Chapter 12
Monitoring, Evaluation and Backstopping

12.1: Introduction

Monitoring is the process of determining the status of certain indicators related to a project after a certain time interval, e.g., quarterly or semi-annually, over a given total time period (e.g., first two years). Decision-makers at various levels need to know the status of a project in order to make speedy and appropriate decisions; monitoring project performances provides them with the necessary data to do so. Monitoring involves assessing the delivery of inputs, intended outputs, and generation of desired effects.

Evaluation means assessing the real situation of a project in question at a given time. It is usually more thorough than monitoring and covers all important aspects of project performance. Evaluation is undertaken some time after project completion; allowing adequate time to sort out the usual post-commissioning problems and to achieve a level of stability. A team of experts is usually engaged from outside the implementing department; although, it may be constituted from a sister organisation of a larger system. The team is usually given a set of objectives and terms of reference for such an evaluation. The main goal is to prepare a set of conclusions and recommendations for the decision-makers who, in turn, can introduce corrective measures in due course.

Backstopping is the process of providing technical, financial, and managerial support to the management of a project. Private technical consultants or other specialist agencies might be in the best position to provide such support in the form of analysis, advice, training, and on-the-job assistance. Financial institutions might also provide financial backstopping. The main objective is to assist managers and operators to improve their capabilities and to enhance their performances, especially on a long-term basis. Backstopping is especially important for projects such as MMHP plants, since the capability levels of managers and operators are usually quite low, and they need such assistance.

12.2: Important Aspects of Monitoring

12.2.1: Technical Aspects

The monitoring process attempts to determine some indicators for the plant such as power output and sale at a given time, as well as total energy generated during a year or other suitable period. This should enable the monitoring team to estimate the daily power factor. It would also be useful to determine the maximum power that the plant is capable of producing without serious noise or vibrations. If the management has kept daily records of operation and power production, yearly power factors can also be worked out. In the case of MHP plants mechanically powering some units such as grinders, hullers, and sawmills, an estimate of peak power as well as cumulative power used during the day can be made. The maximum power that can be produced without serious problems can be determined by connecting different units at the same time. The yearly power factor can also be esti-

mated from the available data. Noting down the voltage, the current, and revolutions per minute is always useful in more ways than one.

An appraisal of the plant performance and related problems can be carried out by checking whether the plant has been well maintained; whether any part is malfunctioning; whether the connecting belts are in proper shape; whether there is any leakage, vibrations, noise coming from any part; and whether the premises are well kept, clean, adequately lighted, and safe. The safety aspect should be given special attention. Some idea of past performance problems can be obtained from the log book (if one is being kept) or from discussions with the managers and operators regarding past breakdowns and stoppages, the components involved, reasons, extent of repairs, improvements introduced, and so on. The length of shutdowns and the various reasons should also be noted and analysed. The main goal should be to find out whether the plant has been performing as a good plant should; or whether there are technical problems and the reasons thereof (equipment quality, installation, inherent/local problems, operation/management capability, etc).

Some capability assessment of the manager and operators is also desirable. They could be asked, for example, about their knowledge regarding functioning of various components, training they have undergone, and the books/records they have been keeping. The level of interest of the owners/managers in the overall well-being of the plant could also be assessed through appropriate questions; for example, what can be done to improve the performance and returns? Another good indication would be the extent to which efforts had been made during a breakdown to bring the plant back into operation, as well as the state of maintenance of the civil works, a relatively uncomplicated job.

12.2.2: Financial Aspects

The primary financial aspect to be ascertained is whether a plant has been earning adequate income to meet its operational costs. Any plant that does not meet this primary requirement cannot be considered viable and would most probably be closed down in due course and not earn a good name for the technology. However, this is also not a sufficient condition. The plant should at least earn enough to cover its routine maintenance/repair costs and save an amount for the future and/or a profit for the entrepreneur/investor. Assessment of the income might not be easy, since it is the usual tendency of owners to understate the revenues. The monitoring team, therefore, needs to be careful about asking questions regarding the overall income of the plants and assessing the answers. It would also be useful if the monitoring team could make on-the-spot assessments of the agro-processing business, for example. However, this would depend upon the time available. In some cases, the income could be from more than one end use; e.g., electricity for domestic lighting, electricity for industry, and agro-processing within the premises. Intelligent queries to more than one source (e.g., the owner/manager, operator, and perhaps even customers) can provide reasonably accurate information in this respect.

Similar information should be gathered concerning the yearly expenditure, including staff salaries, loan repayments, regular maintenance, periodic maintenance, and other consumables such as stationery/postage, lubricating oil, some tools and spares, travel, etc. In addition, a certain percentage of capital costs (2-3%) should also be set aside from the income for major repairs for unforseen breakdowns.

The net income of the plant can then be assessed and analysed to determine whether it was adequate for this given type of plant. A fairly low net income from community-owned MHP

plants might be acceptable, whereas entrepreneur-owned plants would be expected to make significant profits.

12.2.3: Social Aspects

It is usually useful to learn about the social status of an MHP plant and the services that it provides to the community. Some reporting from consumers could be helpful in this respect. For example, consumers might report that some level of cheating is going on during agro-processing, or that the behaviour of the manager/operators is not appropriate, and so on. In the case of electricity-only plants, the enquiries should reveal whether supplies are reliable and of good quality. If the consumers are not happy with the quality of the services being provided, then they might not have goodwill towards the plant, they might take their business elsewhere, or they might end up causing damage, e.g., to the power channel, even inadvertently. Therefore, social acceptance and the goodwill of the people from surrounding communities are also necessary for success of MHP plants, and these need to be assessed. An informal chat with the operators might also reveal their feelings about the plant and the management. For example, have they been paid and treated well? have they been reasonably happy? or are they planning to leave their current employment? and so on.

