

**Kumasi Natural Resource Management
Research Project
Inception Report**

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Component study 3

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**Component study 3
Land Management and Tenure Systems in Peri-Urban
Areas of Kumasi, Ghana.**

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EXECUTIVE SUMMARY

The land tenure system in Ghana generally has been the subject of research and debate. The positive role that the land tenure system is expected to play in the socio-economic development has not escaped the attention of policy makers. This study examines the land tenure systems and management practices (both customary and public) in peri-urban Kumasi , bringing out the current trends in land tenure and management and their implications for sustainable developments.

The study briefly captures the various opinions expressed on land tenure in Ghana in general. Attention is then focused on the study area. One school of thought advocates radical state intervention whilst another calls for the maintenance of the traditional customary tenurial systems with appropriate state supports.

The land tenure and management system in Ghana in general is considered in a historical perspective, the pre-colonial, colonial, and post-independence eras. Despite the different philosophies and state interventions, the customary sectors account for a greater share of land delivery in peri-urban Kumasi. Current trends also indicate that the customary system is adopting positively to changing circumstances. Community land management systems which offer broader community participation and wider sharing of wealth from the-land are taking root. Positive land management systems at Gbawe in Accra, and Esereso in peri-urban Kumasi are cases in point.

The failures and contradictions of state interventions have become obvious as against the dynamic and progressive customary land tenure and management systems. The adverse effects of the rapid urbanization processes on the peri-urban population include: soaring land disputes and litigations; unemployment and dwindling livelihood sources; agriculture and food crisis; landlessness and homelessness. The system is a free for all affair with the rich, politicians, influential public servants, chiefs being the winners. The losers are the youth, the poor the women folk and the disabled.

It is recommended that the current innovative land management systems in the customary sector need recognition and support.

The following areas are recommended for further research:

- i) Sustainable land management systems for both the public and customary sectors.
- ii) Rapid urbanization, land markets, landlessness and
- iii) Sustainable peri-urban economies.

1.0 Introduction:

This paper forms part of an-ongoing Kumasi Natural Resources Management Project, funded by ODA's Peri-Urban Interface Research Production System, Natural Resources Systems Program, and Renewable Natural Resources Research Strategy. The paper is a specialist study on land tenure as an important and influential component of natural resource management "during the transition from rural to urban characteristics impact in peri-urban production systems".

1.1 Terms of Reference:

The terms of reference as conveyed by the Natural Resources Institute, U.K. is to describe the customary land allocation and management systems in the Peri-urban areas around Kumasi to include the following:

(a) Customary Rights of Land in Ashanti

Describe the customary property rights to land: both usufruct and ownership;

The role of the chief, elders, queen mother, family heads and others in allocation of land;

The role of the state;

Distinguish between allocation of land for indigenous people, immigrants, male and female, elders and youth, chief, queen mothers, family heads and others;

Distinguish between land allocation for farming and land allocation for residential and commercial purposes;

Distinguish between different lengths of land tenure from long-term, inheritable rights to seasonal and other long-term land tenure.

Describe land rental agreements including abusa, abunu, other sharecropping arrangements and cash rentals. Identify the factors affecting what type of arrangements are adopted (eg. farm type, supply of inputs, family relationships, long-term tenure arrangements).

(b) Trends in land tenure in peri-urban Kumasi Identify the changes in land tenure systems due to the growth of Kumasi. Comment on:

Changing role and influence of the chief,

Changing role and influence of the family heads

Changing tenure system of peri-urban farmers: particularly access to land, security of tenure and cost;

The role of the state in land allocation. (Distinguish between the role in theory and actual practice);

Identify any conflicts between changing customary practices and state regulations.

(c) land markets

Describe the functioning of land markets around Kumasi:

Who is involved in buying and selling

Availability of information on land pricing to buyers and sellers

What factors determine the price of plots

Consistency of prices for the same type, size and location (access to Kumasi) of land

Give examples of prices from recent studies

How is the income from land sales disbursed?

How are displaced farmers compensated? What factors determine the type and amount of compensation given? Is compensation adequate?

(d) Effects of trends in land management systems on land use around Kumasi

Comment on the effects of current land management on land use, especially: farming; residential areas; communal areas, e.g sacred groves, cemeteries; conservation of environmentally-sensitive areas such as water courses

(e) Effects of trends in land management systems on social development

Comment on the effects of current land management on the following: relationship between traditional authorities (chiefs, queen mothers), family heads and indigenous inhabitants; relationships between indigenous and immigrants; relationship between villagers and state (district and other authorities); equity considerations for peri-urban inhabitants.

(f) Land management systems around Kumasi contrasted with systems elsewhere in Ghana

Discuss briefly the trends in land tenure systems around Kumasi in comparison with trends in land tenure systems elsewhere in Ghana.

Contrast rural areas and other urban areas such as Accra. What are the similarities? What are the differences? What factors account for these?

(g) Future Research Needs Identify potential areas of future research on land tenure and management.

1.2 Methodology

The study was undertaken primarily through review of existing research literature on land tenure and management systems in Ghana generally, and Kumasi peri-urban study area in particular.

In order to capture current trends in the study area, the literature review was backed by community level surveys. The villages which include Behenase, Kyerekrom, Esereso, Atasomanso, Akokoamon, Marie, and Emena form part of the study area of an ongoing research on Urbanization, Land Markets and Gender, insecurity in Peri-urban Kumasi

(Kasanga, 1996-1997). Key players - chiefs and elders, queenmothers and elders, the youth, members of Town Development Committees, Plot Allocation Committees were interviewed. The survey instrument is attached in Appendix 1. The authors own experience in the operations and observations in the field as a public land administrator since 1987 played a key role. The author has had substantial working experience in five out of the ten Regions in the country - Greater Accra, Ashanti, Eastern, Brong Ahafo and Volta. The five regions, to a large extent have varying tenurial, land management and market constraints. The data and lessons from these regions would provide an objective platform for the study.

1.3 Scope and Constraints:

The time allotted for the work was too short, haven been commissioned on the 14th of March 1997 with a submission date of 31 st of May 1991. Hence no in-depth major surveys could be carried out. Furthermore it proved impossible to finish the study within the stipulated time. In the community level interviews, making appointments with chiefs was not always easy, especially with absentee chiefs. Some appointments took several visits to conclude.

The tentative findings including landlessness, homelessness, marginal farmers, precarious economic base could not have been picked up by any casual observer. It is in this light that the need for an in-depth study is suggested for any future research work.

2.0 LAND TENURE AND MANAGEMENT SYSTEMS

2.1 The Land Tenure and Management Systems in Ghana

The bibliography denotes most of the major works on land tenure and management systems in the country generally. As rightly put by Asante (1975) `Ghana like most of the new nations of Africa, is a melting pot of conflicting ideas. Indigenous institutions are striving to hold their own against the onslaught of new political, economic and social phenomena. The transition from a subsistence to a money economy, the colonial experience, the inter-action with western ideas, the reception of Christianity, the attainment of independence and the consequence widening of ideological horizons have all unleashed potent forces which are steadily eroding the traditional social mechanism. While this turmoil has succeeded in upsetting, if not disrupting, the fabric of traditional social values no articulate schemes has emerged as a clear alternative to the old order.

The early writers, Sabah, Danquah, Ollennu and Bentsi-Enchill all made impressive contributions and critique of Ghana's Land Tenure Systems. Each of these writers has produced an authoritative analysis of the land tenure systems. S.K.B. Asante (1975) in his study postulated on the philosophical, social and economic implications of Ghanaian property concepts and institutions. He examines the impact of social and economic pressures on legal institutions and thereby made specific recommendations for shaping social institutions to respond to the needs of a rapidly changing society.

Some school of thought, hold the opinion that customary land tenure systems are the main contributory factor to the food shortages and worsening economic situation in most of developing countries including Ghana.

Other commentators opine that communal tenancy in their original form cannot cope with the modern money economy and therefore have called for land reforms. "It has become increasingly obvious that many of the defects of our traditional tenure system could virtually be by-passed through the mechanism of government intervention to ensure effective and meaningful distribution" (Asante, 1975). "The question which keeps recurring is whether the community today has not reached such a level of social integration that the traditional system of land reservation on tribal basis ought not to be abandoned in the interest of the country as a whole.... Accordingly, the inquiry to my mind, must be whether we have not yet reached the next inescapable stage in a pursuit of a national land policy when total transfer of public ownership of all urban land if not all land, ought not to b e considered" (Broby, 1975).

The debate goes on and traditional rulers have not been left out. "There is certainly no magical virtue or intrinsic worth in adhering to customs which have outlived their usefulness. A blind adherence to a mystical belief in the efficacy of customary land tenure could retard the revolutionary process which is so necessary if we are to meet modern economic and social needs. At the same time, it is generally accepted that our customary practices regarding land holding contain some values which are invaluable for the proper organization of our society. There is no merit in abandoning those elements of customary land tenure which retain their usefulness in present circumstances. Economic and social progress must be tampered with respect for traditional concept of community interests and responsibilities" (Nana Otuo Serebuo II, 1975).

Acquaye questions the protagonist of nationalization and unfettered legislative controls of the customary tenurial system. He is of the view that the most laudable policies and objectives of our national land policy cannot be achieved merely by legislation and mere state intervention." In our society where right to use land is normally dependent on allegiance to a chief or heads of clans and families, traditional authority is bound with the law, and in fact, recognized through land administration"[Acquaye, 1975].Acquaye however concedes that the traditional system can be refined to direct and accelerate change for economic development by ensuring a balance between principles of customary land and modern concepts.

Kasanga (1988) concludes that the communal tenurial systems present no significant obstacles to development in West Africa generally, particularly Ghana. Kasanga (1988) further asserts that:

Traditional inroads of land administration are still of paramount importance and subject only to compulsory acquisition by the state, access to and security of interests in land are fully guaranteed to an overwhelming majority of families.

Farms, houses and investment decisions are operated on a family or individual basis and a housing land market exists in all parts of the country.

Land tenure, rural unemployment and population pressure are not significant problems in most of rural Ghana.

Far from proposing sweeping tenurial reforms he suggests that the customary tenurial systems should be supported.

From recent research findings in the Peri-urban areas of Accra (Kasanga, et al, 1995, 27-30), Gbawe lands which are under customary management are rated to have innovative and positive land management practices. The major findings include:

1. Effective collaboration of the chief and elders with public land agencies;
2. A near perfect land market;
3. Equitable distribution of benefits from land sales.

In summary it is apparent that a lot of research with findings and their apparent contradictions have been undertaken. The dust has not settled yet on the debate. However it is clear that the younger generation of researchers and writers are moving away from the wholesale condemnation of the customary tenurial systems.

2.2 Historical Overview of Land Tenure System

2.2.1 The Traditional Era:

At a maiden meeting of the Asantehene and the Ashanti Regional Lands Commission in 1996 the Asantehene opined that land in Ashanti belongs to the Golden Stool with paramount chiefs in possession of portions of the land. He went further to remind the newly constituted Commission that there is no uniformity of land tenure system in the country and therefore the Commission should administer Ashanti lands with Ashanti custom.

The Asantehene is the overall custodian of lands under the powers bestowed on him by the Golden Stool. "When Kumasi grew into a powerful military state, all the other towns forming the present Asanteman Council were persuaded by Osei Tutu (chief of Kumasi 1697 -1731) with the help of Okomfo Anokye (chief priest), to merge their stools with one ancestral stool - The Golden Stool - with the Kumasi Chief as Asantehene", [Ward, P108-111].

The customary land tenure system in Ashanti has many common features with the system in most other parts of Ghana, particularly the Akan speaking areas. There is indeed a near-universality of values in the system wherever it obtains, [Nana Otu Siriboe II, 1975].

The categories of Customary ownership type recognized are the Paramount (Allodial), Sub-Paramount, Family and usufructuary titles. The traditional system recognizes that the higher title in land is vested in the stool. "Since the stool or skin is the repository of the spirit and soul of the 'oman' symbolising the common ancestry and corporate tufty of the community, it follows that stool lands are communal lands. In root analysis, the land belongs to the whole community and whoever exercises rights of holding or management does so in trust for the whole community. This is most fundamental and all traditional practices and customary land laws stems from this basic fact" [Sereboe II, 1975: 2]. Oral tradition has it that the forbearers of certain clans in Ashanti came from a hole in the ground now preserved as a grove near Esumeja. Lands on which the forbearers settled were appropriated with their ownership and subsequent expansion came through conquest, purchase and gift from other land owning groups.

The wider role of the customary tenure system is captured by Kasanga (1988), "In a rural and agriculturally based economy, land tenure forms the basis not only of agricultural production but also of the social and economic system" A study of the land tenure system without making any attempt to link it to the religious and the socio-political traditional system will be a study in futility.

(i) Religious Aspects:

Land is viewed by the Asantes as a maiden deity called 'Asaase Yaa' because Thursday was the natal day of the earth, custom did not allow economic activities such as farming to disturb the deity on that day. This custom was followed by the Asantes until 1942 when the Asante Confederacy Council made its observance optional following agitations which were supported by the then Chief Commissioner of Ashanti. Before a new farm was started a sacrifice of mash yam, eggs and a fowl was offered to the earth with prayers for good harvest. These aspects of custom have far reaching consequences on customary land holder rights.

(ii) Social and Political Concept:

The classification of interest in land closely correspond with physical hierarchy of the Asante Kingdom. "The higher interest is vested in the stool, sub-paramount is located in sub-stools, while the subject's

proprietary capacity is limited to the usufructuary title. The traditional communities were organised in hierarchies, such that the allodial title may be vested not in one, undifferentiated community, but two or more at different levels. Thus the allodial title to a large area may be vested in a head-stool, but sub-stools, each composed of a part of the head stool community and led by a chief subordinate to the leader of the head stool, may each share the title to a portion of the total area. The sub-areas of a sub-stool may be further divided, with different families, parts of the sub-stool commonly, sharing in the exercise of rights over various portions of that sub-area. (Woodman, 1986).

The relationship between the stool and the land is captured by Ollennu (1962), "... the traditional ...implication of the relationship between the land and the ... stool is that citizens ... should maintain the ... stool out of the natural proceeds obtained from the land, furthermore that the community as a whole should benefit from the land".

The chief is a "headman " for a traditional grouping. He is the occupant of the stool his constitutes the symbol of of traditional authority. The chief exercises spiritual and political powers. Both traditional or tribal administration and land trusteeship are inherent in the role of the chief. This is contrasted with the Upper West and Upper East regions of Ghana where traditionally, "the tendambas" (usually the first settlers of Olageshowns) hold the allodial title. The chiefs in these areas described as new arrivals aligned themselves with the religious figures (tendamba) that governed the land [Kasanga 1988, 30]. The Ashanti chief however holds lands within his jurisdiction in trust for the subjects of the stool. As the administrator of the stool land all actions relating to the settlement of ownership and boundary disputes with adjoining stools fall within his jurisdictional functions.

(iii) The Subject's Rights (Usufruct):

This interest variously described - customary freehold, usufruct, is super-imposed on the allodial title. It is acquired by an individual who or a community which is part of a community holding the allodial title by occupying and developing part of the community or stool land.

Nana Otuo Serebuo clearly set out how the usufruct exercised and enjoyed his right as regulated by custom. "... the subject's right of clearing virgin, land is regulated by the fact that, by custom; he cannot clear virgin forest past such natural boundaries such as streams etc....These thus regulated the physical extent to which one could turn communal land to individual property. At the same time, they provided a means of prima facie' identification of boundaries so useful especially in the event of litigation on boundaries... The right of the usufruct begin after cultivation and occupation and the right which is inheritable, and transferable excludes rights of economic trees and treasure trove found in the land.

(iv) Rights of Strangers:

The customary tenurial system recognized disposition of tenurial rights to non members of the land owning group. Strangers are people in a traditional area who have no inherent right to occupy stool land. A stranger who wishes to acquire land, first approach the chief who then direct him to a sub-stool, a family or individual to be given land. (In *Kuma v. Kuma* [1938]5 WACA 4PC) it was established that it is only by grantor contract that a stranger acquires any estate in stool or ancestral land.

However a long undisturbed occupation by a stranger does not ripen into an absolute title. The stranger's interest tenures so far as he does not break the laws of the area. The stranger cannot pledge, sublet or sell the land without the consent and concurrence of the land owner. Ashanti customary law deny the right of any one to totally alienate the allodial title. "The strangers, ... were assumed indefinite right of beneficial user on stool land or private land under license granted by the stool or subject for

some consideration, such as a tribute in the case of a stool license, or a portion of the annual produce of the farms made. With the "Abusa" tenancy, the stranger at his own expense, clears and cultivates a tract of virgin land allocated by the landowner, and enjoy the beneficial user thereof in consideration of surrendering a third share of the annual produce of the land to the landlord. The "abunu" system also prevails where in addition to the land donated the landowner provide funds to the tenant to operate and look after the cultivated farm. Here the produce is divided equally between the landowner and the tenant.

The customary land tenure system prevailed in the traditional states of pre-colonial era in its purest state. This era is characterised by abundant land, low population, and subsistence economy. This scenario has changed radically since the colonial era.

2.2.2 Colonial Era:

Before the advent of colonial rule land in Ghana was held and administered by the traditional authorities and in the Ashanti region by the stools. The colonial administration met a centralised traditional political system which they did not disrupt but adapted in the famous Indirect Rule Concept.

Cash economies were introduced with colonialism. Commerce boomed and permanent agriculture in the form of cash crops such as cocoa, coffee, rubber were taken up by the indigenous people. Population dynamics also began to change with increasing population and internal migrations. Some inherent weaknesses of the customary tenurial systems became evident. Customs and beliefs changed in some communities. With population pressure demand for land increased and bush fallows became shorter with environmental consequences. Land disputes and litigations emerged. All these problems were laid at the doorsteps of the customary land tenure system by some authorities even though it is debatable, [Kasanga 1996:9]. The stage was, however, amply set for government intervention in the land market.

Subtle attempts were made by the colonial government in 1892 and 1894 to bring under the control of the crown all unoccupied lands in the Gold Coast. The Bill sought to vest 'waste lands', forest lands and minerals in the Queen. The measure was opposed by the local middle class comprising the lawyers, the merchants, traders and mineral concession intermediaries represented by the Aborigines Rights Protection Society. This then led to the withdrawal of the Bill which sought to interfere in the customary land tenure systems in the various traditional states.

The colonial government's land policy of *laizes faire* continued in the south. In the North, however, legislations were passed which vested native lands and all rights in the Governor. The practical operation of the law was however limited. The need for the colonial government to acquire land in Ashanti for public use was felt and therefore in 1902 the Administration (Ashanti) Ordinance (Cap. I 10) was passed. Among the major lands acquired under the Ordinance was the famous Part 1 Lands (one mile radius of the Present Fort) which was initially vested in the Crown. Lands 200 - 300 feet both ways of major trunk roads in Ashanti were also appropriated in the Crown under this Ordinance. The colonial government passed laws to facilitate and regulate land uses. Some of these laws are the Town and Country Planning Ordinance, 1945 (Cap. 84) (as amended) and the Forest Ordinance No. 13 of 1927.

