

Challenges of Land Acquisition in the Mining Communities of Tarkwa, Ghana

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Key Words: Land Rights, Ownership, Boundaries, Acquisition, Disputes, Challenges, and Mining Communities.

SUMMARY (ABSTRACT)

One of the major challenges facing land acquisition in most mining communities of Ghana is the absence of clearly demarcated and undisputed land boundaries and ownership. Natural features (trees, hedges, footpaths, ridges, valleys and streams) that were used in the past to mark and describe land boundaries and tracts have become obliterated and obsolete long ago. The locations of some settlements, streams and roads have been changed, ridges have been flattened, valleys filled and even relatively permanent markers like concrete pillars and iron rods have been destroyed. These have contributed to numerous disputes about land boundaries, ownership and compensation payments in the area. This paper presents reliable accounts of the land boundary and ownership problems in the mining communities of Tarkwa, Ghana, the sources of the problems, the challenges they pose to land acquisition, and suggests ways to deal with them. The study found mining activities as the major source of the boundary problems, and getting a legal title or recognition to ‘purchased’ land as the main challenge to land acquisition in the area. It is recommended that all stakeholders in land in mining communities should get knowledge of existing boundary and ownership problems and engage the services of professional surveyors to serve as guides in land transactions or undertakings.

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1. INTRODUCTION

The economic boom of mining in the past decade has contributed to the high rates of migration, population growth, urbanization, and high pressures over socio-economic facilities in mining communities in Ghana, particularly in Tarkwa and its environs. One area of interest or concern to surveyors is the pressure on land and its associated problems in the acquisition and registration of land rights for housing and other developments.

The general problems to land acquisition in Ghana have been discussed and documented at various seminars and in articles/books. For example there are no reliable records or registration of land rights and transfers in most parts of Ghana, and boundaries have not been properly surveyed and recorded. As a result of this, in the cities and peri-urban centres where the demand and value for land is high, there have been high incidents of land encroachments, multiple sales of plots, conflicting claims over boundaries, fraudulent transactions by unauthorized members, and double allocation of lands. These have in turn resulted in land disputes, conflicts, and litigation between stools, skins, families, and individuals, as well as encroachment and conflicts over land acquired by the state. (Kasanga and Kotey, 2001; Dotse, 2003; Kwesi and Asabre, 2010).

Rural areas have generally been viewed as having little or no major problems in land acquisition, but this is fast changing, especially for mining communities in Ghana. Disputes over boundaries and ownership of land tracts whose physical evidence on the ground have been destroyed or not demarcated, are emerging as major challenges to land acquisition. This destruction can be blamed on mining (both large and small scale) and its allied activities and the expansion of human dwellings and other socio-economic activities associated with mining.

Many towns, families, clans or stools that used to live distances (kilometres) apart have now merged and overlapped due to urbanization and other developmental activities associated with mining. Some lands that were given out as concession to mining companies in the past have now come under human dwellings and other social-economic uses other than mining operations, while some dwelling places (lands) have come under mining activities. Concessions and other land tracts have changed ownership from one exploration and mining company to others over the years.

In some areas, it is difficult to tell whether the land belongs to a family or a stool or a mining company and which family or stool or company is the rightful owner. Some settlers and house owners do not know the rightful owners of the lands where they have built and

thus have been paying multiple royalties to different families or stools that claim ownership over the same land. Other settlers do not pay anything at all due to the confusion.

The above land boundary and ownership problems have resulted in some confusion, abuse, conflicts, undue delays, and extra expenses in land transactions in mining communities.

As a solution to the problems, it has been realized that a well co-coordinated and regulated land ownership, based on both national and customary tenure systems with proper boundary demarcation, adjudication and registration of land rights, will provide a more conducive socio-economic environment for investors, businesses, governments and civic society to coexist peacefully and do their businesses with clarity and confidence, which in turn will lead to further attraction of both local and foreign investors (Akrofi, 2008; Arko-Adjei et al., 2005; Dotse, 2003; Toulmin and Quan, 2000; Larsson, 1991). This solution is however far from realization. The situation in mining communities is further compounded by the destruction of boundary markers, overlapping and multiple ownership and procedures for land transfer.

