

**SPATIAL ORGANIZATION OF SMALL-SCALE INDUSTRIES IN
THE KASSENA-NANKANA DISTRICT OF GHANA
Implications for the Development Planning of the District**

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ABSTRACT

This paper entails an analysis of the spatial organization of small-scale rural industries in the Kassena-Nankana District of Ghana within the context of regional development and decentralization. It examines the driving forces that give rise to the existing spatial pattern, assesses the spatial and functional linkages of such industries and determines their implications for district development planning in Ghana. Through a combination of quantitative and qualitative research methods, the paper draws on the empirical evidence on how small scale industries organize production and marketing activities in space. The findings show that small scale rural industrialists organize most of their production and marketing activities within their respective communities of residence. Although small scale industries were found to have both spatial and functional linkages in their operations, these linkages were weak and manifest in weak industrial economic ties between rural service centers and the district capital, Navrongo and between rural service centers themselves. The findings also show that the driving forces that gave rise to the existing spatial patterns are economic and social – specifically including the distribution and availability of raw materials, accessibility to market in the district capital, small size and community based nature of their operations, and the social networks of rural industrialists. Given the spatial variations and multiplicity of challenges that affect development of small scale

industries, it is proposed that an integrated approach that emphasizes geographic targeting toward the development of small scale industries within the framework of district development planning is more appropriate in Ghana. Notably, the development policy at this level ought to focus on enhancing spatial and functional linkages - between rural and urban, agriculture and industry, and between small scale industries themselves in order to maximize production and marketing opportunities for local economic development.

KEY DESCRIPTORS: Regional Development and Decentralization, District Development Planning, Small-Scale Industries, Spatial Organization, Spatial and Functional Linkages

INTRODUCTION

Decentralization has been viewed by many as the panacea to speeding up the development process in the Developing World. In countries that are implementing decentralization, local government institutions are said to have a competitive urge over central government in dealing with local development issues because of their proximity to the people (Rondinelli, McCulloch, Johnson, 1989; Rondinelli and Ruddle, 1978; Oluwu and Wunsch, 2004; Asante and Ayee, 2004). It is in this context of decentralization that this paper addresses the issue: *Spatial organization of small scale industries and their implications for development planning in the Kassena-Nankana District of Ghana*. Specifically, the paper addresses three interrelated issues: the spatial distribution of rural industries and the underpinning factors of origin; the spatial organization of production among rural industries – sources of raw materials and markets; and the spatial and functional linkages among small-scale rural industries and their implications for district development planning.

This paper is organized into five parts. After this introductory part, the profile of the study district described while research methodol-

ogy that was used for conducting field work leading to the preparation of this paper is discussed in part two (2). Part three (3) provides an overview of the conceptual issues in relation to regional development, decentralization and small scale industrial development. In part four (4), the conceptual and empirical issues that the paper addresses are examined. Findings from the study are analyzed, discussed and the implications for district development planning examined in part five (5). The author concludes this paper in part six (6).

STUDY AREA AND METHODOLOGY

Located within the Volta Basin (along the Ghana-Burkina Faso border), the Kasena-Nankana District covers an area of 167 kilometers square with a population of 149, 491 and a population density of 91 (Ghana Statistical Service, 2005). Subsistence agriculture is the mainstay of the District economy employing about sixty-eight percent (68%) of the employable population. The single most important economic activity in the District is commercial irrigation under the Tono Project, but high capital investment requirements have made irrigation economically inaccessible to majority of rural farmers. While this is the situation, the industrial sector is widely undeveloped with as many as sixty-eight percent (68%) of the district's population earning low incomes from food crops and livestock production (Kasena-Nankana District Assembly, 2001; Derbile, 2003).

This paper was prepared drawing on data from two separate studies – a survey in 2003 and an in-depth (qualitative) study in 2008. Silverman (1990) expresses preference for the use of both quantitative and qualitative approaches in research. Accordingly, 'qualitative methods are clearly required for certain types of evaluative research projects and in other cases are useful in combination with quantitative approaches (Silverman, 1990; as cited in Kunfaa, 1996:44). The paper draws on data for five types of small-scale industries namely, rice milling, shea butter extraction, 'pito'

brewing (local alcoholic beverage), local restaurant services and pottery. These industries were sampled for the studies through purposive sampling abound in the district.

In sampling study communities, stratified and purposive sampling techniques were applied to ensure that every sub-district was covered and that a community each was selected from each sub-district. Three sub-district capitals (Chiana, Kologo and Kandiga) were selected on purpose; it is at this level that there is significant small scale industrial activity in rural areas as they are rural service centers. For the Navrongo Central Sub-District, the sub-district capital (Navrongo, which is urban), was not selected as in the other cases due to its urbaneness. In order to focus the study on a rural community, Pungu was selected on purpose to represent the Central Sub-district because of its rural nature and parity in infrastructure development with the other sub-district capitals. At the community level, systematic sampling was employed for sampling houses and accidental sampling for sampling respondents. In all 239 rural industrialists were covered in the 2003 survey. Interview schedules were administered to respondents by enumerators. This was complimented by four (4) group interviews that were conducted in June and July, 2008 in order to compliment data from the survey and gain in-depth insights into the issues. The data generated were analyzed using multiple techniques - simple percentages, tabulations, bar graph and pie chart for quantitative analysis and descriptions and morphological analysis for qualitative analysis.