2.2.3 Post Colonial Interventions:

After independence various land policies were adopted and given effect through the enactment of legislations which affected the land tenure systems in the country generally. For various reasons, some of which were political, policies which made further intrusions on the customary land tenure and management systems were made. As a gesture of reconciliation the Colonial Government had re-vested some lands previously vested in the Crown in the Asantehene (KLO. 1943, (Cap. 145). It seems however that the stool land revenue accruing from rents was either mismanaged or was for

purposes other than prescribed by law. The Sarkodee Addo Report of 16th February 1956 had this to say "political discrimination in the allocation of plots and the Department was used to further the financial and general aims of the National Liberation Movement; that the Lands Department was inefficiently and negligently managed and that statutory duties imposed by theLands Ordinance, 1943 (Cap. 145) were not being complied with". This was an indictment on the Asantehene's Lands Secretariat. The Ashanti Stool Lands Act, 1958, was passed to transfer the trusteeship of the Kumasi Town Lands (KTL) from the Asantehene to the Governor-General as a trustee for the Golden Stool. An administrator of stool land was appointed to make regulations and general control of stool land revenue in the area.

These and other occurrence in the land tenure system from the Post Colonial Government can aptly be summarised as following: "upon independence on 6th of March, 1957, the decentralised fairly autonomous local communities became a unitary state, Ghana. The future of the local communities from then onwards was to be largely decided in Accra, the national capital, through the public bureaucracy, backed by parliamentary enactments, and/or military decrees. Customary land laws have not been abolished - that is beyond the power of any government, military or civilian. However, the state land machinery operates effectively to monopolize all the important land management functions that must go along with ownership and landholding in the customary sector". (Kasanga, 1996). Sweeping legislations were enacted to give effect to the new philosophy of land tenure and management.

The Administration of Lands Act, Act 123 enacted in 1962 consolidated enactments relating to the administration of stool and other lands. The act empowered the President to authorise the occupation and use of stool land for public purposes without resorting to outright acquisition of the allodial title. The Act also empowers the President to vest stool land in trust for the people of the area to ensure economic development and social cohesion in cases of disputes and litigation. Section 8 of Act 123 provided "for the grant of "statutory concurrence to validate dispositions of stool land. Article 267 (3) of the 1992 Constitution also provides thus: "there should be no disposition or development of any stool land unless the Regional Lands Commission in the region in which the land is situated has certified that the disposition or development is consistent with the development plan drawn up or approved by the Planning authority for the area concerned."

Other legislations which were enacted with the objective of facilitating access to land and land management include:

- (1) State Lands Act, 1962 (Act 125)
- (2) Lands (Statutory Wayleave) Act, 1963 (Act 186)
- (3) Conveyancing Decree, 1973 (NRCD 175)
- (4) Mortgages Decree, 1972 (NRCD 96)
- (5) Farm Lands (Protection) Act, 1962 (Act 167)
- (6) Public Lands (Protection) Decree, 1974 (NRCD 240)
- (7) Stool Lands Boundaries Settlement Decree (NRCD 17)
- (8) Land Registry Act, 1962 (Act 122)
- (9) Land title Registration Law, 1986 (PNDCL 192)
- (10) Limitation Decree, 1972 (NRCD 54)

Various institutions have been set up by statutes to give effect to the policies reflected in the laws. Article 258 (1) of the 1992 Republican Constitution and the Lands Commission Act, (Act 489) 1993 prescribe the functions of the Lands Commission to include the grant of consent and concurrence to stool lands disposition, management for public lands and the formulation of recommendations on national land policy with respect to land use and capability.

The Office of the Administrator of Stool Lands has been established by article 267 (2) of the 1992 constitution and the Administrator of Stool Lands Act 481 which empowered the Administrator to establish stool land accounts and administer in accordance with the law . Other institutions of relevance and which play complementary roles in land management are: the Stool Land Boundaries Commission, the Survey Department, the Town and Country Planning Department and the Land Title Registry.

2.2.4 The Role of Decentralised Institutions in Land Administration:

By ensuring that land is made available for all uses, at reasonable price, set against all environmental considerations, the role of the state in both stool and government land administration is paramount. A number of statutory bodies, departments and agencies play meaningful roles. These include the: Lands Commission, Town and Country Planning Department, District assemblies, Survey Department, Land Title Registry, and Utility agencies.

Article 260 of the 1992 Constitution provides for the setting up of the Regional Lands Commission and the Ashanti Regional Land Commission has been inaugurated and functions as envisaged by the decentralisation policy of the Government.

Apart from managing public lands, the 1992 Constitution charges the Lands Commission with advising the government, local authorities and traditional authorities in ensuring that the development of pieces of land is co-ordinated with the development plan applicable in the particular area. The Lands Commission is required to grant consent and concurrence to disposition and development of stool lands in conformity with a land use plan drawn up and approved for the area. With the setting up of the Ashanti Regional Lands Commission management of government Lands and grant of consents and concurrence to stool lands transaction are handled at the Regional Office in Kumasi thus bringing land management functions nearer to the people unlike previously where every land management decisions were taken in Accra.

The office of the Administrator of Stool Lands is charged with the collection of all stool land revenue emanating from stool land dispositions and manages these accounts as prescribed by the 1992 Constitution and re-enforced by the Administrator of Stool Lands Act (Act 481). The law provides that the office maintains 10% of moneys for administrative expenses and the remaining disbursed in the following proportions,

- 25% to the 'stool' through the Traditional Authority
- 20% to the Traditional Authority
- 55% to the District Assembly.

With stool lands constituting a sizable proportion of lands in peri-urban Kumasi the role of the administrator of Stool Land is paramount to the urban land management process. The major source of revenue to Stool Land account in Peri-urban Kumasi is through annual ground rents since royalties from timber are negligible due to the dwindling forest cover as a result of intensive agriculture and conversion of rural land to urban development. Ground rents adopted by the Lands Commission and applicable to the various categories of uses are:

| User | Rent Per Acre/Annum |
|-------------------------------|---------------------|
| (i) Residential (First Class) | 150,000 - 210,000 |
| (ii) Residential (2nd Class) | 120,000 |
| (iii) Residential (3rd Class) | 60,000 |
| (iv) Industrial | 240,000 |
| (v) Commercial (CBD) | 2,537,800 |
| (vi) Commercial (Other Areas) | 1,268,900 |

Source: Lands Commission, Kumasi, 1997.

The above rates cannot be said to be the true reflection of the pattern and level of land values prevailing in the property market especially in the Central Business District of Kumasi. With the adoption of unrealistic low rents the Government is losing revenue.

2.2.5 District Assemblies and Land Administration

“ The Local Government act 1993 (Act. 462) provides for the institutional and legal framework for District and Metropolitan assemblies, giving them executive and deliberative powers, to plan for the overall development of districts. In and administration, the assemblies have legislative powers to make in respect of buildings, sanitation and the environment. The preparation and approval of layouts (ie. planning schemes), the grant of planning permission and development permits and enforcement of regulations and impositions of sanctions for non-compliance all rest with the Assemblies"(Kasanga 1996: 6)

With peri-urban Kumasi apart from the KMA, the other District assemblies are: Kwabre (Mampong), Bosomtwe-Atwima-Kwanwoma (Kimtenase), Ejisu-Juabeng (Ejisu), and Atwima (Nkawie). Currently much of urban land conversion process takes place within the administrative boundaries of the adjoining Assemblies. The study villages of Maase, Akokoamong, Okyerekrom, Esereso, Emena, Asaago and portions of Atasamanso which exhibit vigorous urban land conversion processes fall outside the Kumasi Metropolitan Planning areas.

In line with the decentralisation policy these outlining Assemblies have constituted their own District Planning Comma miff District Chief Executives as Chairmen. Ostensibly missing from the list of the planning committees is the representation of the Traditional land owners as pertains in Kumasi where the Liaison Officer is a permanent member of the Planning committee. Apart from Ejisu-Juaben?

where a fully fledged planning office is operational under the decentralisation program the rest of the Assemblies either have skeleton staff manning the planning offices. or planning officers shuttling from Kumasi to the Districts where occasion demands. The position of the District Assemblies and their decentralised agencies are summed up by (Kokor, et al., 1994: 43). "At the present stage, most of these District Assemblies are ill-equipped to undertake the range of responsibilities assigned to them under the decentralisation program. They have neither the requisite expertise nor adequate funding to carry out these functions."

3.0 CURRENT TENURIAL ISSUES IN PERI- URBAN KUMASI

3.1 The Peri-Urban Interface

The peri-urban interface has been defined by the ODA's Renewable Natural Resources Research Strategy by considering its characteristics: "The peri-urban interface is characterised by strong urban influences easy access to markets, services and other rights, ready supplies of labour, but relative shortages of land and risks from pollution and urban growth. An important consideration in judging the "peri-urbaness" of a village was the continuing presence of bush/fallow agricultural land, but with competition for land for non-agricultural uses" (Holland et al 1996:7-8)

Kumasi has served as a magnet to indigenous Ashanti prospective property developers. The desire of an average Ashanti subject to be associated with Kumasi, the traditional capital in one way or the other is very high. This phenomena defy economic considerations. The situation can be contrasted with other regional (Administrative) capitals such as Koforidua and Sunyani in the Eastern and Brong Ahafo Regions respectively.

As a city Kumasi has a large population of migrants due to its continued prosperity. The 1970 and 1984 population census put the population of Kumasi at 260,236 and 374,264 respectively with an annual growth of 2.6% and urbanization rate of 4.5%. Due to its location and position in the regional context the metropolis has been a focal point of migration in the country. Both internal and international forms of migration constitute important dynamic aspects of the growth, structure and distribution of the metropolitan population. A study conducted in 1990 revealed that people from all the ten regions are fully represented in the metropolis as well as nationals from neighboring West African countries; especially Togo, Burkina Faso and Nigeria. (Urban Housing Strategies, 1990). This phenomena has accelerated the current process of transformation going on in peri-urban areas of Kumasi, with new residential areas springing up and engulfing rural villages on the urban fringes.

3.2 Pattern of land holdings

Land within the peri-urban area including the inner perimeter can be categorised into stool lands, stool land vested, and government land. The following table denotes the ownership pattern as at 1973:

| | | |
|-------------------|----------------|------|
| Government Land | 3,104.0 acres | 25% |
| Stool Lands | 24,764.0 acres | 68% |
| Stool Land Vested | 2,678.0 acres | 7% |
| Total City Area | 36,224.0 acres | 100% |

Source: Land Ownership and Acquisition in Kumasi:

Seminar Paper, Land Administration Research Centre, Univ. of Science and Technology, Kumasi, Sept. 1975. The situation that the above data depicts is true today in Kumasi with the scale tilting in favor of stool lands, since the volume of government and stool land vested lands remain virtually the same whilst more stool lands are brought under urban development as a result of the physical expansion of Kumasi.

3.3 Government and Vested Stool Lands:

Even though the colonial government adopted a laize-faire land policy in the south it passed laws such as the Administration (Ashanti) Ordinance and which were used to take land for public purposes. Prominent lands acquired under this law are lands within the range of 200 - 300 feet both sides along some major trunk roads in Ashanti and beyond the Region. In peri-urban Kumasi lands within the

Kumasi - Mampong; Kumasi - Offinso; Kumasi - Sunyani; Ejisu-Juaben fall within the 300 feet category. The Kumasi Ridge Residential area which retains the bulk of government bungalows and also the official residence and offices of the Regional Co-ordinating Council, falls within land held absolutely by the government.

On the urban fringes government lands feature less prominently in the urban conversion processes apart from the road sides acquisition. Pockets of lands of various sizes have however been acquired to establish educational and research institutions. Examples of institutions occupying stool lands on the authorisation by government include:

- Kwame Nkrumah University of Science and Technology (KNUST), (2568.814 Acres); - Council for Scientific and Industrial Research (C.S.I.R) at Fumesua, (1530 Acres);
- Kwadaso Agriculture Research Station (1429.84 Acres);
- Kumasi Girls Secondary school, (103.910 Acres);
- Opoku Ware Secondary School, (127.438 Acres).

The location of these lands which stretch into the outer fringes of peri-urban Kumasi has affected the landuse patterns and tenure practices in the localities. The sites of KNUST and CSIR which are not fully developed clearly have put a break in the monotonous urban spread. In the case of UST a large portion of the undeveloped land is under annual cropping by a section of workers apart from what is used for research purposes. At the Agriculture Station at Kwadaso a vibrant agriculture experimentation farm goes on within the sites unencumbered with buildings.

Lands described in the Kumasi Town Boundary (Cap 143) of 1928 used to be under the management of the Golden stool as custom dictated. The Gold Coast Government took over control and management of the Kumasi Town Lands in 1902 after the Yaa Asantewa War in 1900. In 1943 the government vested the Kumasi Town Lands (KTL) in the Asantehene under the Kumasi Lands Ordinance. The Asantehene administered this land through his Lands Office until 1958 when the Ashanti Stool Lands Act (Act 28) was passed to vest title of the K.T.L. in the government in trust for the Golden Stool and the Kumasi State. The management of these lands often referred to as Part 1 Lands is vested in the Government. Currently, the Lands Commission by exercising its constitutional mandate is in charge of all transactions affecting the lands: Since the mode of acquisition by the government is vesting, the Public lands which fall under the direct management of the Regional Lands Commission are the Part 1 lands and those of road sides. Part 1 lands now constitute the prime areas of peri-urban Kumasi and includes the Central Business district. The activities of the Lands Commission relates more to lease renewals, grant of consent to dispositions, leasehold rent management, and urban renewal programs.

Lands constituting road sides are under customary tenure mainly for farming and for housing purposes within traditional settlements along the affected roads. The state has not actively exercised the right of ownership over these lands, but in the event of road widening and diversion schemes within the perimeters of the acquisition, access is facilitated and compensation payment is only limited to improvements and not the land. Ownership of these lands by the Government has also facilitated the transmission of utilities such as water, electricity, and telephone. The management of the road side lands by the Lands Commission has generated the highest controversies in peri-urban Kumasi. Due to the virtual absence of serviced plots, lands abutting the highways are in high demand for ease of access and also its high potential for commercial purposes. Chiefs without hesitation grant these lands to prospective developers in the urban conversion process and do offer resistance in situations where the Lands Commission makes direct grants. The chiefs contend that since the land was appropriated by the

Colonial Government without compensation, the option to dispose should not be denied them especially when the land is not utilised for road purposes. In accommodating the controversy, the Lands Commission has no choice but to regularise such grants which comply with planning regulations. The Lands Commission in its effort to arrest the situation of utilisation of such lands has instituted a punitive measure whereby on regularisation a penalty worth 2.1 times the open market value of the plot of land is imposed on the developer if a case of encroachment is established.

3.4 Stool Lands:

An estimate 98% land under various mode of tenure in the urban fringes of Kumasi constitute stool lands. The Golden Stool vested with the paramount or allodial title whilst possessory title' vested with the sub-chiefs, queen mothers or caretaker chiefs. These lands extend to and beyond Kodie on Kumasi-Offinso road; Koforidua on the Sunyani road; Pakyi on the Kumasi - Obuasi road; Mamponteng on the Kumasi - Mampong road. On the Kumasi - Accra Road, Ejisu is under a paramountcy and therefore its lands do not fall under the direct management of the Golden Stool.

3.5 Customary Land Management:

The traditional tenurial system is under pressure in peri-urban Kumasi in the wake of the rapid rate of physical expansion of the metropolis. With the pure rural tenure system where the predominant land use was agriculture, access to land for farming was by contact with an individual or a family head. A subject's access to land for farming purposes was to appropriate a portion of family land. One could also contact other families with excess land for negotiation on the basis of either cash rental or on abunu or abusa tenancy. At Behenasi a purely rural settlement 20km from Kumasi it came out of the community interviews that access to land for agricultural purposes can still be made through family contact, share cropping or cash rental.

Outright sale of farm land is not practiced and one can hire one acre land for 20,000 (cedis) per annum for 2 years. These land transfers are handled at the family level and the chiefs or stool consents are not sought in the transactions. Due to population pressure and potential urban land use conversion, land grants for agricultural purposes are of shorter duration of 2 -3 acres on average. There is clear pay down also of cultivation of cash crops such as cocoa, coffee, oil palm, etc. In some few areas where cash crops are cultivated, the motive is to maintain possession by the usufruct and to strengthen his bargaining power in the event of urban land conversion process. The chief of Mamponten has written to the Lands Commission complaining of the practice whereby some of his subjects put 'accommodation' lands under permanent crop cultivation, thereby frustrating settlement expansion. The presumption is that lands dedicated for food crop or annual crop cultivation are easily merged under absolute stool management and control whereas the land is covered with permanent crops the usufructuary holder is almost always consulted. These tendencies have also led to situations where strangers acquire farm lands in outer peri-urban areas; secure formal leases and keep such lands under cash crop cultivation with speculative intentions. Typically along the arterial trunk roads, there is rush for formal acquisition of land for poultry ranging between 3 - 10 acres.

3.6 Urban Land Conversion Processes and land Allocation Procedures

The notion that every piece of land has an owner holds in the peri-urban areas of Kumasi but it is not the case in some marginal agricultural lands within the Afram Plains section of Ashanti. Some lands

within this part of the Region has not been brought under usufructuary tenure or ownership even though the allodial ownership of such lands are established and recognised. In the peri-urban areas the stool's dominion of ownership comes into play unlike the pure rural agricultural communities where informal transactions mostly end at the family level.

Traditionally, the chief and his elders take decision on the agricultural land conversion processes. Such decisions are motivated principally by monetary considerations, such as the desire to fund local projects from land sales, and for the maintenance of the stool. The chief normally will consult the Town and Country Planning Department under whose guidance a land use plan would be formulated. and plots are subsequently allocated by the chief on the advise of the elders. The chief and elders would determine how much of proceeds will go into public projects. This seemingly self approach is however giving way to broader and transparent community participation in peri-urban Kumasi.

The general trend in the peri-urban communities is the constitution of Land Allocation Committees with broad based representation. At Esereso a village 9 kilometres from the centre of Kumasi on the lake Bosumtwe road the Land Allocation Committee is composed of representatives of the chief and stool elders, Town Development Committee and the youth group. The allocation committee has the responsibility of managing lands zoned for urban development purposes. Functions include supervision of land sales, inspection and monitoring of developments to ensure compliance with zoning, and settlement of disputes arising from land allocations.

However few communities still cling to the practice where the stool and elders take up the sole responsibility for managing the stool lands. At Atsamanso a suburb of Kumasi, it came out during the community interviews that the chief is the sole administrator of the stool lands.

Chiefs who constitute the membership of the Kumasi Traditional Council -directly report to the Asantehene on their land matters. There are other lesser chiefs in control of lands but owe allegiance to a caretaker chief. The hierarchy of stool land ownership under some circumstances may be two, three and in rare cases four.

3.7 Disposition of Stool Lands

The conception that there is no absolute sale of land in Ashanti has been enviably enforced through generations under customary land tenure system, Unlike in some areas in Akim Abuakwa where absolute title to stool lands were conveyed to individuals and companies, the Ashantis always conveyed an estate lesser than the allodial title. One should never make a mistake of describing the grant of stool land as a sale to the hearing of the chiefs. Customarily therefore, land was granted for a specific-purpose and change of use by the grantee would require the consent of the stool. Grant of land under customary land tenure system clearly relates to principles of zoning in the modern context.

Under the existing regulations the following table shows the length of leasehold interest that can be granted out of both stool and government lands except in the Central Business District/Odum where the Lands Commission currently grants 10-20 years on properties on lease renewal.

| <u>Land Use</u> | <u>Term in Years</u> |
|------------------------|----------------------|
| Residential | 99 |
| Commercial | 50 |
| Petrol Filling Station | 21 |
| Industrial | 50 |
| Ranching | 50 |

| | |
|-----------------|----|
| Civic/Cultural | 50 |
| Permanent Trees | 50 |
| Annual Cropping | 10 |
| Poultry | 10 |
| Livestock | 21 |
| Mixed Farming | 14 |

Source: Lands Commission Hand Book (1995) Kumasi, Accra.

