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KNOWLEDGE MANAGEMENT PRACTICES IN
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Abstract

Purpose: Rice farming has immense scope in sustaining the livelihood of millions of farmers. Being a diverse ecological and socially background country, Kenya is lagging behind the developed countries in agriculture sectors. To manage all the knowledge available in public, as well as private domain, it needs to integrate and make it accessible to all the stakeholders of agriculture, especially farmers.

Methodology: Research carried out in 2011 in Kirinyaga district, Kenya, shows how sense-making theory and methodology can be used to assess the use of local agricultural and external knowledge by small-scale farmers and its effects on small-scale agriculture. Two knowledge systems, the local knowledge system and the external or scientific knowledge system, are considered dominant. The two systems can be synergistic and small-scale farmers have mixed them in their farming activities. Blending systems improve communication, livelihoods, and economies within local communities, and increases their participation in development. Data were collected in focus group discussions with farmers' groups and interviews with individual farmers.

Results: Results show that most farmers in Kirinyaga use external agricultural information in their farming practices. A significant number use combined external agricultural information and local knowledge, which forms a third knowledge system. This third system requires the validation of the farmers' innovations and documentation of the knowledge for wider dissemination.

Unique contribution to theory, practice and policy: Information providers should adopt policies that promote the use of the three knowledge systems by small-scale farmers. The study was conducted in a single agribusiness chain. Future studies may look at another method of knowledge management assessment to see if the results will be similar. The results can contribute to the development of programs and policies, incorporating knowledge management into agribusiness as a competitive strategy.

Keywords: *Knowledge, Knowledge Management Performance, Rice Farming Practices Firm Performance, Agribusiness Firms.*

1.0 INTRODUCTION

The indigenous knowledge system and the external knowledge, or scientific, system are the two most widely acknowledged knowledge systems (Davis, 2006b, Nakashima, 2004). Aikenhead and Ogawa (2007), however, distinguish three ways of knowing using a cultural base. First are the, largely oral, indigenous ways, and second the neo-indigenous ways of knowing. Predominant in Asia, neo-indigenous ways of knowing are based on the culture and history of the region (e.g., Japanese ways of knowing) and, unlike indigenous knowledge, are

documented. Third is the Eurocentric way of knowing. These three ways of knowing are examined with reference to the agricultural knowledge and information systems (AKISs) of small-scale farmers in the Kirinyaga District of Kenya.

Kirinyaga is one of seven districts in the Central province, with Embu to the east, Mbeere to the south and Nyeri and Muranga districts to the west. It has four administrative divisions with diverse agro-ecological conditions, varied climates, wide-ranging economic enterprises, and differing poverty levels. Kirinyaga has a high population density and faces many social and economic challenges. It enjoys considerable agricultural potential and many small-scale farmers grow cash crops (e.g., coffee, tea, rice) and subsistence crops (e.g., maize, beans, potatoes, bananas) for household consumption and local and export markets. A number of farmers in the district have adopted improved farming methods according to the Ministry of Finance and Planning (2002). For these reasons, it was regarded as a suitable location for the study.

Globally, there has been considerable interest in the integration of farmers' local knowledge with external knowledge systems, as noted by the International Institute for Rural Reconstruction (IIRR, 1996) and others (Lwoga, 2009, Meyer, 2000, Meyer, 2009). This article investigates the use of local, external, and mixed local–external agricultural knowledge by small-scale farmers and its effects on small-scale agriculture in Kirinyaga. While knowledge management is a widely studied topic, there has been little focus on this subject with regard to agribusiness. Empirical findings of an important agribusiness supply chain are provided and show the differences in knowledge management perceptions between farmers who are members of cooperatives and those who are suppliers of firms. As a suggestive and curative method, knowledge management can be a useful way to integrate all the knowledge. Knowledge management is basically about acquiring and storing knowledge and providing better access of the right knowledge to the right person at the right time. In the current changing scenario knowledge is viewed as an important input for agriculture which should be localized, context and content-based. The present paper reviews the knowledge management process and knowledge management initiatives in organization, agriculture, and allied sectors.

Objectives of the Study

The main aim of the study was to assess knowledge management practices in agribusiness firms, a critical review of rice farming in Kirinyaga.