CONCEPTUAL FRAMEWORK

Regional Development

New thoughts on the concept 'region' give rise to an integrated perspective (Jekel, 2007). In addition to viewing a 'region' as a spatial entity with territorial boundaries, emerging conception view the concept 'region' as constituted by human agency. By this, the

concept 'region' is perceived in relation to deference to set rules and the power to shape action according to will (Giddens, 1984: in Jikel, 2007). In the light that humans have the capability to develop their own intensions and follow their aims (Werlen, 1993a), a 'region' is a socially constructed and locally embedded entity that has no exact borders. However, there is still the need for shared collective meaning among the population of a region, on what the region is or what it should be like. Thus, we must not take the region as given: *'it has to be produced - or at least reproduced - if we want to be successful in regional development'* (Jekel, 2007:5). There are many theories and variants of regional development that draw on this integrated view of a region. Songsore (2003) categorizes regional development theories into two main groups – the economic variety and regional domination theories. Interregional trade and economic base theories are identified as core to the economic variety of regional development theory. While interregional trade considers regional growth to originate from outside the region, economic base theory emphasizes the role of internal factors and forces as the drivers of regional development. Songsore identifies regional domination theories as recent formulations that draw on conflict theory of change as a starting point for understanding regional development processes. These theoretical formulations essentially examine regional development in the context of centre-peripheral relations reflected in the phenomenon of polarization in which the centre excises dominance over the periphery (Songsore, 2003). Hinderink and Titus (1998) classify regional development theories into 'dependent regional development', 'territorial development' and functional regional development. Although the terminologies vary, the basic issues underpinning the theories remain the same. For instance, while the dependent regional and functional regional development theories fall under the regional domineering theories, the territorial development theory fall under the economic variety classification (Songsore, 2003).

In this paper, the author explores the 'functional regional development paradigm.' This paradigm considers development of regions as a function of national (economic) development and is by far the most influential of regional policies in Developing Countries. For this paradigm, regional planning is emphasized as an instrument in the development process (Hinderink and Titus, 1998). Policy-makers and Planners began to be interested in the spatial dimensions of development and regional economic policy and planning in the 1960s as a response to shortcomings of previous development strategies. Spatial and sector imbalances in development owing to narrow focus on economic growth, allocation of public funds to perceived 'dynamic' sectors of the economy and concentration of investment and accumulation in metropolitan areas. As a departure from this, regional planning is increasingly seen as instrumental to realizing regional development objectives that are subordinated to national development (economic) aims. "Regions are considered as open systems and their development must promote their functional integration into the national economy" (Friedmann & Weaver, 1979; in, Hinderink & Titus, 1998:6). This view is emphasized by Songsore (2003) in his definition of regional development that underscores the spatial dimension of development and the important role of planning. According to Songsore (2003:2) *"regional development is seen as a process by which the productive capacities of all regions are mobilized by linking them both in a structural and organizational sense to the mainstream of the national economy."*

The idea of 'small centers,' that is, lower order centers in the urban hierarchy, and their roles in the development process have constituted an important subject of discussion in regional development debates. Differing paradigms of regional development give rise to varied opinions as to the roles of small centers in the spread of modernization, impact on the development of rural areas and their functioning as service centers (Hinderink and Titus, 1998). Regional economic planning, as influenced by the paradigm of 'functional regional development', are said to find expression in two major

strategies. These include growth centre and rural service centre strategies, which are defined respectively in terms of (industrial) production growth and in terms of distributive trade, administration and services (ESCAP, 1990; Hinderink and Titus, 1998). However, these two strategies are said to overlap both in the literature and in the implementation of planning. For instance, a developed industrial growth centre may generally perform the functions of a central place as well (Hinderink and Titus, 1998). Views on the importance of small centers has shifted from considerations of spread effects of polarized growth to one in which they serve as 'engines of growth' in their own right and for the benefit of their surrounding rural regions. It is argued that their development and proper functioning as market and service centers increase the productive capacity of rural producers, promote commercialization and specialization of agriculture and contribute to an 'effective' integration of rural populations into the national 'economic and political order' (Hinderink & Titus, 1998).

Decentralization and District Development Planning

Decentralization

The concept 'decentralization' may be defined in many ways according to different perspectives. According to Rondinelli (1981), decentralization is the transfer of authority to plan, make decisions and manage public functions from a higher level of government to any individual, organization or agency at a lower level. From a political science perspective, decentralization refers to the territorial distribution of power – concerned with the extent to which power and authority are dispersed through the geographical hierarchy of the state, and the institutions and processes through which such dispersal occurs. Decentralization entails the subdivision of the state's territory into smaller areas and the creation of political and administrative institutions in those areas (Smith, 1985; Asante and Ayee, 2004). Four forms of decentralization are identifiable (Lundgren and Bergeron, 2002; Bacho, 2005). For this paper, the

author reviews two forms because of their relevance to the current decentralization process in Ghana. The first is political decentralization which is also referred to as devolution (Conyers and Hills, 1984; Friedmann, 1987; Ahwoi, 1991; Bacho, 2005). This is usually acclaimed the most effective form of decentralization as it involves the transfer of both central government administrative functions and authority to local level institutional structures to act. The second form of decentralization is referred to as deconcentration (Tamakloe, 1993, Ahwoi, 1991; Bacho, 2005). Deconcentration contrasts with devolution because unlike the latter, the creation of lower level administrative units and transfer of central government functions in the former is not usually backed by adequate transfer of authority that enable local people's active involvement. Ghana's decentralization process embodies elements of both forms.

The potential benefits of decentralization have been well documented in the literature. These broadly include improved efficiency and effectiveness, governance and/or equity associated with economic development and contribute to poverty reduction related policy objectives (Smith, 1981; Ayee, 2004) such as: (1) improved local economic development and poverty reduction through (a) providing services that serve as production and distribution inputs for local firms and entrepreneurs; (b) contributing to a legal and institutional environment that is conducive for development; (c) coordinating key local public, private and community actors in creating partnerships that promote development; (2) improved governance as people see that their interactions with elected decentralized governments lead to decisions that are consistent with their wishes than those made by higher levels, they feel better connected to decentralized governments.