Customary procedures and usage in areas with land under the control of the Golden Stool require the formal notification of the Asantehene of the completion of a layout before the commencement of land grants. Negotiations for sale of plots are conducted at the village level where agreed "drink moneys" are paid. The purchaser after successful negotiations is issued an "allocation note" which is a one page document signifying that a piece of land has been allocated by the Caretaker Chief. The allocation note which is a standard format in the Kumasi Traditional Area enjoins on the purchaser or allottee to commence development of the land within one year and finish within three (3) years and further makes payment of annual ground rents. There is a proviso that non observance of the conditions stipulated could lead to the land being "re-entered" and taken possession of by the stool grantor. The allocation note is signed by the Caretaker Chief and witnessed by at least two stool elders. No formal recording of the consideration paid is made on the allocation note.

3.8 The role of the Asantehene's Lands Secretariat:

The Asantehene's Lands Secretariat located at Manhyia Palace is headed by a Liaison Officer and assisted by secretariat staff. The secretariat has a long history of operation and Section 16 of the Kumasi Lands Ordinance, Cap 145, 1943 provided for the setting up of the office to facilitate land transactions and recording of all dealings with lands under the control of the Golden Stool. Among other functions the ordinance empowered the office to maintain rent ledgers for the collection of ground rents charged according to a prescribed scale. Rent ledgers and other records kept were subject to inspection by the Commissioner responsible for Lands. The Ordinance also made it an obligation for layouts of plots specifying zonal restrictions of user duly prepared to be deposited with the Asantehene's Lands Secretariat and with the Commissioner of Lands. All leases and other grants made by the Asantehene were to be registered by the Commissioner of Lands to make it legally effective.

With the passage of the Ashanti Stool Lands Act of 1958 the administration of the stool lands were transferred to the government on matters relating to records keeping and rents were administered by the government. The Asantehene's Lands Secretariat despite the withdrawal of functions however still continues to operate in the administration of Golden Stool Lands. The office is the liaison between the various caretaker chiefs, the Asantehene and the public land management agencies. Land allocations which require the confirmation of the Asantehene are first processed by the office to ensure that the allocation are consistent with existing regulations. To establish this the office on receipt of an allocation note formally inquire from the Lands Commission and would only recommend for the endorsement by the Asantehene if the advise from the Lands Commission is favourable. The Liaison Officer also monitors and ensures that the traditional one-third share "Drink Money" due to the Golden Stool is paid before confirmation of the allocation. The office in consultation with the care taker chief determines the amount of "drink money" payable for land for purposes other than residential. The caretaker chief is entitled to a formal share of drink money paid in this case.

The Liaison Officer is a member of the Kumasi Planning Committee and articulates the views of the Asantehene and the Caretaker Chiefs on land and planning issues. The decisions on land dispute

resolutions among caretaker stools are communicated to the appropriate agencies. The office's close consultation with the Lands Commission ensures the dispositions are made to avoid conflicting allocations. Conflicts such as "double allocation" which occasionally occur are referred to the Liaison Officer for resolution.

4.0 LAND MARKETS

An active land market exists in Kumasi, with the major source of supply of undeveloped land coming from stool lands. Major players in the market include Chiefs, land agents, buyers and other sellers. Where rural lands have been freshly converted into urban uses, the mode of acquisition is negotiation with the chief and/or queen mother or land allocation committee where applicable.

Lands processed for sale are not provided with services like roads, drainage, water and electricity. The chiefs or queen mothers arrange for the preparation of the layouts and subsequent demarcation of plots. In few situations unpaved access roads are put in place by the chiefs before sales to enhance the land values. The "drink money" offered for land sales are generally determined by cost incurred in the land conversion process, and other factors such as access to the Central Business District of Kumasi, nearness to services and whether the site has an approved layout. In a survey carried out at Kwabre District it came to light that two adjoining stools Asenua and Adonten were selling lands in the same locality at different prices. A 100x100 feet building was going for 3.2 million cedis on the Asenua section of the area which had an approved layout, whereas a similar plot was offered for 1.3 million cedis by the Adonten stool which had no approved layout.

There are a few registered estate agencies in Kumasi but their activities do not centre more on dealings in stool land sales. Information on availability of land and land values can be gathered from the unregistered estate agents often sighted at the premises of land management institutions such as Lands Commission, town and Country Planning Department and the Survey Department. Quite a number of officials from these agencies also double themselves as go between for chiefs and potential buyers. These agents assist in locating land for prospective buyers and take fees after successful negotiations. The general practice is for the land purchaser to negotiate for the land and payment is made to the chief with a bottle of schnapps in some areas. Most often formal receipts on such payments are not issued and the buyer would have to count on the goodwill of the person who receives the money and on luck to ensure successful completion of negotiation and documentation.

With lands under the Golden Stool, for a purchaser to protect his title, the confirmation of the Asantehene is required. Currently, applicants pay 50,000 cedis as a welfare fund and one-third share of the purchase price paid to the Caretaker Chief is assessed for payment to the Golden Stool.

Apart from the 50,000 cedis welfare fund no formal receipt is issued on the payment of the Golden Stool's portion of the Drink Money. Really, custom requires that the Caretaker Chief submits to the Golden Stool one-third share of the purchase price of the land. However it has become an added responsibility for purchasers as they oblige to make the payment when the confirmation of the Asantehene is sought to the transaction.

The rate of grant of peri-urban lands fall far below its developments. The motive of quite a large number of purchasers is for speculative purposes. Private individuals hold on to underdeveloped lands and constitute the major source of supply especially in older neighborhoods, where fresh grants of stool lands are exhausted.

Acquisition of government land by application to the Lands Commission. As has already been mentioned the stock of government land available has dwindled considerably and with the urban expansion, lands abutting the major trunk roads comes up for allocation.

However, except in some few instance, where developers owe the occupation to fresh grants by the Lands Commission, the chiefs under whose jurisdiction these lands fall have been allocating the lands to unsuspecting purchasers. Subsequent searches by the purchasers towards the perfection of title puts such purchasers in a dilemma for the Ashanti Regional Lands Commission imposes a fee corresponding to the open market value of the land. In the case of government land already developed, a penalty equal to 2.1 times the open market value of the land is imposed as a punitive measure. The Commission however in arriving at these decisions looks at each case on its own merit, in order not to overburden applicants who owe their occupation to traditional settlements.

4.1 Revenue Sharing and Equity Considerations

Various schemes are in place defining how proceeds from land sales are to be applied. At Esereso, the Plot Allocation Committee is in charge of land sales and proceeds are divided into four equal parts to the Chief, Stool, Stool Elders, and the community. The one-quarter share to the community is used for development projects. Information gathered during the community interviews indicated that an old school block had been rehabilitated and new ones put up. Electricity, KVIP Latrine, the stool palace, and a well have been provided from the community's share of proceeds from land sales. Funds presented for the community from land sales are managed by the Unit Committee.

At Atsamanso, the Chief with the advice of his elders is the sole administrator of the revenue generated from land sales. Schools had been built and electricity and water extended to the old township from proceeds from land sales. At the new township evidence attests to some form of site and services scheme by the chief. Unpaved roads, water, electricity and telephone facilities have been extended to convenient locations in the neighborhood for tapping by developers. Though the entire cost of the facilities could not have been borne by the chief, the amount of money and effort that went in to induce public officials is considerable. No formal scheme of revenue sharing from proceeds of land sales to stake holders exist at Atsamanso.

The interest of families and individual usufruct has been the bone of contention in the customary land tenure system and the urban land conversion processes. The traditional notion that the usufruct's right is limited to farming, from all indications cannot stand the test of time. Families are at logger heads with chiefs over who has the right to sell agricultural land converted for urban development. The Chief of Mampongten has formally written to the Lands Commission to intercede in what appears to be a deliberate attempt on the part of families within his area to deny the stool the "inalienable right" to allocate land for urban development. At Atsamanso the chief cited eight land cases pending at the court of law over ownership and boundary disputes. In the particular case of Konkromase Chief Versus Atsamanso, custom dictates that the Atsamanso Stool possesses the sub-paramount title with the Konkromase people having occupied portions of the lands for generations. Apparently the Konkromase community by their actions are pre-empting the winner takes all attitude of the Atsamanso stool in its land allocations by suing for declaration of title.

However some communities have set in motion innovative land management schemes to ensure equity in land allocation. At Esereso, the villagers met and deliberated on the issues and a consensus was reached where the families surrendered their farming rights in the event of urban land conversion. With the completion of the first layout one residential plot was allocated to each household to sell and use the

proceeds to rehabilitate their family houses. Individual farmers are therefore not entitled to compensation for the land except crops in the event of urban land conversion process. The Esereso initiative could be described as a form of Land Consolidation whereby rights are surrendered to the stool for management and proceeds are managed in a transparent manner without sacrificing the overall community interest.

The land allocation and leasing process that follow land conversion do not take account of the interest of individual families over these lands. Neither the family heads nor the individual subject is a signatory to the documentation and no references are made to the former usufruct owners. From the practical point of view family lands perpetually merges into stool lands for central management. This phenomena has a unilateral application in the lands falling within peri-urban Kumasi. An exception to this rule is what pertains at Bremang a suburb, 7 kilometers from Central Kumasi. Allocation of land for urban development is made by the individual families and the role of the stool is limited to confirmation of such grants. Here the head of individual families takes part in the formal conveyancing by being signatories to the issuing of the Allocation Note. It is pertinent to know however that when it comes to the preparation of the formal lease it is only the stool which conveys with the Asantehene as a confirming party. Proceeds from sales are retained by the families and the chief is entitled to fees paid in the confirmation of the grants. The chief also directly allocates land designated as stool land and proceeds from the sales are understood to be used for the upkeep of the stool and public projects.

Subjects in the various traditional areas do enjoy preferential treatment in land allocation. At Kyerekrom outsiders are offered a plot of residential land for C3.5 million whilst subject pays C2.2 million. At Esereso, as far back as 1985 when a residential plot was being sold for C40,000 subjects of the village presented "drinks" for land allocation. In the case of land allocation at Emena when open market land sales was between C850,000 and C 1.2 million subjects were offered plots at C93,000 and a bottle of schnapps in 1993.

Preferential treatment is also offered subjects of a stool at the Asantehene's Lands Secretariat After the payment of C50,000 palace welfare fund, the `subject - allottee' pays a flat rate of C100,000 for a building plot for the confirmation of the allocation by the Asantehene regardless of plot size and location. These concessions are however not extended to the grant of formal leases. Ground rent levels are applied to leases without regard to the status of the lessee. The `subject - lessee' is subject to the same lease conditions or terms as the `stranger - lessee'.

With lands granted on leaseholds, the collection and disbursement of rents on stool lands is highly significant. Determination of ground rent levels, periodic revisions, enforcement of payment is the preserve of the Lands Commission and the Administrator of Stool Lands. The chiefs role ends with the determination of the amount of "drink money" payable, and ground rents inserted in the leases are determined by the Lands Commission. Ground rents generated is disbursed as prescribed by Article 267(6) of the 1992 Constitution:

Revenue generation from ground rents is tied up with the perfection of titles after land allocations. Unlike stool land, rents from government lands are treated as central government revenue and therefore paid into the Consolidated Fund. The Kumasi Metropolitan Assembly is a major beneficiary of disbursement of stool land revenue. In 1996, total payments amounted to eighty million cedis. In 1997, payment of sixty million cedis was made in the first and second quarters. (Lands Commission, Kumasi, 1997). Ground rent collections within the peri-urban areas falling on outlying assemblies, are insignificant due to the very low rate of regularisation of titles to land allocations.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Land Market Trends

A recent research on Gbawe, an old farming village which is 10 kilometers from Accra Centre gives the conclusion of a customary land tenure system at its best (Kasanga, et al. 1995: 27-30). Among the findings is an effective collaboration of the stool land machinery with all public land agencies - Lands Commission, Town and Council planning, Land Title Registry, Survey Department. Gbawe has also registered its lands in accordance with the Compulsory Land Title Registration Law, 1986 (PNDCL. 52).

"Land is sold/leased for a particular purpose (eg. residential use, or for a clinic). Anyone who later wishes to use land for a different purpose may be able to do so, but must petition the chief and perhaps pay a fee. Land holders failing to obey stipulated covenants are called before the stool and may be fined a sheep, a bottle of schnapps, or a small cash payment ... the vast majority of members of the community, however obey the covenants set by local authorities", (Kasanga, 1996).

Land at Gbawe is held and managed as a community resource. "The stool pays for most infrastructural development, including electricity, pipe water, schools, clinics, public bath rooms, showers, a football park, a petrol station, and so forth" In addition to such financial benefits every family who loses land to land alienation or development are allocated new plots on land reserved for expansion purposes, or are able to acquire new plots from the chief at no charge. Indigenous residents are allocated land for building personal homes, and after paying a token amount to the chief in addition to possible fees for acquiring an indenture and site plan. Other plots are awarded to individuals generally for some kind of service to the community, or when their farming land is dispossessed for residential development by the chief. In addition a large tract near the present traditional village has been reserved and laid out for modern residential construction, with specific plots allocated to every resident family in the community. This planned residential area cannot be sold, but other plots acquired for various reasons can be sold to outsiders" (Kasanga, 1996, 15).

Gbawe from all indications, constitutes one of the satellite settlements within the Accra Metropolis even though it is under a different Assembly. Kasanga et al estimates its undisputed lands at 4,918 acres and which constitutes a substantial peri-urban land and therefore the role of land under customary tenure or management cannot be underestimated. Clearly, the analysis of the situation indicates indigenous community's land management practices aiming at sustainability and equity. The collaborative role of the state institutions however fall short in some areas. "Reportedly, relations are very cordial with the Lands Commission, Town and Country Planning Department, Survey Department, Land Title Registry, and even the District Assembly, despite funds not being refunded from the stool account". Unlike the current low rate of regularisation of land grants in the Kumasi Peri-Urban area that of Gbawe is very high and it is ironic that enforcement and disbursement of rents reserved in leases has not been managed by the Administrator of Stool Lands as required by the 1992 Constitution.

With community participation in its land management machinery, disputes and other land conflicts among the families within Gbawe community have been kept to a minimum.

It is ironic however that disputes are rife between Gbawe Stool and neighbouring stools which have dragged on over the years. Perhaps the slow pace at which stool land disputes are settled may be attributed to this phenomena which is engulfing the peri-urban areas of Ghana" (Kasanga,etal 1996:13)

5.2 The Winners and the Losers

Having examined the literature on land tenure and management systems from a historical perspective along with community surveys in the Kumasi peri-urban study area it is expedient that the findings are made public for policy considerations. Current issues have captured the role of decentralised institutions- Assemblies, the Asantehene Lands Secretariat, Land Allocation Committees, the Town Development Committees, Chiefs, queen mothers and elders along with the operations of the Land market and revenue sharing

5.3 Changing Property Right and Insecurity

A basic tenet of the customary land tenure was the fact that it assured land to every family and individual for farming and other uses. Landlessness under the customary tenurial system in the past was viewed as a foreign phenomena. Recent events in the peri-urban areas however point to a situation where indigenous people's access to has been terminated as agricultural land gives way to urban development. At Atsamanso it is estimated that 700 people had no place to farm and neither do they possess building plots created for residential developments. At Kyerekrom it was estimated during the community survey that 90% of adult population were landless. In terms of land for farming purposes Kyerekrom is experiencing 100% landlessness since the urban conversion processes have virtually altered the land use into urban developments with two-thirds of the community land acquired by the Council for Scientific and Industrial Research. With the current practice of leasing land where the stool conveys without any reference to family or usufruct interest, the usufruct's interest is practically dissolved into the stools ownership without any reversion to the usufruct. Further in the event of the usufruct regularising his title to his land current policy dictates that the customary freehold is converted into a leasehold subject to payment of annual rent and observance of covenants which do not discriminate against the indigenous and a stranger land acquirer.

In the broader sense indigenous people seeking to document their interest in land end up being tenants of the stool and the government.

5.4 Emerging landlessness and homelessness

Added to the state of landlessness is the looming problem of homelessness which occurs in the peri-urban villages. The traditional switch family house can not contain the ever increasing population and therefore the person per room ratio being as high as 6 - 10 persons. The youth and women generally are the worst affected with over 50% of its population having no room to themselves.

5.5 Agricultural and food crisis

With the dwindling stock of agricultural lands, as a result of urbanisation and reduction of the bush fallow period, food production in the peri-urban areas is on the decline to the extent that eating habits of the inhabitants have been altered a traditional menu of "fufu" is becoming an occasional affair due to the inability of the soils to support plantain and cassava - the main food crops. Most village food stuffs and ingredients must of necessity be imported or purchased from the Kumasi central market.

5.6 Unemployment and dwindling livelihood sources

The unemployment rate is very high in the peri-urban villages. Land as a source of livelihood has been eroded away and the urban expansion has not created new and sustainable job opportunities. At Kyerekrom the main source of employment for the youth is sand winning and related construction activities. The women also fetch water and carry concrete at constructional sites. However, these urban generated employment are irregular and short lived. Perhaps as the general opinion of residents of the areas go, the future of the people lies in what Kumasi is prepared to offer as an employment source. But for now the situation is one of hopelessness.

5.7 Soaring land disputes and litigation

Land disputes and litigation are becoming common features of peri-urban Kumasi. With the current situation where the change from agricultural land into urban use means flows of wealth to stakeholders, stools are tracing their ownership back to lands, which has been in long occupation by non-subjects or neighbouring settlements. More often than not these disputes end up at the Kumasi Traditional Council for settlement and some at the formal courts. There is also insurgency between chiefs and subjects over the issue of the rightful authority to allocate land for urban development. The Ashanti Regional Lands Commission has recorded a petition dated 14th March 1997 written by the Chief of Mampong seeking the intervention of the Lands Commission over agitation by a section of families within the traditional areas against the chief's right to allocate their family lands for building purposes. As far away as Mampong, the Silver Stool of Ashanti about 40 kilometers from Kumasi the issue of families usurping the Mampong's right to allocate land for building purposes came up for discussion when the Administrator of Stool Lands paid a courtesy call on the Omanhene on 28th May 1997.

5.8 Policy Implications

From the analysis a number of policy implications may be drawn.

- i) The present Public Land Management Machinery is neither sustainable nor equitable. Although Esereso projects a progressive customary land management system, the same cannot be said of the other study villages. The customary land management machinery appears inadequate in its ability to cope with the rapid urbanization processes and land market constraints.
- ii) The current situation is a free for all affair and the winners are the most powerful in society such as chiefs, government officials, and rich men. The losers are the youth, women folk, and the disabled; thereby sowing the seeds of instability for the future.
- iii) All rules are being broken and laws are honoured in their breach than in compliance. As put by Kasanga (1988), "if the government were to charge people for defying its legislation affecting land, almost the whole country would be on trial".

5.9 Policy Recommendations

The evaluation of the land tenure system at Gbawe and peri-urban Kumasi vis a vis land allocation committees, the Asantehene Lands Secretariat and Land Management agencies, suggest a trend towards community land management. Besides ensuring land allocation and disbursement of revenues, these innovative land allocation committees can effectively monitor compliance with covenants and planning regulations. The role of the customary sector in land delivery and management is enormous but mechanisms under which they function need recognition by the state. The Land Allocation Committees should be established and supported with the necessary resources and special educational programmes to facilitate land management processes in every community.