To help deal effectively with these problems, there is the need for surveyors and land buyers to have some knowledge and understanding of the underlying boundaries and ownership problems in mining communities and how these may affect the acquisition, surveying, and registration of land parcels in the area. These are the issues this paper attempts to address, using the Tarkwa mining communities as a case study.

2. LAND RIGHTS AND OWNERSHIP IN MINING COMMUNITIES

Land rights in the mining communities of Ghana are generally owned by individuals, families, stools, government, mining companies and other bodies but are mostly vested in stools under the control of chiefs as custodians. Stools, Families, Mining Companies and the State are the major land owning groups. Land holdings found within these areas include common grazing rights, private residential and agricultural rights, and state ownership of forests reserves and public estates (Arko-Adjei et al., 2005; Oduro, 2011).

Among the problems associated with the major land holdings in the area are indeterminate boundaries of stool and family lands and acquisition of large tracts of lands by government and mining companies by which landowners have been left almost landless and have become tenants on their own lands. The resulting disputes from these pose great challenges in the acquisition of land for residential and other private developments these communities.

2.1 Customary Land Tenure System in Mining Areas

Like other parts of Ghana, land in the mining communities is viewed as a common heritage from God to the indigenes, through their ancestors and must be preserved and handed to their successive descendants. The mode and control of acquisition, use and transfer of land rights is through the customs and traditions of the indigenes. There are generally no recordings of dealings and transfer of rights in the land and surveying and registering of land parcels and transactions are not required. These lead to insecurity of tenure and conflicts over land boundary and ownership.

2.2 Statutory Land Tenure System

Due to the weaknesses in customary land tenure system where land rights and transfer rules are not documented, Ghana, like other developing nations, has established statutory land tenure system that is based on state-laid-down procedures for defining land rights and restrictions to regulate the relationship between people and land throughout the country (Torhonen, 2004). Under this system, land boundaries, ownership and transfer of rights are to be determined, approved, documented and registered by the state (Anon. 2008).

The main state agencies involved in the management of land are the Survey Department (now Survey and Mapping Division), Town and Country Planning, Land Valuation Board, Office of the Administrator of Stool Lands, Land Title Registry, Environmental Protection Agency and Lands Commission (a number of these are now merged under Lands Commission).

The relation and the flow of information among these departments at the Districts and Municipalities are still not well structured, and their presence is not well known and recognized by the local people (Bugri, 2008; Kasanga and Kotey, 2001).

2.3 Land Acquisition Procedure in Mining Communities

The statutory land tenure system has been too slow to enforce its own legislation at the mining communities or districts. As a result, the role of the state in using policy instruments to standardize customary land tenure practices, eliminate much of the problems associated with it, and make it conform to national development objectives has not been effective. The results have been the operation of the two systems in mining communities and this has rather added to, instead of addressing, the problems. To acquire land for housing and other projects, one must first meet all the customary requirements in addition to meeting the statutory requirements. (Kwesi *et al*, 2011; Asamoah-Boadu *et al*, 2008; Bugri, 2008; Kasanga, 1994; Martin, 1992).

The power of attorney to enter and develop any piece of land is generally issued by the chiefs to prospective ‘buyers’ after all necessary customary requirements (including payments) have been met. Thereafter, the prospective buyer needs to get the land demarcated and surveyed, and obtain all necessary documents (like ‘indentures’) and apply for registration of his right in the land and permits to develop it from the state. He may then start developing the land

while waiting for approval from the state. It is during this period, after he has invested so much in the land acquisition, that the ‘buyer’ usually comes to face-to-face with the real problems of the land, such as disputes over the ownership, boundaries and multiples sales. There have been instances where, some land developers have been frustrated and compelled to abandon building projects due to problems in getting their land parcels and rights registered, after meeting all customary requirements.

