

SAFETY MANAGEMENT - A subject for information and
analytical sciences

Shizuo Fujiwara
Kanagawa University

Safety management has several important facets, which are not really considered in their entirety. It must include maintenance of desired "normal" conditions, monitoring deviations to make it possible to take control before the situation gets out of hand, preparedness to react appropriately to totally unexpected events, and readiness to take effective action if the situation should get out of control. While engineers in the various specialties, environmentalists, planners, and managers address diverse aspects of safety managements, substantive advances can be made only if safety management is considered in its broadest sense.

Some control systems today can be superior to human operators. We must, nevertheless, be aware that we do not yet fully understand the human component. No matter how good mechanical controls may be, people with exceptional skills can often outperform the best designed equipment - at least for a short period of time. The probability that a pilot will land safely can be ten times greater, for instance, than for machine guided landing. But only the most skilful pilot can accomplish this feat and can perform only for a short time period at this exceptional level. How do people develop those remarkable skill? Is it be possible to extend the time they can perform at peak levels? What are the limitations of machine controlled operations? Robotics has advanced considerably, but still needs considerable development. Questions relating to human performance, however, must also be explored.

The analysis of these problems is a challenge to science and technology, but also to the social and behavioral sciences. Safety management must be considered in its entirety, as part of a larger system. The systems must include not only the plant but the total environment as well. Once must be concerned how a plant may affect the environment, but also, how the environment may affect the plant.

A new safety study program must also take a fundamental approach and include studies of normal conditions and must be concerned on how to maintain an instrument, a machine, a factory, a system, or even a human being in a balanced condition. As soon as one begins to examine this question, it becomes obvious that even the definition of normal conditions is not a simple matter. While some standards are science or technology based, others are regional or societal. Acceptable deviation from normal also has to be determined.

It is an extraordinary challenge to inculcate safety attitudes, and to ensure that effective actions will be taken when conditions diverge from normal. Only an interdisciplinary approach will lead to improved safety preparedness and the ability to avoid major disasters.

To develop a fresh approach to safety management calls for the cooperation of university faculties with industry. It also requires the cooperation and synergistic thinking of managers, as well as engineers and scientists from a broad spectrum of disciplines.

A study group has been formed recently with S. F. and discussions are being made. Also an international symposium has been held with a theme of safety management (Yokohama, Nov.8-10). These activities will be introduced and some future aspect will be presented.