To ensure accountability of chiefs and elders to their communities selling price of land customarily described as "drink money" should be recognised as revenue and payable to the custodians of land to ensure that purchasers or people who transact land transactions get the necessary acknowledgements from landowners for monies paid. The current state of the law which defines stool land revenue receivable by the administrator of Stool Lands to include all forms of revenue is a complete contradiction to customary land tenure usage and practices regarding capital payments on land grants.

There is need for consensus building between the public land management institutions, and land owners on the need to arrest the monotonous urban expansion in residential land use terms. The important role of the agricultural factor in the peri-urban economies need to be established by appropriate interventions to ensure that vital soils which can sustain agriculture are protected in the peri-urban environment.

The District Offices of the Town and Country planning Department should be well staffed with equipments to perform the role that is expected of them in the Decentralization Programme. Despite the provisions in the Local Government Act which set up the District Assemblies as the highest planning authorities in the region, land use plans approved by the assemblies are submitted for the approval by the Minister responsible for Town and Country Planning in Accra. It takes years to secure such approvals in line with the Town and Country Planning Ordinance of 1945.

It is recommended that the necessary amendment to the laws must be made for the Regional Co-ordinating Councils to give final approval to land use plans from the assemblies to ensure co-ordination of developments in the region.

5.10 Future Areas of Research

There is need to conduct further research in the following areas:

- i. Sustainable land management systems both the public and customary sectors;
- ii. Rapid urbanization, land markets, landlessness and homelessness.
- iii. Sustainable peri-urban economies.

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Kumasi Natural Resource Management Research Project Inception Report

Component study 4

Analysis of Current Planning Processes and Constraints

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July 1997.

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Abbreviations

DA District Assembly

EPAs Environmental Protection Agency EIAs

Environmental Impact Assessment EMPs

Environmental Management Plans EMCs

Environmental Management Committees GKCR

Greater Kumasi City Region RCC Regional

Coordinating Council

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4

1. INTRODUCTION

1.1 Background of Study

As part of the implementation of the decentralisation policy Government of Ghana (GOG) IN 1996 made the preparation of medium-term plans to guide the orderly development of all the 110 district, municipal and metropolitan assemblies in the country mandatory. Guidelines for the preparation of the plans were issued by the National Development Planning Commission (NDPC). The guidelines defined five broad areas to be covered by each district development. These were:

- (i) Social development;
- (ii) Economic development;
- (iii) Spatial development;
- (iv) Environmental development; and
- (v) Institutional capacity development.

In developing the plans each district was to take into consideration its own priorities, local conditions and requirements.

The guidelines also required that a bottom-up planning process with democratic elements of public consultation and participation be adopted by all the districts in the preparation of the plans. Action plans were to be evolved from the Five-Year Medium-Term Plans every year in order to make plan implementation practical and sensitive to changes in the socio-economic and political conditions of each district and the country as a whole.

As part of the approval process each district was required to submit its Development Plan to the Regional Coordinating Council (RCC) of its region. The RCC was charged with the responsibility of harmonising the development plans of all the districts within its jurisdiction to produce regionally harmonised or coordinated district medium-term plans for the region.

Since 1996 the Development Plans have provided the framework for the development activities of all the districts in the country.

1.2 Terms of Reference (for this Study)

This specialist study focusing on Analysis of Current Planning Processes and Constraints for the greater Kumasi City Region (GKCR) roughly defined as the Kumasi Metropolitan Assembly (KMA) area and the contiguous districts including Atwima, Bosomtwe-Atwima-Kwanwoma, Ejisu-Juaben and Kwabre, has the following Terms of Reference (TOR):

1 Outline the achievements and current weaknesses (i) Plan Preparation of the districts; (6)

Implementation of project proposals citing specific cases from the GKCR or if necessary from the other districts in the region with particular emphasis on issues affecting the use of renewable natural resources to include:

Summary of the problems and constraints identified in each of the districts;

More comprehensive longer-term alternative planning strategies which might be put forward to overcome the problems in order to complement the current emphasis on provision of infrastructure facilities and services; and

How the planning processes address such issues as the improved use of renewable natural resources, conservation of the environment, control of pollution, loss of farmland, creation of employment, transport problems, migration etc. as well as addressing the needs of peri-urban farmers. Also problems arising in each of the five districts in the GKCR due to inadequate integration or coordination to be pinpointed.

2. Summarise the achievements and procedures adopted by the Ashanti RC C particularly the RPCU in integrating these district plans into a regional plan. Also,

Identify the problems and proposals within the five districts of the GKCR;

Specify the contacts and linkages between the national, regional and district levels; and

Assess the success in integrating the activities of the regional sector departments in GKCR and in the Ashanti Region.

3. Assess the current activities of the Ashanti Region Environmental Protection Agency (EPA) in the GKCR, identifying;

- (a) Major environmental problems encountered;
- (b) Consultations taking place;
- (c) List any EIAs prepared within the GKCR; and
- (d) Monitoring and implementation experiences.

4. Summarise the current town planning processes within the GKCR and the Ashanti Region, to include:

- (a) List layout plans prepared in each of the five districts in GKCR (with client and responsible planner); and
- (b) Indicate contacts between districts and the Ashanti Region Town and Country Planning Office.

FIGURE 1. THE GREATER KUMASI CITY REGION

1.3 The Study Area

The study area covers KMA and our other districts which share immediate borders with it. This area is provisionally defined as the Greater Kumasi City Region (GKCR) see Figure 1. The districts are Atwima, Bosomtwe-Atwima-Kwanwoma, Ejisu-Juaben and Kwabre.

1.4 Method of Study

This methods employed for the study include:

- (i) a review of the development plans of the districts and projects implemented in 1996;
- (ii) review of the harmonised district medium term plans for Ashanti Region;
- (iii) scanning the records of the Town and Country Planning offices of the districts to obtain list of layout plans; and
- (iv) interviews with the relevant district and regional officers of planning and administration to ascertain their views on the planning processes adopted and weaknesses; and with the regional Environment Protection Agency (EPA) for their monitoring and implementation activities and experiences.

1.5 Organisation of the Report

The rest of the report is organised into five sections. Thus, Section 2 summarises the Planning Processes adopted by the districts in the GKCR and the major plan proposals; Section 3 deals with the procedures for the harmonisation of district medium term plan for Ashanti Region and major recommendations made with particular reference to districts in the GKCR. The fourth section gives a summary of the activities of the Ashanti Region Environmental Protection agency in the GKCR in terms of problems encountered, monitoring and implementation experiences and lists EIAs prepared within the GKCR. Section 5 describes current town planning processes within the GKCR and lists layout plans prepared in the districts within the GKCR. The concluding Section 6 emphasises need for a comprehensive and integrated environmental and natural resources planning and management strategy within the GKCR and defines the elements of such a strategy.

2. **ACHIEVEMENTS AND WEAKNESSES IN PLAN PREPARATION AND IMPLEMENTATION OF PROJECT PROPOSALS IN THE GKCR**

2.1 **Plan Preparation Process, Strengths and Weaknesses**

Community participation was a major requirement in the preparation of the district development plans. The Guidelines for the preparation of the plans required all district and metropolitan Assemblies to actively involve the communities and interest groups in the planning process from plan formulation to implementation stages. Community participation took different forms in the preparation of plans by the districts in the Greater Kumasi City Region (GKCR).

1. **Kumasi Metropolitan Assembly (KMA)**

The 5-year Medium Term Plan (1996-2000) was prepared by a team of resource persons (consultants) of various related specialties together with a "counterpart team" from the KMA. The report was prepared in three volumes_ The first volume provided a profile of the social, economic, environmental, spatial, financial and institutional situation of the metropolitan region. The second volume, which was not available at the time of the information gathering for this exercise, is supposed to contain all the forecasts and projections for future activities within the KMA region. Volume three deals with three sections of the development plan, namely.

- development proposal contained in the Medium
- Term; implementation; and
- evaluation and monitoring

The plan was prepared based on a number of initiatives. The Council (of KMA) initially involved various heads of departments, important among them being the Engineers Department, Waste Management Department, Planning and Budgeting unit of KMA, the Treasury in KMA, Department of Community Development, Electricity Corporation of Ghana (Regional office), Water and Sewerage Corporation, Town and Country Planning Department and the Department of Urban Roads. These departments were requester) by the DPCU (Planning Unit) to submit their programmes covering the period of 5 years. The results were compiled and served as input to the main document preparation.

Secondly, the team of consultants met the members of Metropolitan Assembly and requested each Assembly member to submit the problems, needs and requirements of their electoral area based on local meetings organised by the Assembly member for the purpose. It was not immediately known whether these meetings were held.

Subsequently all the results were brought together by the consulting team. In addition, the consultants had constant meetings and discussions with their "counterparts" from the KMA who provided valuable information on problems and programmes in their respective areas/sectoral departments. These discussions were done largely on bilateral basis.

The draft proposals were discussed by the consultants with the counterpart team members and the Assembly members, and a final draft report was produced. The consultants prepared the final plan after incorporating comments received on the draft report.

The biggest asset of the plan is obviously its level of detail. Detailed situational analysis were made of the structure and dynamics of all the sectors of the metropolitan economy. The plan covered in all about thirteen major aspects of local development, and also responded to the requirements of the National Development Planning Commission's (the national planning body's) guidelines. Special attention was focused on the analysis of the economic sector since it is the "backbone of the urban system".

National goals were scanned largely from the Ghana government document "Ghana Vision 2020", while local goals were based on the "development problems and priorities of the local people and the resource potentials of the metropolitan area.

The plan also presented development interventions for each of the sectors identified in the profile.

Finally an implementation section included phasing and investment programmes - phasing, charts, location, costs, source of funding and project implementation agencies. Guidelines for monitoring (whether implementation of projects are going as scheduled) and evaluation (extent of achievement of project objectives) were also provided by the plan preparation team. This component of the plan provides project coordinators and stakeholders useful guides on the overall progress of the plan.

The process that was adopted for plan preparation was good. However, it was important that the assembly members should have gone down to the communities in a series of meetings. This should not only be for purposes of identifying local problems and needs, but more importantly, also identifying main priorities and the role that communities/local people in the electoral areas were willing and able to play.

Another weakness related to the plan preparation was the extent of the involvement of the metropolitan Assembly in arriving at the main priorities. The assembly members had little role to play in prioritising proposals. There was the need for the priorities to be matched with projected resources in order to see if resources match proposals.

2. Atwima District

For the Atwima District community participation in the process of the plan preparation in the process of the plan preparation took the following form:

- i. A workshop based on "Goal Oriented Programme Planning (GOPP) was organised at Nkawie-Toase, the district capital. It involved all the assembly men, heads of departments, opinion leaders, chiefs and others. At this workshop, development problems and how they relate to one another and the objective of the district assembly were identified and structured in the form of problem and objective trees.
- ii. A social, economic, natural resources, environmental and institutional survey was conducted. The data gathered was used to both validate and complement the output of the GOPP workshop.
- iii. A participatory Planning and Programming workshop was again organised. At this workshop a list of feasible goals and related objected was evolved, strategic areas for development mapped out, development programmes and projects identified, and phased in action plans formulated and possible sources of funding identified.

The strength of this approach was that during the final approval process by the District Assembly, a great majority of them identified themselves with the plan and were anxious to see it being implemented.

However, the process was very slow and time-consuming. Besides, the issue of the capacity of the District Assembly and its existing staff to implement and manage the proposals in the plan was not seriously considered.

3. Bosomtwi Atwima-Kwanwoma District

In the case of this District there was heavy emphasis on baseline survey to collect basic information about its current development status. Assembly members were, however, involved in the identification of the development problems and resource potentials of the district on which basis the plan was formulated. Draft copy of the plan was reviewed by the development planning sub-committee of the Assembly before final approval by the general Assembly.

Our interview with the District officials revealed that there was inadequate interaction with the people during the process of plan preparation by the consultants.

4. Ejisu-Juaben District

Planning Process Adopted

There is no indication in the plan as to the involvement of the local community members in the plan preparation process. However there is indication that members of the community were to be involved in the implementation of the plan proposals.

It is unlikely that the people who have not been involved formulating plan proposals could actively participate in its implementation. The sense of ownership of a plan is important in the whole planning process including implementation.

5. Kwabre District

The following planning process was adopted:-

- Reconnaissance survey of the District;
- Collection of socio-economic and institutional surveys presented to general assembly for comments and corrections. (Present were 55 members of the Assembly, members of the Committee on 5-year Development Plan and 18 departmental heads);

- Committee of the District Assembly constituted to liaise with the team of consultants to discuss final output. Consensus reached on proposed projects/activities; and
- Development Planning officer assisted team of consultants to re-organize projects/activities to ensure that the District Assembly would be capable of implementing the proposed projects.

The District Assembly did not have the opportunity to see the final output even though they were given the opportunity to comment on the results of the socio-economic and institutional surveys.

2.2 Natural Resources and Key Environmental Issues Identified in the GKCR

Kumasi Metropolitan Assembly

What may be described as natural resources within the jurisdiction of the KMA in the GKCR include the following:

- streams and river basins within the metropolitan -
- area forest reserves
- agricultural lands at the periphery
- clay, sand and stone deposits

2.3.1 Streams and River Basins

A number of streams and rivers traverse the length and breadth of the metropolitan area. The major ones are Subu1, Wiwi, Sissa, Owabi, Aboabo and their numerous tributaries. Their drainage channels finally discharge into the Oda River in the southern outskirts of the city. However, in the north-western sector of the city, there is a variation in the general direction of the drainage channels. The main water course of Owabi is the final drainage disposal channel for several tributaries and valleys on the east-west axis. Some of these are Bonkumfuo, Akyamponmene, Subri Akuofosa and Asuofu.

Almost all the streams in the city are feacally polluted by the continuous dumping of feacal matter into their basins. In addition, some vegetable growers use the water in these surface water bodies for watering their crops, especially during the dry season. Invariably these exotic vegetables become polluted.

A number of the water basins are also used for the production of sugar cane. The major basins are those of Subin in the suburbs at Asokwa, Atonsu and Ahensan and the Wiwi River around the University.

2.3.2 Vegetation and Forest Reserves

The vegetation of the metropolis falls within the moist semi-deciduous South-East Ecological Zone. Predominant species of trees found here are Ceiba, Triplochlon, Celtis with Exotic species. In addition a patch of vegetational reserve within the centre of Kumasi has led to the development of the Kumasi Zoo, adjacent to the Ghana National Cultural Center and opposite the Keje is Lorry Park. This has served as a centre of tourist attraction in addition to preservation of wildlife, leisure and amusement.

Apart from the Zoo forest area, other patches of forests are scattered over the peri-urban areas of the metropolis. However the rapid population growth and the development of houses in the metropolis have caused the depletion of most of these forests.

The Atasemanso, Breman, Kagyase sacred groves and Owabi forest are the only reserves within the city which still have very important flora and fauna. However, these forests have been encroached upon.

2.3.3 Agricultural Lands

The soil type of the metropolis is forest ochrosol. This dominates the entire region. It is a very rich soil type which has made it possible for a lot of foodstuffs to be grown in the periphery of the city. In 1963 landtake for agricultural use accounted for 22.7% of the total landtake. This has become insignificant today.

The contribution of agriculture to the metropolitan economy is moderate. Agriculture is mostly practiced in the peripheral area like Duase, Paakuso, Apeadu, Sokoban, Ohwim, Kotei and Kokoben. These peripheral lands support a number of crops including maize, cassava, plantain and vegetables. But more importantly, the cultivation of exotic vegetables - cabbage, lettuce, carrots, etc. - has assumed increasing dimensions.

2.4.3 Clay, Sand and Stone Deposits

Minerals such as gold, diamond, etc are non-existent in the metropolitan area. However, the metropolis is endowed with clay deposit which is mostly used for pottery. Areas of concentration are Pankrono and Apeadu.

Apart from the clay deposit, sand and stone deposits are scattered at the periphery. A large quantity of stones and stone chippings for housing development is extracted from these areas. Though stone quarrying is not carried out directly within the metropolis, there are three quarrying firms whose operations are in close proximity to the metropolis. The industries are KAS Products Ltd., Kumasi Stone Quarry, and Limex-Bau Quarry all of which are sited within the GKCR, in the Kwabre District but a little outside the Kumasi Metropolitan Area, approximately 12 kilometers from the city-centre.

The Other Districts Within the GKCR

The other districts within the GKCR like the region as a whole are endowed with immense natural resources in the form of arable lands, rivers, forests, minerals and wildlife. The forests abound in valuable timber like Wawa, Sapele, Odum and Mahogang. The specific natural resources identified in the other districts are listed as follows:

Atwima District

- Rich forests which abound in a variety of timber species. Lumbering activities are concentrated around Nyinahin, Wansanbre, Mpasatia and Asikamu.

Good soils for crop farming. Major crops include maize, cassava, plantain, oil palm and

cocoa. Forest reserves which contain a variety of wildlife.

- Lake Barekese which is the major source of water for the Kumasi Metropolis.

Mineral deposits such as gold, diamond and bauxite.

Bosomtwi-Atwima-Kwanwoma District

The District has extensive forest which *is* being exploited by timber firms operating concessions. Timber species include odum, wawa and mahogany. The forest is also used for crop farming *which* provide employment for about 53% of the population.

- Abundance of sand and stone deposits suitable for constructional purposes.

The District has one of the largest "natural" lakes in the world, Lake Bosomtwi. There are about 15 settlements of small communities living around the Lake area but fishing is not the predominant activity of the people. The lake is a tourist attraction centre in the Region and in deed, in Ghana. The shores of the lake are heavily forested.

Ejisu-Juaben District

Natural resources that were identified in the District are as follows:

- Rivers Anum, Werapong, Bankoro, Hwere, Nediwaa and Baffoe which may be potentials for irrigation.
- Favourable climatic conditions for the cultivation of foodcrops.
- Fertile soils for the production of tubers, cereals, cocoa, banana etc.
- Bobiri Forest Reserve which is one of the richest in the country. It abounds in commercial timber species, rich in a wide range of birds and butterfly species.
- Minerals such as gold at Achiase, Wabibri and Juaben which are being prospected.

Kwabre District

In the Kwabre District the natural resources identified were as follows:

- Rivers, fertile soils, rocks, sand and clay;

- Gold deposits on the banks of Bomsotnwe stream a tributary of River Darko at the outskirts of Adawomase and a tributary of Ntia stream about 0.8km from Asonomaso to Saks Wonoo settlement;
- Moist deciduous forest;
- Rockly hills and outcrops around Ntiribuoho, Bodom, Buoho and Afrancho providing opportunities for stone quarrying.

