

## Analysis of land boundary and ownership disputes and settlements in Simbu Province, Papua New Guinea

<sup>1</sup> Jerry Kamane Mille, <sup>2</sup> Jacob Adejare Babarinde

Department of Surveying and Land Studies, Papua New Guinea University of Technology,  
Lae 411, Morobe Province, Papua New Guinea

<sup>1</sup>jerry.mille@pnguot.ac.pg, <sup>2</sup>jacob.babarinde@pnguot.ac.pg

### Abstract

*This paper is a further step to previous research efforts at investigating the types and causes of land disputes in Papua New Guinea. The rationale behind the present research effort is the need to analyse the interrelationships and significance of boundary and land ownership disputes' factors hindering socio-economic developments in the Highlands of Papua New Guinea. Using the purposive sampling technique, key informant interviews, questionnaire surveys and field investigations were conducted with disputants, State's authorities and local dispute settlement officials and mediators selected from four political districts in Simbu Province. According to the findings, Simbu registered an average of 54 land disputes between 2013 and 2015. Nearly half of these disputes were about counter-ownership claims, while a third of them were related to boundary discrepancies. More than two-thirds of survey responses indicated that the relationships between land ownership and boundary disputes were strong, while 100% indicated that land ownership disputes are mainly about disputed boundaries and encroachments. The strong correlation coefficients are as high as 0.9 or more at the confidence levels of 99% and 95% (2-tailed). This indicated very strong and positive relationships and very high confidence levels of significance among land dispute factors exhibited by landowners in the study area. However, boundary and ownership disputes among individuals, families and clans with regards to oral and unfixed boundaries are ranked as the most frequent type of land disputes, followed by land grabbing offences committed by individuals. Based on these findings, it is recommended that customary landowners need to be guided well through the Voluntary Customary Land Registration Process (VCLR) and payments of service fees and charges, which must be affordable. Finally, full computerisation and regular updating of the PNG Land Dispute Settlement System are overdue to promote and stabilise sustainable land administration and economic development policies and practices in Simbu Province and the entire country.*

**Keywords:** Land disputes, boundary, ownership, relationships, Simbu Province, PNG.

### 1. Introduction

Land disputes and conflicts relating to boundary and identification of legitimate owners remain a major obstacle to land use and development and tenure security in Papua New Guinea (Kalinoe, 2003), cause delays to many resource projects and increase investment costs for most resource development projects. They also frustrate some capital infrastructure projects proposed and intended to be implemented for the people to meet their needs. In the process, many Papua New Guineans who have demanded social services and capital

infrastructure from the State have been left frustrated and disappointed (National Land Development Program report (2007)).

The concepts of boundary and ownership in land and property are sometimes used interchangeably in many transactions and more commonly in land/resource disputes/conflicts and settlement processes in many parts of the Highlands of Papua New Guinea (Kalinoe, 1997). This relationship between land disputes and dispute settlement or resolution is important for purposes of national economic development as revealed by some empirical studies (e.g. Mille, 2015), with the local perceptions of boundary and ownership in their cultural context that reflects the intrusive ideology expressed by the Latin Maxim “*Cujus est soil eius est usque ad coelum et ad inferos quid plantatur solo, solo cedit*” – meaning ‘he who possesses the land also possesses that which is above it and whatever is attached to the land is part of it’ (Abramovitch, 1966). This ‘literally’ best describes the trends in relationship and significance existing between the two dispute types of ‘boundary’ and ‘ownership.’ Moreover, the notion of extent and limit of ownership has been grievously misunderstood and misapplied by many people resulting in obvious absurdity of claiming private exclusive ownership so far as the ‘downward and outward limits’ are concerned. This confusion often arises among customary resource owners; thus, the maxim is presumably considered as the principal ideology contributing to the causes of the different types of boundary and ownership disputes that are prevalent in the Highlands of Papua New Guinea where much land is controlled and governed by ‘custom’ (Dickson, 1986) and referred to as customary land. In addition, Bradbrook (1988) and Greenwood (1984) have argued that the maxim is a general ‘expression’ without any legal definition of land and with limitations on the extent; therefore, the maxim is taken literally but not in practice in some areas. For instance, ownership is restricted to those parts of the air column and substratum that the owner can reasonably utilise and control, even though to the extent and limits not legally defined. Nevertheless, the courts have resisted applying the maxim literally.

Therefore, we would like to support the definition of the extent and limit of ownership as how ‘land’ is interpreted by the Common Law (Green, 1984). For instance, in PNG, the legal interpretation according to the PNG Land Act (1996, Chapter 2), refers to ownership as “*an interest in land whether arising out of and regulated by custom or otherwise*” and includes “*messuages, tenements and hereditaments, corporeal and incorporeal, of any tenure or description, whatever the interest or estate there may be*’. A layperson would understand the concept to mean any material objects to the possession of a right(s) in respect to that object, the legal or customary power to exclude or include other persons from exercising such rights (Pai, et al. 2010). This definition does not provide any ‘discrete numerical specifications’ as a measure of the extent and limit of ownership; rather, it provides ‘natural features and descriptions’ as indicators to identify one’s extent and limit of ownership.