Factors that have caused long delays and unsuccessful registration of land rights include conflicts over land boundaries and ownership, use of unapproved and wrongly-gridded layout schemes for parcel demarcation, wrong demarcation and surveying by unqualified surveyors and erratic demarcation of layouts that do not follow scientific and professional principles in surveying (Dotse, 2003; Akrofi, 2008; Wilson, 2009; Hermansen and Brown 2006; Troy, 2006; Rose-Nalin, 2008; Garry, 2009; Lanfranki, 2013; Anon, 2009). The remaining sections of this paper examine the first two factors in more details based on investigation of the matter in the Tarkwa mining communities.

3. MATERIALS AND METHODS

A reconnaissance survey was carried out to get first-hand information about the boundary and ownership problems in the mining areas of Tarkwa, Ghana. The methods used include, literature review, a search through the local, district, regional and national archives of the administrations of stool lands, the survey and lands departments, mineral commission and small scale departments, and the offices of the chiefs and traditional council for relevant documents, field interviews and observations for evidence of the locations of the old boundary points and lines, and their conditions. The materials used include plans and data of the old boundaries, court documents describing the locations of adjudicated boundaries, topographical maps and mine plans of concessions in the area and survey equipment like the tape, and GPS receivers. Some of the results of this survey are shown and discussed below.