2.3 Development Problems and Constraints Related to the Natural Resources Identified and Environmental Issues in the GKCR

The development problems and constraints related to natural resources and environmental issues identified in the development plans of district within the GKCR may be grouped under the following headings:

- i. Deforestation
- ii. Poor waste management
- iii. Pollution
- iv. Soil erosion
- v. Soil degradation

Poor drainage in particular has been identified as a major environmental problem in the metropolis.

i Deforestation

Deforestation in the GKCR has been caused by inappropriate farming practices which occur mainly in the 4 districts bordering the KMA. The slash and bum system of farming with its attendant cutting down of trees and setting of fires has reduced most of these districts original forests to secondary forest. Indiscriminate setting of bushfires and illegal felling of trees for timber and fuelwood have contributed to deforestation in the adjoining districts especially in the Atwima District.

ii. **Poor Waste Management**

Poor waste management in the GKCR is caused by improper way of disposing of household refuse and defecating around settlements, ie. "free range". This problem is most acute at KMA and Mampong in the Kwabre District. The poor waste management in Kumasi has adversely affected the surrounding districts like Bosomtwe-Atwima-Kwanwoma. The problem of untreated liquid waste (industrial effluent) is common in Kumasi.

iii **Pollution**

Water pollution is a serious problem in the GKCR, especially Kwabre District where quarrying results in pollution of rivers. Besides, the blasting of rocks during such activities causes cracks in buildings. A lot of dust is also produced which pollute the atmosphere.

iv **Settlement Erosion**

This problem exists in all the districts in the GKCR. It gives rise to exposed and hanging foundations of buildings and deep gullies. This is due mainly to poor drainage facilities.

v. **Soil Degradation**

The degradation of soil structure is common in district where surface gold mining and excessive sand winning activities take place. Some of these districts in the GKCR are Atwima and Bosomtwe-Atwima-Kwanwoma in the peripheral districts. This can be attributed to the traditional farming system which slash and burn. Environmental impact of these activities are not monitored and controlled.

Peculiar Problems

- i. Illegal mining ("galamsey") activities occur mostly in the Atwima District.
- ii. Noise and air pollution - Affected districts are Kwabre and Atwima. These problems are the result of the quarrying activities at Buoho and Ntensere.

iii. Liquid Waste - This problem is the result of the untreated industrial effluent from firms in Kumasi.

It must however be mentioned that these problems do not only affect the residents of Kumasi metropolis but also the adjoining districts. For example the Subin River which traverses districts like the Bosomtwe-Atwima-Kwanwoma is the recipient of most of the untreated industrial effluents from Kumasi Metropolis.

In the metropolitan area itself, the existing sacred groves (Atasemanso, Breman, Kagyase) and the Owabi forest have been encroached upon. Many green belts in the city region have also been encroached upon such that there is hardly any sign of forest left.

Poor Water Management

Erosion, flooding and pollution of water resources in the GKCR, especially in the KMA, are identified as the main environmentally related problems of poor drainage management. The most serious of these problems is flooding in flood plains caused by discharges into the streams in the city region. These include discharges of untreated nightsoil and septage into the Nsuben river, for example. This has prevented routine manual removal of debris and entangled rubbish and has resulted in the occasional flooding of the Western Railway line

The problems related to the water bodies in the KMA in particular and GKCR in general is further seen by the nature of productive activities that are carved out in the basins of these streams and rivers. Apart from the faecal matter constantly being dumped in the water bodies, vegetable and sugar-cane growers have also farmed the basin and in the process have further exposed the streams/rivers to the direct rays of the sun.

In summary the streams/rivers of the city region have been polluted as a result of

- i. direct dumping of nightsoil and septage;
- ii. direct dumping of refuse into drains in the densely populated areas especially Aboabo, Anloga, Asawase, Tafo, Bantama, Ayigya and Subin Valley;
- iii. fitting of refuse dumps along stream banks of Aboabo, Anloga Sisanso, Sisai-Akyi, Tafo, Dichemso and Ayigya;
- iv. Use offerlitizer and pesticides for vegetable production in river basins;
- v. Unauthorized construction in river basins - Sisanso, Aboabo, Tafo etc.

- vi. deforestation, along river basins; and discharges of industrial effluent into Sisa Atonsu and Kentinkrono.

Analysis conducted on the streams showed that Nsuben is the most polluted. The quality of the stream at the point of discharge is over 300% pollution increase, according to Awuah (1996 unpublished).

Pollution

In the GKCR major problem of pollution are observed in water, air and noise. Water pollution is a serious problem in the GKCR, however, the most affected district of the GKCR are the Kumasi Metropolitan area and the Kwabre district. Wood processing activities around Kumasi, where most timber processing plants in the Ashanti Region are located, also contribute considerably to the pollution of water sources, just as they do to air and noise pollution.

2.4 How the Planning Processes Address the Issues, Problems and Constraints: Plan Proposals and Implementation

In order to address the issues and problems/constraints related especially to the natural resources identified in the GKCR (KMA) the metropolitan development plan makes a number of proposals.

The proposals are designed to respond to the development goals of the metro area which includes the following:

- To ensure environmental attractiveness;
- To ensure proper waste management methods;
- To ameliorate adverse environmental conditions, on a basis of improving upon environmental quality.

In order to abate the impact of environmental related drainage problem and reduce significantly the negative impact on aesthetics (usual and odorous) a number of drainage interventions in the Kumasi metropolis are currently being carried out:

- i. Primary drainage maintenance (1990) commissioned by the Department of Urban Roads under the IBRD/Priority Works Project (PWP) which involved manual desilting of sections of the Nsuben channel.

- ii. Master plan for storm drainage in Kumasi (1991) prepared by Messrs Watertech Consulting Engineers. This presents a phased implementation of drainage interventions for each drainage basin,
- iii. Urban H Project - Kejetia Redevelopment and Central market Improvement schemes, and Urban IV on Urban Environmental and Sanitation Project (UESP). Under Urban II, primary, secondary and tertiary drains are to be provided to prevent flooding. The drainage intervention will cover:
 - the upstream section of the Nsuben drain
 - Adum railway station drain; and
 - tertiary drains within the central market including the drain from Subin Valley.

In addition to the above on-going programmes, the following proposals were made both for the long and medium term to address the environmental problems prevalent in the metropolis.

Long term goals

- i. reduction of pollution levels of streams by 60% and of air by 80%;
- ii. enforcement of laws on environmental pollution control intensified;
- iii. construction of secondary treatment plants for the industries;
- iv. relocation of Anloga carpenters and sawmills; and
- v. planting of 100,000 trees.

Atwima District Development Plan

In the Atwima District Development Plan proposals or projects intended to address the natural resources and environmental issues include the following:

- i. Intensification of tree planting and agro-forestry.
- ii. Establishment of community woodlot.
- iii. Creation of firebelts.

- iv. Enforcement of existing by-laws in respect of mining, lumbering and quarrying activities.
- v. Create awareness through education about the negative impact of poor environmental management on the life of the individual and group.

Bosomtwi-Atwima-Kwanwoma District Development Plan

Measures proposed in the district development plan to address the natural resources and environmental problems include:

- i. Control of sand winning, mining and logging activities of individuals and firms.
- ii. Protection of watersheds by tree-planting and re-forestation.
- iii. Construction of storm water drains in the large settlements especially the district capital.
- iv. Improve current agricultural practices of slash and bum by encouraging composting.
- v. Ensure that the shores of Lake Bosomtwe are protected from deforestation and dumping of any waste matter,

Ejisu-Juaben District Development Plan

Proposed measures to deal with the natural resources and environmental problems and constraints include:

- i. establishment and promotion of agro-forestry.
- ii. education of farmers on agro-forestry practices.
- iii. promotion of afforestation and tree planting campaigns.
- iv. prevention and control of bush-fires.

Besides KMA where there are on-going projects intended to address the environmental problems faced by the metropolis, the environmental problems seemed not be perceived by the other districts as urgent, at least, in the short-term. There is still considerable amount of awareness to be created within the districts about the impacts that the economic activities of firms and the individuals have on the environment and sustainable development

3. HARMONISATION OF DISTRICT MEDIUM-TERM PLANS FOR ASRANTI REGION

3.1 Purpose

A decentralised planning system without coordination and integration is likely to lead to chaos. For this purpose the RCCs are established under Section 140 of the Local Government Act 1993 (Act 462) to coordinate development activities of District Assemblies in their respective regions.

To enable the RCCs to make sound development decisions based on facts and technical information , RPCUs are established under Section 143 (2) of the Local government Act 1993 (Act 462) to ad as technical secretariat to the RCCs in each region. Therefore, according to Section 9 of the National Development Planning system Act 1994 (Act 480) the RPCUs shall advise the RCC on the following:

- (a) the coordination, monitoring and evaluation of district development plans; and
- (b) matters relating to development planning in the region.

The planning functions of the RCC which also define the linkages between the regional and district as well as national levels a-re-spelt out by section 8 of the National Development planning System Act, 1994 (Act 480) as follows:-

- (a) provide the District Planning Authorities with such information and data as is necessary to assist them in the formulation of district development plans;
- (b) coordinate the plans and programmes of the District Planning Authorities and harmonise these with national development policies and priorities for consideration and approval by the NDPC;
- (c) monitor and evaluate the implementation of the programmes and projects of the District Planning Authorities within the region;
- (d) act on behalf of the NDPC with respect to such national programmes and projects in the region as the NDPC may direct; and

- (e) perform such other planning functions as may be assigned to it by the NDPC.

In performing the above functions the membership of the RCCs is of prime importance from the point of view of participatory development decision making. The membership of the RCC as defined under Section 141 of the Local Government Act 1993 (Act 462) therefore represents various interest groups including national, regional and district sectoral agencies as well as traditional authorities and local political groups.

In a sense, the RCCs create a forum for Districts to trade off review and evaluate their development goals, objectives, priorities and proposals. Therefore RCC decisions are expected to be balanced and equitable from the point of view of all districts in the Region.

It is on the basis of the above considerations that the harmonisation of district medium-term plans was undertaken for Ashanti Region. The exercise was intended also to ensure that:

- (i) cooperation is achieved among the districts where there are perceived common problems or where solutions to problems depend on joint actions by two or several districts;
- (ii) national/regional inputs are provided where there are local problems with national/regional significance; and
- (iii) an overview of development potentials, problems, constraints and planned activities to address these is obtained. This is to provide the basis for making recommendations in respect of any inadequacies in the planning system for consideration by the districts and/or the Central Government,

3.2 Procedures Adopted by the RPCU Ashanti in the Harmonisation of the District Plans

After all the districts had submitted their development plans to the RCC as required by law, the RPCU in fulfillment of its planning functions formed a core planning team for the harmonisation exercise. Membership of the team was broad-based in terms of expertise and also included identifiable stakeholders drawn from regional level departments, boards, corporations and institutions such as Bank of Ghana, Statistical Service, Education Service, Ministry of Health, Ghana Water and Sewerage Corporation (GWSC), Electricity Corporation of Ghana (ECG), Ghana Telecom Company, Ghana Highways Authority, Department of Feeder

Roads, Survey Department, Mines Department, Forestry Department, Town and Country Planning Department, Ministry of Food and Agriculture, Environmental Protection Agency (EPA) and representatives from the Chamber of Commerce, Ghana Association of Industries and resource persons from the Department of Planning, University of Science and Technology (UST).

Five working groups were formed corresponding to the five development (thematic) areas specified in the guidelines from the NDPC for the preparation of the district development plans. These were:

- (i) Social Development;
- (ii) Economic Development;
- (iii) Spatial Organisation;
- (iv) Environmental Issues; and
- (v) Administrative and Institutional Aspects for plan implementation and management.

Each group was required to critically examine the development potentials, problems and constraints identified in the district plans; project proposals and resource allocations made to address the problems and the implementation strategies and institutional arrangements put forward. The compatibility of the district proposals with national development goals, objectives and strategies as defined in Ghana Vision 2020 was also to be checked.

According to Guidelines for the harmonisation of the district development plans all comments and recommendations by the RCC/RPCU on the plans should be communicated to the respective districts for consideration. In addition the comments and recommendations are to be incorporated in the regionally harmonised district plans submitted to the NDPC.

At the Regional level the harmonised district medium term plans was discussed and approved at a meeting of the RCC held on 24th June, 1996. Members of the core planning team put together by the RPCU also attended this meeting.

It is important to note that the harmonized district medium-term plans for the Region does not constitute a Regional Plan. There was no mandate to the Regions to produce regional plans. The harmonised district plans for the Region only constrain an overview of the district plans to enable the RCC to ensure that while the districts developed their plans according to their own priorities, local conditions and requirements these

were along the lines of national development framework and guidelines issued by the NDPC. Details of development proposals can therefore be found only in the individual district development plans.

3.3 Overview of the Harmonised District Medium-Term Plans for Ashanti Region (1996-2000) Related to Natural Resources and Environmental Management

1. Types of Natural Resources and Related Environment Issues

The region is endowed with immense natural resources in the form of arable lands, wetlands, rivers, forests - with rich genetic diversity, minerals and wildlife. The forest abound in valuable timber like Wawa, Sapele, Odum and Mahogany.

Minerals like gold, manganese, diamond are also found in the region. Intensive sand-winning and stone quarrying occur around Buoho in the Kwabre District, Ntensere hi Atwima, Buokrom in Kumasi.

Inappropriate and uncontrolled exploitation of these resources have created effects which include the following:

- (i) depletion of water and forest resources;
- (ii) land degradation which includes the loss or destruction of wetlands and wildlands;
- (iii) increased run off and erosion; and
- (iv) pollution of downstreams and watersheds,

It must be noted that the effects of all forms of pollution are felt not only in the district where they are directly generated but also in the ones that border them.

2. Environmental Development Problems

(a) Common Problems

The development problems in the region wide respect to the environment can be grouped under the following:

- i. Deforestation
- ii. Poor water management
- iii. Pollution
- iv. Soil erosion
- v. Soil degradation

i Deforestation

Deforestation in the region has been caused by inappropriate farming practices which occur in all districts of the region. The slash and burn system of farming with its attendant cutting down of trees and setting of fires has reduced most of the region's original forests to secondary forest. Indiscriminate setting of bushfires and illegal felling of trees for timber and fuelwood have contributed to deforestation in the region especially in areas like Atwima, Amansie East and West, Adansi East and West and Ahafo Ano North and South.

ii. Poor Waste Management

Poor waste management in the region is caused by improper way of disposing of household refuse and defecating around settlements, ie. "free range". This problem is most acute at Obuasi, Kumasi, Bekwai and Mampong. It is important to note that poor waste management in Kumasi has adversely affected the surrounding districts like Bosomtwe-Atwima-Kwanwoma. The problem of untreated liquid waste (industrial effluent) is common in Kumasi and Obuasi.

iii Pollution

Water pollution is a serious problem in many districts of the region. The most affected districts include Kumasi Metropolis, Adansi East and West, Amansie East and West, Kwabre, Asante Akim North and South. However, air and noise pollution are restricted to few districts like Adansi East and West, Kumasi

Metropolis, Amansie East, Sekyere East and West and Kwabre. Soil pollution is prevalent around Kumasi and Adansi West districts where a lot of chemicals are used for industrial and mining activities.

iv Settlement Erosion

This problem exists in all the districts in the region giving rise to exposed and hanging foundations of buildings and deep gullies. Asante Akim South, Amansie East Districts are the most affected.

v. Soil Degradation

The degradation of soil is common in districts where surface gold mining and excessive sand winning activities take place. Some of these districts include Amansie East and West, Adansi East and West and Atwima. Organic matter depletion occurs in almost all the districts in the region. This can be attributed to the traditional fanning system which involves moving from one piece of land to another year after year with short fallow periods.

vii. Peculiar Problems

- i. "Galamsey", local mining activities - the Districts most *affected* are Amansie West and East and Adansi West. problems emanating from the "galamsey" activities are open pits and degraded soil structure.
- ii. Noise and Air Pollution - Affected districts are Kwabre and Atwima. These problems are the result of the quarrying activities at Bucho and Ntensere.
- iii. Liquid Waste - This problem is the result of the untreated industrial effluents from industries in Kumasi and mining activities at Obuasi. It must however be mentioned that these problems do not only affect the inhabitants of these districts themselves but also other districts which share common boundaries. For example the Subin River which traverses other districts like the Bosomtwe-Atwima-Kwanwoma is the recipient of most of the untreated industrial effluents from Kumasi Metropolis.

3.1 Constraints to Development related to Environmental and Natural Resources Management

The main development constraints facing the region with respect to efficient management and utilization of the natural and the built environment can be summarised as follows:-

- i. Inadequate Resources
- ii. Inadequate Personnel/Logistics
- iii. Low Level of awareness
- iv. Low level of fines
- v. Inadequate and inappropriate dumping sites

i. Inadequate Resources

Inadequate allocation of budgetary resources for environmental issues in all the district adversely affects the handling of environmental problems. In Kwabre district for example, the environmental sub-committee has no representation on the executive committee and can therefore not obtain adequate resources for its activities.

ii. Inadequate Personnel/Logistics

Both skilled and unskilled personnel and other logistics like cesspool emptiers, refuse trucks and motor bikes at the district and community levels are not enough. The retrenchment and redeployment exercise embarked upon by the government have further worsened the already bad situation with the result that grass cutting, scavenging and conservancy services have been compromised. An example is cited about Kumasi Metropolitan Assembly where there are only nine labourers to cut grass.

iii. Low Level of Awareness

There is low level of awareness by the community about the impact of their activities on the environment at the household and neighbourhood levels. Because of this they do not see the nature and extent of the problem.

vi. **Low Level of Fines**

The low level of fines and soft punitive measures prescribed under existing laws do not deter would be culprits from breaking environmental laws. Coupled with this is the low enforcement of the regulation requiring companies and industries to prepare their Environmental Impact Assessment (EIAs) and Environmental Management Plans (EMPs) before and after establishing their companies. In the case of Ashanti Goldfields Corporation (AGC) it has the Environmental Management Plan (EMP). However it is implementing it at its own pace and convenience without any external monitoring.

v. **Inadequate and Inappropriate Dumping Sites**

This situation has compelled many people to dump their refuse behind their buildings, drains, open spaces and outskirts of settlements. As at now, the Kumasi Metropolitan Assembly has no final disposal sites for waste.

4. **Development Proposals by the Districts as Related to Natural Resources and Environmental Management**

i Land and Forest Management

- (a) Intensification of tree planting exercise
- (b) Intensification of Agro-Forestry campaigns through the print and electronic media
- (c) Formation and training of community fire fighting squad
- (d) Setting up of special fiord to support tree planting
- (e) Afforestation and Reforestation
- (f) Establishment of central Nursery for trees
- (g) Establishment of Community Woodlot
- (h) Conduction of anti bush fire campaign
- (i) Regulation of charcoal burning
- 0) Creation of fire belts
- (k) Provision of incentives and equipment for fire volunteers
- (l) Formation of environmental clubs in schools
- (m) Institution of tree planting awards scheme

ii Waste Management

- (a) Formation of community cleaning task force
- (b) Construction of sanitary facilities - KVIP, VIP
- (c) Educational campaign on the proper way of handling solid waste
- (d) Provision of refuse disposal sites
- (e) Desilting of choked drains
- (f) Procurement of refuse trucks and cesspool emptiers
- (g) Establishment of slaughter houses in areas that do not have *any*, and where they exist, enforce the law on their use.

iii Pollution

- (a) Enforcement of existing laws and by-laws on environment e.g. water, air and noise pollution
- (b) Rehabilitation of watersheds and water systems
- (c) Requesting the existing industries to submit their Environmental Management Plans (EMPs) and the new ones their Environmental Impact Assessment (EIAs) to the Environmental Protection Agency Ashanti and the District Assemblies.

(b) RCC's Recommendations

In addition to the proposals from the Districts these measures were recommended to strengthen programmes for general development and maintenance of the environment.

- i. Segregation and recycling of dry refuse should be introduced in the urban areas whiles controlled dumping is considered in the rural areas.
- ii. the introduction of Bio-gas as a source of energy should be encouraged
- iii. Compositing should be introduced to reduce the over reliance on agro-chemicals e.g. fertilizers.
- iv. Adequate toilet facilities should be constructed in all schools

- v. The conversion of saw dust to other uses such as energy sources should be encouraged.
- vi. The Environmental Protection Agency Act, 1994 (Act 490) as part of the procedure to obtain and renew to obtain permit requires that all firms submit their EMPs for existing activities and EIAs for proposed ones to the EPA and the District Assemblies. This law should be seriously enforced.