Nevertheless, these interests or rights in land boundaries are *prima facie* evidence of ownership and obligation that one has in the land tenure system (Pai, et al. 2010) engulfing various systems of land holding, use and disposition, being a continual process of change with historical, cultural, and economic factors and influences throughout the world, which worked in some but failed in others (Morlino, 2011). They are like “*sticks in the bundle*” or “*bundle of rights*” representing the number of rights, the quantum or size of each right and the duration of each right (Klein and Robinson, 2011) and are measured using four (4) dimensions (Crocombe, 1974; Jimu, 2012). These four dimensions are *Area dimension*, which defines limit of area to which any right, duty, privilege or disability applies, for

instance, natural/artificial marks or recognised marks on the ground and in record; *Time dimension*, which enumerates the period during which the right or obligation has force within a number of years, lifetime or when the obligation is fulfilled; *Population dimension*, which specifies the number of people or group involved and classifies them into groups or classes with different rights (each class having specific rights); while *Legal and customary dimension* specifies the legal or customary code by reference to which the distribution, transfer and exercise of rights are conditioned (Jimu, 2012). The four dimensions have specific rights, obligations and relationships to land boundaries and ownership that are distributed through various levels in the society.

## 2. Problem Statement, Research Questions and Contributions to Knowledge

The processes and mechanics of land ownership in the Highlands of Papua New Guinea are complex. A person may gain, transfer or lose ownership through purchase with money, trade and exchange, gifts, inheritance or by legal means such as eviction, foreclosure, and others (Kalinoe, 1997; Bouvier, 1856; Burton, 2007). Nonetheless, the process can be restricted by certain powers such as the power of eminent domain, taxation, police power and power of escheat or by customs in the context of customary land (Jefferies, 1991; Crocombe, 1974; Dwyer, et al. 2000). For instance, customary land tenure in the Highlands is by inheritance through patrilineal system that is usually vested in the whole family, clan or tribe and regarded as being held in trust for ancestors, present, living and future descendants of the family. This custom clearly signifies that rights in land are not clearly defined at individual level. Land rights are recorded by memory through oral records and the interest of the community is predominant. There is complete security of tenure provided that the allottee of the interest held fulfils relevant social obligations to the clan or tribe. The clan or tribe regards itself as custodian of the land for future generations rather than proprietors. Every member that is born into the group has a lifelong right to a piece of land for his own use; therefore, any land dealing requires the consent and approval of all members of the owning group (Dickson, 1986; Lakau, 1994; Aylmer, 1980), it has been argued that land dealings in Papua New Guinea are not consistent but confusing when considered along with the legal framework that operates in the country (Papa, 2020). However, an important aspect in boundary and ownership disputes is that a dispute may help in identifying boundary and ownership discrepancies and errors, such as missing or inconsistent information relating to land ownership extent, location, owning parties, or users' information (Wehrmann, 2008). It may also provide data for compensation payments and finding explanations to its causes (Wehrmann, 2008). Besides, boundary disputes necessitate collecting and structuring information for dispute settlement (Prescott, 1987), but there is yet no consistency in how these activities are implemented by the 22 provinces in a synchronised manner. There is a dearth of relevant previous studies in Papua New Guinea, aimed at finding solutions to these challenges. Therefore, this paper seeks to answer three research questions as a means of contributing to the knowledge of land dispute settlement, as follows:

- (i) *What are the common types of land boundary and ownership disputes in the Highlands of Papua New Guinea?*
- (ii) *What are the causes of land boundary and ownership disputes in the Highlands of Papua New Guinea?*
- (iii) *What are the landowners' perceptions about the relationships and significance of the two main types of land disputes?*

In the next section of this paper, the research methods outlined followed by section four which presents the survey findings and discussion. In section five, the conclusion, recommendations and policy implications of the study are presented.

### 3. Conceptual Framework and Literature Review

In the context of this paper, land disputes may be classified as boundary, ownership and assessment (compensation) disputes, which may be further classified into sub-types. Based on the nature and characteristics of these disputes, specific relationships among disputes can be established. Yet only time really resolves conflicts, and even the wounds it heals leave their scars for future reference. Short of ultimate healing, much can be done to reduce conflict and thereby release needed energies for more productive tasks (Zartman, 1991; Wehrmann, 2008). Ultimately, issues arising from unhealthy dispute relationships may be referred to conflict resolution bodies or mediators for settlement using appropriate dispute resolution methods.