LITERATURE REVIEW

Knowledge Management: Concepts, Processes and Tools Knowledge

Knowledge is information combined with experience, context, interpretation and reflection (Davenport, 1998). Knowledge consists of the attitudes, cumulative experiences, and developed skills that enable a person to consistently, systematically and effectively perform a function (William and Michael, 2005). It is an integration of explicit and tacit knowledge

Types of Knowledge

There are two basic types of human knowledge. Explicit knowledge refers to all aspects of formal, systematic, recorded, communicated, and shared knowledge that is made accessible through a variety of information delivery systems. Tacit knowledge on the other hand is highly personal, created by doing, trial, error, reflection, and revision. Tacit knowledge is extremely difficult to communicate directly. Knowledge systems deal in communicating both forms of knowledge, however, the systems themselves deals exclusively with explicit knowledge. Common functional categories of knowledge include:

- Declarative/Descriptive: Knowledge describing what something is.
- Procedural: Knowledge describing how to accomplish a task.
- Causal: Knowledge that describes why something happens.

Knowledge Management

Knowledge management (KM) encompasses processes and practices concerned with the creation, acquisition, sharing and use of knowledge, skills and expertise and follow a circular flow and a nonstop process that continuously updates itself.

Another definition is that knowledge management refers to the set of business processes developed in an organization to create, gather, store, disseminate and apply knowledge. Knowledge management involves designing and maintaining knowledge systems that genuinely enhance organizational performance. KM increases the ability of an organization to learn from its environment and to incorporate knowledge into its business processes.

Knowledge Management Systems

In general, a system is defined as a set of elements that interact to achieve some common goal (Webster's Dictionary, 1995). Systems are typically composed of people, technologies and data/information. Knowledge Management Systems (KMSs) are defined as systems designed and developed to give decision makers/users in organizations the knowledge they need to make their decisions and perform their tasks (Davenport, 1998). KMSs are the tools and techniques that support knowledge management practices in organizations.

Theoretical Review

Knowledge Management Models

Knowledge management (KM) is considered to be a very difficult task in Africa agriculture and become one of the foremost agendas, in many research institutions and organizations So, there is a need to understand the process, so some models were proposed by some authors are;

1. SECI Model

This model (Nonaka & Takeuchi, 1995) presumes that, knowledge consists of tacit and explicit elements. Tacit knowledge is mainly non-verbalised, intuitive and unarticulated, and explicit knowledge is mainly writing, drawings, and others. This model explained tacit knowledge can be change into tacit knowledge in others by the process of socialization and tacit knowledge can be converted into explicit knowledge by externalization process. Explicit knowledge can be transferred into tacit knowledge in others by translating theory into practice (internalization) and explicit knowledge can be transferred to explicit knowledge in others by combination process.

Figure 1: Nonanka and Takeuchi (SECI- Model, 1995)

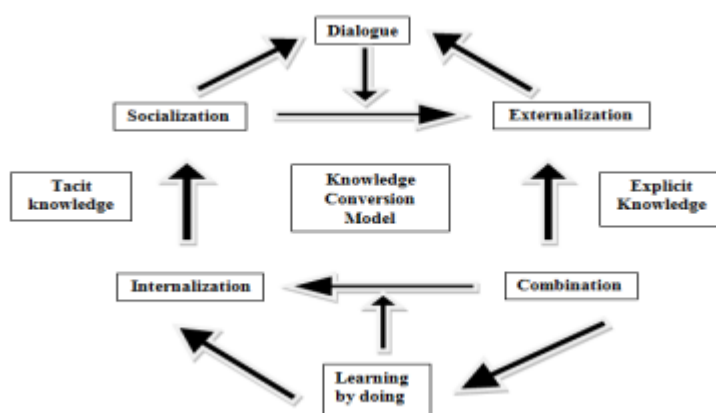


Figure 1: Nonanka and Takeuchi (SECI- Model, 1995)

2. Demerest’s Knowledge Management Model

Demerest’s knowledge management model stress on the creation of knowledge, within an organization. It includes the social construction of knowledge. The model states that, constructed knowledge is personified within the organization, through a process of social interchange (McAdam and McCreedy, 1999).

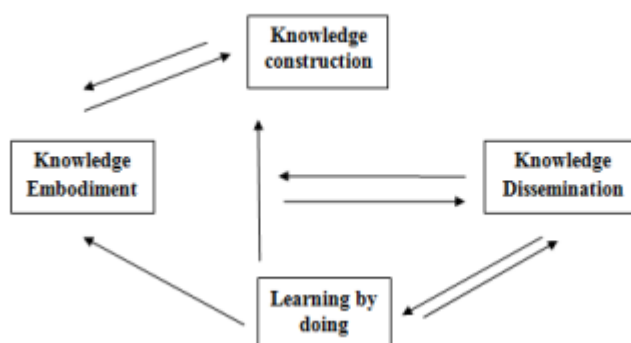


Figure 2: Demerest’s Knowledge Management Model (McAdam and McCreedy, 1999)

3. Frid’s Knowledge Management Model (2003)

In this model, the knowledge management maturity assessment levels and knowledge management implementation has been divided into five levels, namely knowledge chaotic, knowledge aware, knowledge focused, knowledge managed, and knowledge centric.

