

## ABSTRACT

The Thailand Research Fund has provided research grant to Chulalongkorn University to layout and setup a working system of chemicals/hazardous materials management for the university during the first phase of the master plan to establish a **National Industry/University Cooperative Research Center (IUCRC) for Environmental and Hazardous Waste Management**.

Seven buildings in Chulalongkorn University Campus which accommodate 15 departments/institutes of various disciplines and nature were selected as study sites. Data was systematically collected for infrastructure facility, inventory of chemicals and hazardous materials/waste, waste treatment technologies and research activities, and emergency response scheme. Studies and testing exercises lead to development of an integrated management model for chemicals and hazardous materials comprising four operational systems.

The overall constituent, **Spatial Information System**, combines the spatial database that defines objects in graphic form with the descriptive information that explains properties of spatial data. The descriptive information which can be incorporated encompasses the other three constituents, namely, **Chemicals Management System, Laboratory Waste Management and Emergency Response Plan**.

**Chemicals Management System** can be used for chemicals tracking, proper handling and storage of chemicals according to physical and hazard properties. Special features also include administrative management in terms of purchasing, budgeting and user management within and between faculties. The software developed provides security code for practice.

**Laboratory Waste Management System** is closely linked to chemicals and waste database. Results from information survey and data collection lead to waste classification into twelve different categories with proper treatment methodologies. Non-hazardous waste amounted to fifty percent of total waste generated at present can be diluted before discharge.

**Preventive Measure and Emergency Response System** provides guidelines and protocol for operational procedure that should be considered as part of the university or corporate responsibility. Information of safety equipment and central control unit for emergency response are included.

The integrated management plan proposed in the present study may be used as basic model for future modification to be implemented at all levels (provincial and regional) and sectors (industries and government) as anticipated in the work plans of the second and third phases of the IUCRC Establishment Program. Successful application highly depends on the degree of corporate commitment whereby definite policy will significantly pave way for technical and administrative structuring. Budgetary provision and feasible action plan are also of important concern.