Consequently, an important process in dealing with land disputes (conflicts) is to understand the various types of land disputes (conflicts) that exist. These processes often bring to light some differences which are helpful aids in settling disputes/conflicts. Without identifying the true nature of disputes and conflicts, resolution may not be possible; therefore, specific techniques are employed to identify and analyse the nature and the causes. GIS technology, remote sensing, social mapping and genealogy are considered in this study as possible means of identifying disputed land areas and disputant landowners.

According to Weiner and Harris (2003, pp.61-73), GIS and Remote Sensing technologies are valuable tools for preliminary investigation by cadastral surveyors, land professionals or GIS specialists to provide clues for resolving land conflicts such as trespass, boundary issues, and other situations dealing with monument lands. Furthermore, GIS and RS technologies provide visual presentations of the ground conditions, showing accurate locations of lands on the earth surface and provide enough information to resolve issues. Not limited to spatial technology, cadastral surveying also performs similar functions that define land units on the ground, in the cadaster, title registration and dispute settlement (Larsson, 1991; United Nations, 1985). Besides, spatial technologies and cadastral surveying, 'social mapping' and the 'study of genealogy' are also useful. Social mapping is considered a participatory, qualitative research technique (Weil, 2013) that may be used to assist in the preliminary stages of land and property ownership identification study.

The use of identification approaches is contrived in classifying land disputes from categories to types and sub-types. Wehrmann (2008, pp. 13 – 20) states that disputes over land fall under several categories of conflict occurring on all types of property. For example, there may be special conflicts over private property; specific conflicts over common and collective property; and special conflicts over state property. From these categories, conflicts are classified into many different types and sub-types depending on the nature and circumstances of a dispute. Many boundary disputes are the results of political differences, economic, socio-economic and socio-cultural imbalances to name a few (Wehrmann, 2008). It is important to note that boundary disputes indirectly assist policy makers, landowners and land professionals in identifying discrepancies and errors in land marks. Generally, the system of classification used builds upon the kind of land involved (state, private or common property), the specific object of the conflict as well as the legitimacy of actions, and the levels of violence used by the parties. Although Wehrmann has classified land disputes/conflicts, in this paper we have expanded Wehrmann's classification further into boundary, ownership and assessment dispute types.

Boundaries may be natural (such as a river) or artificial (determined by man); and a boundary line for land can be horizontal or vertical, expressed in Latin as '*cujus est solum eius est usque ad caelum*' meaning '*whose is the soil, his (her) it is even to the skies and to the depths below*' (Donnelly, 2012; Abramovitch, 1966). Moreover, boundary may be a visible or an invisible line of division between two contiguous parcels of land, or physical objects that serve as a limit of ownership such as fences, survey monuments, among others. Boundaries may originate, be fixed or be varied by statutory authority, proved acts of respective owners (such as by plans and deeds, possession, estoppels or agreement), or by the courts exercising statutory or inherent jurisdiction. Their position is a matter of evidence and, in certain instances, of the application of legal presumptions, which for boundaries would all appear to be rebuttable presumption (Jowitt, 1977). Therefore, boundary disputes are questions of ownership and the integral principles of land rights, where rights to land are the cornerstones of land laws as they socially enforce groups of individuals' rights to own land in concurrence with the land law of a nation. For that reason, laws concerning land ownership and the various land rights such as the user rights, subsidiary rights, rights to control and access, transfer and disposition must be in agreement (Wickeri & Kalhan, 2010; Hanstad, 2010; Pai, et.al, 2010). According to Wickeri and Kalhan (2010, pp.16-25), land rights become a global concern that is pertinent to various aspects of national development and so land ownership can be a critical source of human survival in any nation. Moreover, boundaries define one's ownership rights and obligations, which become an issue when denied. Land or property ownership is determined and classified pertaining to certain rights and duties it possesses. Ownership has legal standing and is interpreted from written or unwritten laws of a nation. Ownership of property may be private, collective, or common, and the property may be of objects, land/real estate or intellectual property (Jefferies, 1991).

When land disputes arise from compensation assessment, disputant landowners view compensation disputes as wholly or partially misinterpreting the definition or concept of *just compensation on just terms compensation*, according to Usilappan (1997, 2000). In principle, according to Murray (1969) and Whipple (1995, p.9 & p.99) the way the dispute is assessed, and compensation paid to dispossessed owners must be on "*Just Terms.*" Just terms or *adequate compensation* to the dispossessed owners are assessed using several statutes and techniques developed overtime. For example, Britton, *et al.* (1989), Brown (1991) and Murray (1969) underlined various methods for assessing compensation for compulsory acquisition. Some principles developed and used overtime are: Spencer Principle of Market Value, between what the willing purchaser would pay and willing seller would accept; Pastoral Finance Principle of Special Value; the Turner Principle of Highest and Best Use; Pointe Gourde Principle of Enhancement and Depreciation; Milledge Principle of Disturbance; and the principles of severance, and injurious affection. Other methods include the Raja Principle of Absence of Buyers, Goodwill of business, extinguishment of business and West Midland Baptist Principle of Reinstatement.

