

FROM FAILURE TO VISION -- ENERGY FOR THE NEW MILLENIUM¹

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This contribution stems from the belief that there is no better time than a celebration to reflect on failures and affirm new visions.

After more than a decade of *Energy for a Sustainable World*, the growth-oriented supply-sided consumption-directed paradigm still dominates the thinking of decision-makers, particularly in the developing countries. In the matter of energy almost every statement of these decision-makers begins with the observation: "In the US, the per capita consumption is so much; in our country, it is only so much; therefore we must increase energy consumption." So, the new development-focussed end-use-oriented service-directed paradigm may be stale stuff to sophisticated energy analysts in the industrialized countries, but it is still *avant garde* thinking in decision-making circles in developing countries.

Good management requires scrutiny of the so-called "A" class items that account for the bulk of the problem. On this basis, the crux of the global energy-induced environmental problem is the United States. But, the energy pattern there is not at all encouraging³. Consumption levels have come back to the pre-1973 oil-crisis levels. The major reductions in consumption per device/appliance/vehicle or per unit of floor space have all been overtaken by increases in the number and/or usage. Against the pledge to reduce carbon emissions by 7% by 2010, it has been predicted that there will be a 30% increase. These are major failures. It is time to say to the USA: "Physician, heal thyself!"

Alas, energy analysis is dominated overwhelmingly by men. This gender disparity is serious. Experience is mounting to confirm that the decisions of women (for example, in micro-lending programs such as those of the Grameen Bank in Bangladesh) take into account the long-term and the next generation, a natural consequence of their linkage with children. The discount rate used by women seems to be significantly lower than that of men. It is precisely such a concern for the future that leads to sustainability. Hence, women are naturally endowed to be better custodians and implementers of sustainable development.

Another shortcoming is that energy analysis is still by and large Northern dominated. Do a head count on any recent edited book and it will be seen that the Southern contribution is negligible. One must also note the negative and counter-productive role played by the major diversion of extremely scarce Southern talent into greenhouse gas mitigation analysis for developing

1 On the occasion of the award of the Volvo Environment Prize 2000, Gothenberg, 17 October 2000.

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³ A lucid description of energy consumption trends in the USA has been given in the article "U.S. Splurging on Energy After Falling Off Its Diet", *New York Times*, October 22, 1998.

countries even though the problem has arisen primarily from Northern energy consumption patterns.

Obviously, capacity building in developing countries is given low priority even by organizations (such as the UN) that are supposed to be committed to this challenge. Capacity building is a slower time-consuming process and program executives in a hurry (with high discount rates) do not emphasize the task.

Despite some deliberate attempts by the Gang-of-Four, similar collaborations do not seem to have arisen. Hopefully, their institution, the International Energy Initiative, particularly under its new leadership will make a dent on the problem.

Energy analysis tends to focus exclusively either on hardware or on the "software" (economics, financing, institutions, management, policies, training, etc.) required to use the hardware effectively. In fact, there seems -- with some notable exceptions -- to be two different types of analysts -- the hardware types and the "software" types. There is inadequate integration of hardware and software, and very little work on systems.

Current discussions of energy systems are dominated by the goal of greenhouse gas abatement and prevention/minimization of climate change. This is a reflection of the preoccupation of the industrialized countries. Accordingly, there is an overwhelming emphasis on energy technologies, particularly renewable energy technologies (RETs) and end-use efficiency improvements (EIs). Maximization of RETs and/or EIs has become the objective function. RETs and EIs have become ends in themselves. The proponents have become RETs and EI energy fundamentalists. They even demand that the playing field has to be distorted in favor of these technologies. Environmental soundness has become the dominant concern to the exclusion of equity and empowerment.

Rural energy is equated with rural electrification, and in the process, the most important energy need of cooking is bypassed. After initial bursts of enthusiasm in the late 1970s for improved cookstoves, the cooking problem has been largely forgotten. Fortunately, there seems to be a resurgence of interest under the rubric of indoor pollution and health impacts of smoke. At the same time, the energy needs of the poor and of women have been overlooked.

There is far less work on biomass than on photovoltaics. This disparity is perhaps because industrialized countries can find a greater role in selling PV modules and systems than in growing and harnessing biomass⁴.

Grass-roots practitioners and implementers tend to focus on short-term and immediate requirements. In contrast, analysts are attracted to technological opportunities that will only fructify over the long-term. This difference in perception also coincides with the short-term neglect of technology and the long-term neglect of human beings. A balanced emphasis on the short-, medium- and long-term (along with forward compatibility) is lacking.

⁴ Hopefully, the Shell Foundation is attempting to correct this weakness.