An important argument in support of decentralization programmes in sub-Saharan Africa is that of the spatial closeness of local government institutions to citizens. This gives decentralized units competitive advantage over central government in their responsiveness to the needs of rural people. Decentralization, which aims at

strengthening the lower levels of societal organization and achieving its social and economic transformation through the stimulation of endogenous resources, is seen as the basic tool for sustained development. It is assumed that local resources comprising opportunities for agricultural and non-farm economic activities in rural regions can be explored with the seriousness it deserves. This is because the large urban centers have failed to provide enough jobs for majority of the population and have been unable to meet the needs of the increasing numbers of migrants who continue to live in the fringes; in slums and squatter settlements. While this is the scenario, the continued concentration of people and resources in the metropolitan areas drains resources from the hinterland, perpetuates regional income differences, and prevents significant growth from occurring in smaller towns and villages - leading to the establishment and maintenance of dual economies (Rondinelli and Ruddle, 1978).

District Development Planning in Ghana

Chapter Six (6) of the 1992 Constitution of the Republic of Ghana, on 'Directive Principles of State Policy', enjoins governments to make democracy a reality by decentralizing the administrative and financial machinery of governance to the regions and districts and to create all possible opportunities for people to participate in decision-making at every level in national life and in government (Ghana, 1992; Asante, 2004). Prior to this provision, Ghana had initiated and has been implementing decentralization since 1988. Ghana's decentralization as legally supported by Local Government Law 1988 (PNDC Law 207) therefore, establishes the district as the spatial unit for development planning. A district shall exercise political and administrative authority in its area and shall provide guidance and direction and supervise all other political and administrative authorities in the district. It shall exercise deliberative, legislative and executive functions. The specific objectives and responsibilities of district assemblies under decentralization as outlined in the Local Government Act 1993 (Act 462) include

among others as the deconcentration and devolution of administration, development planning, and management to district assemblies and incorporation of economic, social, spatial, and environmental issues into the development planning process on an integrated and comprehensive basis (Ghana, 1992; Ghana, 1993; Asante, 2004).

Since the establishment of the district as the spatial unit for development planning in the new local government system, some academics have also taken interest in drawing on the district level as the basis for spatial analysis. For instance, Songsore (2003) expresses preference for using the district (over the regional level) as the lowest level of spatial dis-aggregation in Ghana because of the potential for providing a more detail picture of spatial variations in levels of economic health within the country. Within the framework of decentralization, district level planning will have to be based on the differentiated analysis of each district's problems, potentials and constraints. This approach therefore, provides the opportunity to emphasize endogenous development at the district level in order to mobilize potentials effectively and to integrate the district into the socio-economic development process of the nation. The Ghana Poverty Reduction Strategy (GPRS) provides policy support for small scale industrial development in the context of rural development as follows:

Long-term growth strategy is predicated on the concept of the modernization, restructuring, and development of the rural environment as the catalyst for transformation of the national economy. The entrepreneurial opportunities in farm gate processing of food crops are considerable given an appropriate marketing environment. Agricultural industrialization provides for spin-offs and the creation of backward and forward linkage and government will support the transformation of the rural environment into a commercially attractive, viable, and dynamic sector, vital for sustained equitable industrialization and growth. (Ghana, 1993: 37-40)

Given the enabling policy environment, the prospects for the development of small scale industries within the framework of district development now depends essentially on stakeholders at the district level. In this context, two aspects ought to be given attention at the district level as suggested by Fischer-Quincke (1988) and Boapeah and Poppe (1992). Firstly, emphasis on industry has to be shifted from large scale industries to small scale industries. Secondly, the promotion of small scale industries has to be appreciated as a tool for creating employment and to generate income; to develop entrepreneurial capacities and to supply people with goods and services at reasonable prices

Development of Small Scale Industries and the Informal Sector

Small Scale Industries and the Informal Sector

There are varied definitions of small scale industries. The European Commission sheds light on what it describes as a "new definition" for small and medium scale enterprise. It asserts that the first step to qualify as a small and medium scale enterprise is to be considered as an enterprise. According to the new definition, an enterprise is 'any entity engaged in an economic activity, irrespective of its legal form' (European Commission, 2003:12), and thus includes, the self employed, family firms, partnerships and associations regularly engaged in economic activities. In Ghana, industries are categorized according to the number of employees. In this respect, small scale industries are those industries that employ between one (1) and twenty-nine (29) persons (Boapeah and Poppe, 1992). Small and medium enterprises (SME's) in Ghana dominate the industrial sector of the economy.

In general, small scale industries are classified under the informal sector of national economies. Renewed and steady growth of interest in small-scale industries stem from their resilience against speculations that they will wither away due to economic growth and economic transformation (Martinussen, 1997). The experience in many Developing Countries show that these industries have been resilient, persistent even under economic crisis, and have

contributed immensely towards generating employment, contributing to livelihood sustenance and overall national economic development. These industries generally operate within the informal sector – characterized by the ILO Kenya Mission this way – “ease of entry, reliance on indigenous resources, family ownership of enterprises, small-scale of operation, labour-intensive and adapted technology, skills acquired outside the formal school system, and unregulated and competitive markets” (Boapeah & Poppe, 1992:5). They further note that small scale industries account for over two thirds of all urban and rural non-farm employment and that since non-agricultural activities in rural regions expand quite rapidly in response to agricultural development, they merit attention in the design of rural development strategies.

Spatial Patterns of Non-Farm Activities

One important subject in the development of small scale industries relates to the spatial patterns of non -farm activities in the context of regional development. This is because spatial patterns of small scale industries lay the framework for spatial and functional linkages within local economic space. Since Alfred Marshal’s (1980) principles on the tendency of industries to cluster in some areas, a renewed interest in spatial issues has grown and led to the development of empirical approaches to measure this phenomenon (Ellison and Glaeser, 1997; Maurel and Sédillot, 1999; Devereux, Griffith, and Simpson, 2004a; Mori, Nishikimi, and Smith, 2005: in, Duroton and Overman, 2006)). Although there is empirical progress in this area:

“there is still much work to be done—for instance not much is known about developing countries — our understanding of the localisation of industries is now much more sophisticated. We are also converging towards a consensus view regarding the broad picture: the tendency for industries to localise is quite widespread, though extreme concentration is exceptional; localisation often occurs at the scale of metropolitan areas and follows broad sectoral patterns” (Duranton and Overman, 2006:1).