The various statutes and techniques employed in the past have emphasised the '*Spencer Rule – Market Value,*' which says, '*What price will the willing buyer pay and what sum will the willing seller accept?*' Determining the market value of acquired land is the key issue in assessing compensation payable to the dispossessed owner (William, Keith & Tony, 1989; Brown, 1991). In addition to the market value, '*special value*', '*severance damage*', '*disturbance loss*', and *legal and valuation expenses* are general principles considered in assessing land compensation around the world and in Papua New Guinea (Britton, *et al.* 1989; Brown, 1991 and PNG Land Act 1996). It is worthwhile to mention that PNG Land Act (1996, Section 23), stipulates the general principles for compensation assessment to

dispossessed owners in respect of resumption process (compulsory acquisition) to consider the land value as at the date of acquisition, assessment of damages caused by severance from other land, and any enhancement of depreciation in the value of the interest of the claimant, or in other land adjoining or severed from the acquired land for the purpose acquired.

These legal provisions provide the type of claims that would be paid to the owners and detail the appropriate methods to be used to assess the claims. Although compensation unfairness is seen as a cause to disputes, nevertheless, most land disputes are resolved amicably through compensation payments. An important aspect of this study identifies the relationships that exist among the three dispute factors, namely: boundary, ownership and assessment, and some previous studies have shed some light on this (Azima, Novel and Mohd, 2015).

#### 4. Research Methods

The paper adopts a combination of genealogical studies, literature review, questionnaire survey, structured interviews and site observations. This is because issues over land boundary and ownership are often laden with socio-cultural and economic connotations of identity, wealth and power. Man and land relationships are built upon economic influences and socio-cultural drivers; therefore, the descriptive research design is found suitable for this study since it is basically geared towards sampling the views of various stakeholders about the characteristics of customary land tenure and its implications for land disputes in the study area. The target population for the study consists of customary landowners (disputants), the State's land dispute and settlement institutions, and the traditional authorities as land dispute settlement mediators. The customary disputants used in the study were identified and randomly selected from the Land Dispute Settlement Register at each selected district's capital of each study district. The selected disputants and the land dispute and settlement agencies formed key informants for the research.

The customary land disputants and the traditional authorities were drawn from four political districts in Simbu (Chimbu) Province, namely (i) Chuave (ii) Sinasina (iii) Yongomugl and (iv) Kundiawa. Survey questionnaires and interviews were administered with the disputed customary landowners, traditional authorities and officials of the State land dispute settlement institutions. Furthermore, disputed land sites were identified and surveyed to assess the land boundaries in dispute and their locations. However, focus group discussions were held with the customary landowners.

#### 5. Findings and Discussion

The following research findings are reported in accordance with the research questions laid out in Section 2 of this paper.

##### *5.1 A reminder of our first research question: What are the common types of land boundary and ownership disputes in the Highlands of Papua New Guinea?*

Although there are various types and subtypes of land disputes generally categorised by Wehrmann (2008), there are evidences of contemporary land issues on boundary ownership. However, not much discussion on the theme has been published in the literature, apart from the works of other researchers like Kalinoe (1997), Lakau (1994), Dwyer, et al. (2000), Rebecca and Monson (2014), Dickson (1986), Banks (2008), Crocombe (1987) and others,

who have contributed significantly to the general knowledge of land disputes in Papua New Guinea. Simbu Province does not have a well-defined recording system detailing by statistics the number of specific land disputes by type (category) and subtype; yet, there are common boundary and ownership disputes identified in Simbu that are prevalent in many parts of the Highlands of Papua New Guinea apart from disputes arising from '*debts, women and pigs*' (Brown, 2013).

Studies on selected districts in Simbu Province (e.g. Wehrmann, 2008; Kalinoe, 1997; Lakau, 1994; Dwyer, et al. 2000; Rebecca and Monson, 2014), have revealed that there were 217 land disputes registered from 2013 to early 2015, an average of 54 disputes per year. From reports 46% were ownership disputes and 34% were boundary disputes, while 20% were other dispute types. Furthermore, registers of the State land dispute settlement institutions and of the constitutive and regulatory institutions reveal that 72.5% of the dispute cases registered were mostly ownership and boundary disputes. The findings also show that ownership disputes are predominant in Simbu Province followed by boundary disputes. In addition, Kaitilla (1999) and Rumsey (1999) reiterated that Simbu has countered many boundary and ownership disputes between neighbouring clans since pre-independence.