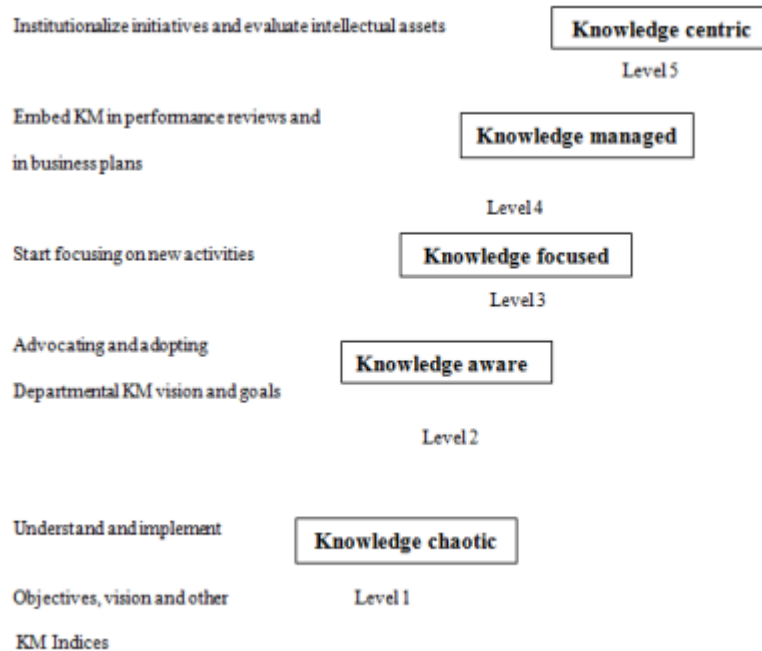


Figure 3

Empirical Review

Knowledge management involves different activities performed to enhance accessibility and usage of knowledge. It also comprises the strategies and methods employed to generate and leverage knowledge (Krudys et al., 2011). Agricultural knowledge management activities Knowledge management involves several sets of activities performed so as to enhance access to and usage of knowledge. Such activities include creating/capturing knowledge, organising it, storing it and using it (Richter et al., 2013). When conducted effectively, knowledge management activities increase individual performance, provide the workforce with adequate skills, and enhance rational decisions regarding production processes. Organisations that grasp knowledge management activities effectively are in the best position to attain a competitive advantage (Claver-Cortés et al., 2007).

Agricultural production is knowledge intensive because it involves many risks such as pest and disease outbreaks, extreme weather events and market shocks (Harvey et al., 2014), which influence what and when to produce. Dealing with risks requires adequate access to relevant knowledge. Agricultural knowledge creation in rice production involves different stakeholders. While rice farmers share and create knowledge through cumulative experience in farming activities (Singh et al., 2014), agricultural research institutes play a major role in generating new agricultural knowledge and developments. Through agricultural extension and advisory systems, farmers can have access to generated knowledge (Munyua and Stilwell, 2013). When created, agricultural knowledge may be organised and repackaged for easy consumption.

Repackaging involves selection, analysing, processing and translating information with a view to communicating a message in a convenient and effective form to a target audience defined for the purpose (Dongardive, 2013). Well-repackaged information can potentially communicate the intended knowledge to the target audience.

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Depending on the agricultural knowledge system used, knowledge can be stored as hard copy (paper-based system) or as soft copy (computer-based system). Compared to a computer-based system, a paper-based system is considered to be inefficient, slow, laborious, difficult in terms of managing resources and consumes more space (Labrique et al., 2013). Compared to paper-based systems, electronic devices used for purposes of storing knowledge are considered to be more efficient, utilise little space and do not involve more labourers in managing knowledge (Stausberg et al., 2003).

Enhancing access to relevant knowledge throughout the rice value chain for each stage of the rice-cropping calendar is important for facilitating rational decisions regarding rice production and post-harvest handling. From Jayasingam et al. (2010), knowledge acquisition, knowledge exchange, and knowledge usage influence the performance of knowledge management activities. In Kenya, most studies on agricultural knowledge management have concentrated on farmers' knowledge needs (Lwoga, 2010; Lwoga et al., 2011; Mtega et al., 2016). This research study addresses a gap to explore a broad range of farmers' involvement in agricultural knowledge management, which may contribute to accessibility of agricultural knowledge.

METHODOLOGICAL REVIEW

This study was conducted in the Kirinyaga region of Kenya. To select respondents, a sampling frame (list of people forming the population) of rice farmers from each village was made. A study by Bartlett et al. (2001) proposed a table estimating the sample size according to population size. Based on these estimates, a sample size of 226 rice farmers was determined. Simple random sampling technique was used to select the sample from the population of rice farmers from the nine villages (see Table 1). The technique was selected because it gives equal probability of each unit to be included in the sample and can enhance generalisation of results.