Similar discussions with the owner might also reveal some aspects of the success and satisfaction with the outputs of the plant. For example, had any efforts been made to persuade other people to take more electricity connections? or what were the reasons for people not being able to have electricity connections? Is he/she thinking of doing something in this respect? What efforts is he/she making to overcome some of the problems (e.g., landslides disrupting the water supply)? Is he/she also planning to install other processing equipment (say a sawmill, a rice beater, etc)? Such discussions would indicate the level of happiness and enthusiasm of the owner with the plant.

Enquiries about social conflicts beyond the control of the owner could also produce useful information. For example, conflicts between communities, castes, or even sociopolitical groups might prevent one group or the other from using the services of the plant. Such conflicts could affect the water supply to the plant also.

Monitoring privately-managed plants is very important in order to judge the level of success of a scheme or indeed a project or programme. It is suggested that plants should be monitored at least once but, more appropriately, twice or even more times. One suggestion made during an international meeting was to monitor the plant about three to six months after commissioning for the first time, and later about one year after the first monitoring. Monitoring frequency and overall methodology are not prevalent anywhere in the region, and a final more appropriate system would have to be formulated in due course through experience.

12.3: Evaluation of MHP Plants

Evaluation of MMHP plants installed under a given project/programme can be ordered and directed by sponsoring/financing agencies under stringent terms, in order to provide answers to specific questions related to, e.g., success/failure of the project/programme, impact on the target group, environmental consequences, and so on. Therefore, evaluation is a more thorough and wide-ranging process than monitoring, whereby the target group, people from the surrounding areas, even other agencies, could be asked about

various aspects and consequences of the project. A more thorough economic analysis of the impacts/benefits could also be undertaken after quantifying them.

Evaluation would usually involve all the steps described in Section 12.2 concerning monitoring, which could be measured/assessed more thoroughly and accurately. For example, flow and head could be measured to determine the actual power potential against the (maximum) power being generated. Similarly, the cost of energy production could be computed and compared with the tariff being charged. However, more emphasis is usually placed on thorough evaluation of the economic and social impacts, negative as well as positive; cost-benefit analysis; and adequate assessment of the environmental consequences. For example, how much kerosene combustion has been replaced by electric lights? It is not possible, however, to quantify some of the benefits; for example, how can one quantify the benefits of better lighting from electricity rather than from kerosene lamps? The economic benefits, such as the number of micro-enterprises (shops, industries, etc) established, the number of new jobs created, the quantity of additional local produce being marketed, and so on, should also be worked out under the economic benefits. Again, it is not a straightforward task to place a value on the level of reduced drudgery for women who no longer have to process agro-produce manually and, instead, are using MHP-powered mills.

Evaluation is usually a one-time affair and not a regular process. It is also more time-consuming and expensive. Therefore, it may be not so cost effective for the smaller, private MMHP plants in the HKH Region. However, if proper monitoring of such plants is not taking place, then it may be necessary to undertake evaluation of a number of plants at an appropriate time. Evaluation can be more suitable for larger (and more expensive) MMHP projects, since the process itself is also more expensive, and complicated. Also, large manuals on the subject can usually be found. Therefore, further details on this subject are not considered necessary here.

12.4: Backstopping

Backstopping is a fluid subject that is not easy to define or justify purely on economic grounds. In the past, one or more full-time experts were assigned to Nepal to advise and train plant managers and operators in various techniques, tariff designs, billing, and promotion of more connections. In the case of the Salleri Chialsa Plant, a separate project called the 'Salleri Electricity Utilisation Project' (SELUP) was established to increase the use of electricity for other end uses, including cooking. It is generally agreed that a certain minimum level of support for a newly-established plant, especially in remote and inaccessible mountain areas, is very necessary to develop the skills and managerial capacities of the staff adequately. Initially, training on the names, functions, and operations of the different parts, what could go wrong, and how to prevent it would be useful. Additionally, training about assembly/disassembly could be provided, followed by training in various aspects of inspection, maintenance, and book-keeping, along with basic trouble-shooting.

Subsequently, after a few months of operation, another backstopping mission could be sent to see whether the operators and managers were doing a good job or whether they needed further assistance/advice and training. This would be a beneficial input since the managers and operators, by then, would have found out what they could do reasonably well and where they needed further assistance. They, almost certainly, would have a lot of questions by this time, and these could be answered and explained. It would also be necessary to develop a training/backstopping manual for this purpose, mainly for the trainers, covering all aspects, including the social and economic ones.

It would be more cost-effective if the monitoring and backstopping visits were combined to cut the costs, assess the problems, and provide assistance on the spot. However, in order to achieve tangible results in this respect the assisting personnel should be adequately trained, not only in the technical aspects but also in social subjects and public relations. At the same time, the owners have to be made clearly aware about the limitations of such services and their own responsibilities. This would help to curtail excessive expectations or a tendency on the part of recipients to think that everything will be sorted out by the backstopping team.

12.5: Institutional Arrangements

Having prescribed additional workloads and financial expenditure, the important questions that need to be dealt with are who should provide funding? and who should organise and carry out the monitoring and backstopping services? (as mentioned earlier, evaluation may not be necessary for private MHP plants, unless specifically ordered by, e.g., donor/financiers).

Regarding funding, the obvious answer is that it should be set aside by the main agency that funded the project in the first place; e.g., the Water and Energy Commission Secretariat (Nepal) and the Ministry of Science and Technology (Pakistan). With regard to implementation, a specialised government or private agency having adequate expertise in this field would be most appropriate. Usually, the installer/contractors are not in charge of this endeavour; although one of their experts may be included in the team to provide information regarding the various technical details and characteristics of different parts.