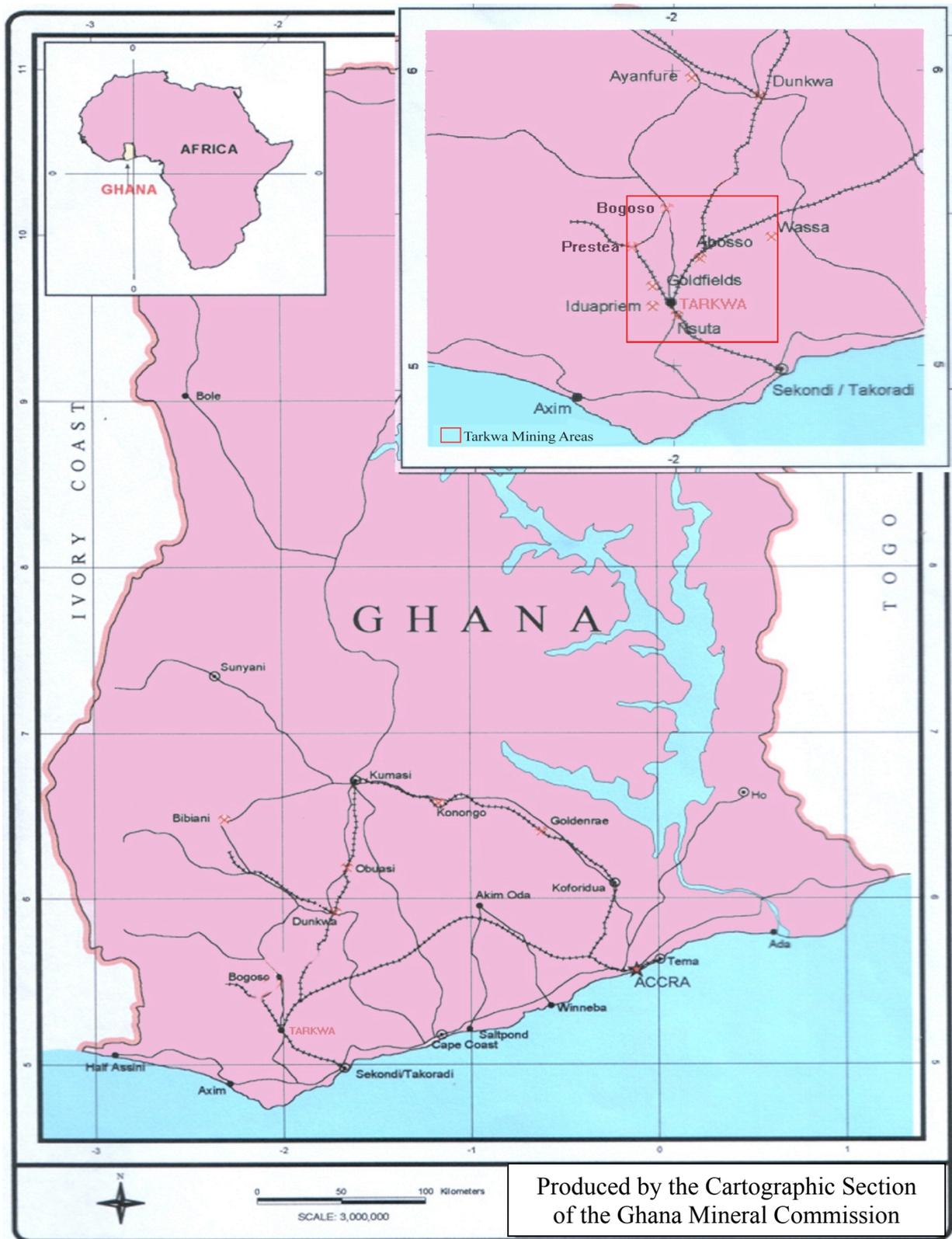


Fig. 1 Map of Ghana Showing the Location of Tarkwa and its Surrounding Mining Areas

4. OBSERVATIONS AND DISCUSSIONS

4.1 State of Historical Records and Evidence

Some paper records and drawings of the old compass surveys about some of the land parcels, their supposed owners and boundaries exist, but there exist very little or no ground markers or evidence to support these records for the correct judgement of where the boundaries should be and who should be the right owners. Some of the maps/plans and data sheets were faded and inconsistent with others and ground evidence found during the study. For example, the locations and nature of some communities and the topography at some places have been changed and so were no longer consistent with the information in these old documents. Fig. 2 shows examples of these. In view of this, there was a grater need to rely on narratives and assistance of the elderly and others in the communities for tracing locations of boundary lines and markers. There were difficulties in getting consistent first-hand information on where the boundaries of some stools and families were to pass since almost all those who knew the boundary very well had died. Several people had to come in to show the boundaries and many showed different routes or courses.

4.2 Historical Perspective of the Boundary Problems

From the reconnaissance survey, it was observed that indigenes of the Tarkwa of mining communities identified their boundaries with tress, water courses, foot paths and other non-permanent objects in the past. Demarcation with permanent objects was not necessary to define boundaries. Even that the people did not have much problem s (if any) in identifying their boundaries and there were less or no disputes about these as we have today. When dispute arouse peace were settled with eye witness evidence and cases were settled easily. However, from the 1990 onwards, population increases due to mining activities (migrant farmers and miners), brought drastic changes. Pressure on land became more, land value started appreciating and those with knowledge of the protection that registration of land offered, started having their lands surveyed and demarcated with more permanent markers. Even settlers seem to have taken undue advantage of this over some of the indigenes to claim land ownership.

Also, with the advent of surface mining from the 1990's onwards where mining companies have been taking lands and paying compensation, there have been multiple claims for the same piece of land for compensation. Furthermore, population explosion due mainly to influx of people to mining areas (like Tarkwa) for work has brought additional pressure and demand on land. This has resulted in multiple sales and claims of ownership of the same land with subsequent rises in land conflicts. The conflict spans from disputes between stools over boundary and payment of royalties, between stools and families, between families, between surveyors and land buyers, between sub-chiefs, and between care taker-chiefs and omanhenes of some traditional areas. This has complicated the nature of land acquisition and tenure in the area.

Some of these conflicts were resolved through the law court and the traditional or chieftaincy methods and rulings were given as to where disputed boundary should be and who were rightful owners of disputed lands. Unfortunately some of these rulings were not followed through immediately to demarcate the boundaries with permanent markers and reliable surveys of the adjudicated boundaries and parcels, and as a result, some of such conflicts settled in the past resurfaced and have persisted to date. As a result of the above problems, some compensations and royalties have either not been paid at all or paid to wrong owners or to the government coffers while the descendent of the rightful families or stool gain nothing or get something negligible.