The study used a structured questionnaire and a focus discussion guide in data collection. A structured questionnaire with open- and closed-ended questions was piloted and administered to the 226 rice farmers and all responded to the questionnaire making a 100% response rate. Three focus group discussions were conducted (one in each district) to supplement data collected through structured questionnaires. Face-to-face interview sessions were arranged for data collection. Data collected were edited, classified, cleaned and entered in the Statistical Package for Social Sciences (SPSS) which facilitated its analysis. The SPSS facilitated the generation of frequencies, percentages and tables. Qualitative data collected were analysed through content analysis and summarised into descriptions and explanations. Findings Both male and female rice farmers were involved in the study.

FINDINGS

The results revealed that 111 (49.1%) of the respondents were males while 115 (50.9%) were females. The majority of the respondents fell within two age groups: the age group of 26 to 35 with 58 (25.7%) respondents, followed by the age group of 36 to 45 with 53 (23.5%) respondents. Other age groups had fewer than 40 respondents. The findings indicate that rice farming in the study area involved 49.1% male and 50.9% female rice farmers (Table 2). This reflects that in the study area there are slightly more females involved in rice production than males. These findings are supported by a study (Palacios-Lopez et al., 2017) which also found a higher percentage of females in the agricultural labour force in Kenya than male. Moreover, findings indicate that most of the farmers were aged between 26 and 45. Farmers within the reported age range are strong and have adequate farming experience.

A majority of farmer participants (70%) had a primary level of education (Table 2). In Kenya, primary education is the basic level of education. In primary schools, children are taught basic life skills necessary for sustaining life and generating income. Farmers with a primary level of education reported ability to use knowledge and adopt agricultural technologies and developments. Findings indicate further that only 14.6% of the rice farmers had a secondary level of education. In Kenya, agriculture is considered to offer employment to those whose level of education is not above primary education. In most cases, people with secondary and higher education shy away from farming. However, due to the increasing unemployment rates, this trend is decreasing. Moreover, it is evident from Table 2 that more male rice farmers had formal education than female farmers. This is mainly due to the fact that in Kenya, educational opportunities for females are relatively lower than those for males (Hedges et al., 2016).

The farming experience of the rice farmers varied from one to more than 30 years. The results exhibited that 17.7% farmers had one to five years' experience in rice farming, 19.5% had six to 10 years' experience, 12.4% had 11 to 15 years' experience; while 14.2% had 16 to 20 years' experience in rice farming. 16.8% farmers had 21 to 30 years' experience, while 19.5% had more than 30 years' experience in rice farming. Having farmers with varied farming experience is of great potential for enhancing learning from the experience of others as farmers with less experience can learn from the experienced ones.

DISCUSSION

Need and Challenges in Knowledge Management for Agriculture

- As the numbers of small and marginal farmers are increasing so there is a need to speed up agricultural growth rate in country
- Agriculture has vast resources for information but at farmers level there is need of enlargement of available resources
- Relevant available information should be easily accessible to all the stakeholders of agriculture
- For speedy dissemination of technologies and information a stronger research-extension–user system linkage should be developed
- There is a need to ensure clients about availability of right knowledge/ information at right time at right place
- Farmers should get information which should be cost-effective
- Generally in agriculture women are left out as receiver of knowledge as the most of the work in agriculture done by them only, so ensure gender equity in technology transfer process
- Need to empower small and marginal farmers in the country
- Present focus on demand driven agriculture rather than supply driven approach
- Readily availability of expert in public and private sectors
- There is a need to avoid duplication of knowledge

Strategies for Knowledge Management

- Actively manage knowledge available in public as well as private domain
- Involvement of knowledge generator at policy level
- Developing important capabilities of stakeholders
- Availability of accessible information to stakeholders
- Adequate ICT infrastructure for setting and maintaining knowledge management systems
- Capacity building of stakeholders
- Providing relevant information
- Building other support structure for disseminating information
- Developing local leadership

CONCLUSIONS

In the changing scenario, knowledge is considered to be a powerful element in the development of society. In agriculture availability of information is not a problem but their proper utilisation and management in the prime task for the major stakeholder. In that way, knowledge management is playing a crucial role to making the agrarian society much more knowledge vivacious and knowledge intensive. knowledge management not only considers the creation and acquisition, storage of knowledge but it also considers the perspectives of social and human development like internal knowledge management, dissemination, and building knowledge capacity. Farmers should be the focal point while formulating all the initiatives directly linked to farmers. In process of better access to information, basic infrastructure should be strengthened and capacity building of stakeholders should be emphasized.

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