Boundary disputes over common land between individuals, families or clans due to unwritten tradition and physical unfixed boundaries stand out to be more prevalent among others. This revelation emerged from inconsistent and inaccurate identifications of land boundaries and legitimate landowners as claimed by the acquiring agents, the State, private companies, or others. Besides the confusion and poor coordination caused by the landowners themselves, there are reports about grievous frustrations felt by dispossessed disputants about unfair or unjust compensations and other spin-off benefits for customary land acquired or leased for public purposes including mineral or resource extraction, particularly in the Southern and Western end of the Highlands. This trend has surfaced from malpractices recorded during the preliminary stages of land ownership identification studies and methods used for assessing compensation payments. In addition, the act of land grabbing through unauthorised sales and leasing of private or collectively-owned property by chieftains, respected elders, heads of family or ordinary individuals is also a regular unacceptable practice, when one takes possession because of his status or power due to absence of the rightful landowners due to death, migration (internal/external), tribal warfare, which often put pressures on reclaiming ownership and result in land disputes.

Ownership-oriented disputes linked to inheritance within a family or clan, resulting from overlapping or contradictory rights due to customary or indigenous rights are also frequent in Simbu Province and other Highlands provinces. However, ownership disputes between private, common or cooperating owners and the State from unclear and non-transparent demarcations of traditional land, acquisitions and conversions of collectively owned land to State land is also a dispute that concerns several parties. This is exacerbated by lack of land registration facilities where multiple people claim ownership over the same property. From the landowners' viewpoint, inadequate financial means and unequal knowledge of '*know-how*' for securing an indefeasible land title are obvious self-defence strategies.

## ***5.2 A reminder of our second research question: What are the causes of land boundary and ownership disputes in the Highlands of Papua New Guinea?***

Behind many of the various land disputes are explanations of multifaceted and interconnected factors relating to economic and political instability and socio-cultural dysfunction in the

country, especially contestation over new or improved resource policies having effects on customary land (Reuveny, 2007 in Bob, 2010). Others causes relate to legal and juridical system inefficiencies and ineffectiveness (Norm and Fingleton, pp. 233-234), or intolerable moral differences for status and power (Maiese, 2003). There are also unexpected natural phenomena such as the current global climate change (Smith and Vivekananda, 2009) having tremendous adverse impacts on land boundary and ownership identification processes.

Based on many of the causes of land disputes identified and classified by Wehrmann (2008) from an analytical viewpoint, the main causes identified from our empirical study in the Highlands of PNG are consistent with similar sentiments expressed by previous authors. Many disputes relating to boundary and ownership arise from lack of recognition of neighbouring land or adjoining owners, as argued by Donnelly (2012). Furthermore, findings from our own study are in line with those of Wehrmann (2008), which affirm that many land disputes tend to occur between individuals over private land, between clans over common property. These often arise due to oral tradition and land boundaries with no proper demarcation during colonial acquisition between numerous administrative jurisdictions (e.g. villages, communes, districts, municipalities, State agencies, business corporations and private individuals) over customary or state land.

Besides, many land disputes cases that have been mediated in the study area relates to disputes arising between customary and western systems mainly resulted from land boundary marks destroyed. Others were due to redefinition survey, fencing, description of freehold boundaries or leasehold boundaries (Fonmanu, Ting and Williamson, 2003), ill-defined and poorly mapped boundaries making systematic and comparative analysis difficult (Newman, 1999). Many other land disputes arose between parties that were claiming land with intrinsic, relational and symbolic values (Goertz and Diehl, 1992) that are dominant in the study area.

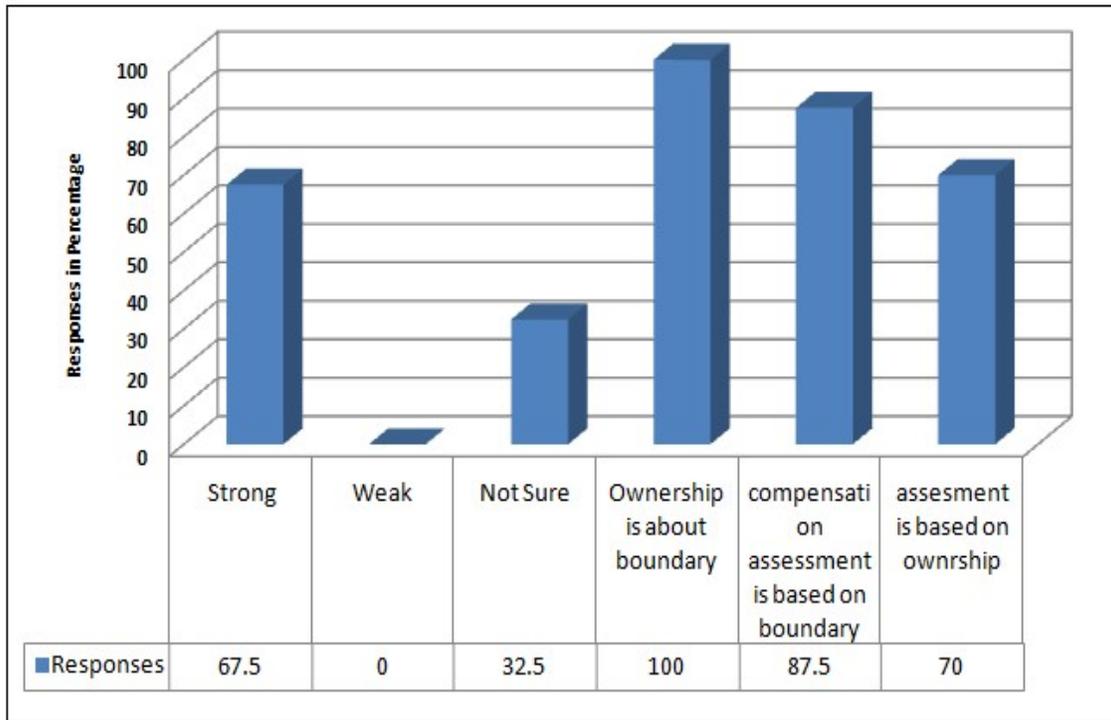
Moreover, stealing or destroying land files intentionally or unintentionally, inaccurate surveying or outdated lands register information in the Lands and Resource Administrative Departments are other usual reasons for land boundary and ownership disputes.