One way to help resolve some of these problems is to be able to retrace and demarcate the old surveys base on legally established or defined boundaries in a reliable and scientific way.

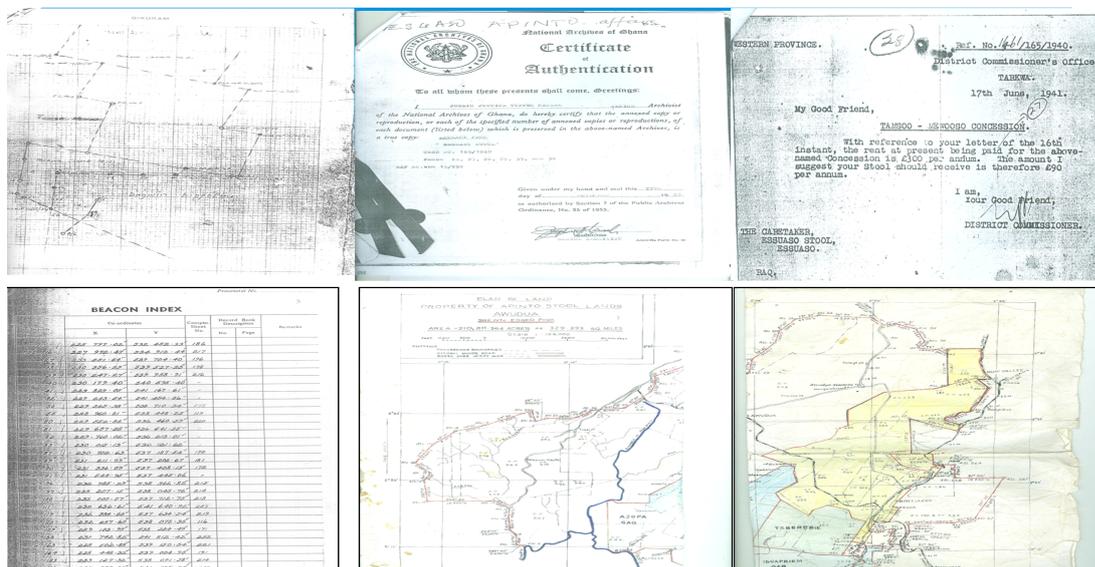


Fig.2 Historical Records of Land Ownership and Boundary

4.3 State of Boundary Markers or Evidence on the Ground

The types of boundary markers found during the survey include government pillars (control points), mine concession monuments and massive stool and familiar land pillars set up in the 1930s and beyond (Fig. 2). Most of these permanent boundary markers set up in the past to mark stool, state and mining lands have, however, been destroyed. Natural boundary markers like trees are gone, river courses and foot paths have been changed, hills have been levelled, and valleys have been filled. Many of the few permanent markers left are in very bad state, unstable and may soon be lost (Fig.2). Some boundary lines and markers were found running through or at the houses and offices of some people and companies (Fig. 4).

The general attitude of peoples towards boundary markers is very bad. There is virtually no care or protection of these markers. They are indiscriminately being destroyed without any recourse to their importance in resolving boundary and ownership disputes and smooth acquisition and registration of land rights. Mining, activities, (especially ‘galamsey’), infrastructure and housing developments were observed to be main factors of the destruction (Fig.3-Fig. 4).



Fig. 3 State of Boundary Markers in Mining Areas of Tarkwa (2013)

Destruction by Mining Activities



Fig. 4 Destruction of Boundary Markers by Mining Activities

Destruction by Other Developmental Activities



Fig. 5 Destruction of Boundary Markers Other Construction Activities



Fig. 6 Destruction of Boundary Markers by Housing Activities

4.4 Land Availability for Residential Purposes

Free stool and family lands are becoming scarce in the Tarkwa mining communities. Some chiefs and families are knowingly or unknowingly selling lands that are in mining concessions for residential and other uses. Due to inadequate public knowledge and the absence of clear demarcations of boundaries, the general populace usually buy and start developing parcels of land before becoming aware that they are encroaching on mining or state lands. There have also been rising demands and pressures on land for residential and other socio-economic needs due to the high rates of migration workers, population growth and urbanization in the Tarkwa mining areas.