5. **Summary of Continents/Recommendations by RCC on Proposals by Districts - Related to Natural Resources and Environmental Management**

1. **Sekyere East**

- i. Proposals made were observed to be adequate in dealing with the environmental issues identified in the District.

2. **Sekyere West**

Measures on dry waste disposal should include the appropriate siting of refuse dumps in order to -' limit its environmental impact on the community.

- ii. Enacted bye-laws should be enforced on illegal tree felling. On the whole, proposals were adequate.

3. **Ahafo-Ano South**

- i. Measures proposed to check environmental degradation or promote Environmental Management are fairly adequate. The only weakness observed was in the area of managing dry waste where only educational campaigns were proposed. A comprehensive waste management system should be put in place.

4. **Ahafo-Ano North**

- i. To mitigate the problem of increased run off and erosion in the entire districts, drains are recommended to be constructed and free planted.
- ii. Education on effect of bush fire is not enough as a control measure. It is recommended that firebelts be created, training of fire volunteers be undertaken and bye-laws on hunting be strictly enforced.
- iii. There is the need to provide bye-laws on tree felling and the regulation on tree felling enforced..

5 Kwabre

- i. Stone quarrying is an alarming problem but no adequate attention was focused on it. It is recommended that the various industries present their Environmental Management Plans (EMPs) to the regional EPA and the District Assembly.
- ii. Dry waste management as a problem should be checked by setting up a proper management system especially appropriate dumping sites.
- iii. Agro-forestry is recommended as a mitigating measure for the inappropriate farming systems.

6. Adansi East

- i. Organic matter depletion has been identified as a problem, but no solutions provided. Tree planting, reforestation and afforestation programmes are recommended.
- ii. Measures to check air pollution were absent. Environmental Management Plans are expected from industries and Environmental Impact Assessment from new ones to be established.
- iii. Appropriate and adequate dumping sites are to be provided as a measure against improper dry waste disposal.
- iv. Bye-laws on illegal felling of trees especially by chain saw operators should enforced.
- v. Consider introduction of agro-forestry practices by farmers.

Ejura Sekyedumase

- i. Tree planting, afforestation, re-afforestation are recommended measures for the identified soil organic matter depletion problem.
- ii. Construction of drains recommended to check settlement erosion.
- iii. Proper waste management system should be installed.
- iv. Bye-laws on chain saw operations and illegal felling of trees are to be enforced.
- v. Agro-forestry practices recommended to mitigate the problem of inappropriate farming practices.

8. Ejisu Juaben

- i. Industries within the district should be made to submit their Environmental Impact Assessments (EIAs) and Environmental Management Plans (EMPs) on their operations.
- ii. Proper and efficient Waste Management system is recommended.

9. Bosomtwe Atwima Kwanwoma

- i. Tree planting alone was suggested as a measure to mitigate the problem of degradation of soil structure, however landfilling, controlled sand-winning and enforcement of laws on environmental control are recommended.
- ii. The construction of drains are recommended to check settlement erosion problem.
- iv. Enforcement of bye-laws on tree felling is recommended to check illegal felling of trees.
- v. Agro-forestry as a farming practice is recommended to address the problem of inappropriate farming practices.

10. Offinso

- i. Industries existing within the district should be requested to submit their Environmental Management Plans (EMPs) and for the new ones to be established their environmental impact Assessment (ETAS) to the Regional EPA and the District Assembly.
- ii. Drains should be constructed within settlements to check erosion of buildings.
- iii. Ago forestry as a fanning practice is recommended to address the problem of inappropriate agricultural practices.

11. Amansie West

- i. Land filling is recommended for the problem of degraded soil structure.
- ii. The provision of bore holes in order to check water pollution is not enough; in addition the District Assembly is to protect its water sources.

- iii. The selection of appropriate dumping sites should be the major consideration and not merely providing them.

12 Amansie East

- i. Landfilling is recommended for sand winning sites.
- ii. Drains should be constructed to check settlement erosion.
- iii. Since air, water and noise pollution were identified problems within the district, industries are to submit their Environmental Management Plans (EMPs) and those yet to be established their Environmental Impact Assessments (EIA) to the District Assembly and the Regional EPA. There is the need to provide bye-laws on illegal felling of trees and chain saw operators.

13. Adansi West

- i. Afforestation alone is not enough to address the degradation of soil structure; Land filling and controlled sand winning are recommended.
- ii. AGC should be contacted for their Environmental management Plans with specific information on air, water and noise pollution. Enforcement of implementation of the EMP is necessary.
- iii. Bush fire as a problem should be addressed effectively by providing fire belts, fire volunteers and enforcement of bye-laws especially on hunting.
- iv. Agro-forestry (farming system) is recommended.
- v. Bye-laws on illegal tree felling is to be enforced.

14. Atwima

- i. On Settlement erosion, solutions to mitigate the problem were not identified. however, the construction of drains within the community is recommended,
- ii. Measures to manage dry waste are not adequate. There is the need to install a more precise and proper refuse management system,
- iii. Bye-laws against illegal felling of trees especially on chain saw operators should be enforced by the Assembly.

- iv. The problem of inappropriate farming practices could be minimised by agro-forestry practices.

15. **Afigya Sekyere**

- i. The proposals made by the District Assembly to address the environmental problems identified were observed to be adequate and likely to be effective if well implemented.

16. **Asante Akim North**

- i. Land filling and controlled sand winning is recommended to deal with the problem of the soil structure degradation.
- ii. Various industries impacting on the environment especially on water and air, should provide their Environmental management Plans (EMP) or Environmental Impact Assessments (EIA.) before they are allowed operation.
- iii. Appropriate location of dumping sites for dry waste and night soil is recommended.
- iv. Bye-laws enforcement needed to check illegal felling of trees especially chain saw operators.
- v. Bye-laws on clearing of vegetation along riverbanks and watersheds should be enforced.

17. **Asante Akim South**

- i. Creation of fire belts and fire volunteers are recommended; bye-laws are also to be enacted on hunting.
- ii. Construction of drains in the settlements is recommended to check settlements erosion.

The provision of woodlot is not enough, there should be the establishment of bye-laws on tree felling and chain saw operators.

6. Settlement Planning

Almost all the districts touched on haphazard development and the need for layout plans in their rapidly growing settlements. The problem was more serious in Kumasi Metropolis and the four districts adjoining it.

i. Layouts and base maps

As layouts can only be carried out with a good survey information such as base maps, there is the need to provide that facility. The district capitals and the growth centres proposed in the development plans have been identified as areas which need base maps and layouts immediately.

It has been recommended that a minimum of 160 acres of land area including built up areas of the District Capitals be surveyed for base maps after which a layout should be prepared for the surveyed area. This is to be done in the second year of the plan period i.e. 1997. Layout for two or three other settlements covering areas of about 40 acres should follow in order of priority to be determined by the District Assemblies to cover each year of the planning period.

Estimated costs for both the preparation of base maps and layouts have been included in the development plans of each of the districts. The Assemblies should recover these costs from the clients.

ii. Land Acquisition

There was little or no mention of land acquisition for the numerous development projects proposed in the 5-Year Development Plan. It is proposed that every District Assembly sets up Land Acquisition Negotiating Committee to liaise with land owners and traditional authorities to acquire lands for public development.

iii Planning Education

There was no mention of Planning Education in the plans thus making it appear as if Ghanaians would understand what was being presented to them automatically. There is the need to educate the population on the usefulness of planning and all plans being prepared and the benefits they can derive from them. Issues like problems of haphazard development, the rights and responsibilities of the people in relation to planning can be adequately addressed in proper planning education.

4. ACTIVITIES OF THE ASHANTI REGION ENVIRONMENTAL PROTECTION AGENCY IN THE GKCR

The Ashanti Region Environmental Protection Agency, like its parent national agency, is mandated to establish, within the Ashanti Region, institutional structures for the management of the environment. The Agency has made a lot of strides in its operations. However, there are a number of environmental issues confronting it, and these require some attention if the agency's role in protecting the environment in the GKCR is to be realised. In this section of the report, an assessment is made of the current activities of the Ashanti Region EPA in the GKCR identifying the following:

- major environmental problems encountered ;
- the consultations taking place;
- lists of any EIAs prepared within the GKCR; *and*
- monitoring and implementation experiences.

4.1 Major Environmental Problems Encountered

The most predominant environmental problems encountered by the Ashanti Region EPA in the GKCR are deforestation, soil erosion, water, air pollution, and general sanitation problems, land degradation, and environmental health related diseases.

Deforestation

Deforestation has become so common in the Ashanti region that currently the EPA estimates that there are no primary forests in the entire region, not even in the forest reserves. Every piece of forest has been impacted by activities of man. Of the 57 forest reserves with total area of some 2,410 sq. km. in the entire region, only three are ecologically good.

In the GKCR, just as in the rest of the Ashanti region, the problem of deforestation caused by both legal and illegal felling of trees is prominent in the Atwima, and Ejisu-Juaben districts. Among the forests which are very highly degraded are those around Pemenase, Achiase, and Duapompo in the Ejisu-Juaben District.

Besides, poor farming practices and bush fires have also led to severe deforestation in at least Atwima, Kwabre, Ejisu-Juaben, and Bosumtwé-Atwima-Kwanwoma districts in the GKCR.

According to investigations carried out by the EPA of Ashanti region, deforestation in GKCR is caused by a number of factors. Important among these are the following:

- i) illegal chainsaw operations, as a result of the complex procedures for obtaining licenses by aspiring loggers,
- ii) bushfires caused by group hunting, farming, palm wine tapping, and smokers in transit;
- iii) traditional farming practices such as shifting cultivation, land cultivation, and slash and burn;
- IV) lack of awareness among communities on importance of forest protection;
- v) increased demand for charcoal and fuel wood due to increased population;
- vi) large-scale extraction of forest products by timber contractors coupled with inefficient monitoring of these activities by responsible agencies such as Forestry Department, the EPA itself, and Forest Products Inspection Bureau.

Soil/settlement Erosion

Settlement and farmland erosion and other common degradation are evident in the GKCR, especially in the other four districts beside the KMA. Degradation of soil structure is common in the Atwima and Kwabre districts, where the traditional fanning practices affect soil recovery. Settlement erosion is very common in Bompata and Kwaso in the KMA and Ejisu-Juaben districts. In some of the settlements, it is estimated (by EPA) that gullies up to the height of over four meters can be observed.

Sheet and gully erosion in the major settlements in the GKCR have given rise to exposed foundations of buildings and cracks in walls. This has rendered many houses, especially those in the rural parts of the GKCR unsafe for habitation. This problem is exacerbated by the absence in most communities and urban areas, of organised and effective drainage system to check erosion. In the Kwabre district, settlements such as Ankaase, Abiro, and Ahwia are highly eroded. In the Kumasi city region, erosion and other sanitary problems is largely caused by urban farming market gardening along the banks of the rivers and streams in the metropolis, using inappropriate and non-conventional fanning practices.

In many of the settlements of the GKCR, erosion is caused by the following:

- absolute lack of layouts, drains and landscaping of settlements;
- lack of culture of planting trees and grasses around settlements;
- continuous sweeping of compounds and the scooping away of sand for domestic uses;
- lack of hedges along lanes, compounds and around houses; and
- lack of properly managed drainage system even in the major urban areas such as Kumasi, where the few drains available are choked with garbage.

Pollution (water, air) and general sanitation problems

The GKCR experiences three major forms of pollution - water, air, and noise. The problem of water pollution is increasing tremendously through a combination of factors. Water pollution is common in the city region itself, due to the discharges of chemicals into water bodies and streams, lack of adequate toilet facilities, and inadequate provision of special disposal sites for industrial solid wastes. Most of the water bodies, especially in the metropolitan area, have been contaminated, thus reducing the amenity value of the waters. In most of the urban centres in the GKCR such as Kumasi, untreated solid and liquid waste in courses have polluted a number of rivers including the Subin. Wood processing activities around Kumasi, especially in the Ahinsan area, also contributes to water pollution, just as they contribute to air and noise pollution in the city region.

Air pollution in the GKCR is quite localised in the industrial areas, largely in Kumasi. The causes of air pollution associated with the city region include gaseous fumes from industry, automobile exhausts, and dust originating from industry, as well as those from the blastings of stone quarries around the city region. However, the situation in the GKCR is less serious compared to Obuasi, for example, where the roasting operations of the Ashanti Gold mine release huge volumes of poisonous arsenous oxide smoke and sulphur oxides into the surrounding urban area and countryside. An assessment of arsenic concentration in cooked food in Obuasi compared with that of Kumasi showed that for "fufu", a typical local food, total arsenic concentrations were an average of 1.40 mg./kg. dry mass in Kumasi compared with an average high of 2.37 mg./kg. dry mass in Obuasi.

In addition to the above, there is no proper management of solid and liquid waste in the GKCR, especially in the KMA. Open dumping is the mode of refuse disposal, which in most cases are not properly organised. Most houses in the urbanised parts of the GKCR, especially Kumasi, have no toilet facilities. Indiscriminate defaecation around outskirts of the major urban areas is common, and this poses serious health hazard to

residents. Waste water from most houses are not channelled into any organised drainage system. Such water collects as pools of stagnant water and serve as breeding grounds for mosquitoes. Unkempt surroundings and poor drains are common features of the built environment in the GKCR

Land degradation

In addition to soil erosion the land in the GKCR is being degraded in various ways and at varying degrees. Stone quarrying around Buoho in the Kwabre District, Ntensere in Atwima, Buokrom in Kumasi MA produces lots of dust to pollute the air, whilst the blasting of the stones causes serious noise pollution. The most serious problem, however, is the land that is left degraded in most of these areas, such as Buoho in the Kwabre district

Uncontrolled sand winning has degraded soils in the GKCR especially around the city-region for purposes of building construction.

Environmental health-related diseases

Diseases related to environmental health are common in the GKCR. This is attributed to the negative effects of the environment and the lack of basic sanitation facilities in most of the settlements. As a result of basic environmental deterioration, breeding grounds are freely available to insect vectors which include the mosquito. The incidence of malaria is thus very high in the GKCR.

Furthermore, waste generating and disposal is poorly managed in the GKCR. As has already been mentioned, toilet facilities are acutely inadequate and sub-standard. In the Atwima district for example, out of the 45 settlements with population of over 1,000, only five of them have vented indirect pit latrine ("KVIP") by facilities. The rest depend on open pit latrines and other "unhealthy" means. In addition, saw dust pollution and dust from the quarries in the areas such as Ahinsan (in Kumasi), Ntonso and Buoho in the Kwabre district have resulted in catarrhs and other chest diseases.

Data collected from all district medical officers by the Ashanti region EPA indicate that the most common environmental-related diseases in the region are malaria, diarrhoea, typhoid fever, cholera, bilharzia and schistosomiasis.

4.2 Consultations Taking Place

As indicated earlier, the EPA has the mandate to establish institutional structures for the management of the environment in the region. Consequently, the Ashanti Region EPA has established Environmental Management Committees (EMCs) in all the eighteen districts of the Ashanti region. These committees form the main link for consultations of the EPA in the region. As a principal aim, the EMCs coordinate and facilitate environmental management problems and issues.

Other forms of consultations taking place in the region are through the following:

- the Ghana Education Service with the various school heads in order to encourage schools to form School Environmental Clubs to monitor their micro-environments;
- identifiable groups examples of which are Sand and Stone Construction Association; 31st December Women's Movement; city-based organisations: Asokore Tree Planters, Kumasi Tree Planters;
- NGOs, such as the Environmental Protection Association; Centre for the Development of People (CEDEP); Friends of the Earth; Ghana Association for the Conservation of Nature.

The main form of consultation with the District Assemblies is related to attempts to increase awareness and to equip them to be able to enforce basic environmental guidelines and regulations. The methods used include seminars, workshops, and periodic briefings of the Assemblies. Currently, the EPA is trying to forge/establish a strong relationship with the District Chief Executives so as to further expose them to the need for sound environmental management in their respective districts.

4.3 List of EIAs and EMPs Prepared within the GKCR

In the area of assessments of impacts of environmental activities (EIAs) and the evolution of environmental management plans (EMPs), the region's EPA is making some progress. So far EIAs and/or EMPs have been prepared by various bodies/firms/institutions whose activities affect the ecosystem in one way or the other. Mining Companies which have responded positively with EIA certificates include the following:

- Ashanti Goldfields Limited
- Sonte Gold mines Ltd (in Amansie West)
- Amansie Resources, and
- Obenemase Mines

However, all these firms are located outside of the GKCR. The major petroleum companies located in the city region have also responded positively to demands for EIAs.

Not much has been forthcoming in terms of sand winning. This is because most sand winners are small scale operators many of whom receive technical advice and assistance on their operations. Large scale operators are required to submit EIAs. A large scale operator in this case is defined as any operator who has acquired an area of not less than 50 hectares for purposes of winning sand.

As far as firms which were in existence before the current legislation establishing and empowering the EPA are concerned, the EPA demands that they prepare Environmental Action Plans for the management of existing environmental problems, and any problems anticipated in the future. This directive is applicable to the stone quarries and industries which were all existing before the regulations came into effect.

In addition to the demands for assessment certificate, the EPA adopts dialogue and consultation as a way of explaining and discussing issues related to the environment to actors and stakeholders. In this connection, a technical committee has been established by the EPA as a regional network body to provide options and advise on alternatives for various operators to deal with the subsequent environmental problems arising out of their activities.

4.4 Monitoring and Implementation Experiences

Monitoring and implementation of environmental policies and activities in the GKCR take two forms: the "software" and "hardware" parts. The "software" focuses on implementing and monitoring measures related to observations, visual assessments of working environments and impairment, and such activities which do not prescribe standard measures. The "hardware" aspects deal with measuring chemical compounds in soils, water and in the atmosphere to assess whether the "fight/permissible" amounts of liquid or gaseous materials are being released into the environment. This is facilitated by the use a mobile laboratory.

Implementation of "software" activities have so far centred on environmental education in the GKCR as part of an overall programme for the Ashanti Region. In the last year the programme of activities on environmental education has focused on implementing the Ghana Environmental Education Strategy launched in November, 1994. There have also been a few outreach programmes. Two major programmes implemented were the following:

- i) development of photographs, slides, and videos on environmental issues;
- ii) organisation of workshops and seminars for some sectoral agencies.

Development of photographs, slides, and videos on environmental issues

The photographs/slides/videos covered the following themes: land/soil management, sustainable agriculture; forest and wildlife management; water management; waste management, and the built environment. Consequently, the Agency has a stock of photographs, slides, and videos covering these environmental issues in the region.

Seminars/Workshops

A number of these have been held. The more important ones include:

- i) A one-day seminar for 55 decision makers of various sectoral agencies (14 March 1995). Objective was to sensitize participants on the importance of environmental education and their role as decision makers in the implementation of Ghana's environmental education strategy.
- ii) Workshops for District Environmental Management Committees (DEMCs) to enable them implement environmental education programmes in their districts.
- iii) A seminar at the community level as part of programmes to assist in the development of Local Environmental Actions Plans.
- iv) A workshop for NGOs to develop partnerships with EPA.
- v) A seminar for media practitioners to expose them to environmental issues.

Apart from the above, the EPA has also completed an assessment of the current state of environmental education in schools and colleges.

