

## CONCLUSIONS AND RECOMMENDATIONS

A working group under the chairmanship of Dr. M. Abdullah was constituted to draw conclusions and recommendations for the Seminar. The papers presented in the Seminar and the resultant floor discussions identified the main issues relating to MMHP development in the country. The current role of various organisations involved in MMHP development was identified and suggestions put forth to enhance the activities and improve the outcome.

It was agreed that the government should exercise a dominating influence in devising sustainable MMHP development programmes. It was, therefore, essential that the MMHP sector should be given priority by the government in its rural electrification programmes and the same should be stated explicitly in all energy policy documents and the Five-year Plans. It was noted that brief highlights of the salient features of MMHP development in Pakistan need to be prepared and presented to high-level decision-makers in order to appraise them of the importance of MHP and the contribution it could make to overall energy supply in the country.

It was also felt that this type of Seminar should be organised regularly, say once a year, to create awareness about MMHP. The need for carrying out an overall feasibility study for MMHP development was felt since data on MMHP potential were almost non-existent. It was also recommended that provincial governments should be fully involved in MMHP development, and an integrated approach to rural industrialisation based on MMHP should be adopted in close collaboration with Provincial Small Industries' Boards.

The Seminar emphasised the issue of establishing linkages between various implementing agencies in order to achieve better coordination and integrated planning. So far, various implementing agencies had been installing MMHP plants without consulting other agencies, and there were many cases of overlapping and duplication of efforts had been reported. Non-availability of qualified and trained manpower was one of the major concerns voiced in the Seminar. The current low level of skills among those associated with MMHP development was observed as a major cause for breakdowns and an obstacle in accelerating MMHP development programmes. The Seminar recommended establishment of a training institute for personnel involved in MMHP development on a priority basis.

It was pointed out that the quality of private sector MHP plants has been very low, and, unless plants became more reliable and efficient, productive uses of electricity would not be forthcoming. The Seminar, therefore, endorsed the need for enhanced

R&D facilities and recommended that both the government and the private sector should make joint efforts in this respect. It was also felt necessary to encourage more private sector manufacturers to produce better quality MHP equipment at lower costs. However, these efforts would be effective only if the installation rates of the private MMHP plants increased significantly. It was, therefore, recommended by the Seminar that donor agencies should increase their support to MMHP by providing financial, as well as technical, assistance. The importance of low-head canal falls available in the country was underlined, and it was recommended that efforts should be made to exploit this vast resource of hydropower potential.

The specific **recommendations** of the Seminar are reported below.

### **POLICIES**

- The government should clearly formulate support for MMHP, especially for mountainous areas, and this should be clearly indicated in the development plans and new policy documents. This support should be on the basis of desirability of MMHP in the remote and inaccessible areas and its environmentally-friendly character.
- In order to improve coordination of the activities and future extension programmes among the implementing agencies, a Coordination Committee should be formulated with representatives from WAPDA, NA-PWD, the Ministry of Water & Power, AJK Hydroelectric Board, AKRSP, SHYDO, and PCAT. Representatives of MMHP equipment manufacturers, such as HMC, Taxila, may also be included in this Committee. This could be initiated by the PCAT/Ministry of Science & Technology.

### **FUNDING**

- The present rate of installations of MMHP is inadequate. It should initially be planned to double this rate and funding could be arranged for this purpose for all implementing agencies.
- Other financiers may also be identified, including international donors.
- Funding must also be enhanced for R&D, technical manpower training, and some quality control/testing equipment.

### **IMPLEMENTATION**

- PCAT should prepare a long-term programme to increase the pace of installations and to improve the quality of plants.
- Efforts should be made to improve the quality, reliability, and safety standards of indigenous MMHP plants.

## on MMHP Development in the HKH Region

- Standardisation and interchangeability of components should be ensured as far as technically feasible.
- Management capabilities of recipients before sanctioning a plant should be assessed and a suitable methodology should be developed for this purpose.
- Systematic monitoring and evaluation by implementing agencies should be a regular feature for all MMHP schemes.

### ECONOMIC RETURNS

- Management Committees/VOs of MMHP plants (in the case of privately-owned and managed plants) should be advised to increase the tariffs so that sufficient funds can be made available for major repairs in case of breakdown. This should form a part of the agreement.

### END USE ENHANCEMENT

- Recipients should be advised about other productive uses of electricity such as:
  - water pumping and
  - cottage-level industries (Small Industries' Boards of provincial governments should be consulted on this aspect).

### TRAINING

- Regular training programmes should be devised for various groups such as operators, plant managers, repairers, installers, layout designers, engineers, and surveyors. For this, appropriate institutions should be established which could undertake this vast and important task. PCAT should be strengthened for this purpose and a training cell should be established within PCAT.
- Appropriate guidelines should be developed in the field of operation, routine maintenance, and management.
- Repair and maintenance centres should be established/strengthened, in collaboration with local private workshops at Mingora, Chitral, and Gilgit.
- Mobile workshops should also be established by PCAT and AKRSP.