With the expansion of surface mining over that past decade, large tracts of additional lands have been taken by large scale mining companies and small-scale miners, especially ‘galamsey’ miners, have been invading and destroying the remaining lands available. There have been instances where development of residential buildings have been destroyed or abandoned due to mining activities, and instances where some have defied all orders and built on mining lands. This situation has a great consequent on the high cost of accommodation and peaceful coexistence in mining communities. The challenge to be engaged here is peaceful negotiations for mining companies to release lands to the expanding communities within their catchments areas.

4.5 Potential Sources of the Problems

1. *Location of Traditional Seats of Stools and Sizes of Concessions in the Past:-* Traditional capitals were located far away from mining concessions, and mine operations may not have been that extensive and so there were little or no overlaps of stool lands in the past. As mining operations and settlements expanded, overlaps started to occur. Those closer to the concessions and faster to act, probably claimed ownership for compensation and royalties only for these to be contested later by other stools or families as belonging to them.
2. *Relocation of Settlements/communities:-* This displaces original families and communities far away from their lands. The nearby communities that now deal with the land more, may later claim ownership of it than the actual owners that may be relocated to dwelling far away.
3. *Farm Compensation;-* Farm owners are compensated for with documents that includes survey plans of their farm lands bearing their names as owners of the farm. If the right owners of the land itself are not documented well, in future, children of these settler farmers may claim ownership of such lands referring to such compensation plans that bear their parent's names as evidence.
4. *Construction Activities;-* The operations of mining (legal and illegal), its allied companies and expansion of settlements and socio-economic developments have also been destroying boundary pillars and other markers of land parcels with no provision made to relocate or document the pillars and their coordinates (some relics of boundary pillars are found in peoples rooms and compounds). Fig.1 and Fig. 2. show examples of these situations on the ground.
5. *Delays in executing court decisions on boundary demarcations and surveys*
6. *Lack of effective institutional systems for protecting and preserving boundary markers*

4.6 Consequences of Boundary Problems on Land Acquisition

It can be deduced from the above sections that the boundary and ownership problems have generally resulted in some confusions, abuses, conflicts, undue delays, and extra expenses in land transactions in the area. Specific ones that may be highlighted include:

- a) In some areas, it is difficult to tell whether the land belongs to a family or a stool or a mining company and which family or stool or company is the rightful owner.
- b) Some settlers and house owners do not know the rightful owners of the lands where they have built and thus have been paying multiple royalties to different families or stools that claim ownership over the same land. Other settlers do not pay anything at all due to the confusion.

- c) Rightful compensations and/or royalties have either not been paid at all or paid to wrong owners or to the government coffers
- d) Some individuals may have correct cadastral plans duly signed by licensed surveyors and official regional surveyors but have difficulties in registering such lands due to problems about the rightful owner- family/stool/company.
- e) Conflicting or overlapping cadastral plans that result from surveying wrong and overlapping boundaries that clients show surveyors for measurements—there are parcels with no demarcation marks (pillars) at all or that have multiples markers at different locations for the same points.
- f) Due to overlapping boundaries of stool lands, there have been multiple sales, surveys and site plans of the same lands or parcels

4.7 Suggestions for Dealing with the Problems

The following suggestions are offered to help deal with the present land acquisition problems in the mining communities of the study area, and to prevent new ones from occurring.

1. *Defining New Boundaries*

In the absence of adequate and reliable evidence to retrace original boundaries, new boundaries should be decided upon by negotiations and/or legal processes between disputing parties. These boundaries should be promptly demarcated and surveyed by qualified surveyors

2. *Prompt Execution of Court Judgments*

Delays in executing court judgment regarding boundary demarcation and surveys should be avoided. It should be done while those involved and ground evidence are available to help and guide the execution of the decisions.