Spatial patterns are of crucial importance for different disciplines. In environmental sciences such as ecology, it provides an alternative to the "classic" approach to observe process dynamics and local temporal changes, and thus provides a completely new view on dynamics and offers new scientific possibilities (University of Potsdam, 2006). As this is adaptable to the social sciences, Araujo, (2003) examines the spatial patterns of non-agricultural activities and employment growth in rural Mexico in the 1990s. He compares the roles of attributes, proximity to centres of economic activity, connectedness and the regional context on the growth of employment in the non agricultural sector. He concludes that proximity to centres of economic activity is crucial for the expansion of employment in this sector and that agriculture has an important role particularly for municipalities that are isolated from urban areas. The spatial distribution of non-agricultural economic activities depends on the proportion of people engaged in agriculture and provision of infrastructure in rural settings. The larger the number of people employed in agriculture and the poorer the infrastructure, the more dispersed is the spatial pattern of non-agricultural activities. As small scale industrial activities become increasingly concentrated in rural towns they stimulate a process of decentralization of urban growth providing employment for the out-migrants from agriculture (Boapeah and Poppe, 1992). Clearly, an important precondition for establishing a more decentralized and integrated industrial pattern is improved rural infrastructure that enhances spatial and functional linkages in small scale industrial activities at the district level.

Functional Linkages of Small Scale Industries

Functional linkages of small scale industries are closely connected to spatial patterns of small scale industries in regional development debates. In a study on functional and service linkages in the Awutu-Effutu-Senya District of Ghana, the Institute of Local Government (2006) identifies functional linkages as service-related community interdependent relationships in the following areas:

telephone and postal facilities services; pipe borne water and tanker services; banking services; administrative and hospitality services. Drawing on the findings, the institute concludes that there is strong economic linkage (markets and transport services) between rural and urban areas.

From studies on farm-nonfarm linkages, it has been observed that growth in the rural non-farm economy is important in creating rural employment and in raising incomes. Agriculture is seen as key to the growth of nonfarm activities. The importance of production linkages is highlighted in terms of small farmers demand for fertilizer, construction inputs, and equipment and repair services provided by rural blacksmiths (Hageblade, Hayel and Brown, 1989; in, Boapeah and Poppe, 1992). The level, composition and growth of nonfarm industries and employment basically derive from three main sources: goods and services for the rural population which rise with rural income; inputs and services for agriculture which rise with agriculture; and external markets for manufactured goods and handicraft (Boapeah and Poppe, 1992). Although the development of the agricultural sector is a basic precondition for promotion of complementary economic activities, the mobilization of the productive potential of agriculture depends on the supportive role of the industrial and service sectors. Agriculture's role as a leading sector for the development of local industry and commerce in rural areas has to be investigated in detail with regard to the specific regional situation. The issues of non-agricultural employment and their significance for rural development will have to be based on careful consideration of the rural economic structure. The growth and concentration of non-agricultural activities in the rural villages and towns will raise the demand for technical infrastructure, vocational training, banking and credit facilities and local institutions. An overview of the literature shows that there are varied perspectives of linkages. In the context of this paper, linkages are taken to refer to both spatial and functional linkages –the former, referring to production, marketing and service related linkages between small scale industries (within and between communities), and the

latter such linkages between small scale industries and agriculture and operational linkages between small scale industries themselves.

Small Scale Industries and Spatial Planning- Conceptual and Empirical Issue

The empirical domain of recent efforts at district development planning in the Kassena-Nankana District finds expression in the preparation and implementation of the Medium Term Development Plan (MTDP) under the Ghana Poverty Reduction Strategy II (2006-2009). Development planning in the Kassena-Nankana District (KND) is the responsibility of the Kassena-Nankana District Assembly (KNDA) in consultation with and participation of other stakeholders. Although decentralization is meant to grant local people the authority and legal backing for self initiated development (Bacho, 2005), the essence of preparing the MTDP in accordance with national policy guidelines is to ensure a common national policy direction for the country, and to enable harmonization and integration of the district development process into the national development agenda. The MTDP (2006) for the Kassena-Nankana District outlines policy objectives for the development of small and medium size industries as a priority area. The MTDP which is the blue-print for district development recognizes that small scale entrepreneurial activities dominate the entire industrial domain of the district and form about eight percent (8%) economic activities in the district.

The MTDP recognizes that sub-sector activities in the District offer value adding and opportunities to agricultural produce and livelihood enhancements for majority of the poor. In this regard, the MTDP identifies the following action areas for promoting the development of small scale industries: establishment of small and micro scale industries (start-ups); establishment of industrial sites to create enabling environments for private investments; enhance access to credit for entrepreneurs; build capacities of small and

