



## Application of the Resource-based Theory (RBT) to Neglected and Underutilized Crop Species (NUCS) and the opportunities they present for rural household food security: The Ghana context.

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### Abstract

Notwithstanding the many criticisms of the core propositions of the theory, the RBT has found many applications in various disciplines. In this paper, the author applies the core principles of the theory to highlight a strategic plant genetic resource available to farmers and agricultural practitioners in Ghana. While a number of different theoretical positions can contribute to an understanding of the concept and relevance of these often neglected crops, the RBT is used as a lens to analyse and provide some perspectives on the NUCS advantage. The intention is to create a sense of urgency among relevant stakeholders in Ghana's agricultural sector on the need to fully embrace this critical 'internal' resource' in its effort at addressing the constraints to food insecurity among rural households. The paper concludes with the author's own perspectives and recommendations.

**Keywords:** Resource-based Theory; Neglected and Underutilized Crop Species; Rural food security; Resource; Application.

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## 1.0 Introduction

The Resource-based Theory (RBT) is recognized by many as an important and useful theory. While this paper fully acknowledges the weakness and criticisms of the theory, it also recognizes the strengths of its core propositions and therefore draws on it to analyse and examine a valuable plant genetic resource which has often been neglected and overlooked, the NUCS. The underlying principles of the theory as relates to the exploitation of internal resources of a firm to achieve a defined goal makes it appropriate in discussions concerning the use of this strategic NUCS resource. NUCS as plant resource available to farmers and agricultural practitioners, are critical to addressing important national development issues such as household food security. Although a number of different theoretical positions can contribute to an understanding of the concept of NUCS in the food security discourse, the RBT is used essentially to highlight the NUCS competitive advantage. Even though Ghana is said to be food secure, MoFA (2015) notes that about 5 percent of Ghana's population (1.4 million people) are food insecure.

The World Food Programme (2012) in a report notes that food insecurity in Ghana is experienced and occur largely among indigenous communities (19%) as compared to the urbanized communities (4%). Ghana has therefore over the years imported various key staple crops and other commodities such as tomatoes, onions and millet among others to augment local production (MoFA, 2012; 2013; 2014; 2015 and 2016). In the year 2016, Ghana imported various quantities of rice and millet due to shortfalls in domestic production to meet local demands (MoFA, 2016). The report however notes that rice import particularly, has consistently increased over the years, a situation that has implications for the economy. Agricultural markets over the years have also not favoured indigenous crop varieties due to the preference for high-yielding crop varieties, a situation that has resulted in the narrowing of the genetic base. This has implications for the availability of the wide variety of food crops required to ensure nutritional and food security. Considering the challenges posed by rural food insecurity, it is imperative that the country encourages the profuse use of these often marginalized crops as part of efforts at addressing the challenge. This paper aims among other things to apply the principles of the RBT to emphasize the NUCS advantage for the agricultural sector in Ghana. The paper additionally seeks to stimulate discussions among policy makers and the relevant stakeholders in Ghana's agricultural sector to find space for this important subject. The author also reaches out to all other stakeholders who identify with and are involved in NUCS related research to increase awareness on the importance of this resource. The following themes have been examined in the paper: *The Resource-based Theory (RBT); NUCS as a valuable resource; exploiting the NUCS resource advantage; Attaining rural household food security using two key resources* together with the author's own perspectives and suggestions.

## 2.0 Methodology

### *An overview of the Resource based Theory (RBT)*

The history of the Resource based Theory (RBT) has been associated with scholars such as David Ricardo and Bernard in 1938 (William *et al.*, 2011; Habbershon and Williams, 1999; Conner, 1991). Another school of thought also attributes the origin of the concept to the contributions of Selznick in 1957 (Bryson *et al.*, 2007), Penrose in 1959 (Nair *et al.*, 2008) Pfeffer and Salancik in 1978 (Hillman *et al.*, 2009), Rumelt in 1984 (Madhani, 2010). The RBT according to Barney, 1991, 2002 emphasizes the critical role of resources to a firm that seeks to sustainably attain an advantage above the competition. The term resources refer to all the assets including the expertise, systems and the information that an organization possess and can employ to its advantage (Barney *et al.* 2011). Such resource according to Barney and others must be valuable, rare, inimitable and non-substitutable. The theory like other theories has transitioned and undergone evolution due to the contributions of many other scholars. The theory though widely used and recognized, has also been critiqued, citing various limitations and weaknesses. Almarria and Gardinera (2014) points out some of these limitations. These include: issues regarding inappropriate definitions; over generalization; and construct validity. Sanchez (2008) in a scientific critique of the theory also identified some fundamental conceptual deficiencies and logic problems particularly in Barney's conceptualization of "strategically valuable resources" and in Barney's VRIO (Value, Rarity, Imitability, Organization) framework for identifying strategically valuable resources that can be sources of sustained competitive advantage. Among the logic issues identified include the value conundrum, the tautology problem in the identification of resources and the absence of a chain of causality. Sanchez further argued that the core proposition of the theory which describes resources as the source of sustained competitive advantage was flawed as it precludes use of the scientific method in Resource Based View (RBV) research. Among the key contributions that significantly influenced the RBT was that of the work of Edith Penrose in the 1950's. According to Penrose, a firm's resources influence its growth and therefore the absence of adequate resource will hinder or constrain the growth or development of a firm (Nair *et al.*, 2008). Penrose further notes that a firm can create economic value and be successful if it is able to utilize or manage the resources it possesses effectively and innovatively (Mahoney, 1995). In other words, sustainable development can only be achieved by the effective and efficient employment of all resources available to a state

