

# Benchmarking Agri-food Supply Chain Networks: A Conceptual Framework

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# Outline

Study introduction

Motivation

Objectives

Methodology



# Introduction

## Benchmarking

Measuring, comparing, learning and improving

## Supply Chain Network

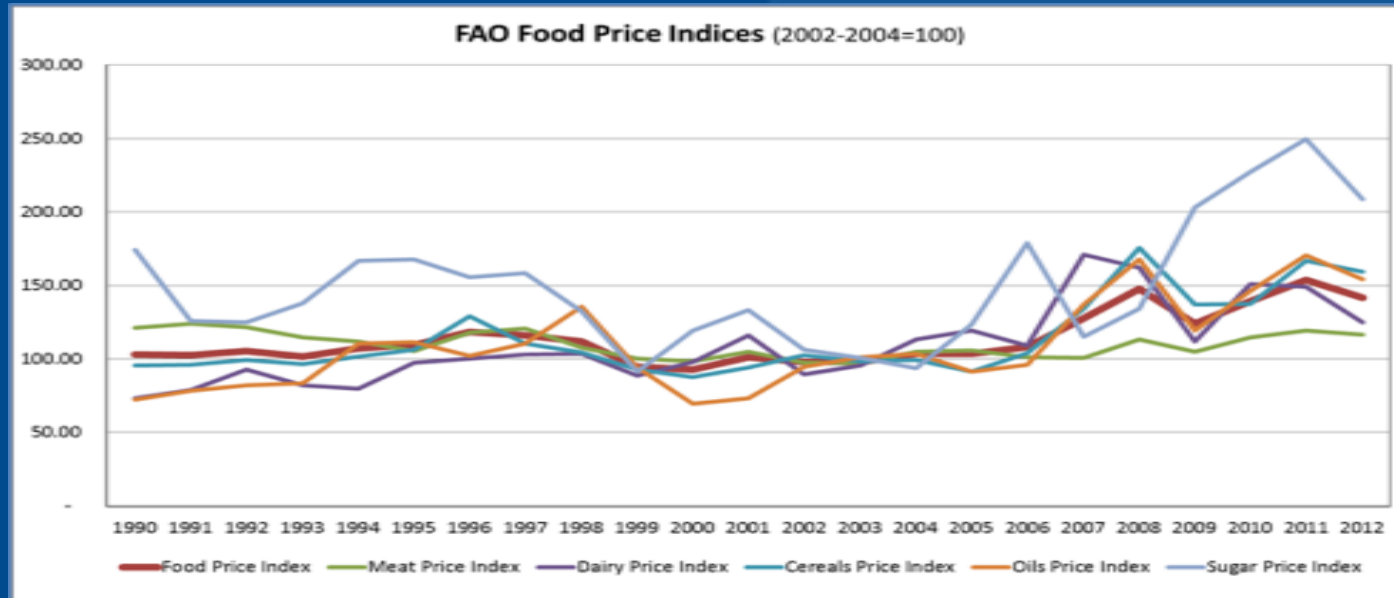
## Complexity of Agri-food SCNs

Perishability, seasonal production, variability of quality and quantity, long production throughput time and need of specialized transportation

## Proposed Study

To benchmark performance and best practices of milk SCN in Pakistan and New Zealand

# Motivation



## Why Pakistan?

- ❑ People with inadequate food consumption increased from 72 million in 2005-06 to 84 million in 2008 (FAO, 2008).
- ❑ Net food importer
- ❑ Agriculture (contributes 21% to GDP and employs 45 % of total labour force) (Govt. of Pakistan, 2012)

# Motivation (Contd...)

- ❑ Livestock subsector (contributes 55.1% of agriculture value added and counts 11.6 percent to national GDP) (Govt. of Pakistan, 2012)
- ❑ Fifth largest milk producer of the world (FAO, 2012)
- ❑ Milk imports (134.3 US\$ million) (Govt. of Pakistan, 2012)
- ❑ Milk production (47.95 million tons) and consumption (38.69 million tons) (Govt. of Pakistan, 2012)

# Motivation (Contd...)

- ❑ Issues in milk SCN in Pakistan (Afzal, 2008; Tariq et al., 2008; Zia, 2009)
  - ❑ Low profitability (subsistence farming)
  - ❑ Low productivity 1333 liters/animal/year (1/3 of New Zealand)
  - ❑ Poor infrastructure and marketing mechanism
  - ❑ Lack of value addition
  - ❑ Poor quality and price control
  - ❑ High risk involved (seasonality of demand and supply)
  - ❑ Power groups

# Objectives

- ❑ To investigate the milk SCNs in Pakistan and NZ dairy industries.
- ❑ To measure and benchmark the performance of milk SCNs in Pakistan and NZ.
- ❑ To identify the performance gap between both the milk SCNs.
- ❑ To suggest measures to improve the performance of milk SCN in Pakistan.