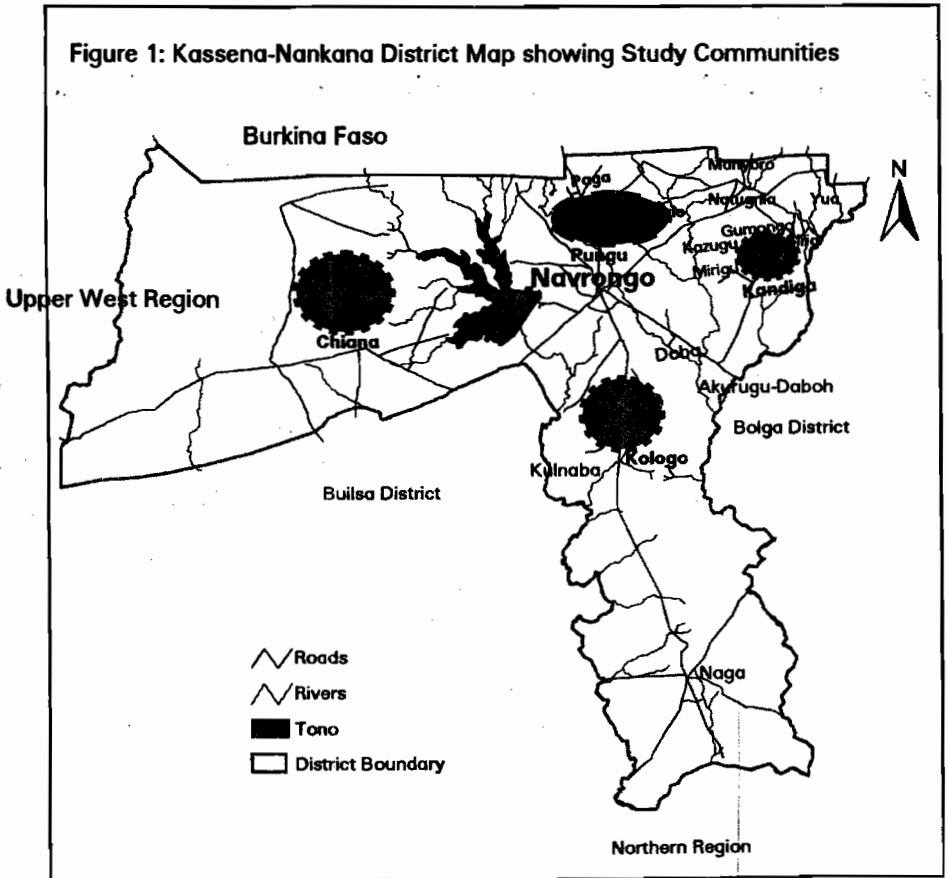
micro scale entrepreneurs; improve access to markets and market facilities; extension of rural electrification and development of sustainable energy potentials.

Although the MTDP outlines the policy objectives for the development of SMEs, there is a strong orientation towards a sectoral approach to planning – *leading to less consideration of the spatial aspects of planning*. The KND is not alone in respect of this issue. There are many district development plans that do not give adequate attention to the spatial aspects of development planning. For instance, while most district development plans are prepared according to the Goal Oriented Project (GOP) planning approach, the profiles and/or baseline situations of small scale industries as entailed in MTDPs such as in the case of KND often lacks a spatial description and analysis. An enhanced understanding of the spatial distribution of small scale industries and the nature of their integration into the local economic and national economic spaces remains the gray area that the author makes a contribution to in this paper. Such geo-specific understanding of the situation of small scale industries can facilitate geographic targeting and enhance local economic integration into the national economy through district development planning and management. In order to deal with the issues, the author explores three interrelated questions in the ensuing section: (1) how are small scale industries distributed spatially and what are the underlying factors for the origin of these industries?; (2) what are the sources of raw materials supply and markets for small scale industries, and how do their locations in rural service centers underpin emergent spatial patterns in their activities?; and (3) deriving from (1) and (2), how and to what extent are small scale industries in rural areas spatially and functionally integrated into district and national economic spaces, and what are the implications for district development planning ?

SPATIAL ORGANIZATION OF SMALL-SCALE INDUSTRIES

Spatial Distribution and Origin of Industries

The findings show that with the exception of pottery, rice milling, shea butter extraction, 'pito' (local alcoholic beverage) brewing and local restaurant enterprises are operated as small scale industries in each of the five sample communities. Figure 1 is a map of KND showing location of the four communities (rural service centers) namely, Chiana, Kandiga, Kologo and Pungu in which small scale industries were studied.



Source: Adapted from Derbile (2003)

Although most small scale industries have a presence in all communities, in-depth analysis reveals relative patterns of dominance in their distribution among the communities of study. See Table 1 for communities and the description and distribution of industries.

Table 1: Communities and their Industries

Community	Location and Descriptions of Industries
Dzono	<p>Located in western part of the district along the Bolgatanga-Wa trunk road and bordered to the west by Sissala District in the Upper West Region. Relatively falls within a green belt (Wooded Savanna) and has relatively close proximity to Tono irrigation fields (See Figure 5.1). Identified as a Shea butter producing area. More sampled entrepreneurs (30%) were involved in producing Shea butter. Also unique for its pottery. Relatively smaller percentage of entrepreneurs was also found to be engaged in rice milling, local restaurant services and pito brewing (local alcoholic beverage) brewing.</p>
Kandage	<p>Located in the north-eastern part of the district – off the Navrongo-Bolgatanga trunk road with a considerable part located to the northern interior (See Figure 5.1). Located far from the Tono irrigation fields. Identified as area with the predominance of local restaurant activities. More sampled entrepreneurs (28%) were found to be engaged in this industry. Also unique for its pottery. Relatively smaller percentages of entrepreneurs were found to be involved in Shea butter extraction and 'pito' brewing (local alcoholic beverage).</p>
Kologo	<p>Located in the southern part of the district along the Navrongo-Kologo-Naaga feeder road and falls within a green belt (Wooded Savanna) and has relatively close proximity to Tono irrigation fields (See Figure 5.1). Identified as a predominantly Shea butter producing area. Relatively more sample entrepreneurs (31 %) were found to be engaged in this industry. Also known for pito brewing, local restaurant activities and rice milling.</p>
Pungu	<p>Located within the central and immediate north-east of the district capital (Navrongo). Located within the same central sub-district as the district capital because of its proximity to Navrongo (district capital). Also has close proximity to the Tono irrigation fields. Pungu was identified as a predominantly rice milling area as evidenced by 26% sampled entrepreneurs with Shea butter extraction following closely with a percentage of 24 % entrepreneurs engaged in the industry. 'Pito' (local alcoholic beverage) brewing and local restaurant activities are also common here.</p>

Source: Field Surveys (2003; 2008)

From Table 1, the following distribution patterns and underpinning factors of the origin and location of industries are discernable:

