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USAID ENERGY POLICY PROGRAM

POST-TRAINING EVALUATION BEST PRACTICES IN HYDRO OPERATIONS AND MAINTENANCE

DECEMBER 8–19, 2014

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**Best Practices in Hydro Operations and Maintenance (O&M)
Participant Training Program**

Training dates: December 08 – December 19, 2014

Post-Training Evaluation

In this activity, Energy Policy Program (EPP) successfully delivered third of the three training courses in Best Practices in Hydro Operations and Maintenance (O&M) from December 08 to December 19, 2014 at Serena hotel in Islamabad. A total of twenty four participants (twenty males and four female) from eight hydro power plants, including Warsak Power Station, Tarbela Power Station, Ghazi Barotha Hydro Power Project, Chashma & Jinnah Hydrel Power Station, Mangla Power station, Mandi Bahuddin Power Station, Malakand Power Station, WAPDA House Lahore and university i.e. NUCES and CASE Islamabad.

Best practices in Operations and Maintenance training course was designed to develop practices in operating, maintaining and managing your power plant’s assets. This training will not only benefit you, but your organization’s daily O&M practices, thus improving energy services in Pakistan. The training will give you the opportunity to meet some truly exceptional professional trainers, and will help you interact with your colleagues outside of the office.

Number of Participants trained: 24 participants (twenty males and four female).

At the end of the training course, post-training evaluation was conducted from 24 participants. They were given an eight questions post-training evaluation form to explain their valuable experienced. Following are statistics, summaries and quotes of the participants’ responses.

Please tick in appropriate box: 5 outstanding, 4 very good, 3 satisfactory, 2 needs improvement, 1 did not meet expectations

I. Program Rating	<i>Did not meet expectations</i>	<i>Needs improvement</i>	<i>satisfactory</i>	<i>Very good</i>	<i>outstanding</i>
Relevance to your organization’s work area	0	0	5	17	2
Structure of the program	0	0	2	18	4
Topics covered in the program	0	2	4	13	5
Quality of class room interactions	0	3	7	12	2
Quality of training and reading materials	0	0	5	15	4
Appropriateness of reading materials	0	0	6	16	2
Quality of Speakers/Trainers	0	3	3	15	3
II. Program Content and Trainers	<i>Did not meet expectation</i>	<i>Needs improvement</i>	<i>satisfactory</i>	<i>Very good</i>	<i>outstanding</i>

Training Content & Relevance	0	0	2	17	5
Trainer/Speaker Effectiveness	0	3	6	15	0

According to the rounded responses of all participants from the above stated table:

1. 71% of the participants rated “Relevance to your organization’s work area” as very good and 8% rated it as an outstanding effort. Whereas, 21% of the participants marked it as Satisfactory.
2. 75% of the participants found “Structure of the program” Very good, 17% found the structure was outstanding; while 8% participants felt it was a Satisfactory.
3. 54% participants found the category “Topics covered in the program” Very good, 17% found it’s satisfactory; 21% felt it was outstanding and 8% felt the need of improvement.
4. 50% found “Quality of class room interactions” very good, 8% found it outstanding whereas 29% said it was Satisfactory whereas 13% felt the need of improvement.
5. 62% of the participants felt “Quality of training and reading materials” was very good, 17% found it outstanding, 21% rated it Satisfactory.
6. 67% participants rated “Appropriateness of reading materials” as Very good, while 25% participants rated it as satisfactory, whereas, 8% found it outstanding.
7. 62% participants rated “Quality of Speakers/Trainers” as Very good, while 13% rated it as satisfactory and 12% felt the need of improvement whereas 12% found it outstanding.
8. 71% participants rated the “Training Content & Relevance” as very good, 21% felt it was outstanding and 8% rated it as satisfactory.
9. 62% of the participants found “Trainer/Speaker Effectiveness” Very good, 25% participants found it satisfactory and 12% felt the need of improvement.

Please share any other observation or comments regarding the trainer/training program/logistics:

Participants were asked to share their observations and comment regarding the trainer, training and logistics, all of them have shared their observations. Almost all the participants found the training very beneficial while specifically mentioning the following:

“Few of the trainers had language problems due to which they could not deliver according to their actual potential”

“The trainers were competent and they had a lot of the knowledge regarding the program but one of the trainers had a problem of communication due to language barrier”

“Training was very useful and helpful for us from management point of view. In addition to all the new and advance systems of operations and maintenance of Hydel power station information delivered”

“As I have recently graduated, so I have learned a lot from this training. The trainers were exceptionally competent and experienced in their fields. Their way of delivering their knowledge was impressive”

“Training was very effective and improved our operation and maintenance skills. Period of training should be long to cover all the topics and it should split into sections e.g. Electrical, Mechanical and Civil Section”

“Training was excellent, skill boosting, practical and equipped us with modern day techniques followed by international Hydel power plants”

Before you received this training, how would you describe your knowledge of operation and maintenance systems and procedures required for hydro power?