The effective monitoring and implementation of activities to check and manage the environment in the GKCR is hampered considerably by lack of adequate financial resources of the EPA. As a subvented organisation, EPA depends on central government for financial sustenance. When these do not come or are delayed, the operations of the Agency, particularly those related to continuous monitoring, suffer.

Another problem is related to the movement of the mobile laboratory and other sensitive equipment. Apart from difficulties in moving equipment, the rough nature of the roads means that the sensitivity and efficiency of the equipment are adversely affected. Besides, some industries/firms/ institutions appear jittery when EPA regional programme officers call on visits. It seems that many of the operators still do not understand and appreciate the positive roles of the EPA.

All monitoring and implementation reports are submitted to head office in Accra. Those which demand action by the head office are flagged to that effect, and Accra issues the appropriate directive to the firms/institutions concerned. On other cases, the Ashanti Region EPA merely seeks advice to act by itself on a specific situation. Sometimes, EPA arranges meetings with top management of a firm/institution after a monitoring exercise has thrown up issues and problems that need to be addressed. In that case the technical report is shown to the relevant management personnel, and these are explained, sometimes with video clips to show the depth of the problems. So far this approach has worked very well.

5. CURRENT TOWN PLANNING PROCESSES WITHIN GKCR AND ASHANTI

5.1 Summary of Central or Regional Government Planning Guidelines

It is learnt that there are as yet no documented guidelines aimed at guiding Town Planning processes at Central or Regional level. Over the years Town Planning officers have had to draw on their training in order that they could have guided by it in the normal course of their work.

5.2 Relationship between Districts and Ashanti Region town and Country Planning Office

The Deputy Director of Town and Country Planning, Ashanti holds meetings once in a quarter with the District Town Planning Officers to review and discuss work at the district level.

At these meetings work-related problems, both administrative and technical, are brought up for discussion and possible solutions.

Besides the District Town Planning Officers send monthly returns of activities to the Deputy director of Town and Country Planning, Ashanti at the end of each month in line with policy.

5.3 List of Layout Plans Prepared in the Districts within GKCR

The following are lists of layout plans for the District within the GKCR, the responsible officers and the clientele in cases where that information was available.

TABLE 5.1: LIST OF LAYOUT PLANS - KUMASI DISTRICT

| DISTRICT | LAYOUT PLANS | CLIENT | RESPONSIBLE PLANNER |
|------------|---|--------|-----------------------------|
| 1. Kumasi | Adoalo Planning Scheme | | |
| 2. Kumasi | Bantama Revised Planting Scheme | | A.T.M. Bonaparte |
| 3. Kumasi | Suame Tarkwa and Anumanyo Revised Planning Scheme | | |
| 4. Kumasi | Mbrom, Odumase Krobo and Oduro Planning Scheme | | |
| 5. Kumasi | Odumase Ext. Revised, Manhyia Ext. Revised and Dechemso Revised Planning scheme | | K. Owusu-Akyaw |
| 6. Kumasi | Zongo revised Planning Scheme | | A.T.M Bonaparte |
| 7. Kumasi | Asawasi Housing Estate | | |
| 8. Kumasi | Aboabo Revised Planning Scheme | | |
| 9. Kumasi | Akrom, Adukrom and Adenyase Revised Planning Scheme | | B.A. Salami |
| 10. Kumasi | Adum | | |
| 11. Kumasi | Bompata Revised layout | | |
| 12. Kumasi | Asafo revised Planning scheme | | A.T.M. Bonaparte |
| 13. Kumasi | Amakom Bramparso revised scheme | | George Mensah |
| 14. Kumasi | Amendment to Asukwa New Amakom Extension | | George Mensah |
| 15. Kumasi | Asukwa Residential Area - Old Anakom | | N.M. Obunbisa |
| 16. Kumasi | Asukwa Industrial Area Amendment scheme | | George Mensah |
| 17. Kumasi | Lake road Industrial Area | | |
| 18. Kumasi | Oforikrom revised Scheme | | B.A. Salami |
| 19. Kumasi | Old Ahinsan Revised Planning scheme | | K Owusu-Akyaw |
| 20. Kumasi | Amendment to approved Town Planning Scheme, Abinsan | | |
| 21. Kumasi | Ridge-Danyame Consolidated H revised Planning Scheme | | IL Kendall/K, Asare Baffour |
| 22. Kumasi | Adiebeba/Ahodwo and West Nhyiaso Planning Scheme | | K, Asare Baffour |

| DIST | LAYOUT PLANS | CLIENT | RESPONSIBLE PLANNER |
|---------------|---|--------|-----------------------------|
| 23. Kumasi | Adiembra Revised Planning | | H_ Hendall/M.M. Asigri |
| 24. Kumasi | Asuoeyeboa and Ehwimase revised and Kwadaso Planning scheme | | A.M.T. BonaparlcXA. Prempeh |
| 25. Kumasi | Composite Plan of sectors 20 and part of 21 -Kumasi (Kwadaso South East, Ehwimasc, Edwinasc, Atwirna Aman from Housing Estates, Kwadaso and West Patasi | | M.S. Appiagyeci/K. Prempeh |
| 26. Kumasi | North and South Suntriesu Revised Planning scheme | | |
| 27. Kumasi | Ayija Revised Planning scheme | | M.S. Appiagyei |
| 28. Kumasi | Bomso and Sisaso Revised Layout | | O.A. Agyemang |
| 29. Kumasi | Asokore Mampomg Planning scheme | | M.S. Appiagyeci |
| 30. Kumasi | Kanlinkronu revised, Nsenei and Oduom Planning scheme | | |
| 31. Kumasi | Anwomaso and <i>North</i> Benimase planning scheme. | | M.N. Obuobisa |
| 32. Kumasi | Replanning of Agricultural Land into Residential Neighbourhood, Kantinkronu | | K. Asarc Bafour |
| 33. Kumasi | Ayeduase Planning Scheme | | |
| 34. Kumasi | Kotei Planning Scheme | | H Kendall |
| 35. Kumasi | Kyirapatre, Gfinase and Kotei Ext. | | K Osei-Adu |
| 36. Kumasi | Atonsu, Agogo, Jinyase and Kyirapatre Revised scheme | | K Owusu-Akyaw |
| 37. Kumasi | Atonsu Revised Planning scheme. | | A.T.M Bonaparte |
| 38. Kumasi | Atonsu Revised Planning scheme cxt | | E.C. Why1e-Measah |
| 39. Kumasi | Kyirapatte and Dompoase Amendment scheme. | | K Osci-Adu |
| 40. Kumasi | Dompoase and Kyirapatre Planning Scheme | | |
| 41. Kumasi | Composite Plan for Odeneho Kwadaso, Santasi revised, Aperi and New Kagyasi Planning scheme | | O.B. Agyemang |
| 42. Kumasi | Kumasi South Compite Plan-Fan-kyenebra, Adiembra, Atasomanso, Dabai, Konkromasc and | | K.M. Fosu Atta/K. Prempeh |
| 43. Kumasi | Apatraps/Nyankyereniase Planning Scheme | | Soloman Asame |
| 44. Kumasi | North Asuoeyeboa and North Kwadaso revised Planning scheme. | | A.T.M Bonaparte |
| 45. Kumasi | Site for Brigade Complex N. Kwadaso. | | |

| DISTRICT | LAYOUT PLANS | CLIENT | RESPONSIBLE PLANNER |
|------------|---|--------|---|
| 46. Kumasi | Compite Amendment Plan of Anoo Adumaou and Adoato | | |
| 47. Kumasi | Adoato Revised Planning scheme | | |
| 48. Kumasi | Plan for Suame Fitters Area. | | I.S. Awuletey/J.F. Kumeh |
| 49. Kumasi | New Tafo (Revised) Sepc Aprampram (revised) Buokrom (revised) Tafo htshiaso, Anyano, Yennyawso and | | K. Owusu-Akyaw |
| 50. Kumasi | Abrcpo, Abrepopanin and Bohyien revised Planning Scheme | | Alex Bonaparte/K. Owusu/K. Asare, Baatour |
| 51. Kumasi | Broman, Mpatasie and Thikese revised Planning scheme | | K. Owusu-Akyaw |
| 52. Kumasi | Atafoa Ext, Abuohia Revised and Extension Planning Scheme | | K Asare Baalbur |
| 53. Kumasi | Buokrom, Duasi and Bunbai Planning | | K. Owusu-Alyaw |
| 54. Kumasi | Kumasi North East Composite Planning Scheme-sectors 46, 47,48 and 55 (Tafo and Pankronu Amendment, Buokrom; Duasi, Kenyaso, Adjwnam, Manhyia, Brofoyodrn, Bosore and Abirem Planning Scheme | | K Owusu-Akyaw |
| 55. Kumasi | Boadi Revised Planning Scheme | | K. Osei-Adu |
| 56. Kumasi | Pakoso Planning scheme | | S.G. Adjei |
| 57. Kumasi | Atwima Takyiman/Denkyembuoso Planning scheme | | K Owusu-Akyaw |
| 58. Kumasi | Apiri South Planning Scheme | | Rosamund Edusei (Mrs) |
| 59. Kumasi | Kumasi South West Composite-Nwamase, Aburaso, Apiri, Kromuase, Nsima and Kokode. | | K Asare Baafour |
| 60. Kumasi | Daban-Sokoban Revised B Planning Scheme | | K Asare Baafour |
| 61. Kumasi | Apraman Extension and Patuda Planning scheme. | | K. Asam Beafour |

LIST OF LAYOUT PLANS - ERSU-JUABEN

Below is a list of layout plans, the clientele and officers responsible for their preparation. The table shows a clientele composed mostly of caretaker chiefs. All the layouts were prepared by Town Planning Officers of the Town and Country Planning Department.

TABLE 5.2: LIST OF LAYOUT PLANS IN EJISU-JUABEN

| DIS TRI | LAYOUT PLANS | CLIENT | RESPONSIBLE PLANNER |
|---------|--------------------------|-----------------|-----------------------|
| Ejisu | Sectors 2 and 3 of Ejisu | Caretaker chief | E.J. Owusu |
| - | Fjisu sector 4 | | " |
| | Krapa Planning scheme | | A. Kusi |
| | Ejisu-Bisease | | A. Kusi |
| | Adadietem | | E.J. Owusu A. Kusi |
| | Kwamo | " | " |
| | Okyerelsom | Queenmother | E.J. Owusu A. Ku |
| | Akyaakrom | Caretaker chief | F.J. Owusu |
| | Onwe | | " |
| | Fumesus-Bebre | | " |
| | Nobewam | | " |

LIST OF LAYOUT PLANS - BOSOMTWE-ATWIMA KWANWOMA

Below is a list of layout plans, the clientele and officers responsible for their preparation. The clientele consists mainly of chiefs. The responsible officers for the preparation of the layouts were various officers of the town and Country Planning Department (Ashanti Regional Office) and the Local Town and Country Planning Department.

TABLE 53: LAYOUT PLANS - BOSOMTWE-ATWIMA KWANWOMA DISTRICT

| DISTRICT | LAYOUT PLANS | CLIENT | RESPONSIBLE PLANNER |
|----------|---|-----------------|------------------------------|
| | Aiyeremade (Awima) | Chief | E.J. Owusu |
| | Kumasi South West composite Planning scheme | Chief | K Bainur Asarc |
| | Aburaso and Komuase) | Caretaker chief | F.I.Owusu |
| | Ahemma Kokoben | Queenmother | E.J. Owusu |
| | Yabi Planning Scheme | Chief | E.J. Owusu |
| | Kwawoma | Chief | K. Osei Ado |
| | Esereso | Caretaker chief | E.J. Owusu/Joycc Afukaar |
| | Atwima Heenan | Chief | E.J. Owusu |
| | Atwima Iiwidiem | Chief | E.J. Owusu/Joyce Afukaar |
| | Abuonten | Chief | Augustine Kati |
| | Ampcyoo | Chief | K, Osei Ado |
| | North Fsaso | Chief | K. Osei Adu |
| | Atwima Dako | Chief | Spatial Development Services |
| | Esereso Kolok-uom | Chief | Joyce Afukaar (hJrs) |
| | Afra-Odumasc | | |
| | *Setciasc | | |
| | *Apanpatia | | |
| | *Adwaasc/Kromoasi | | |
| | *Twdedic | | |

*In preparation

LIST OF LAYOUT PLANS IN ATWIMA DISTRICT

Below is a lists of layout plans, the clientele and officers responsible for their preparation.

As evidenced by the Table the clientele is made up mostly of chiefs. however in most cases information could be obtained with regards to the responsible officers for most of the layout plans.

TABLE 5.4: LAYOUT PLANS IN ATWIMA DISTRICT

| DISTRICT | LAYOUT PLANS | CLIENT | RESPONSIBLE PLANNER |
|----------|--------------------------------------|------------------|---------------------|
| | Akrafo Kokoben Planning Scheme | Chief | |
| | Boaso West Planning scheme | Chief | |
| | Esaase Planing scheme | Chief | |
| | Bodwsango Planning scheme | Chief | |
| | Abuakwa New Town Planning Scheme | | |
| | Asenemaso Planning Scheme | | |
| | Wicokyiren Planning Scheme | | |
| | Atwims Fankycembra Planning Scheme | Chief | |
| | Ahyiremanso Planning Scheme | Chief | |
| | Nkfcta Planning Scheme | Landowner | K.B. Osei |
| | Esl Ayawoo | Chief | |
| | Adakwaine South West Planning Scheme | Chief | |
| | Abcsewa Planning Scheme | | |
| | Sepaasc Planning Scheme | Chief | |
| | Abrafo Kokoben Planning Scheme | Chief | |
| | Abakomadi Planning Scheme | Chief | |
| | Makro West Planning Scheme | Odikro | |
| | Makro North Planning Scheme | | |
| | Barek-ese North West Scheme | Chief and Elders | |
| | Barekeso South West Planning Scheme | " | |
| | Abuakwa North East Planning Scheme | | |
| | Asuofua Resettlement Scheme | Government | |

LIST OF LAYOUT PLANS - KWABRE DISTRICT

Below is a list of layout plans, the clientele and officers responsible for their preparation. As seen in the Table the clientele consists mostly of caretaker chiefs. Most of the layouts were prepared by Town Planning Officers. Only very few were prepared by private surveyors.

TABLE 5.5: LAYOUT PLANS – KWABRE DISTRICT

| DISTRICT | LAYOUT PLAINS | CLIENT | RESPONSIBLE PLANNER |
|------------------|---------------------|-----------------|---------------------|
| KTVabre District | Cyarnfi-Wonoo | Caretaker Chief | Mr. P.A. Mensah |
| | Ahoaso | " | " |
| | Dumanafo | " | " |
| | Ascamua | " | Mr. Kusi Augustine |
| | Ebom | " | P.A. Mensah |
| | Atimatim | " | " |
| | AhTviaa | " | " |
| | Mcdoma | " | " |
| | Essen | " | " |
| | Kenyase | " | Private Surveyor |
| | Boyar Sakara-Wonaoc | " | Kumasi |
| | Hemano | " | P.A. Mensah |
| | Aukuknva-Buoho | " | " |
| | Afiancho | " | Private Surveyor |
| | Brokon | " | " |
| | Hemang-Buoho | " | P.A. Mensah |
| | Ntiri-Buoho | " | Private surveyor |
| | Akroxa | Queenmother | M.K Detoh |
| | Adumoa | Caretaker chief | Mr. Prempeh |
| | Aboabogya | " | Mr. Bonlley |
| | Old Asanamaso | " | Private Surveyor |

6. MORE COMPREHENSIVE PLANNING STRATEGIES TO ADDRESS Environment+ NTAL ISSUES AFFECTING THE USE OF NATURAL RESOURCES

Analysis of the Medium-Term Development Plans of the districts within the GKCR and the Harmonised District-Medium-Term Plan for Ashanti Region reveal that problems identified with natural resources utilisation and related environmental issues are similar, the difference being that they are of varying

degrees of intensity and urgency. The Kumasi Metropolis because of its density of population and activities has the most intense problems related particularly to land use water and waste management and pollution of river valleys.

Most of the problems identified in the peripheral districts in the GKCR can in most cases be associated with socio-economic activities, conditions and demands in the metropolis. Of course, there are also peculiar problems to the districts such as poor drainage in the larger settlements and the slash and burn farming practices and bush fires which have seriously affected the vegetation and reduced the richness of the forests and soils.

This means that a more comprehensive, integrated and coordinated approach to natural resource utilisation and environmental management is required in the GKCR This is more so because project proposals in the medium term plans of the peripheral districts for instance place heavy emphasis on the provision of education, health and local government administration infrastructure and social services. These are perceived as urgent needs. On the other hand measures to address natural resources utilisation and environment identified are both scant and sketchy. Furthermore, instead of addressing these problems on individual district basis, the harmonised district medium-term development plans for the Region revealed that a more comprehensive planning process and coordinated effort are required.

Therefore, sustainable planning process has to be put in place for determining the most appropriate mix of actions and investments that respond to the development problems of the GKCR that related to natural resources utilisation and environmental management. There is evidence that all the districts within the GKCR exhibit different degrees of awareness of the impacts of environmental problems associated with utilisation of the natural resources in the region. There exist also different degrees of political commitment and capacity of the individual districts to mobilise the required resources to address the problems.

The planning process suggested below is based on these underlying issues and on enabling participation and building of commitment. The process can involve several activities each of which should emphasise strengthening local participation and capacity.

The following is an outline of the process:

1. Informed consultation in which rapid assessments the use of natural resources and related environmental problems are conducted, the issues clarified key actors identified and political

commitment sought. Through this informed consultative process priorities would be set. Fortunately the Local Government Act 1993, (Act 462) provides for joint planning action by two or more districts for problems considered common to all.

2. Formulation of an integrated natural resources planning and environmental management strategy that embodies long-term goals and phased targets for meeting the goals. Such a strategy should be both issue-oriented, i.e. cut across the concerns and interests of the various actors, and actor-specific, i.e. evolve action plans that cut across the various issues for achieving the targets set. It should also include identification of least-cost, but effective project options, policy reforms and institutional capacities.
3. Follow-up and consolidation in which agreed programmes and projects are initiated, policy reforms and institutional arrangements are concretised, the overall process is made routine and monitoring and evaluation procedures are put in place.

It is important that the key actors, their roles and concerns are identified. These include the following:

1. District Assemblies as both planning and political authorities at the local level must undertake environmental analysis in the context of local development planning and management.
2. Environmental Protection Agency (EPA) responsible for setting environmental regulations and standards and for monitoring and enforcing related laws. Often this agency is weak in terms of enforcement of regulations and also the monitoring of activities.
3. Sector Agencies and Departments often they tend to give scant attention to cross-sectoral issues and collaboration. This problem will be minimised when they are effectively integrated into the District Assembly system as Departments of the Assembly. At the Regional level they are also Departments of the Regional Coordinating Council. Therefore coordination of their activities could easily be ensured.
4. Residents and Community-based Organizations; whose members and leaders must be made aware of the impacts of uncontrolled exploitation of natural resources and environmental degradation at household, neighbourhood and village levels. These groups already have the opportunity to participate in the preparation of local development plans as required by the National Development Planning (System) Act, 1994 (Act 480).

5. NGOs who could be effective agents for mobilising community action, voicing local concerns and building local capacity through functional education.
6. Private and Informal Sector Enterprises, who are concerned often about environmental regulation and the costs that such rules impose on them, particularly when enforcement is effective. They seldom perceive their activities to be detrimental to the environment and in deed the residential population. They should therefore be part of the process in search for solutions.
7. External Support agencies, being key sources of funding for large environmental project and also important donors of technical assistance and support.