### ***5.3 A reminder of our third research question: What are the landowners' perceptions about the relationships and significance of the two main types of land disputes?***

The perceptions of the survey respondents gathered from the study about boundary and ownership dispute factors are considered important for one to understand their relationships for better dispute resolution and other socio-economic planning and decision-making. The findings in Figure 1 and Table 1 indicate the respondents' answers analysed using Pearson correlation technique to identify the relationships and level of significance of the two main dispute factors.

According to the results (Figure 1), 67.5% of the respondents indicated that the relationship between factors of ownership and boundary disputes is strong (67.5%), while 32.5% of the respondents are not sure and none of the respondents said it is weak. All (100%) the respondents indicated that land ownership is all about land boundary. Moreover, boundary and ownership have a role to play in compensation assessment; thus, further results indicate that 87.5% of the respondents believe that compensation must be tied to land boundary, while respondents who believe that compensation assessment must be tied to land ownership account for 70%. Generally, the results show minor variations in responses from one study

site to another (Table 1). Therefore, from the study, we can conclude that there are significant relationships between the two land dispute types and factors.



**Figure 1:** Relationship between Land Boundary and Ownership Types

The study also indicates that the larger the land boundary (area), the more the number of landowners who may lay a claim to land within a specific customary (unalienated) land. This may not apply to alienated land, where a large portion of alienated land may be owned by an individual landowner with legal title, just like the State.

Furthermore, the findings (Table 1) indicate that the correlation coefficients of all the variables are higher than 0.9 indicating a ‘*positive correlation*’ amongst the variables. For example, the correlation between Sinasina and Chuave is 0.985, and it is 0.901 between Sinasina and Yongomugl. The correlation coefficient between Sinasina and Kundiawa is 0.906. For Chuave and Sinasina, it is 0.985, for Chuave and Yongomugl it is 0.942, while for Chuave and Kundiawa, it is 0.957. In all of these, the highest correlation coefficient exists between Yongomugl and Kundiawa (0.991), while the lowest correlation coefficient exists between Yongomugl and Sinasina (0.901). All the correlation coefficients are statistically significant between 0.01 and 0.05 confidence levels (2-tailed). This indicates that ‘*strong and positive*’ relationships exist between land boundary and land ownership dispute types. Similarly, the variables of Chuave/Sinasina, Chuave/Yongomugl, Chuave/Kundiawa, and Kundiawa/Yongomugl indicate a 99% confidence level compared to Sinasina/Yongomugl and Sinasina/Kundiawa with 95%. All the findings are consistent with the fact that customary land transactions in Simbu Province are generally uniform just as the population is homogeneous as all the people speak *Toks Pisin* language and practise the Melanesian culture. Therefore, policy measures that will be applied by the provincial and national stakeholders will, by and large, be similar in nature to reflect the significant relationships existing with the population of landowners in the study area.

