Abstract

An integrated and holistic approach to knowledge management system for natural resource management needs to take local indigenous knowledge as one of its components for achieving sustainability. The system of indigenous or local ecological knowledge on natural resource is fuzzy. The integration of such fuzzy knowledge requires a methodology for converting fuzzy data into crisp data for a quantitative analysis. The process of arriving at a conclusion from indigenous knowledge fuzzy data is done using a set of fuzzy inference rules. This work shows that fuzzy inference system is an efficient method to demonstrate defuzzification of the local ecological knowledge using fuzzy inference process. The paper builds a fuzzy inference system from the fuzzy indigenous knowledge system on soil. The inference rules are framed from the fuzzy indigenous knowledge on soil as IF...THEN structures. FIS tool in Matlab is used for building a mamdani fuzzy inference system using the inferences. The relationships between
various factors influencing the suitability of soil for crops are produced as the output of the suitability fuzzy inference system.

Reference

- Fikret Berkes, Mina Kislalioglu Berkes, “Ecological complexity, fuzzy logic, and holism in indigenous knowledge”, Futures, Volume 41, Issue 1, February 2009, Pages 6-12.
Fuzzy Inference System for an Integrated Knowledge Management System

Index Terms

Computer Science
Artificial Intelligence

Key words

Local Knowledge
Fuzzy Knowledge
Fuzzy Inference

System
Defuzzification

Suitability Analysis
Sustainability