(Mahoney, 2011). The theory therefore emphasizes on the peculiarity of the internal resources of a firm as an advantage (Habbershon & Williams, 1999; Pablo *et al.*, 2007).

### **NUCS as a valuable resource**

The theory asserts that sustainable development can only be achieved by the effective and efficient employment of all resources available to a state (Mahoney, 2011). Resources therefore constitute an important asset to an organization (Barney, 1991; 2002). For a resource to be considered valuable it must be able to present opportunities; be scarce among all competitors; and must not be easily duplicate or substituted by another alternative resource. One of the important strategic indigenous plant resources available to the agriculture sector in Ghana which has not been exploited is the NUCS especially given their known contribution to addressing household food insecurity. Neglected and Underutilized Crop Species (NUCS) constitute an essential part of agrobiodiversity (FAO, 2010; Biodiversity International, 2017). The FAO (2017) defined NUCS as minor or promising crops that have been overlooked by researchers, agricultural officers, policy makers and producers. For the purposes of this discussion, NUCS is defined as crops and species that have not been categorized as selected or key staple crops and are not being used in a major way at present and are largely restricted to smallholder farming areas. Various NUCS related studies in Ghana have confirmed the presence, diversity and potential of this strategic NUCS resource in various parts of Ghana. Drawing from Barney (1991) description of a resource being valuable and able to present opportunities, NUCS constitute a valuable plant resource with several benefits and traits that make them relevant and useful to the environment. NUCS are able to flourish under harsh conditions where hitherto other plants may not survive and this make them valuable in climate change mitigation and sustainable food production (Bala Ravi *et al.*, 2006). NUCS also contribute essentially to the maintenance of cultural diversity among indigenous communities due to the cultural value they place on them (IPGRI, 2002). Among some of the other benefits include: nutritional (Mengistu & Hager, 2008; Chivenge *et al.*, 2015; Padulosi *et al.*, 2013); medicinal (Dansie *et al.*, 2012; Gill *et al.*, 2010; Obi, 2011); economic (Mabhaudhi *et al.*, 2011); and environmental (Bala Ravi *et al.*, 2006; Padulosi *et al.*, 2013). NUCS therefore present a unique opportunity for Ghana's agricultural sector to exploit for the purposes of addressing the food insecurity among indigenous or rural communities. Several studies including Nyadanu *et al.*, 2014 and Magbagbeola *et al.*, 2010 have confirmed NUCS contribution to addressing the food insufficiency challenge. In the estimation of the authors NUCS related research output from academic and research institutions in Ghana have generally not received the required attention by those who have the authority to ensure the findings of such research efforts are applied as experienced in other jurisdictions. There seem to be some level of both anecdotal and empirical evidence of the value of NUCS to rural households in some parts of the country even though more research effort on the subject is required. There is however empirical evidence of the use of this important resource in addressing food security and enhancing rural livelihoods in other Sub Saharan countries, yet NUCS does not seem to receive the needed attention of the stakeholders in the agriculture sector in Ghana. The core principle of the RBT as relates the role of a strategic resource being critical to the attainment of

competitive advantage or the success of an organization or a state is consistent with the thinking of the author. It is the considered view of the author that NUCS is a critical resource that is not being “fairly treated” by those who matter either consciously or unconsciously, especially given its known contribution to addressing food insecurity. In terms of resources being rare and offering competitive advantages, NUCS possess some unique agronomic properties that make them thrive in diverse ecological niches and under unfavourable environments such as poor soils and drought (Shackleton, 2009). Mabhaudhi *et al.* (2011) further notes that NUCS are also useful substitute in the event of the failure or unavailability of the main crop. NUCS are also inimitable and non-substitutable. While NUCS occur in both tropical and temperate areas, their use and importance are not clearly evident in many European countries (Padulosi *et al.*, 2013; FAO 2010). It is imperative from the foregoing discussions that NUCS as plant resource has not been fully exploited by the agricultural sector in Ghana and therefore must be given the urgent attention it deserves.

