

application of one or the other of these technologies or of a combination of them. However, the aggregated environmental effects of multiple micro-energy projects, operating through environmental linkages can be large. Careful analysis is required to avoid creating new problems while ostensibly solving others.

In addition to the undoubted importance of the rural sector, centralised systems will continue to expand at increasing rates and supplies from major prime energy sources will be needed. Wherever bulk oil supplies might be augmented by local hydrocarbon production or by production of oil from shales or oil sands, the technical and economic feasibility should be studied as a high priority option.

The geothermal and hydraulic energy potential of each developing country should similarly be investigated through surveys and, if warranted, follow-up studies should be undertaken to reveal their competitive position as candidates to displace oil imports. Studies of this nature should range far beyond the normal socio-economic comparison of projects and reach into the heart of the developmental strategy of the country concerned. Indeed they may in some cases demand a regional approach involving neighbouring countries.

From the foregoing it is evident that the new and renewable energy techniques for the developing countries may be categorised in three distinct groups:

- 1) Those with potential for near term and significant impact on hydrocarbon demand. In this category, only the following techniques appear viable:
 - a) Hydro electric schemes; and
 - b) Improved energy efficiency.
- 2) Those with potential for significant impact on hydrocarbon demand in the medium term would appear to be:
 - a) Geothermal energy (in limited situations);
 - b) Oil sands and shale development (where available and economic);
 - c) Biomass energy (plantations, combustion and large scale conversion systems);
 - d) Solar energy for direct heat in concentrated commercial and industrial applications; and