3. *Boundary Markers*

Existing boundary markers should be protected and reinforced. New boundary markers should be of permanent materials.

4. *Updating and conversion of old boundary data*

Updating and conversion of old boundary data into modern coordinates systems and data formats may be helpful in preventing some of the problems.

5. *Monitoring of Boundary Pillars*

Monitoring or surveillance of boundary pillars by local land owners and surveyors can be helpful. Legal and institutional backing to protect boundary markers from destruction will be a necessary step for the way forward.

6. *Public Education*

Educating the public as to the importance to be attached to survey pillars and possible penalties for negligence may help reduce the indiscriminate destructions of boundary markers.

7. *Engagement of Mining Companies Negotiations*

Mining companies should be engaged in peaceful negotiations to release lands to the expanding communities within their catchments areas for residential and other socio-economic activities.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Land boundary and ownership problems are rising in Tarkwa and many other mining areas, and these present formidable challenges to smooth land acquisition for residential and other socio-economic needs. Absence of clear demarcations and reliable survey plans of stool lands, destruction of boundary markers, overlapping and multiple ownership and procedures for land transfer are some of the prevailing causes of the problems that need to be addressed.

As noted in the introduction, proposals for governments to embark on national demarcation and survey of all stool land boundaries and adjudication and registration of the associated rights, to provide a more conducive socio-economic environment for people to coexist peacefully and do their businesses with clarity and confidence, are far from realization in most mining communities. Reasons for this may include lack of sufficient funding and political will, especially when there will be little or no direct immediate financial returns on such investment. Until that is done, however, stakeholders in mining communities need to confront the issues and keep them under control.

Knowledge of these problems and the challenges they pose to land acquisition and registration in mining areas should serve as a guide to all stakeholders that engage in land transactions in mining communities, to act properly and avoid compounding the problems.

5.2 Recommendations

1. Mining companies should appreciate the need to release lands for residential needs and provide funds to support demarcation, survey and protection of important land boundaries and Markers within their catchment areas.
2. All the necessary stake holders (the state, chiefs, mining companies and private land developers) must be engaged in peaceful negotiations about how to handle land boundary and ownership problems in mining communities.
3. Qualified Professional Surveyors play critical roles in resolving land boundary and ownership conflicts in peaceful ways. They are not (and should not be) just interested in

getting paid for their services but see to it that their services contribute to peaceful resolutions of boundary conflicts in all mining communities where they may work.

4. For stools, families and communities to benefit from all the services of professional surveyors, they need to recognise the roles that surveyors play in these matters and endeavour to use professional surveyors for the demarcation and surveys of boundaries and land parcels.

REFERENCES

- Anderson, J. M. (1998), *Surveying, Theory and Practice*, McGraw-Hill Inc, pp. 801
- Anon. (2009), *Manual of Instructions for Surveying Public Lands – 1973*, U.S. Department of the Interior, Bureau of Land Management, Online Edition, Chap. VI, Available at <http://www.cadastral.com/73manl-1.htm> Accessed 20 August 2013,
- Anon. (1932), “Demarcation of Boundaries of.....Mining Concession Areas”, The Survey Ordinance 1922 (Chap. 159 of the Laws of the Colony) Part 2 and 3
- Anon. (1962), “Demarcation and Survey of Lands”, Survey Act 1962, Part II
- Arkrofi, E. O. (2008). “Adjudication Rights and Boundaries for Effective Land Titling”, The Ghana Surveyor, Vol. 1, No.2, pp 17-21.
- Arko-Adjei, A. (2005). “Titling Customary Lands, Emerging Challenges Facing the Land Administration Society in the New Millennium”, ITC Enschede Press, the Netherlands, pp.18-22.
- Asamoah-Boadu, N., Osei-Tutu, E., Ofori, P. A. and Ankra, S. (2008) “Mixed Responses to Growing Urban Housing Crises in Ghana”, The Ghana Surveyor, Vol. 1, No.2, pp 10-15.
- Bugri, J. T. (2008). “Integrating Customary and Statutory Land Tenure Practices in North-east Ghana”, The Ghana Surveyor, Vol. 1, No.2, pp 22-30.
- Dotse, J. (2003). “The Map as an Effective Tool in Land Administration — Resolution of Disputes, The Land Surveyor’s Perspective”, The Ghana Surveyor, pp 27-32.
- Garry K. (2009), “Retracement Surveys and Undocumented Monuments”, The American Surveyor, Nov./Dec. 2009, Edition, Available at www.amerisurv.com, Accessed 20 August 2013

