

Competency-Based Training Developed For Environmental Health Workers In Indonesia

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Abstract

Through the Rural Sanitation Manpower Development Project, a curriculum for new professional and technician level environmental health workers in Indonesia was developed. The competency-based method of training was chosen as the most suitable for producing the skills necessary to perform identified tasks. Individual training modules were developed; each containing only information required to perform the tasks of a health worker at a given level of expertise. Instructors from schools in Indonesia participated in the 12-month program at the University of Hawaii to develop teaching techniques and methods for implementing the competency-based curriculum. Other Indonesian faculty were then trained. The Project resulted in a pool of instructors with new techniques to upgrade environmental health workers and reactivation of the Indonesian Environmental Health Specialists Association. Equipment lists were developed along with a graduation kit which included tools and a reference manual for the health workers. A 1983 visit to Indonesia showed progress in the form of additional schools and follow-through on contacts established during the project.

The Government of Indonesia, recognizing the need for improved environmental health conditions throughout the country, placed a high priority on environmental health in both its Second and Third 5 Year Development Plans. The Ministry of Health (MOH) determined that 4,000 new environmental health workers would have to be trained to accomplish the improvements in environmental health envisioned under these development plans. The Rural Sanitation Manpower Development (RSMD) Project evolved of this need.

The RSMD Project included both personnel training and facility construction components. The former

was designed to upgrade the quality and increase the number of environmental health personnel involved in rural environmental sanitation, while the latter was designed to upgrade existing school facilities and to construct new ones. This overall approach offered a unique opportunity to devise a training program specific to the needs of health workers in Indonesia. The University of Hawaii (UH), School of Public Health, was awarded a contract by the Indonesian Ministry of Health to provide the technical expertise for this task. After a two month session at the University, a team from its faculty was dispatched to Jakarta, Indonesia and attached to the National Center for Education and Training (PUSDIKLAT), MOH, from June 1978-August 1980.

The UH team began by contacting the primary user of the health worker in Indonesia, the Directorate of Hygiene and Sanitation, at the national, provincial, and local levels. This was done to determine what was expected of the health worker in the field. In addition, the staffs of existing train-

ing institutions were questioned about training. Villages and health centers were visited to obtain first-hand impressions from environmental health workers of work currently performed or needed. These contacts reinforced a belief that the majority of health workers, working unsupervised in the rural area, were often the sole representative of the MOH. As such the populace expected the health worker to be able to perform certain tasks. This strengthened the decision to adopt the competency-based method of training.

The basic premise of this training method is that an individual can be trained to perform tasks at a certain level of proficiency. Once specific tasks are identified, the skills and knowledge required to perform these tasks can be determined. The training then focuses on providing the skills and knowledge needed, followed by an evaluation of the student's ability to perform these tasks. This may sound simple, but in fact, the process was rather complex. Each task had to be broken down into the various steps, which taken together, resulted in a completion of the task.

In the area of water for example, constructing a well may be the most important task. To determine what knowledge and skills were needed to construct a well, it was necessary to go through the construction procedures step-by-step, including operation and maintenance. The knowledge one must have and the skills required to accomplish each step were identified, and a mechanism to assess the students' ability to perform the job was established. This approach to training is efficient because only necessary material is included in the course. Unless a procedure, a skill, or knowledge is directly related to performing a specific identified task, it is not included in competency-based

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training. Some theory may be useful, even desirable, but when it gets down to the job, the requirement is to do a simple procedure, and nothing should compromise the effort needed to develop that ability to a predetermined level of expertise.

Because the population to be served by these health workers is primarily rural, emphasis was placed on water supply, sewage, solid waste disposal, food protection, vector control and communications skills. Water and air pollution, occupational health, and premises sanitation were also addressed in recognition of their importance to the overall health situation. Individual modules were developed for each topic. Each module was prepared so that it contained only that information needed to perform the tasks identified. This included the knowledge, the skills, and the experience requirements as well as the evaluation criteria for each task. Prepared in this manner, the module could stand on its own, dependent on nothing else but the ability of the teachers to teach and a successful field experience which fulfilled the stated requirements.