Keeping in view all the responses it showed that before this training most of the participants had limited knowledge and after the training all of them have developed significant skills and knowledge about the O&M techniques, as they stated:

“Knowledge of operation and maintenance along with a procedure was good but there were some flaws which were covered in this training”

“After the training my vision of operations and maintenance systems by learning of latest techniques has improved”

“Before the training all in the work carried out normally but now it will be in appropriate ways”

“Since I have 7 years of experience and learning just doesn’t stop at any stage. I learned many dos and don’ts from this training which I was overlooking previously”

“Before this training, we were unaware of the new techniques and the training had really provided us an opportunity to live in this environment to learn and share our ideas with our fellow friends, we are confident after doing trainings”

“Before this training, I was unaware of the modern developments in the field of operation and maintenance techniques at Hydel plants. All the training content was skillfully demonstrated and explained during the O&M training”

“Before the training, our knowledge about O&M practices was restricted to our plants”

What specific skill did you gain as a result of this training?

Participants were asked to address the specific skills that they have gained during this training; and they wrote:

“I gained skills from the design aspect of training, more insight about FIDIC standards, maintenance management, and effective spare parts management”

“The knowledge of operation and maintenance system before training was also very good that helped us in enhancing our existing knowledge”

“Following are the skills I gained during the training; asset management –PAS 55 and ISO 5500, failure analysis, and reliability centered maintenance (RCM)”

“Better preventive maintenance of plant and inventory of store and spare parts planning and proper documentation and history for fault rectification”

“O&M practices helped in plant operations at best efficiency point, instrumentation protection and control of plant and switchyard, SCADA system, governing system and reliability analysis”

“I learned maintenance of power plants especially equipment testing and fault diagnosing”

“Learned the new trends being followed all over the world in Hydro power plants. We have updated our knowledge, skills and attitudes as per the latest techniques in operation and maintenance field of power plant”

“Learned a lot about asset management, condition assessment of the power house with the use of new and latest equipment and techniques”

How will your organization benefit from Hydro Operation and Maintenance (O&M) training in both the short term and long term?

The training strategy was based on organizational improvements so that the staff and the organization can achieve their set targets, objectives and both personal and corporate goals. Participants were asked to express how their organization will be benefited from Hydro Operation and Maintenance training in short and long term, they shared:

“Our organization which is purely deals with engineering and electrical power so we will after imparting these techniques will apply in our practical fields that will be beneficial definitely”

“Certainly the organization and especially power sector will be enhanced in both long and short term”

“My organization will benefit from this training in the field of O&M of the power houses rehabilitation of the old equipment and their maintenance”

“I will share my knowledge what I have gained from this training with the colleagues and follow the missing steps, which were previously ignored”

“This training helped us in bringing positive change to the way we use to take decisions concerning the operation and maintenance field”

“We will apply the latest techniques and procedures we learned at our work stations along with the ideas of renewable energy sources in the current energy crisis situation in Pakistan”

“Proper planning of spare part inventory, improve preventive and pro-active maintenance for new projects and their respective planning, contract system and its implementation”

“The trainers were helpful with regards to operation and maintenance of Hydro power plant. By adopting the procedures learnt during training and implementing those will benefit in the long term”

“Our organization will be benefited by this training on long term basis once we introduce the advance and new systems at the power station”

“From now onwards we will be able to identify the cause of the faults by following the latest techniques and in the long term implementation of the skills learned will be beneficial for our organization”

“Surely, this training will have huge impact on Hydro plants. Skills gained will be utilized to achieve organizational goals much more efficiently”

“It will help improve the management activities and implementation of newly learned techniques”

What was missing in the Hydro Operation and Maintenance Training?

Participants shared their respective views and stated:

“A little more interaction and orientation of training from O&M perspective should have been included. Language barrier was also an issue for few of the trainers”

“Trainers should focus more on the maintenance part because their main focus was on the commissioning side of the training”

“There must be some insight about the project management and financial management topics in the training”

“Less video related to the topics were showed”

“A visit to Hydro power plant was missing as some students has never been to any of the plants, and they had some difficulties understanding the actual systems”

“Time period of the training course covering the topics was limited and it is very difficult to learn completely in short time period”

“Group discussion on relevant topics”

Do you have any suggestions for EPP, how we could improve future operation and maintenance trainings?

All the participants have different views about how to improve future Operation and Maintenance trainings, most of the participants have complained about the time duration they thought the time period for such technical training could have been increased, they mentioned:

“Such trainings should be arranged frequently and should cover the topics in more detail”

“EPP/Trainers should know the level of engineers/technology installed at the power station so that they can guide us for transition of technology and innovation of power plant”

“Duration of the training program must be increased along with visits of international power plants”

“EPP should improve training by introducing group discussions and practical tour of the field”

“EPP should also arrange visits to the plants and different working environment so, that trainees can see actually what are the working procedures according to the techniques learned”

“Training should be more specific instead of generation, live mechanical maintenance, electrical maintenance, procurement and contract management etc.”

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