- Hermansen, K. E. and Brown, C. (2006), “Innovations in Teaching Boundary Research”. Available at: <http://www.umaine.edu/set/svt/articles/DigitalResearch.pdf>. Accessed 19 February 2013.
- Kasanga, R. and Kotey, N. A. (2001). Land Management in Ghana: Building on Tradition and Modernity, IIED, London.
- Kasanga, K. (1994). Land Tenure Systems and Ecological Degradation in Northern Ghana: What Role for Local Authorities? A Paper Prepared for the Our Common Estate Programme, RICS, London.
- Kwesi, E. A. A, Mantey, S. and Aduah, M. (2011), “Land Compensation in the Oil and Gas Regions of Ghana, Challenges Involved and the Role of the Surveyor”, The Ghana Surveyor, Special LS Division Seminar, 2011 Edition, pp 9-12
- Kwesi, E. A. A. and Asabre, R. K. (2010). “Application of GIS in Solving the Site Selection Problems of Mine Waste Management”, The Ghana Surveyor, Vol. 2, No.1, pp 62-63.
- Lanfranki, J. (2013), Boundary Retracement Survey of Cal Poly’s Serrano Ranch, *Polytechnic Project Work*, Bio-Resource and Agricultural Engineering Department, California Polytechnic State University, San Luis Obispo. Available at <http://digitalcommons.calpoly.edu> Accessed on 20 August, 2013
- Larsson, G. (1991). “Land Registration and Cadastral Systems: Tools for Land Information and Management”, Longman Scientific & Technical, UK.
- Martin, A (1992). “Land Tenure and Environmentl Management in Sub-Saharan Africa: Problems and Perspectives”, ECART Position Paper, NRI, Chatham.
- Oduro, W. (2011), “GIS as a Tool for Land Management in Tarkwa”, unpublished BSc. Project Report, University of Mines and Technology, Geomatic Engineering Department, Tarkwa, pp 4-10
- Rose-Nalin, A. (2008), “The Next Generation: The Daily Problems of a Surveyor” Available at: www.profsurv.com. Accessed 17 February 2013
- Torhonen, M. P. (2004). Sustainable Land Tenure and Land Registration in Developing Countries, including a Historical Comparison with an Industrialized Country, Computers, Environment and Urban Systems, Vol. 28, pp. 545-586
- Toulmin, C. and Quan, J., (2000). “Evolving Land Rights, Policy and Tenure in Africa”.issues: Department for International Development (DFID)/International Institute for Environment and Development (IIED), London.
- Troy H. (2006), “Missouri/Iowa Boundary Line Investigation” , The American Surveyor, March./April. 2006, Edition, Available at www.amerisurv.com , Accessed 6 August 2012

Wilson, D. A. (2009), "Rules of the Game: Griffin's Survey Methods: Retracement"
The Professional Surveyor Magazine, March 2009, Volume 29, Issue 3, Available at
<http://www.profsurv.com/magazine>, Accessed 6 August 2012.

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Edward A. A. Kwesi holds a BSc Degree in Geomatic Engineering and an MPhil. Degree in Mining Engineering. He has since 2000, been researching into the Applications of GIS, Remote Sensing, GPS and Cartography in the management of solid waste, land ownership and farm compensation problems in the mining, oil and gas areas of the western region of Ghana. He presently teaches at the Geomatic Engineering Department of the University of Mines and Technology, Ghana, and a professional member of the Ghana Institution of Surveyors (GhIS) and Geoscientists (GhIG) and affiliate of FIG.

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