A magazine for sustainable human development

DEVELOPMENT ALTERNATIVES

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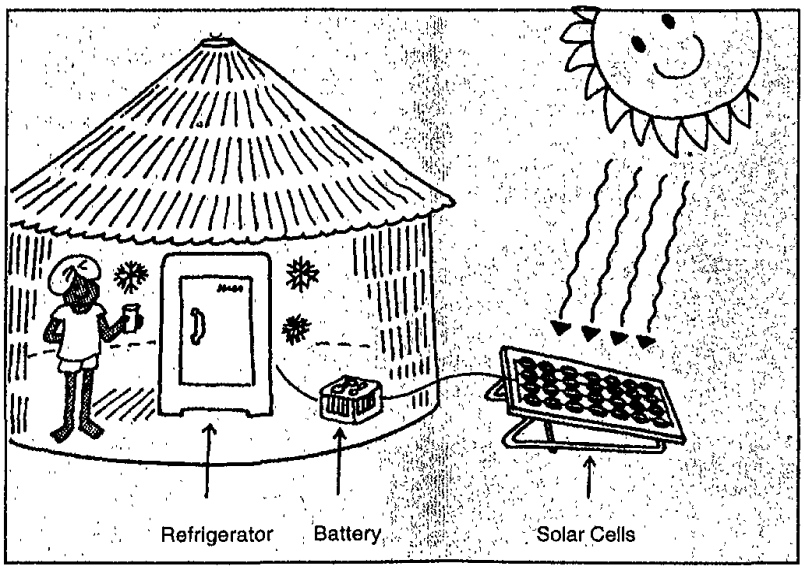
Energy Alternatives: Towards a Sustainable Future

The world is, in many ways, a better place to live in than it was before the industrial revolution started two hundred years ago. Indeed, in some ways, it is better than ever. Many diseases have been conquered, and more people now have healthier and longer lives than at any other time in history. The alchemy of modern chemistry transforms the ordinary earth into wonderful materials from which we can make appliances that both simplify and enrich our lives.

New forms of transportation and communication have opened opportunities for work and leisure that no one could have dreamt of earlier. We now have more control more and know more than any generation did before us.

Human ingenuity is, of course, the engine of this change, but the fuel is largely energy — cheap and plentiful energy.

Yet, few societies today have escaped the widespread scourges of growing pollution, waste accumulation, climate change, and a wide range of social ills that generally result from unsustainable production and consumption patterns. Rampant unemployment and accelerating inflation; growing supplies and depleting resources; stagnant demand and unmet needs; gross affluence and extreme poverty — these are the paradoxes and hallmarks of many economies today, no less in the North than in the South.



Tapping Electricity from the Sun

Human security is the first casualty of these paradoxes. Very few people, rich or poor, can feel secure under the tension of these social forces.

And energy — the same energy that has brought us so much — is the first cause behind these forces. At some places, the problems stem from too much use of energy, at others they are the result of too little access to it. But in either case, the fault lies largely in the odd reversal of roles that has taken place over the past century between people and machines.

The modern economy would appear to be headed for a world where cheap machines produce ever cheaper products for other cheap machines to use. As a consequence, human beings have less and less to do. It is common to see more and more automation in the face of more and more unemployed people — followed by more and more products chasing less and less purchasing power. At every step, more energy is consumed, and more entropy is created. Today's labour saving technologies and mechanistic economic structures can only lead to growing supply and stagnant demand — until, of course, we reach the catastrophic environmental transition when supplies collapse altogether and both human population and their demands have collapse with them.

The technology choices on which our current systems of production are based and the paradigms of economic development that determine the allocation of what is produced simply do not work. They place people over nature

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Sustainable Energy Special

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Editorial

Sustainable Energy for Sustainable Livelihoods

Ashok Khosla

Energy is a key to village development. So are water, soils and forests. And, of course, technology, finance, infrastructure and marketing systems. But clearly energy is in some senses a meta key: the key to the key cabinet. To fulfill any basic need - food, water, shelter, clothing ... - and to create sustainable livelihoods, the prime resources required are energy and water. A good way to get both is through electricity. In this, the village is no different from the city.

Neither today's economic policies, nor our current technological choices are geared to promoting sustainable energy systems. This certainly applies to the industrialised North; but it is even more tragically true in the South.

"Global competitiveness", "comparative advantage", "economies of scale", "environmental externalities" and other such shibboleths — the ultimate being the "free market" — based on simplistic (and entirely unrealistic) assumptions are concepts of neo-classical economics that do not easily translate into the language of sustainability. In fact, they do not translate at all, since economists have been unable to recognise the issue of sustainability in the first place — presumably because it would complicate the mathematics of their elegant models.

The theories of global trade and comparative advantage have no meaning unless the full environmental and resource costs of energy and transportation are included in factor and product prices. Till today, such costs have been ignored, as have the social and human benefits of widespread employment. To complicate these calculations, barriers to trade in various guises today (under such pretexts as human rights, child labour, low wages, lack of environmental standards) distort international transactions even further. As far as the economies of the Third World are concerned, we seem to be running headlong up a blind alley.

Technology choices, particularly over the past century, lead us ever closer to the dead end. The patterns of economic development in the South, copied verbatim from those of the North, depend entirely on the growing use of non-renewable fossil fuels. As these resources become increasingly scarce and therefore increasingly expensive, a country like India will clearly have a rapidly declining ability to meet the basic needs — let alone the rising aspirations — of its people.

It would appear obvious that we have now to switch to other, more accessible, more benign and more sustainable forms of energy: energy that, if used wisely and carefully, does not get exhausted: renewable energy. At the heart of renewable energy lies solar energy. Other, perhaps, than geo-thermal energy, all renewable energy resources — biomass, wind, hydro, wave — has its origins in the sun. And today, it is only with this broader view of solar energy that we can hope for a viable and sustainable future for both people and their environment. The energy programme of Development Alternatives is dedicated to putting such a vision into practice.

Since the new economic policies have opened up the large scale power production sector to private investments to independent power producers, IPPs, there is no reason why similar initiatives should not be encouraged in rural areas: Independent Rural Power Producers (IRPPs).

Such IRPPs would enter into joint ventures with Gram Panchayats, entrepreneurs and other agencies to deliver and operate small power plants for rural communities using state-of-the-art integrated energy generation technologies. Such power stations would be small, use renewable fuels and energy sources, and operate uder the control of the community. Being located right in the village, they would also minimise the costs of transmission and distribution.

DESI Power, more formally known as Decentralised Energy Systems India, has recently been set up to supply reliable and high quality electricity as well as heating and cooling energy for local use in homes and to community, industrial and agricultural facilities using such renewable energy resources as biomass, wind, water flow and the sun.

DESI Power delivers electricity at highly competitive rates. But it can only be commercially viable provided it has access to finances available at rates similar to those offered to the large IPPs. Financing through public financial institutions is needed urgently to be made available to enable DESI Power and other IRPPs to accelerate their programmes to deliver power to the people. ❑