**Table 1: Pearson Correlation Coefficients of Relationship between Land Boundary and Ownership Dispute Types in Four Districts of Simbu Province**

		Chuave	Sinasina	Yongomugl	Kundiawa
Chuave	Pearson Correlation	1	.985**	.942**	.957**
	Sig. (2-tailed)		.000	.005	.003
	N	7	6	6	6
Sinasina	Pearson Correlation	.985**	1	.901*	.906*
	Sig. (2-tailed)	.000		.014	.013
	N	6	6	6	6
Yongomugl	Pearson Correlation	.942**	.901*	1	.991**
	Sig. (2-tailed)	.005	.014		.000
	N	6	6	6	6
Kundiawa	Pearson Correlation	.957**	.906*	.991**	1
	Sig. (2-tailed)	.003	.013	.000	
	N	6	6	6	6
**Correlation is significant at the 0.01 level (2 tailed)					
*Correlation is significant at the 0.05 level (2 tailed)					

The generally high Pearson Correlation coefficients clearly indicate that the four districts constituting the study area exhibit very similar socio-cultural characteristics and behavioural patterns when responding to land boundary and ownership disputes. Consequently, similar policies may be adopted to analyse and interpret land ownership issues relating to these two dispute types in other districts in the study area and the Highlands provinces of Papua New Guinea.

## 6. Conclusion and Policy Implications

Landowners' confusion with the misinterpretation of the Common Law defining the extent and limit of ownership of land rights, interests and obligations as enshrined in the land tenure system has contributed to the magnitude and diversity of land disputes in Simbu Province. This problem appears to be a major threat to PNG's socio-economic development. However, the present study reveals that the common types and sub-types of land disputes and their causes in the four districts of Simbu Province investigated are boundary and ownership disputes and claims. Findings indicate that ownership disputes are more predominant than boundary disputes. Furthermore, the study reveals that dispute factors affect individuals, families and clans, and are mainly caused by lack of land registration to recognise legitimate owners. Land grabbing by some powerful authorities and individuals in the province also complicates land disputes.

Moreover, results indicate that there are significant and highly positive correlations between boundary and ownership dispute types, which means that cooperating landowners who own and operate land collectively tend to have larger land areas compared to individual landowners. Therefore, the study reveals a lot of potential opportunities in dealing with boundary and ownership disputes. Importantly, with a proficient land dispute settlement system in place, there is a high probability of averting a considerably large number of land disputes in Papua New Guinea.

In this regard, several recommendations can be made for improving and dealing with land disputes in Simbu Province, while at the same time they can be applied in other provinces in the country given the fact that customary land accounts for about 86% of all lands in Papua New Guinea. On this note, the following recommendations should be thoughtfully implemented by land stakeholders in all the 22 provinces in Papua New Guinea:

- (i) The Voluntary Customary Land Registration (VCLR) System that was recently introduced in Papua New Guinea, focusing on customarily owned land, should be encouraged and disseminated to coup inaccurate land ownership identities and boundary discrepancies. Moreover, the 'know-how' process, its benefits and shortcomings of the registration system must be properly understood by the landowners who should be well guided by land administrative authorities for improved customary land registration. This responsibility solely rests on the land and resource departments, institutions and agencies to carry out public awareness and conduct seminars and meetings, using effective media coverage for impactful information dissemination
- (ii) The fees and charged for carrying out land registration process and boundary ownership identification studies by the State or acquiring agent are considered to be too expensive; therefore, they must be reduced to make them affordable and be better regulated by the Lands and Resources Departments. This will encourage more customary landowners to willingly register their customary land and join owners who can approach the banks and other financial institutions to apply for mortgage loans by using their lands as collateral, which is currently impossible.
- (iii) The current land dispute settlement registers in Simbu Province and across the country need updating to meet certain standards that are necessary for successful and sustainable dispute settlement. The updating exercise should be done for records of specific disputed land areas ( $m^2/ha$ ), details of the types and subtypes of land disputes, other specific details of the disputes, specific locations of disputed lands (using GPS), identification of disputants (by face ID), and computerisation of processes and records of assessment of land values.
- (iv) A separate and detailed investigation of the total number of disputed landowners and disputed land areas should be carried out by the districts in Simbu Province and across the country. This investigation can be enhanced using modern methods of surveying like GPS, social mapping and the study of genealogy.
- (v) Using Simbu as a model province, a Land Disputes Register of all recorded land disputes in the five (5) Highlands provinces of Papua New Guinea and the entire country should be created with the aid of new technology, such as the Land Information System (LIS/LAGIS). This means that the presently dysfunctional LAGIS should be overhauled and replaced as a

matter of national priority. A land dispute database should then be created for each district and linked to the main provincial land and conflict resolution database. The dispute database should also be linked to the Land Information System (LIS/LAGIS) for PNG.

## 7. Acknowledgements

The authors extend their sincere appreciation to Unitech's LNSDC through the Post Graduate Office for financial support for Jerry Mille's Master of Philosophy thesis at the Papua New Guinea University of Technology (UNITECH); the Melanesian Land Studies Centre for supplementary financial support during the field survey; the District Administrators in surveyed Simbu districts; various government institutions; and the selected customary landowners who voluntarily participated in the questionnaire survey, interviews and field inspections for this study. Finally, our appreciation goes to the academic staff of Surveying and Land Studies Department who contributed in one way or another towards the successful publication of this research.

