ABSTRACT

DEDY SUGIARTO. Knowledge management model at latex goods industrial cluster in West Java and Banten. Supervised by SYAMSUL MA’ARIF, MARIMIN, ILLAH SAILAH, SUKARDI, SUHARTO HONGGOKUSUMO.

The objective of this research was to design knowledge management model at latex goods industrial cluster by taking cases in West Java and Banten Provinces. Latex goods industry in this area is dominated by small and medium enterprises (SME) that produce latex goods. The common problems for SME were lack of knowledge, technological skills, equipment, and marketing network, and also limited access to formal training. Fuzzy analytical hierarchy process technique was used to determine cluster strategy and knowledge management strategy. Knowledge gap analysis with fuzzy logic approach was used to identify key knowledge areas. Fuzzy average technique and Sugeno fuzzy inference system were used in this knowledge gap model. Fuzzy quality function deployment (FQFD), fuzzy failure mode and effect analysis (FFMEA), and expert systems were used to codify key knowledge area for supporting cluster initiative. The model was packaged in decision support system software. Knowledge management portal was developed using drupal content management system to support knowledge sharing in cluster.

This research showed that innovation and technology initiative was the most important initiative for developing latex goods industrial cluster. Therefore, knowledge about innovation and technology, especially production process design and control, are the related knowledge area that should be managed to develop cluster. Nine knowledge areas were detected based on fuzzy knowledge gap analysis. They were compound formulation, coagulant formulation, raw material inspection, dispersion process, dispersion inspection, compound dipping, leaching, vulcanization, and final inspection and failure analysis. Combination of codification and personalization strategy was the most important knowledge management strategy to support innovation and technology initiative and managed key knowledge areas. Result from the FQFD analysis showed that process design in compound dipping, vulcanization system, vulcanization process, and latex concentrate were the key processes in latex dipping in order to meet product technical characteristic. FFMEA analysis showed that latex incoming process and compounding between latex concentrate and chemical dispersion were the processes with highest fuzzy risk priority number. Knowledge codification media such as knowledge taxonomy and expert systems were constructed to codify knowledge about latex dipped goods process design and control. Knowledge management portal was designed for storing and sharing these key knowledge areas.

Keywords: knowledge management strategy, industrial cluster, fuzzy AHP, fuzzy QFD, fuzzy FMEA, expert systems, latex goods