## Supply Chain Operations Reference (SCOR) Model

### Why SCOR Model?

- ❑ Cross-industry process reference model, A holistic approach (Stewart 1997)



- ❑ Comprehensive SCOR metrics (579 performance measures)



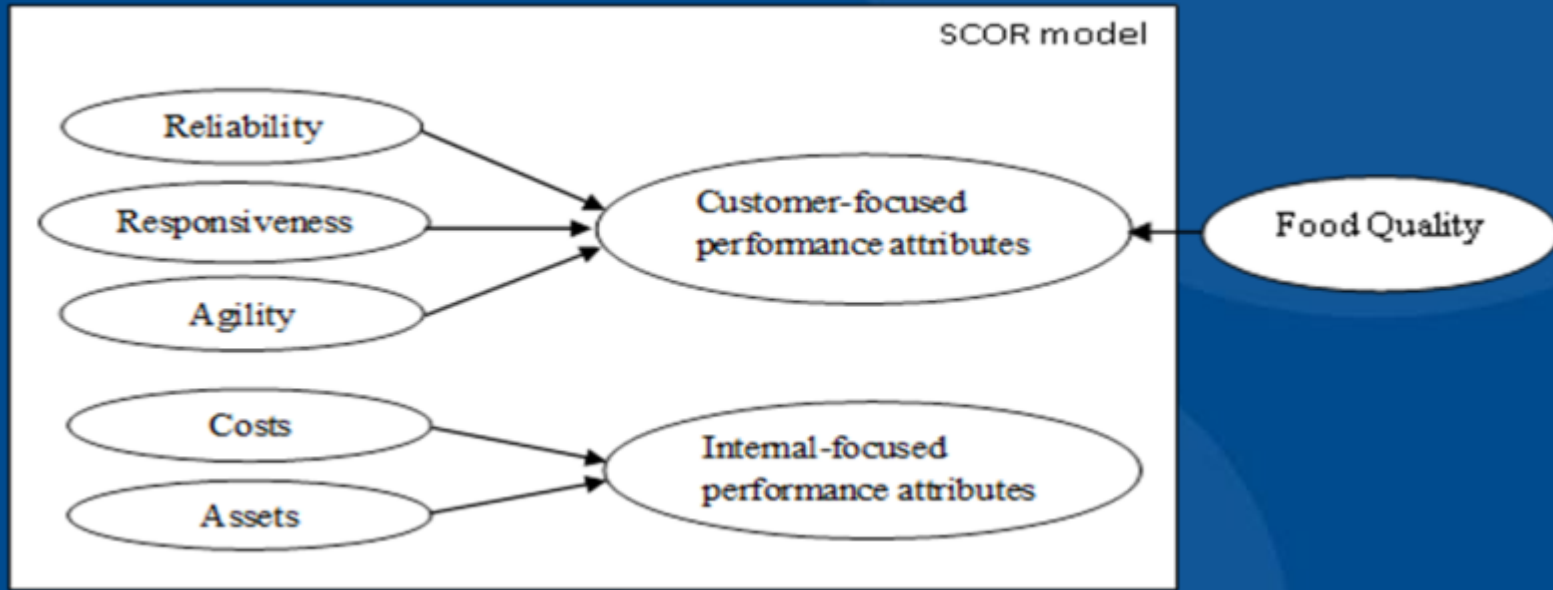
# Methodology (Contd...)

- ❑ Five performance attributes: Reliability, Responsiveness, Agility, Cost and Asset Management
- ❑ Four Levels of process detail: Strategic, Tactical, Operational, and Industry Specific
- ❑ Process Configuration: Make-to-stock, make-to-order, or engineer-to-order

## Model's Limitation

- ❑ Insufficient focus to food quality (Aramyan, et al. 2006).

## Conceptual Framework



## Food Quality:

- ❑ Product quality: Sensory properties, shelf-life, food safety, nutrition, packaging and product information
- ❑ Process quality: Production system, handling and hygiene, environmental aspects

# Thank You

