

INTRODUCTION TO THE MANUAL

The rate of installation of family size biogas plants in Nepal has shown unprecedented growth in the past. This trend is expected to continue in the next ten years. More and more people are getting involved in biogas as users, technicians, extension workers, researchers, trainers, supervisors and investors. As a result, the need for suitable training programmes along with the development of high quality training manual has become a matter of immense importance for the sustainable growth of the biogas sector in Nepal. Realizing this, one of the main components of FAO funded *Support for the Development of National Biogas Programme Project (TCP/NEP/4451 -T)* has been the development of appropriate training curriculum and materials with the objectives: (i) to create awareness on the biogas programme; and (ii) to provide background for the promotion and facilitation of biogas extension activities.

A national level meeting for the development of a national biogas policy framework was organized by FAO on 7 February 1996 in Kathmandu. Experts from FAO headquarters and expatriate consultants also participated in the meeting. Guided by a review of the performance of biogas sector and the opinions and ideas expressed in the meeting, a programme for district officers' training was designed as provisioned in the aforesaid FAO funded project.

The training programme aimed to train about 130 district level officers from the Departments of Forest, Soil Conservation, National Parks and Wildlife, Agriculture and Livestock Services. It also aimed to include 20 participants from NGOs, banks and other organizations that are active in the biogas sector. After going through this training, participating government officers and NGO personnel were expected to become more effective in facilitating promotional activities for biogas in their respective areas.

In accordance with the TOR of the Consultant, five training programmes were conducted. These training covered a total of 151 participants. A detailed report was separately prepared for each of these programmes. The final training report includes details on participants, their recommendations, venue and other details of all the training programmes.

Nine topics for training were originally planned. Based on the experience gained in different training, the sequence of presentation of the topics was modified. Also, one topic initially named as Biogas Technology in Agriculture was renamed as Utilization of Slurry as Feed and Fertilizer to suit the content presented in the manual. Thus, modified names and sequence of topics as presented in the fifth training programme are as follows:

Session One	:	System Approach to Biogas Technology
Session Two	:	Relevance of Biogas Technology to Nepal
Session Three	:	Biogas Programmes
Session Four	:	Utilization of Slurry as Feed and Fertilizer
Session Five	:	Installation Cost and Financial Viability
Session Six	:	Subsidy and Institutional Financing
Session Seven	:	Field Visit for Observation of Biogas Plants
Session Eight	:	Extension Support Services for Biogas
Session Nine	:	Quality Standards
Session Ten	:	Monitoring and Evaluation

This manual contains a complete set of training materials on above topics presented in five training programmes of three days each. The first four topics were covered on the first day as against the six topics as originally planned. Two topics were covered on the second day before proceeding to field visit of at least two biogas plants representing both the success and failure cases. The remaining three topics were

dealt with on the third day along with open floor discussion on all aspects of and experience with the technology. Evaluation of the training programme by the participants was the last activity of the third day preceded by sessions of slide show and a video film on biogas.

The five training programmes were conducted on the following dates and venues.

S. N.	Training Programme	Dates of Training	Training Venue
1.	First Training	2, 3 & 4 June 1996	Kathmandu *
2.	Second Training	16, 17 & 18 June 1996	Chitwan **
3.	Third Training	1.2&3 July 1996	Kathmandu *
4.	Fourth Training	16, 17 & 18 July 1996	Kathmandu *
5.	Fifth Training	31 July, I &2 August 1996	Kathmandu *

* Venue in Kathmandu : Nepal Administrative Staff College, Jawalakhel, Lalitpur

** Venue in Chitawan: Uncles' Lodge, Narayanghat, Gaindakot, Chitwan

Out of five training programmes, four were conducted in Kathmandu and one outside Kathmandu, i.e., in Chitawan district. Each training programme was of three days duration with two and one-half days of applied theory and a half day of field visit. Consolidated Management Services Nepal (P) Ltd (CMS) assumed the training responsibility by forming a team of experts/trainers comprising of national professionals with long experience related to the topics mentioned above. The team led by Dr Amrit B Karki consisted of the following experts:

- Mr Krishna M Gautam, Resource Economist/Training Specialist
- Dr Krishna B Karki, Soil Scientist
- Mr Govinda P Kandel, Monitoring and Evaluation/Environment Expert

These experts/trainers were assigned for manual preparation and its presentation in all the training programmes. The basic rational for this arrangement was to ensure that the experience gained by each trainer in presenting his subject matter in the training could be readily used to improve the manual after each training programme.

The published and unpublished literature on each of the above topics were reviewed by the concerned experts to ensure that training materials on each topic presented up-to-date information on the state-of-the-art of the technology.

The team of experts prepared a write up on each topic. Efforts were made to ensure that the presentation was simple and gave a complete coverage of the subject that could be presented in the allocated time during the training programme. Provisions were made to use various illustrative training aids such as charts, graphs, photographs, diagrams and sketches.

The first draft of the training manual was prepared in May 1996 after incorporating the valuable comments and suggestions received from FAO and other experts. This first draft was put to test in the first training programme organized in Kathmandu from 2 to 4 June 1996 in cooperation with the National Project Coordinator and the FAO expert. Similarly, based on the reaction of this training as well as valuable comments and suggestions received from FAO, the second draft was prepared for presentation in the second training held outside Kathmandu, i.e., in Chitwan district, from 16 to 18 June 1996.

After completion of the second training programme in Chitwan, a meeting was held at FAO Office in Kathmandu on 24 June 1996 in the presence of all four experts/trainers of the team, FAO Programme Officer and the FAO Consultant. The meeting made a mid-term review of the manual and the two training programmes conducted. The meeting came up with a strategy to further improve the manual as well as the quality of presentation in the remaining three training programmes. Thus, improved third draft was presented in the third training programme conducted from 1 to 3 July 1996 in Kathmandu. Similarly, comprehensively revised and improved fourth draft was put to test in the fourth training that took place

during 16, 17 and 18 July 1996 in Kathmandu. This draft was also submitted to FAO for comments and suggestions. Meanwhile, the revised fifth draft was used in the fifth and final training programme from 31 July to 2 August 1996 in Kathmandu.

The team of experts/trainers continued to improve the manual guided by the experience gained in their presentation and the inputs received from national and international experts and the trainee participants. The manual was thus continuously revised and improved after the completion of each training programme, in course of the fifth training programme, the manual that was revised and tested four times was presented to the trainee participants. The fifth draft incorporated experience gained in previous four training programmes. Therefore, this manual in its present shape contains comprehensive and well tailored training materials that could be utilized not only to conduct a country specific training programme but also to be used as a source book by rural development workers interested to promote biogas technology in their countries.