Except for some questioning during the very recent past, *globalization* has been assumed to be a relentless, inexorable and inevitable trend everywhere. Now, there is talk of the importance of imposing limits on globalization. This new stress is likely to be strengthened by a resurgence of the spirit of self-reliance based on the belief that the destiny of nations must be decided endogenously and not by external foreign forces.

Similarly, the trend towards *marketization* is likely to be curbed by concerns of equity, empowerment and the long-term, none of which are ensured by the market. The fundamental problem is that the issues of equity, empowerment, infrastructure and the long-term require a discount rate that is too low to be acceptable to the market.

The trend of *democratization* is sure to continue but the content of democratization may be enriched with a greater emphasis on decentralization, peoples and community participation. Empowerment may be the thrust.

The trend of *corporatizing* inefficient public sector units may need to be tempered with imposed obligations to serve the underprivileged.

Challenges for the 21st Century

The fundamental challenge is to present a vision for energy, a vision that consists of not only a paradigm but also programs and projects involving realistic and small measures. The measures must include short-gestation quick-yielding projects that deliver outputs within the time-horizon of five years or the next election. Assured of this political return, most politicians and decision-makers will be prepared to support long-term visions.

Another important challenge is to reduce, if not eliminate, the important couplings between energy consumption on the one hand and economic growth (GDP), materials use and emissions on the other.

Hopefully, the decoupling/dematerialization/decarbonization will lead to convergence in energy consumption, materials use and emissions between the industrialized and developing countries. Convergence is a must because the present disparities are unsustainable and a root cause of international conflicts.

Most energy analysts have assumed/argued that energy problems can be solved without insisting on changes in life-styles in the industrialized countries. Increasingly, this position is becoming untenable. If they have been blind to truth in their yearning for acceptability, the time for honesty has come. As Mahatma Gandhi said: "The world has enough for everyone's need, but not for every man's greed!".

Another crucial challenge is universal access to affordable modern energy services, particularly in developing countries and especially for the poor, women and the elderly.

The immense possibilities of information technology have to be harnessed to enhance the capability of energy becoming an instrument of sustainable development.

The optimum scale of energy systems varies with energy source and service and with energy supply and end-use. If "optimum is beautiful", there should be a mix of centralized and decentralized systems.

There has been historical discrimination (in the matter of interest rates, financing, R&D investments, government backing, etc.) against renewable sources, decentralized systems and energy saving options. Thus, the slogan of a level playing field for non-renewable and renewable sources, for centralized and decentralized systems and for energy generation and energy saving options, must reckon with this discrimination. As in the socio-economic arena, "affirmative action" may be required to enable the yet-to-mature systems to compete. But, care must be taken to ensure that "affirmative action" is an enabling transition rather than a permanent crutch.

The scope for people's participation will increase with decentralized systems particularly in rural areas. Decentralization of electrical power will facilitate decentralization of political power.

Rural energy systems must be modernized with a significant enhancement of energy services leading to dramatic improvement of the quality of life and the indicators of human development. In fact, rural energy systems must cease to be energy sinks and become sources of energy supply. Then, the balance of (energy) payments may reverse.

Southern and women energy analysts must increase in number and stature so that energy analysis will cease to be an exercise concentrated in the North and dominated by men.

If the 20th Century was the century of economic growth, the challenge is to make the 21st Century, the century of sustainable development -- efficient, equitable, self-reliant and environmentally sound economic growth. Then, energy will acquire a human face.

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| | FUNDAMENTALISM | RESULTING EXCLUSION OF | REMEDY | VISION: ENERGY FOR |
|---|--|-----------------------------------|--|--|
| 1 | Projects/programmes | Paradigm shifting | Balanced emphasis on projects/programmes and paradigms INTAAACT | Economic Growth |
| 2 | Top-down via UN and/or Governments | Bottom-up and Civil Society/ NGOs | Funding both via UN/Governments and NGOs | Empowerment and Capacity Building |
| 3 | Liberalization, Privatization and Globalization (LPG) | Poverty Alleviation | 100 W/capita for direct improvement of lighting, cooking and clean water | Poverty Alleviation |
| 4 | Private Sector \approx MNCs and large private sector | Micro-enterprises | Micro-financing | Entrepreneur Development |
| 5 | Male | Women | Women's involvement in energy sector | Women's rights (as a part of Human Rights) |
| 6 | Country-based | Regional Cooperation | Regional Development | Peace |
| 7 | Renewables and/or EIs or Conventional mega-projects | Mix | IRP | Least-cost Economic Growth |
| 8 | Climate Change | Local Environmental Issues | Local \Rightarrow National \Rightarrow Regional \Rightarrow Global | Environmental Protection at all levels |