### **Exploiting the NUCS resource advantage**

In explaining the core propositions of the RBT as relates to the importance of effective resource utilization, Mahoney (1995) notes that a firm essentially will not create economic value and be successful mainly due to the presence of internal resources but rather its ability to utilize or manage the resources it possesses effectively and innovatively. A deliberate strategy that aims and ensures that resources are utilized is therefore crucial. Several studies in remote areas of developing economies have shown that NUCS play important roles in the enhancement of local livelihood, nutrition and food security among indigenous communities (Nyadanu *et al.*, 2014; Magbagbeola *et al.*, 2010; Bhattacharjee, 2009). In countries such as India, Nepal, Malaysia and Philippines in Asia and the Pacific, NUCS have been reported to serve as source of food and medicine. The use of NUCS is also common among Sub Saharan countries such as Malawi, Nigeria, Cote d’Ivoire, Uganda, and Zimbabwe. (Padulosi *et al.*, 2013; FAO 2010). It is important though to note that NUCS cultivation and use are also constrained by several factors.

Among some of the constraining factors include climate change impact; absence of appropriate legal framework; impact of market forces; abuse of pesticides and other agrochemical; land use change; and loss of traditional knowledge of indigenous crops (FAO, 2010). The knowledge of the potential of NUCS through research however will not be useful if the deliberate policy action leading to the effective use and management of such crops and species are not pursued. This paper agrees with the thinking of the Mahoney (1995) who highlights the important relationship between the actual utilization of a resource and not just the mere presence or availability of the resource and achieving economic value or results. It is the view of the author that a political will, will always be critical to guarantee such results. Some policy action will be required to ensure the effective utilization and integration of NUCS into the country’s food basket. This is important as food security is also a development issue.

## Attaining rural household food security using two key resources

As Mahoney (2011) posits in line with the RBT, sustainable development will be achieved only if the resources available to a state or country are effectively and efficiently used. Food security as recognized by the United Nations development programme constitute one of the key elements of sustainable development and a critical component of its original concept of human security. (UNESCAP, 2009). According to FAO (2017) the incidence of food insecurity continues to be a major challenge in some regions of Asia and sub-Saharan Africa. In Ghana research studies such as Abubakari and Abubakari, 2015; WFP, 2012; WFP, 2009 and MoFA, 2015 have all suggested that though food insecurity is a challenge, it is mainly a rural phenomenon. However, interventions directed towards the attainment of rural household food security in the country has not yet yielded the expected results. It is therefore imperative that more innovative and strategic approaches are adopted to address the phenomenon given its relevance and contribution to Ghana's development. Drawing from the RBT principles on resource use it is important to identify the key resources that should engage the attention of the agricultural sector in Ghana. Two key resources are being suggested in this paper namely: *the NUCS resource* and *the policy resource*. These resources when effectively and efficiently exploited can help the agricultural sector in Ghana to significantly address the challenges of food insecurity among rural households. A deliberate strategy to exploit and integrate NUCS into the national food basket is important. For the integration to be a reality some policy action will be critical as there is currently no comprehensive policy that details a strategy to facilitate the integration. The current agriculture sector policy (FASDEP II) promotes only selected priority or major crops based on their economic importance to the neglect and marginalization of other indigenous crop varieties. The policy strategies therefore emphasize the cultivation of selected major crops. This evidently calls for some deliberate intervention. The author is of the strong conviction that the integration of NUCS through the necessary policy action constitute arguably the two key resources available to the agricultural sector in Ghana in terms of addressing rural food insecurity.

## 4. Conclusion and the way forward

The position of this paper is that the principles of RBT are still relevant and applicable as it is reasonable and logical to expect desired outcomes or outputs after consciously ensuring that the right inputs or resources are available and adequately utilized. The core propositions of the RBT resonates with the thinking of the author despite the associated weaknesses as advanced by opponents of the theory. The importance of the NUCS resource cannot be over emphasized as food security considerations are also linked to the attainment of sustainable development. The paper also acknowledges the role of policy in order to make this a reality. This paper has therefore sought to convey and present to policy makers and the relevant stakeholders in the country's agricultural sector space, the two key resources notably *NUCS* and *policy*, required to address the persistent cycle of food insecurity among rural households in Ghana. It is my opinion that regular NUCS focused food fairs to promote the local dishes prepared from these food crops at the local (village), district and regional levels including Ministry

of Tourism are instituted. This will help to expose and raise public interest (both rural and urban) on the benefits and uses of NUCS. It will also be imperative going forward that government particularly the sector Ministry, MoFA and the relevant stakeholders in the private sector, academia, research institutions, among others, work together to produce a national NUCS inventory that will serve as the basis for policy action. This will then necessitate the review of the agricultural policy strategy that relates to food security and emergency preparedness in the National Agricultural Sector Policy (FASDEP II) to include comprehensive guidelines on NUCS. It is important to note finally that decisive action and political will, remains critical in this fight to integrate these often neglected but useful crops in our national food basket.

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