

MAIN CONCLUSIONS AND RECOMMENDATIONS

The papers presented in the seminar and the ensuing discussions thereafter, in the plenary session as well as in the groups, identified the main issues pertaining to planning and management on the rural energy scene. Technological options and their strengths and weakness, as well as constraining factors in their wider application, were identified. The current roles of various organizations involved in the rural energy sector were discussed and modifications that were necessary to make them more responsive to the needs of the situation identified. The conclusions that were arrived at during the seminar are reported below.

There was a general consensus that the Government will continue to exercise a dominating influence in directing rural energy development along a sustainable path. Therefore, it was essential that the expected objectives of the rural energy development programmes be stated more explicitly. To do so, an energy development strategy as such should be the starting ground. Hence, the primary requirement was to formulate an energy development strategy that could be supported by policy measures that operationalized the strategy.

The institutional/organizational dimension of the Government's involvement in the sector was also brought to the attention of the seminar. It was the government and semi-government institutions that were in the forefront in the management of the rural energy sector. They were further being coordinated by a central coordinating body. But the extent of coordination, especially inter-institutional interaction with respect to each other's programmes, left much ground to be covered. This could have arisen as a result of the inflexibility of bureaucracy. Whatever the reason, there was clearly an institutional vacuum as far as the planning and programming of alternative energy technologies and their implementation were concerned. Therefore, it was recommended that a government department to deal with alternative energy technologies, capable of taking the programme to the grass roots' level, be created or an existing organization strengthened in this capacity. What form this department should take and what institutional affiliation it should have were details that could be worked out once it was agreed that such a department was necessary.

While the Government took a prime lead in the planning and programming of the rural energy sector, private sector manufacturers, NGOs, and actual users were others who played equally important roles. Yet they have had little say in policy planning. This anomaly could be reduced to a great extent if the Government made a deliberate effort to solicit their participation in policy planning as well. The Seminar, therefore, recommended that the Government take a lead in this respect and create a national body; consisting of representatives of the private sector, NGOs, R & D institutions, academic, and government institutions; and consult the body periodically for policy planning and implementation.

Human resource development was one of the major concerns voiced in the seminar. The existing low level of skills at every stage was seen as an impediment to an accelerated dissemination of alternative energy technology. Therefore the seminar recommended that a major effort be made to upgrade the skill of relevant personnel at different levels of technology production and use. In particular, those related to the training of operation and maintenance personnel such as operators, local seminar operators, and manufacturers, in the case of micro-hydro, and construction and extension workers in the case of biogas and improved cooking stoves. Additionally, training was also recommended for manufacturers, installers, and entrepreneurs in the case of micro-hydro technology.

Government support for promotion of alternative technology was another issue that was discussed intensively. It was pointed out that both the micro-hydro and the biogas programme had progressed in response to the government decision to provide subsidy. At the same time it was also observed that the Government could not go on providing subsidies indefinitely. In this context, the need for a higher R and D and demonstration expenditure to increase efficiency as well as to reduce the cost of using the technology was underscored. It was pointed out that private manufacturers, financial institutions, and the Government could join hands to provide for R and D as well as demonstration expenses. Therefore, it was suggested that in view of the attractiveness of alternative energy technologies, the support to these programmes in the form of subsidies should continue but with the provision that the subsidies would be withdrawn in a phased manner. This called for a long-term commitment to technology promotion and was to be backed by necessary financial allocations.

Regarding specific technologies, micro-hydro technology rapidly gained in popularity during the eighties. One of the major reasons identified was the government support to the programme in the form of capital cost subsidy. However, of late, there had been a slow down in the programme. Therefore, one of the recommendations of the seminar was to look for ways to expand the use of this technology beyond its traditional area concentration; in and around Bagmati Zone in the Central Development Region and in and around Lumbini Zone in the Western Development Region. To do so, it was necessary to encourage private sector manufacturers in other areas as well. The encouragement could be in the form of access to credit on easy terms. Commercial banks could play a useful role in this respect. Currently, only ADB/N played a main role in the promotion of this technology. Therefore, it was recommended that other commercial banks too follow ADB/N's footsteps and actively pursue this technology. Additionally it was also recommended that HMG support ADB/N for the expansion of micro-hydro technology in rural areas.