The modular approach to training is not new, but it is different. It requires that each instructor incorporate his specific subject matter within the module. The subject is taught, not as a separate entity unrelated to the rest of the module, but as one of several elements which together help to develop an individual's ability to perform a specific task. This represented a deviation from traditional teaching methods, so it was necessary to retrain the existing teaching staff to utilize this approach.

To meet this requirement, the UH field team assisted in the development of a one year program at the UH which emphasized teaching skills and techniques. This emphasis was considered essential because these instructors would have the dual role of teaching the new competency-based curriculum and teaching other instructors the new teaching techniques.

The program was conceived as a non-degree program in order to meet the specific needs of the instructors from Indonesia. Over a two year period, 26 instructors from existing schools participated in the program. In addition to the teaching skills, courses and seminars in the technical

areas of environmental health were a part of the program. Other aspects included visits to state and local health departments in Hawaii and on the mainland United States, the Centers for Disease Control (CDC) and the Indian Health Service of the U.S. Public Health Service. In addition, visits were made to Thailand, Malaysia, and Singapore to establish a beneficial liaison with and to observe and discuss training techniques used by environmental health personnel in similar geographic areas. The information and knowledge gained were shared with other instructors through a series of training-of-trainers workshops conducted by the UH-trained participants upon their return to Indonesia.

Another aspect of training is field experience. To be effective, this has to be an integral part of the curriculum. During the classroom portion of instruction, students are provided with opportunities to practice individual skills. However, it is only in the field training that these newly learned skills are combined in order to perform the task initially identified, and it is here that the student's ability to communicate is put to its first test. Yet, it is this phase of the training which often breaks down.

Aside from the more obvious requirements of transportation, tools, and supplies, plans must include housing and food, a suitable location to construct facilities or conduct other field training, and the involvement of local health officials. This last point may well be the most important because field training is most meaningful when one performs a real, not a make-work task. Whether the field training involves digging a well or inspecting a small food shop, the effects impact on the population served by a specific health center. Cooperation of the health center staff is therefore required and it is essential that the training efforts contribute to, and not detract from, the job performed by the local health staff. If done properly, the field training will provide the "hands-on" experience needed to achieve a given level of expertise for a specific task, as well as assisting local health authorities in providing needed services.

Results of the RSMD Project included: the preparation of a competency-based curriculum for training

new environmental health workers; the training of a pool of instructors in teaching methods compatible with the new curriculum; the construction and equipping of school facilities; the provision of texts for the library at each institution; and the development of a field manual, which closely paralleled the curriculum, written for the health worker in a "how to do, hands-on" format. In addition, other curricula, of varying length and tailored to each type of worker, were produced for the purpose of upgrading health workers currently in the field.

There was also a number of other positive results, or significant "spin offs," for the Indonesians from the Project. These were not planned or required by the contract with UH but came about as a result of the field team's efforts to identify and utilize all possible resources. The emphasis placed on continuing education, a strong environmental health organization and the development of a career ladder by the UH team contributed. The added benefits are: 1) a staff study which presented alternate ways and recommendations for meeting manpower requirements; 2) permission from CDC in Atlanta, Georgia to translate their environmental health home study courses; 3) contact with the Development Training Center, Bandung Institute of Technology, regarding training in appropriate technology; 4) contact with the National Center for Development of Learning Activities, Ministry of Education and Culture, regarding innovative methods of community education; 5) reactivation of the Indonesian Health Controllers Association as the Indonesian Environmental Health Specialists Association, after several years of dormancy; and 6) cooperative efforts between PUSDIKLAT and the School of Public Health, University of Indonesia, to adopt an approach for developing and implementing a career ladder for environmental health personnel.

Since the end of the UH involvement, the MOH has demonstrated its commitment to the RSMD concept by planning to construct 15 additional schools. Seven of these are now functioning. This expansion was undertaken because Indonesia's Fourth through Sixth 5 Year Development Plans indicated a need for more than 20,000 sanitarians by the year 2000.

An organization which played an important role in assessing the government's goals and establishing this figure was the Indonesian Environmental Health Association. Graduates from some of these schools can now be accepted for advanced training at the Institutes of Technology in Bandung and Surabaya. In addition, the field manual has been distributed to all schools. Finally, each of the institutions will serve not only as a training facility but also as a resource center for the surrounding geographic area.