It is important to mention that the process outlined above is just an elaboration of the participatory planning process required for the preparation of the medium term development plans by the Districts.

The difference here is that it emphasises the natural resources and environmental aspects which received little attention in the various district development plans..

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**Kumasi Natural Resource Management
Research Project
Inception Report**

**Component study 5
Stakeholder Analysis**

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July 1997.

**Kumasi Natural Resource Management
Research Project
Inception Report**

**Component study 6
Urban Footprint and Definition of the Greater
Kumasi City Region**

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July 1997.

URBAN FOOTPRINT AND DEFINITION OF THE GREATER KUMASI CITY REGION

Introduction

This study which forms part of the "Kumasi Natural Resources Management Project" funded through ODA's Peri-urban Interface Research Production systems, Natural Resources Systems Programme and Renewable Natural Resources Research, Strategy commenced in the first week of April, 1997.

Objective of the study

The objective of the study was to map out the greater Kumasi City Region on 1:250,000 scale topographical sheet. The following indicators were used:-

- a) Villages visited by Kumasi market traders on daily basis.
- b) Villages which depended on Kumasi for their daily needs of meat, fish, perishable farm produce imported items and health services.
- c) Areas supplying perishable foodstuffs to the Kumasi market, and
- d) Daily commuting zone for employment and other services in Kumasi

Indicators (a), (b) and (c) form a common wider zone than indicator (d) which is an average of 32 kilometre radius from the centre of Kumasi (Kejetia lorry park), except Konongo, Nsuta, Duayaw Nkwanta, Yinahini and New Edubiase.

Methodology

The survey covered all commuter or trotro terminals in Kumasi especially the Kejetia Central lorry park, and Asafo Neoplan station. The survey covered transportation routes along which foodstuffs especially perishable foodstuffs and persons were conveyed daily to and from Kumasi.

It was discovered that vehicle leave Kumasi for almost all parts of Ghana. however, beyond 100 kilometres no single vehicle makes more than 3 trips a day. The commuter vehicles are usually 18 and 33 seaters, and it was found out that the daily commuting trips ranged from an average of 12 trips nearer the city centre to an average of 6 trips towards the limit of the sphere of influence of Kumasi. These limits could be described as Konongo (53km) on the Accra road, Duayaw Nkwanta on the Sunyani road and New Edubiase (901km) on the Cape Coast Road. For example, it was discovered that Konongo on the Kumasi-Accra road serves as the collection point for goods and persons bound for Kumasi from its hinterland. The round trip from Konongo to Kumasi and back of about 106 kilometres takes about two and half hours (including loading time). An average of twelve passenger vehicles makes at least 5 trips daily. In the case of New Edubiase an average of seven vehicles makes 5 trips daily. The calculation does not take into account through traffic which may carry passengers for on route destinations. Five round trips per vehicle per day for five vehicles was chosen as the minimum commuting index.

At the lorry parks all station overseers, their assistants and waiting drivers were interviewed about destinations from Kumasi, the average number of trips per vehicle per day, the number of vehicles en route per day and types of foodstuffs conveyed to and from Kumasi. They were also asked if the vehicles transported persons to work in Kumasi daily and the reason for the choice of accommodation outside the metropolis. Some passengers alighting from vehicles were randomly called in by the station overseers to be interviewed about their purpose of journey to Kumasi to determine the dependence of the origin of journey on Kumasi.

Questions were also asked about goods brought in or to be taken out of Kumasi. In all, 20 stations were covered by the survey.

Markets in Kumasi were also visited to find out the type of foodstuff brought to the market and by whom, i.e. whether the traders go to the countryside to buy the goods or the farm produce is brought by the villagers. Secondly, the study sought to establish what goods or food items were bought daily by traders from the villages and to which villages were three items taken for resale or consumption. At the markets in Kumasi, each food item has a 'queen'. Therefore, there is a cassava queen, tomato queen, plantain queen, etc. These 'queens' know the trade pattern of each commodity, hence most of the questions were directed to them. Also even when traders from the villages bring their foodstuffs to Kumasi, the market queens act as wholesalers and intermediaries between the villagers and the small scale retailers at the markets. The markets covered by the study included:

- (a) The central market whose bulk supplies are received at the "Zoo and Body" delivery point for all perishable foodstuffs and the Railway station for wholesale fish supplies.
- (b) Asafo market
- (c) Sofoline market
- (d) Atonsu/Chirapatre market
- (e) Old Tafo market

KUMASI COMMODITY FLOW

Kumasi is the capital of the Ashanti Region and the traditional seat of authority of the Asantehene. Thus its authority encompasses the whole of the region. Lying about 300km northwest of Accra, it is the focal point of transportation routes radiating axially to all parts of the country. It has even an airport connecting the rest of the country. The city is one of

the major market centres in the country. Its outflows cover the whole country. The metropolis is about 150 square kilometres in size.

***Since weighing scales are not normally used to measure foodstuffs in Ghana, the unit of measurement is mostly the mini-bag of 50 kilogrammes. The sum total of all commodities represents the flows in bags. *

* * About 30 percent of the outflows are mainly agricultural produce, specifically foodstuffs such as maize, yam, beans, cassava, banana, and plantain. They also include kola nuts, fruits and tobacco.

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Most of the agricultural produce is sent to Accra and account for about 12.7 percent of the total outflows of commodities from Kumasi and 64 percent of the total flows. Kola which is the only outflow to Lagos accounts for 3.3 per cent of the total flows and 18.4 per cent of the total outflows.

A total of about 2.7 per cent of the total flow and 15 per cent of the outflows are to the northern and upper regions of Ghana. Specifically, Bawku, Tamale, Navrongo, Wa and Jirapa. Tema also receives 0.4 percent of the total outflows from Kumasi.

The inflows to Kumasi are more widespread than the outflows. The inflows from Accra to Kumasi takes about 57.3 per cent of the total inflows to Kumasi and 71.4 per cent of the total flows to Kumasi. Most of these are industrial commodities such as sugar, rice and flour.

Techiman which is second to Accra in terms of inflows to Kumasi, accounts for 6.2 per cent of total flows of Kumasi and 7.7 per cent of the total inflows and Sunyani supplies 0.1 per cent of the total flows.

Tema's inflow to Kumasi (mainly industrial commodities) is quite significant. It is about 11.5 per cent of the total flows of Kumasi.

It can therefore be concluded that Kumasi is a net importer of commodities and it depends mainly on Accra and Techiman. This significantly confirms Kumasi's distributive role of marshalling both agricultural and industrial commodities and sending them out to its hinterland.

KUMASI COMMODITY FLOW AREA

| | NAME OF TOWN | INFLOWS NO. IN | INFLOWS % OF TOTAL | OUTFLOWS NO. IN BAGS | OUTFLOWS % OF TOTAL | TOTAL FLOWS IN | TOTAL FLOWS IN % |
|-------------|--------------|----------------|--------------------|----------------------|---------------------|----------------|------------------|
| | ACCRA | 194759 | 57.3 | 43109 | 12.7 | 237868 | 70.0 |
| | TAMALE | 11143 | 3.3 | 3389 | 1.0 | 14532 | 4.4 |
| | TEMA | 39179 | 11.8 | 1454 | 0.4 | 40633 | 12.2 |
| | WA | 341 | 0.1 | 96 | 0.03 | 437 | 0.13 |
| | BAWKU | - | - | 3884 | 1.2 | 3884 | 1.2 |
| | JIRAPA | | | 90 | 0.03 | 90 | 0.03 |
| | NAVRONGO | | | 2918 | 0.9 | 2918 | 0.9 |
| | LAGOS | - | - | 11400 | 3.3 | 12400 | 3.3 |
| | TECHIMAN | 21111 | 6.2 | - | - | 21111 | 6.2 |
| | SUNYANI | 369 | 0.1 | | - | 369 | 0.1 |
| | MANKESSIM | 530 | 0.2 | | - | 530 | 0.2 |
| | KETA | - | - | - | - | 1000 | 0.4 |
| TOTAL FLOWS | | 267432 | 80.0 | 67340 | 20.0 | 334242 | 100.0 |

Source: Extracted from GPRTU Waybills (1991)

Note: Most drivers are under the Ghana Private Road Transport Union (GPRTU) and stations fall under the umbrella of the Union. For purposes of taxes and surcharges, waybills are prepared to cover the movement of goods.

THE URBAN FOOTPRINT

From the analysis above the functional region of Kumasi may be described as the whole country at varying levels of intensity. It is now necessary to define the locus of intense interaction of Kumasi.

Foodstuffs, particularly vegetables and fruits are brought daily by traders to Kumasi from Abofour, Techimantia, Sabronuom, Konongo, Jachi, Kuntanasi, Effiduase, Kumawu,

Asonomaso/Adanwomaso areas. Daily fish supply is received from the lakeside (Abonu) and BARRIKESE.

Shopping

Daily markets within a radius of one hour unimpeded drive from the city centre (Kejetia) (i.e. 40 kilometres on first class roads and 29 kilometres on second class roads) derive their supplies of vegetables, plantain, maize, yams, meat, fish, cooking oils, eggs and condiments from the Kumasi market. The receiving centres are mostly clustered along the main transport routes radiating from the city and extend to Duayaw Nkwanta along the Sunyani road, to Konongo on the Accra road; to Nyinahini through Nkawie on the Bibiani road; to Bekwai and as far as New Edubiase is on the Cape Coast road. Even though New Edubiase is nearer Cape Coast than Kumasi, the travellers find higher and varied opportunities in Kumasi than Cape Coast. To the north, the receiving centres extend to Abofour along the Techiman road and Nsuta along the Mampong road. The sphere of influence sweeps eastwards through Atonso, Kwaman, Kumawu, and Effiduasi to join the Accra Road at Konongo. Urban centres (towns with populations exceeding 5000), such as Ejisu, Juaben, and Offinso are all engulfed by the greater Kumasi City region.

Employment

For employment in Kumasi, some natives commute daily to work from Nkawie, Trabuom,

Akropong, BARRIKESE, Ahenkro, Wiomoase, Ntonso, Mampongten, Nsuta, Amoaman,

Asonomaso, Wonno, Adanwomaso, Effiduase, Juaben, Ejisu, Besease, Onwi, Essienonpon,

Kwaso, Jachie, Kuntanase Akrokerri and Jakobu. Furthermore, some non-natives have

also taken advantage of low land values along the major arteries to build their houses

outside the metropolis and commute daily to work. In all cases (whether indigenous living in family houses or strangers in rental units or owner/occupiers prefer the commuting cost

to high rent advances or land values in the metropolis with the attendant in security of tenure.

Finally, all the major poultry farms feeding Kumasi can be found outside the metropolitan area in villages such as Akropong, Abuakwa, Boko, Kwanwoma and Ampabame beyond Daban. Kente and Adinkra, for which the Ashanti Region is famous are supplied to the Kumasi market from Bonwire, Aboaso, Ntonso, Wonno, Asonomaso Adwumakese, Dumanafa and Ahodwo. The popular traditional stool and other wood carvings are supplied by Ahwiaa.

**Kumasi Natural Resource Management
Research Project
Inception Report**

**Component study 7
Land Use Mapping Pilot Study**
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August 1997.

TITLE: REPORT ON THE MAPPING PILOT STUDY OF THE KNRMRP

1.0 INTRODUCTION:

This investigation/study forms part of the on-going "Kumasi Natural Resources Management Project". The study commenced in the first week of June, 1997.

2.0 BACKGROUND:

The investigations which is the subject of this report was initiated as a result of the need to properly represent the settlement features in their near exact geographical locations. The main purpose was to have a general extent of the land boundaries of the settlement as well as some knowledge about the spatial distribution of land use. In the light of the above, some land surveying

Options were proposed and discussed (Appendix I). The discussion centered on mainly parameters such as: speed, time available, accuracy expected, labour, instrumentation requirements and funds available. At the end of the discussion a decision was taken which forms the basis for the present investigation.

3.0 OBJECTIVES OF STUDY

The objectives of the investigation was to find:

- a) A suitable procedure to map out the study area as quickly and cost effective as possible. The map or sketch so produced need not have high geodetic accuracy since it is not meant for any serious cadastral purposes. These plans initially are for general land use monitoring such as fallow and crop rotation periods.
- b) To refine the participatory maps from the PRA by georeferencing the main features within the settlement identified by the villagers (**Appendix II**).
- c) The location of sample of land use items in one of the settlements.

These objectives were to be achieved through the use of

- i) GPS surveys
- ii) Enlarged SPOT imagery of the settlements
- iii) Enlargements of the 1:50,000 topographical sheets.

4.0 METHODOLOGY:

The field survey was conducted through the use of GPS instruments. There were two sets of GPS instrument, the GARMIN 100 SRVY II and GARMIN 12 XL. The GARMIM 100 SRVY II instrument was used because the investigators had had some experience mapping with it. The time was very short to allow for some experimentation with the GARMIN 12XL instrument in order to make a choice between the two instruments.

The survey was carried out on individual village basis.

4.1 SWEDRU:

This settlement was selected for the complete field survey. The village surround (buildings), the approximate village land extent and the main features (streets, sacred groove, churches, schools, etc.) were surveyed. Some of the features (such as schools, sacred groove) were surveyed completely while the others by way points. The farm surveys was conducted on two levels. Those farms whose corners were easily accessible were surveyed completely while the others were picked through way points at the center. The farms surveyed included cocoa, cassava, plantain, maize, okro, pepper and tomatoes. An effort was made to capture distinct monocrop farms though it was very difficult. Most of the farms were intercropped. The general description of the farms such as the dimensions, the type of crops) and the stage of maturity of the crops. Some fallow plots were also captured by the survey.

4.2 DAKU, NYAMEANI, DUASI.

These were the other three villages included in the investigations. For these settlements, the surround survey, the survey of the major features and the main streets were made. The extent of the villages were estimated with the GPS using the existing roads. No farm surveys were conducted.

4.3 RESULTS FROM GPS SURVEYS (APPENDIX III)

The field measurements were downloaded and processed at the IRNR GIS laboratory. During the processing it was noticed that the volume of data to be processed was too much. Some of the data therefore had to be eliminated to make processing easier. Maps of all the villages were created with the principal features represented as points. The farms around Swedru Village were also presented as points with their respective attributes such as farm size, and crop (s) type. All the data was prepared so as to be compatible with Arcview 3 which is available in the KUNIINFO system at the MNR.

4.4 MAPPING WITH OTHER MATERIALS

AERIAL PHOTOGRAPHS:

One stereo pair of aerial photographs were provided with the hope of constructing some sketches of the villages under the study. However the scale of the aerial photographs was too small for any serious mapping to be undertaken from their use. The average scale of the photographs was estimated to be 1:45,000 approximately. In view of the problem above, the aerial photographs were not useful during the investigation.

4.5 SPOT IMAGE ENLARGEMENTS (APPENDIX IV)

Three uninterpreted image maps at scales of 1:50,000, 1:25,000 and 1:10,000 were provided for the mapping investigations on each of the villages under study.

1:50,000 Images:

The interpretability of the 1:50,000 was very poor. It was possible to delineate the village surround; the road and main streets and some recently built and roofed houses. These recent buildings appear as white spots on the images.

1:25,000 Images:

The interpretability of these images were better than that of 1:50,000, serial. On these images, the following features could be interpreted:

- Village surround Some important features of the villages such as houses, main streets, refuse dump, sacred grooves.
- Streams
- Some farm plots but separability is often very difficult
- Newly roofed houses appear very white

1:10,000 Images:

The interpretability improved with this scale and the follow features could be delineated:

- Most of the houses in the villages which had relatively new roofs.
- The main streets
- Agricultural plots made up of vegetated and non vegetated plots/burnt out
- Sand and stone pits Churches, boreholes, refuse dump because they are isolated
- Streams and tracks
- .

4.6 ENLARGED TOPOGRAPHICAL MAPS (APPENDIX V)

Enlarged topographical maps of the various settlements were provided for the mapping

investigation. The enlargements were taken to the field and inspected for conformity or otherwise.

Some of the major problems were as follows

- The major roads conformed to the existing ones with the exception of the link road between Nyameani and the road from Kumasi to Adamu together with the road between Daaku and Akosomo which were missing from the toposheet
- Some of the details (features) were missing and others which were on the map were also far from their real positions.
- The grid lines were also missing thus making orientation difficult because the scale of the map is too small any measurement done whether angular or linear could not be properly represented in their proper positions.

The advantages for mapping out with these enlargements are that:

- They provide a baseline for the positioning of other details which may not be on the toposheet. (map revision)
- the availability of contours on the enlargement makes it better as far as planning is concerned even though there may be some distortions due to the enlargement and generalization during the construction of the original map.

5.0 DISCUSSION

It is evident from the investigation that the GPS survey is a useful method for this level of mapping. This is because even though the accuracy levels are low, it compensates in time. In this type of Rapid appraisal work, time is the dominant factor and therefore GPS surveys maybe the single most important method in this regard.

It must be noted though, that when one has to detail the settlement, then there are a number of limitations namely:

- a) Some of the corner points of the buildings were difficult to differentiate from each other. Since these are not far apart, the instrument is unable to pick the difference because it is not very sensitive.
- b) Ideally one needs a clearance from the receiver in order to receive enough satellites for a good geometry. The buildings therefore may serve as obstacles to the adequate from satellites. One may have to be content with a low DOP.

Results obtained by the interpretation of the SPOT images suggest a number of useful lessons

Appendix M

- a) Because the buildings were small and not far apart and had similar roof characteristics, and the fact that the ground resolution of the imagery was 10m did not help in their individual differentiation.
- b) Buildings with fairly new roofing were easily identified since they appear very bright due to high reflectance levels as opposed to very dark shades of grey for old rusted roofs.
- c) Where the streets are large, they were easily identified. However where the streets were narrow it was very difficult to delineate them, suggesting that reflectance levels may be near equal to that from the rusted roofs.
- d) It was possible to delineate the non-vegetated areas from the vegetated areas. However it was difficult to say whether the non-vegetated areas were scars of bush fire outbreaks or harvested farm lands or degradation from sand winning.
- e) Streams used as land boundaries were easily identified on the images.

6.0 COST ANALYSIS

Land surveying ventures are very expensive and therefore needs careful cost benefit analysis to be able to select the most appropriate methodology and procedures to achieve a stated objective.

If, the initial investment in instrumentation has already been made (i.e., GPS, satellite images, compass, theodolite, taps etc.) and then what is needed is to optimize the running cost relative to accuracy and time.

Running cost applying conventional land surveying methods is relatively higher than using either low level GPS surveys or mapping using visual interpretation of satellite imagery. (e.g. SPOT) especially when the objectives of the mapping exercise in or just to have an idea of approximate relative position of land features as was the case for their investigation.

Mapping land use from satellite images may be cheaper than with GPS, when multirate data is available. In that case no bush clearing in field data collection is needed. However, mapping details in the settlement maybe difficult and may have to be supplemented by a quick compass survey of ground features referenced to some of the easily identifiable corresponding features on the image.

Indeed aerial photographs of scales larger or equal to 1:10,000 maybe cheaper than satellite imagery. This is because in this case there will not be the need for the supplementary compass survey and it will not require any extensive field verification of farms and other features identified on the photographs.

7.0 CONCLUSION

Based on the data obtained so far, it can be concluded that for PRA purposes the following methods

- mapping with GPS
- mapping with SPOT image enlargements (1:25,000 and 1:10,000)