The Successful Trial of the EM Method in the Septic Tank of a Private Home

The public library in Gushikawa in Okinawa is the first example of the successful application of the EM Method in a public system. The library is still a fairly new building, but the decision to adopt the EM Method was made very early on, about the time construction was getting started, and two preliminary tests were carried out prior to its actual installation. The first test was to ascertain how the EM Method functioned in processing the human excrement handled by the septic tank of a private house, and the second to see if it could successfully be incorporated into the existing waste-water treatment system of a large building. The former test was carried out in the home of Nobumasa Chinen, currently head of the library, and the latter in Gushikawa City Hall.

The EM Method was still unknown at the time, and was to be confronted by many vicissitudes before it finally saw the light of day. There was considerable opposition to the idea of using the City Hall as a testing ground as the existing system was in daily use and it would result in considerable inconvenience to all concerned should the introduction of EM cause it to break down or otherwise fail to function effectively.

Since I envisage a similar process being employed should the EM Method go on to become adopted on a nationwide basis, I have reconstructed what happened based on Chinen's reports to me describing the various difficulties encountered and finally the eventual successful outcome of this project.

I should mention that at the time Chinen was head of Construction and Public Works at Gushikawa City Hall, and as such was responsible for public construction in the city. The following is his account of the process leading up to adoption of the EM Method for the public library and the result of the tests that preceded it.

"It was in the spring of 1990. There had been confirmation of the decision to construct a new public library and I put in an application to my senior managers for permission to use the facilities at City Hall to carry out some tests with the idea of getting the EM Method adopted as the water-treatment system to be used in the library. My application came right back to me, rejected on the grounds that there would be no one to take responsibility in the event the current waste-water system blew up or otherwise broke down as the result of having strange microorganisms or something of that nature introduced into it.

"I wouldn't describe this as being such an extreme response, considering that while those of us involved in construction and working in field were well aware of the amazing results being achieved with EM, our bosses remained uninformed about it. I decided I would get nowhere arguing with them, and put my energies into coming up with an idea that would somehow enable me to amass the necessary data to convince them. I eventually settled on the plan of carrying out the initial test on the septic tank in my own home. This is exactly what I set about doing with the cooperation of the manufacturers of EM, the designer responsible for the design of the water-treatment system to be installed at the library, and the staff of a commercial company in the business of plumbing and water control.

"I started off my experiment by introducing a total of 2.8 liters of EM into my septic tank system. This was made up of 2 liters of EM #4 (main constituent: lactobacillus or lactic acid bacteria) and 400 cc each of EM #2 (main constituent: actinomycetes) and EM #3 (main constituent: photosynthetic bacteria). I decided to leave it for a week and then try checking on the condition of the contents of the aeration tank.

"I'd already cut the electric power to the aeration system as Dr. Higa had told me the EM Method would work without aeration. Having been without aeration for a week, strictly speaking the smell should have been so overpowering as to make it impossible to approach the tank. However, I could detect no odor whatsoever from outside the tank. Nevertheless, still apprehensive of what I might find, I removed the lid, opened it up, and looked inside.

"What I found was a layer of scum covering the entire surface of the contents in the tank. What I am calling 'scum' was like a skin and was formed by sludge that had risen to the surface in the course of the decomposition process being brought about by the microorganisms in EM. Contrary to my expectations, there was hardly any smell at all. I took this as a sign that EM was working.

"When I opened the tank up again at the end of the second week, I found the volume of scum had doubled. It was gradually being pushed up from below so that the scum already on the surface had dried into a kind of crust. There was virtually no odor. The system had already been without aeration for two weeks, so it would not have been in the least strange for it to have been giving off a really foul stench. Nevertheless, despite the fact that excrement continued to enter the system steadily on a regular basis, I was unable to detect any odor from the aeration tank.

"I was now at the end of the third week from the start of the experiment. I opened the aeration tank to find the layer of scum had completely disappeared. There was, however, a ring around the tank which marked the height it had reached, and also showed me how thick it had been. I immediately tested to determine the water quality standard, and found the reading for SS (suspended solids) to be 80 ppm.

"The tank in my home was only a two-step septic tank system, so the water quality standard for it was set at a criteria of 90 ppm (SS), or a little higher than for other types of tank. This being the case, a post-test reading of 80 ppm fell just within the required limit for this kind of tank. Since there was no refuting that the experiment had shown the EM Method capable of meeting water quality requirements, I put in my second application to carry out a test at City Hall, backed by the data I had collected. Again, I didn't get an immediately favorable response. This only came when I agreed to accept full responsibility should anything go wrong with the existing system during the course of the experiment.

"City Hall tends to be sensitive about issues of responsibility, and so drags its feet when it comes to something for which there is no precedent. As frequently happens, as soon as it had been made clear who was to take responsibility in the event that anything went wrong, things were decided fairly quickly and easily. It goes without saying that a precedent exists for establishing responsibility in cases of this nature, and is that whoever is to accept responsibility must, as a matter of course, be in a position to do so. Be that as it may, the fact of the matter was I now had the necessary permission to carry out a test on the system at City Hall, which is a fairly large building.

"The results we got were excellent. Whereas previously aeration had been carried out continuously on a 24-hour basis, it was now carried out for six hours, and after three months, SS pollution levels for the water had fallen to 5 ppm. In addition, where previously it had been necessary to perform sludge removal once a month, following instigation of the EM Method, it became necessary to do this only once every six months.

"The septic tank system at City Hall was the standard kind capable of handling an admixture of general domestic waste water, sewage from the toilet systems, and water draining from the showers as well as from the kitchens serving the restaurant in the basement of the building. Altogether, the conditions under which the EM Method would be tested at City Hall were more severe than it could be expected to meet at the new library. On the other hand, it was being introduced to an existing septic tank system, rather than a new one, as would be the case with the library. Regulations required water discharged into the system to have an SS quality rating of 50 ppm and a BOD of 20 ppm. When the EM Method managed to reduce this to an SS quality rating of 5-6 ppm and a BOD of 3 ppm, the same degree of purity as found in a very clean, fast-running stream or brook judged to be acceptable as drinking water, this represented a truly revolutionary achievement in terms of water purity levels, particularly compared with the results that had been obtained from the technology used in the existing system at City Hall.

"Considering that City Hall was far larger in terms of size than the new library would be, and, moreover, that the excellent results achieved by the EM waste-water treatment technology had been obtained for an existing system which used a septic tank that employed the activated sludge method of waste-water treatment, it was felt that the EM Method would be fully capable of dealing with the requirements of the facility to be constructed, and it was officially decided to install it in the new library."