy particularly to fossil fuels;
- market prices that do not reflect environmental costs and damage (air pollution affecting human health, land degradation, acidification of soils and waters, and climate change) and mask the striking environmental advantages of the new and cleaner energy options;
- limited access to information;
- first cost sensitivity (where decisions are based on initial, rather than life-cycle, costs);
- split incentives or the common "landlord-tenant" problem (whereby the landlord has no incentive to invest in energy efficiency because it is the tenant who pays the fuel bills);
- indifference to energy costs (because they are often a small fraction of total costs) leading to limited attention to alternative energy options.

Another sub-set of barriers consists of non-market barriers including

- the supply-biased paradigm;
- vested interests (in the private and public sector, which benefit from business-as-usual approaches and practices and, therefore, resist change);
- and institutional obstacles (include the monopoly position of utilities and the lack of appropriate fora and rules for interaction between relevant organizations).

Within an appropriate framework, energy companies, investors, consumers, and civil society can all take on contributing and mutually reinforcing roles to meet the goals of sustainable development through a public sector led reorientation to make energy an instrument of sustainable development.

Thus, the integration of sustainable development into national energy policies involves a conceptual scheme presented in Figure 1.

The future may be difficult, but the present cannot be sustained.

Figure 1: Scheme for integrating renewable energy and sustainable development