Framework Model of Sustainable Supply Chain Risk for Dairy Agroindustry Based on Knowledge Base

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Abstract—The
objective of this
paper was to
develop a
framework model
for sustainable
supply chain risk
for dairy industry
based on
knowledge base.
It presented a
conceptual
framework with
integrated risk
supply chain and
knowledge base
systems. The
critical point of
dairy located on
the product
which has the
characteristic
easy damage.
Risk-damaged
dairy
contaminated
with bacteria due
to improper
handling of dairy.
Risk occurred in
each activity in
the supply chain
network ranging
from farmer,
cooperative and
dairy processing
industry. The
structured
approach of
supply chain risk
divided into the
phases of risk
identification,
risk
measurement
and risk
assessment, risk
evaluation and
risk mitigation
and contingency
plans; and risk
control and
monitoring
system based on
system. Adding
Knowledge base
risk supply chain
will produce the
following
process:
knowledge base
risk capture,
risk discovery,
knowledge base
risk examination,
knowledge base
risk sharing,
knowledge base
risk evaluation
and knowledge
base risk
repository. The
relationship
between risk
factor, risks and
their
consequences are
Failure Mode and
Effect Analysis
(FMEA) and
Hierarchical Risk
Breakdown
Structure (HRBS).
Likelihood of risk
event occurring,
the level of
dependence
between risks
and severity of
risk event are
quantified using
linguistic
variables and
fuzzy logic. The
proposed system
was designed by
Intelligent
Decision Support
System (IDSS).

The design of this
model was able
to improve the
effectiveness of
decision-making
with regard to
the organization
of knowledge,
storage and
sharing of
knowledge in the
agro-industry
supply chain risks
dairy.
Keywords:
supply chain risk,
dairy
agroindustry,
fuzzy logic,
knowledge base