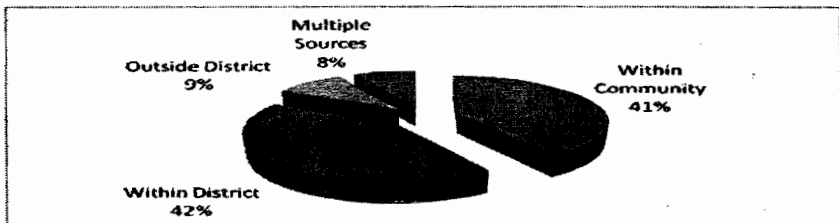
- Chiana and Pungu are predominantly shea butter producing areas – in which the availability of raw materials and tradition of shea butter extractions are the factors underpinning the origin and location of the industry. The District Forestry Department estimates that the Chiana Hills has about 48 hectares of forest reserve in addition to other forest reserves being promoted under agricultural systems. The Kologo-Naaga areas also have about 45 hectares of forest reserve (KNDA, 2006). These areas are therefore, the green belts of the district as evident in their roles as suppliers of charcoal in the case of Chiana and firewood in the case of Kologo to the district capital. The shea tree is common in these green belts and is a natural source of the raw material fuelling the development of the industry;
- Kandiga has emerged as a predominantly food basket and food processing area. The dominance of this industry can be understood as a function of the natural resource base. This part of the district has been widely and adversely affected by environmental degradation and desertification – as evident by widespread erosion and presence of barren lands. In the absence of forest resources, rural entrepreneurs have turned to market flows of agricultural produce as raw materials for engagement in industrial employment and livelihoods.
- Pungu has been identified as a predominantly rice milling area located within the central sub-district together with the district capital (Navrongo). Due to its proximity to the district capital and Tono irrigation fields, rural entrepreneurs have turned to rice milling and us paddy that is produced from the irrigation project as their main raw material. The shea butter industry is also a popular industry in the area as evidenced by the percentage of rural entrepreneurs engaged in the industry. Rural

entrepreneurs engaged in the industry report of significant flows of 'shea' nuts from the rural hinterlands to the district capital during the harvest and 'glut' seasons – usually from July to November. Such resource flows from the hinterlands specifically from Kologo and Chiana have made the raw material generally available in Navrongo and accessible to rural producers from Pungu who engage in shea butter production.

Market Sources for Industrial Raw Materials

Market sources for industrial raw materials have become central to understanding the spatial organization of small scale industries because majority of industrialists purchase raw materials for production. The findings show that 95% of rural industrialists purchase raw materials for production. The remaining 3% practice wild harvesting, 1.6% produce raw materials themselves while 0.4% utilize household food stocks. The outstanding question relevant for spatial analysis is then – 'from which market sources do rural entrepreneurs purchase their raw materials?' The study reveals three major sources of raw material supplies to rural industrialists. These include – (a) sourcing raw material from their respective communities of operations; (b) sourcing raw materials within the district other than their respective communities of operations; and (c) sourcing materials from outside the district. See Figure 2 for percentage distribution of sources of raw materials for rural industrial entrepreneurs.

Figure 2: Sources of Raw Material Supply



Source: Field Survey (2003)

From Figure 2, 41 percent industrialists obtain raw material from communities in which their industries are located, while 42 percent obtain theirs' from outside their respective communities (but within the district). Eleven percent (11%) of industrialists obtains raw material supply from outside the district. Variations characterize the data on sources of raw material by-material type. From the data, sixty-seven percent (67%) and seventy-one percent (71) of rural industrialists purchase 'shea' nuts and paddy rice for butter production and milling respectively, from their respective communities of operations. In the case of guinea corn for brewing, forty-one percent (41%) of brewers obtain it from the district (but outside their communities) while 37 percent obtain it from their communities of operations: The remaining 22 percent (22%) brewers obtain raw material from outside the district. For clay, forty percent (40%) of potters obtain it from their respective communities and another forty percent (40%) from outside their communities.

Qualitative data from group interviews reveal that the sources of some raw materials change with changes in seasons. A group of four shea butter producers from Kologo shed light on sources of shea nuts supply. They express their views as follows:

Generally, we the women of Kologo obtain our shea nuts for butter production from the community. This is because we have the shea trees and we the women pick the nuts during the harvest season from the farms. At this time there are lots of shea nuts for everyone engaged in butter production. This is the situation usually from July to December. So many women begin to trade in shea nuts in the community around this time. Women will usually buy the nuts on Kologo market day and keep in their homes. They then transport the nuts to Navrongo market for sale on Navrongo market days by market trucks. This is what lots of women (including us) are doing around this time to buy millet for our families. Then, comes a time when shea nuts in Kologo are scarce and expensive. The shea nuts during such times may even be rare to come by. This situation

is usually from January to May. During this time, those of us engaged in butter production go to Navrongo market on market days to buy nuts for production purposes. We transport the nuts by the same market trucks that transported the nuts to Navrongo. The nuts at this time are expensive but we usually have to manage things in order to stay in business (Group Interview, 01.08.08).

Interview of a group of rural industrialists in the shea butter industry in Chiana revealed a similar seasonal pattern in the flow of shea nuts between Chiana and Navrongo markets. Although the statistics give the impression that many rice millers obtain their raw material (paddy) from their respective communities, the qualitative data point otherwise. The qualitative data show that internal sources (i.e. community) of paddy although considerable, have been relatively insignificant as compared to external sources of paddy (district) in the case of Pungu. The case of Pungu presents a variant in the flows of paddy for the milling industry. Four rice millers in a group interview express their views on the sources of paddy rice as follows:

Although many women are involved in rice milling in Pungu, rice is neither cultivated in large quantities in the community nor cultivated by many people. Although we sometimes obtain paddy rice from the community, this supply is very limited. Most women actually obtain paddy rice from Navrongo market. We usually buy the paddy rice on Navrongo market days in Navrongo. Then transport them by donkey carts to Pungu at an average cost of Fifty Ghana Pesewas (GH¢ 0.50) per mini bag of paddy rice. The rice we mill is mainly rice cultivated at the Tono Irrigation Project around Navrongo. That is why Navrongo is the place we often obtain our paddy. We have been doing this for a long time and this is how those who did rice milling in the past went about the business (Group Interview, 05.08.08).