Biogas technology, too, posed similar problems. In order to encourage rapid dissemination of biogas technology, it was necessary to bring in private sector participation. Therefore, the seminar recommended that the private sector be encouraged to produce biogas plants, particularly family-sized ones. In order to achieve higher private sector participation, the seminar also recommended that other lending agencies, apart from ADB/N, be involved in the programme. It was further recommended that favourable

consideration be given if expanding the biogas programme necessitated providing import facilities, especially for construction materials, to the private sector.

An expanded programme on micro-hydro technology required a high degree of coordination among different agencies involved in the programme. This was unlikely to be achieved in the absence of an institution designated to play this role. It was therefore recommended that a coordinating unit under WECS be established to play this role. Related to this was another recommendation regarding establishment of a task force to draw up details on the inventory of constraints and potentials for the attention of policy-makers. The task force would also prepare a programme for wider dissemination of the technology and present it at the relevant policy planning level.

Expansion of the biogas programme also required attention on different aspects of biogas technology. The seminar noted that a strong research and development effort was required if biogas technology was to succeed in Nepal. The Gobar Gas Company and Agricultural Implements Pvt. Ltd alone could not be expected to produce and promote this technology in a significant way. The seminar, therefore, noted the need for wider participation from the private sector in producing and promoting biogas technology. It was recommended that the Biogas Company gradually move away from actual construction and concentrate on R and D and associated activities such as information dissemination, extension, training, and monitoring for quality. It was further recommended that R and D efforts on alternative feed materials for the digesters, as well as reduction in the material cost of digesters, be undertaken by the company to tailor the technology to local conditions. Private sector companies should be encouraged to produce biogas plants.

Biomass conservation, the seminar noted, was one of the essential components of rural energy planning and management. Technologies that contributed towards this end had to be encouraged. Gasification, densification, and carbonisation were identified as having potentials for rural use. The present capabilities available in the country for promoting these technologies were limited. Therefore, it was recommended that efforts be made to find out what was available in the region and internationally regarding gasification technology. This required monitoring of regional and international R and D efforts. It was further recommended that support to densification technology must be provided by way of support to manufacturers in the area of material and production processes. Further, in view of the increase in efficiency brought about by carbonisation, it was recommended that efforts to popularize charcoal in place of new biomass be carried out.

ICS that showed conservation potential but lacked effective field programmes were the focus of intense discussion. It was stated by the group that conservation efforts must be made a part of the development agenda. Therefore, it was recommended that the ICS programme be integrated with other development programmes to make it more effective. It was further recommended that the ICS programme be based on local factors, i.e., institutions, materials, and skills. The Seminar also recommended that energy conservation efforts should not be limited to biomass energy sources and should include petroleum and

electric energy. It was recommended by the seminar that producers of efficient end use devices should receive proper encouragement.

In view of the limited expertise available in the country, as well as the limited resources available for planning and developing alternative, renewable energy resources, it was recommended by the seminar that donor agencies should increase their support to HMG by way of additional financial and technical help. The seminar further recommended that ICIMOD should collaborate closely with HMG in developing policies and programmes for the use of renewable energy resources, as the former, with its regional focus, was capable of drawing upon experiences available in the Hindu Kush-Himalayan Region.

The seminar noted that more research was required to answer some of the pertinent issues raised. It was important to enquire further into the question of the effectiveness of subsidy in promoting any particular technology. Similarly, it was important to know what impact pricing interventions had on efficiency and equity and whether the policy promoted alternative energy technologies. The Seminar also noted that the 'Energy Village' concept deserved further consideration and a pilot action programme should be launched to begin with. Research and data gathering were necessary to further evaluate the potential of solar and wind energy.