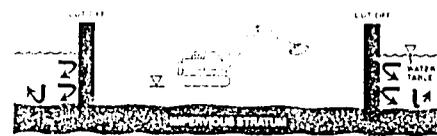
The RSMD Project indicated that the competency-based method of training represents the best method for training large numbers of qualified environmental health workers in the shortest possible time. It is suggested that the experience and knowledge gained from this Project can be successfully utilized in other areas of the world which have a need to upgrade their environmental training programs.

Slurry Trench Prevents Texas Water Problem

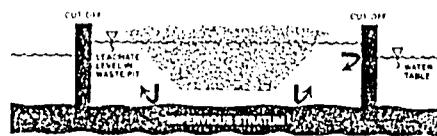
A slurry trench cut-off wall approved by the Texas State Department of Health surrounds the Bluebonnet Sanitary Landfill in Houston, Texas, preventing groundwater pollution and preventing groundwater from flowing into the landfill pit.

Installation of a slurry trench cut-off, according to Geo-Con, Inc., Pittsburgh, Penn., the contractor, is a straight-forward process that begins with the excavation of a narrow trench. At all times, the trench is kept full of bentonite-water slurry. This slurry has two basic functions: First, it keeps pressure against the sides of the trench, preventing the pit walls from collapsing. Second, it deposits an impervious filter cake on the trench walls, improving the cut-off's performance. As a result, excavation can continue and key into an impermeable stratum below.

While the trenching operation continues around the landfill perimeter, excavated soil is mixed with the bentonite slurry to form a dense, uniform paste which is used to backfill the trench. As the trench is backfilled, the slurry is displaced, leaving a solid impermeable wall. When the trench completely surrounds the pit area, the cut-off is complete.



A slurry trench cut-off installed around the perimeter of an excavation can control groundwater seepage.

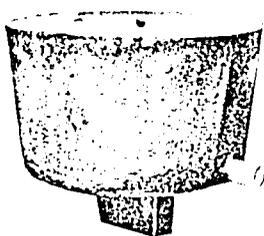


A slurry trench cut-off installed around the perimeter of a landfill can prevent the horizontal migration of pollution and protect groundwater.

The slurry trench cut-off installed at the Bluebonnet Sanitary Landfill is three feet wide, 4500 feet long and an average of 50 feet deep. With today's technology and modern equipment, reaching depths of 250 feet is possible, according to Geo-Con.

AUTOMATIC DOSING SIPHONS

Dosing siphons are quickly becoming the easiest and most cost effective way of protecting and extending the life of a leach field. By delivering the effluent to the leach field in large intermittent doses, instead of a steady trickle, the leach field is allowed to dry out periodically. This aerobic condition prohibits the formation of sulfide deposits which will eventually cause leach field failure. McCutchen Manufacturing is offering automatic dosing siphon systems in three different forms:



Automatic Dosing Siphon

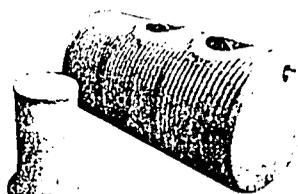
This unit is shipped assembled and is easily attached inside a locally available tank.

Automatic Dosing Siphon and Tank

The siphon is installed in a fiberglass tank at the factory and the unit is shipped ready to bury.

Combination Septic and Dosing Tank

This consists of a one or two compartment fiberglass septic tank with a separate compartment that contains a dosing siphon. (Fiberglass septic tanks are also available without dosing siphons.)



For more information call or write:
McCutchen Mfg., Inc.
4607 So. Santa Fe
Englewood, CO 80110
303/762-1874



Korean Community in LA Gets Clean for Olympics

In Korea Town, Los Angeles, Calif., Hank Yim has organized the older people—first generation Korean-Americans—to keep the sidewalks clean. Not only does it keep the community clean, it helps the older citizen feel their lives are more purposeful and gives them exercise. The volunteer work is stimulating storekeepers to keep their own walks clean. Yim is now working with school principals to enlist the aid of school children in sweeping a larger area. He's interested in cleaning up Los Angeles for the 1984 Summer Olympics, and incidentally, keeping it that way.

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