Both the quantitative and qualitative analyses reveal that the origin and location of rural industries are closely associated with the spatial distribution and availability of natural resources. Whereas this associative relationship is true, local resource flows and local economic trade have encouraged the development of some industries in parts of the district that do not necessarily produce required raw materials themselves.

Market Sources for Industrial Products

The study also examined sources of markets for rural industrial entrepreneurs and how the location of industries is related to sources of market. The findings show that rural industrialist market their produce through a number of market sources. See Table 2 for market sources available to rural industrialists.

Table 2: Sources of Markets by Community

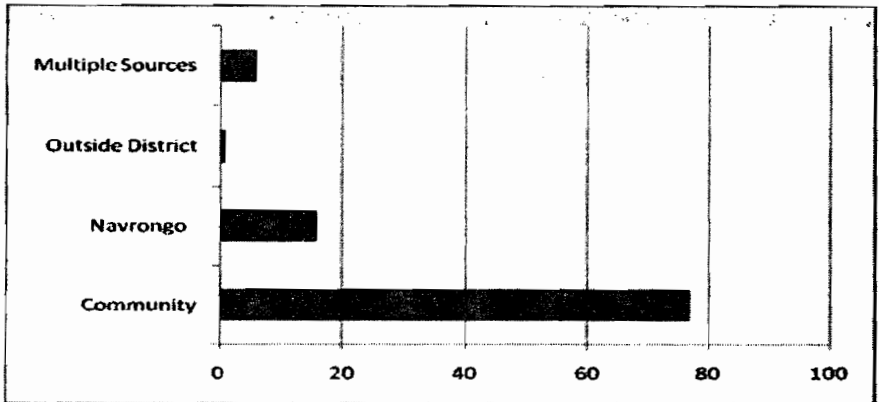
Market Place	Frequency of Response by Community								Total	
	Pungu		Chiana		Kologo		Kandiga			
	No	%	No	%	No	%	No.	%	No.	%
Community	32	46	48	84	49	96	54	88	185	77
Navrongo	34	48	2	4	2	4	1	2	37	16
Outside District	0	0	1	2	0	0	2	3	3	1
Multiple Sources	4	6	6	10	0	0	4	7	14	6
Total	70	100	57	100	51	100	61	100	239	100

Source: Field Survey, 2003

From Table 2, the percentages of industrialist who utilize community markets for the sale of their products range from 46 percent to 96 percent. The percentage of rural industrialists who utilize community markets in Kologo is the highest, followed by Kandiga, Chiana and then Pungu. The distances from these communities to Navrongo (the district capital) in the same order, range from the longest to the shortest distance. It is therefore, discernable that most rural industrialist resort more to their communities for marketing industrial products particularly when the distance to the dis-

tract capital is longer. In addition, these distant communities are sub-district capitals that have market centers. It therefore, makes economic sense that industrial entrepreneurs resort to these markets for marketing their produce if public transportation to the district capital is poorly developed and or economically costly and inaccessible. The aggregate picture on sources of markets for rural industrialist generally validates the assertion that most rural entrepreneurs market industrial products within their communities. See Figure 3 for percentage distribution (aggregate) of market sources for rural entrepreneurs.

Figure 3: Percentage Distribution of Market Sources



Source: Field Survey, 2003

From Figure 3, it is clear that 77 percent of rural industrialists market their products and services in their communities. This is followed by 16 percent of entrepreneurs who market their produce in the Navrongo market (3-day cycle district capital market). Only 1% of responses show that markets external to the district are explored by rural entrepreneurs in the district. While the qualitative data corroborates the statistical analysis, it reveals some variations in the spatial patterns of marketing. Shea butter producers from Kologo who were interviewed expressed their views on marketing of shea butter as follows:

Generally, the shea butter that is produced in Kologo is locally sold and consumed although many women are engaged in the industry in the community. The larger part of the butter is sold in the periodic Kologo market but some significant amount of sales also takes place in people's homes. The demand for shea butter is good and this is because almost all local dishes that are prepared on daily basis require the use of shea butter. Even flour for preparing 'flour water' for guest requires the use of shea butter. However, there are a few women who also carry their butter to the Navrongo market for sale on Navrongo market days (Group Interview, 01.08.08).

A group of rural industrialists engaged in shea butter production in Chiana expressed similar views with respect to the marketing of shea butter. According to them:

Some women sell their shea butter in Chiana while others sell their butter in the Navrongo market on market days. However, most women sell their shea butter in Chiana rather than Navrongo market. They note that transportation fares are high and have the potential for eroding profits – so that most women simply resort to selling their butter in the Chiana market on periodic market days. Some women sell their butter at homes but most generally sell at the market centre on market days (Group Interview, 05.08.08).

The marketing strategies of rural industrialists are influenced by the very nature of the operation of small scale industries. Most small scale rural industrial activities are undertaken within the framework of the household production system – so that one other strong motivation for engaging in such industrial activities and their locations in particular is the need to exercise some normative roles in the household and meet certain social needs of the household. In the 'whole-economy model' as an alternative to classical economic analysis, Friedman defined the household not merely as a unit of consumption, but as an important unit of production. To

understand economic processes, he notes that it is necessary to probe into the socio-cultural institutions of civil society, the most important of which is the household through which non-market and market relations are articulated (Friedman, 1992; in, Martinussen, 1997; Derbile, 2003). It is important to note that once entrepreneurs engage in industrial production, the choice of market is influenced by their location situation – availability and transportation system and distance to optional and bigger market centers. The small size operation of small scale industries seems to make rural industrials less inclined to seek external markets.

IMPLICATIONS FOR DISTRICT DEVELOPMENT PLANNING

Spatial Linkages and Local Economic Integration

The analysis of sources for industrial raw materials and markets show that there are spatial and functional linkages in the operations of small scale industries within the hierarchy of settlements in the district. As the evidence suggest, these spatial linkages manifest in the domains of raw material flows and marketing between industrial actors in the study communities (rural service centers) and business actors in the district capital (Navrongo). In the context of functional regional development theory, the study communities represent rural service centers within the hinter lands while Navrongo (district capital) represents the primate and/or industrial growth centre of the district. From the analysis, three of the study communities (Chiana, Kologo, Kandiga) have served as rural service centers for the mobilization and transport of rural industrial and primary products to Navrongo. On the other hand, Navrongo has provided market for the industrial products and primary products of the hinterlands including Pungu, which has proximity to the district capital. For instance, sixteen percent (16) of all industrialists obtained raw materials from Navrongo while another sixteen percent (16%) sought markets in Navrongo for their produce. Besides these spatial linkages between settlements of varied levels in the settlement hierarchy, the findings also reveal spatial linkages

among lower level order settlements although these are limited in scale. In the marketing of industrial products for instance, six per cent (6%) of rural industrialists sought market from other communities rather than Navrongo, the district capital.

The findings further reveal varied degrees of spatial and functional linkages between rural service centers and the district capital. For instance, while forty-eight percent (48%) of rural industrialists in Pungu market their products in the district capital, the percentages of their counterparts from Chiana, Kologo and Kandiga who have similar economic linkages is insignificant. As the analysis shows, the percentages are four percent (4%) each for Chiana and Kologo, and two percent (2%) for Kandiga (See Table 2). Given that these communities are rural service centers for their sub-districts, the extent to which they have spatial and functional linkages with the district capital reflects their extent of economic (industrial) integration into the district economy. It follows that integration of industrial production in sub-districts into the chain of economic activities in the district capital and district as a whole is relatively weak. In the case of Pungu, its proximity to the district capital and the revolution of intermediate transportation (use of the donkey cart) has enhanced stronger economic ties with the district capital, Navrongo.

Multiple factors account for limited spatial integration in the operations of rural industrialists. The relative remoteness of Kologo, Chiana and Kandiga, coupled with poor road conditions, poor and costly public transport services are some of the underpinning factors for limited spatial linkages with the district capital in the industrial domain. Among the service centers, Kandiga and its sub-district is the least spatially integrated area in the district mainly because of poor transportation linkages with the district capital. The weak spatial and local economic integration of small scale industrial operations is also partly due to the very community based nature of small scale industries – community based production and marketing for meeting local consumption needs. This is probably

the reason for limited markets for rural industrial products in the district as characterized by - low prices, seasonality and poor debt recovery (Derbile, 2003).

Functional Linkages and Local Economic Development

The findings show that functional linkages exist between small scale industries and essentially three other sub-sectors. These sub-sectors mainly include – agriculture and forest resources, trade and transportation. Given that majority rural industrialists are engaged in agro-processing depend on their respective communities for raw material supply (77%), the agriculture and forestry sub-sectors have become the sources of raw materials. This basic functional linkage between the two sectors has provided the basis for the development of forward and backward linkages in the industrial sector. Since majority of rural industrialists purchase raw materials for production, the market demand for agricultural raw materials has created an enabling economic environment for the development of trade and commerce in rural areas and the district as a whole. The need for transportation of raw materials and finished industrial products has given rise to the development of small scale transport operators. While small scale transport operators use mini buses and taxis for their businesses, the revolution of animal drawn transport (donkey cart transport) as an intermediate technology has led to the proliferation of small scale transport operators - targeting rural industrialists with their services. The existing functional linkages has provided a basic structure for further development of forward and backward linkages central to industrial and local economic development.

CONCLUSION

In this paper, the spatial organization of small-scale rural industries in the Kassena-Nankana District of Ghana and the driving forces underpinning such spatial patterns were examined. Drawing on the empirical findings, it can be concluded that the operations of small

scale rural industries are predominantly community based and essentially influenced by the availability of raw materials and the social domains of households. As a corollary, is the conclusion that spatial and functional linkages in the spatial organization of small scale industries are limited in scope and depth and that the driving forces for this spatial pattern are economic, technical and social. Given the near homogeneity of the situations of small scale industries across the country, and the varied interrelated implications of their spatial patterns particularly for the Kassena-Nakana District, it can be further concluded that an integrated approach within the framework of district development planning and management is most appropriate for promoting sustainable development of small scale rural industries in Ghana. In designing policy interventions, there is the need to focus on maximizing the development of spatial and functional linkages for enhanced spatial integration and local economic development at the district level in particular, and Ghana as a whole.

RECOMMENDATION FOR DISTRICT DEVELOPMENT PLANNING

Within the framework of district development planning, the author recommends two areas of intervention for policy consideration. Firstly, the promotion of spatial and functional linkages between lower order communities, including rural service centers and the district capital. This can be done through spatially targeted economic infrastructure development. The priority areas for strategic consideration include – feeder roads and enhancement of rural transportation, and marketing infrastructure. Some initiatives have already been made in that direction – the building of market centers in some parts of the district. There are, however, unmet needs for motorable feeder roads, better rural transportation system and adequate market infrastructure at Kologo, Chiana and Kandiga. Consequently, the Kassena-Nankana East sub-district ought to be given priority attention in the improvement of road infrastructure and public transportation as a means to enhancing integration of its industrial sector into the district economy. The

development of economic infrastructure ought to be complimented with the provision of business support services – financial credits and business development services targeted at rural hinterlands. Such services will build capacity of rural industrialist to explore external markets and develop inter-community business relations – required for expanding industrial production. The promotion of inter district level operational linkages among rural industries will require selective targeting of rural industries that have the potential for significant growth.

The second area of intervention is the enhancement of functional linkages between (a) basic sector and non-basic sectors of the economy and (b) among small scale industries themselves through the promotion of targeted forward and backward linkages within the production structure. To address this policy need, an integrated approach is critical for sustainability. Firstly, there is the need to address basic challenges of agricultural production in the district in order to facilitate production in the basic sector. The boosting of production in the basic sector will enable it to meet increasing demand for industrial raw material. Secondly, policy consideration should be given to the geographic targeting of industries in the promotion of forward and backward linkages.

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