## 8. References

1. Aylmer, G. E. (1980), *The meaning and definition of property in seventeenth-century England*, pp. 87-97  
<http://openjournals.library.usyd.edu.au/index.php/SSE/article/download/496> (February 27, 2016).
2. Bob, U. (2010), *Land-related conflicts in Sub-Saharan Africa*.  
<http://www.ajol.info/index.php/ajcr/article/download/63310/51193> (February 15, 2015).
3. Bradbrook, A. J. (1988), *Relevance of the cuius est solum doctrine to the surface landowner's claims to natural resources located above and beneath the land*. Adelaide Law Review 462. [www.austlii.edu.au](http://www.austlii.edu.au) > Databases. (September 20, 2014).
4. Brown, P. (2013), *The Chimbu: study of change in the new guinea highlands*. <https://books.google.com.pg/books>. (October 29, 2014).
5. Burton, W.C. (2007), *Burton's Legal Thesaurus, 4E*. The McGraw-Hill Companies, Inc.
6. Crocombe, R., & Hide, R. (1987). *Land tenure in the south pacific*. Suva, University of the South Pacific.
7. Dickson, W.L. (1986), *Introduction to land registration*, The Papua New Guinea University of Technology, Lae, Papua New Guinea, Technical Report Series, May 1986.
8. Donnelly, G.J. (2012)., *Fundamentals of land ownership, land boundaries and surveying, International Journal of Social Economics, (Vol. 26)*. <http://www.icsm.gov.au>. (August 2, 2015).
9. Dwyer, D., Dwyer, T., Ellis, G., & Fitzpatrick, D. (2000), *A compensation claim procedure of Papua New Guinea*. A Report to the Institute of National Affairs Port Moresby, pp. 54-91.
10. Fonmanu, K. R., Ting, L., & William, I. P. (2003), *Dispute resolution for customary lands*, <http://www.csdila.unimelb.edu.au>. (February 10, 2014).
11. Goertz, G., & Diehl, P. (1992), *Territorial changes and international conflict*. <http://www.cmp.sagepub.com/content/23/4/309.refs> (February 10, 2015).
12. Greenwood, D.W. (1984), *Land management law*, The Papua New Guinea University of Technology, Lae, Papua New Guinea, Technical Report Series, January 1984.
13. Independent State of Papua New Guinea (1996), *The PNG Land Act. No. 45 of 1996*, Waigani, PNG.

14. Jefferies, R. L. (1991), *Urban valuation in New Zealand (Vol.1)*. Wellington, NZ: Westbrook House, 181-183 Willis Street.
15. Jimu, I. M.(2012),*Peri-urban land transactions everyday practices and relations in peri-urban Blantyre, Malawi*. Langaa Research & Publishing Common Initiative Group, Bamenda, North West Region Cameroon: ISBN: 9956-727-59-8.
16. Kaitilla, S.(1999), Invisible real estate – Environment and urbanization. *Pacific Research Monograph. No.11.*, [eau.sagepub.com/content/11/1/267.full.pdf](http://eau.sagepub.com/content/11/1/267.full.pdf). (July 15, 2015).
17. Kalinoe, L. (1997), *Compensation alienated customary Landownerships in Papua New Guinea: Rethinking the rationale and the regime*.[www.paclii.org](http://www.paclii.org) (September 8, 2015).
18. Kalinoe, L. (2003), *Incorporated land groups in Papua New Guinea*.[www.paclii.org](http://www.paclii.org). (September 8, 2015).
19. Klein, D. B. (2011),*Property: A bundle of rights. Vol. 8, No.3*. [econjwatch.org/file\\_download/498/kleinrobinsonsept2011.pdf](http://econjwatch.org/file_download/498/kleinrobinsonsept2011.pdf). (October 10, 2014).
20. Lakau, A. A. (1994), *Customary land tenure and economic development in Papua New Guinea - Land issues in the Pacific*, New Zealand: University of Canterbury.
21. Maiese, M. (2003), Causes of disputes and conflicts. <http://www.beyondintractability.org>. (August 30, 2015).
22. Mille, J. (2015),*Identification and analyses of land dispute factors; A study of boundary, ownership, types of disputes and assessment (BODA) factors in Simbu Province, Papua New Guinea*. MPhil Thesis in Property Studies (unpublished), University of Technology, Lae, PNG.
23. National Land Development Taskforce (2007),*The national land development taskforce report*, land administration, land dispute settlement, and customary land development, pp. 73-85.
24. Newman, D. (1999),*Real spaces, symbolic spaces: interrelated notions of territory in the Arab-Israeli conflict*, Vanderbilt University Press.
25. Norm, O., & Fingleton, J. (n.d), Dispute resolution; settling customary land disputes in Papua New Guinea... *Making land work*, (Vol. 2, pp 233-234).<http://dfat.gov.au/aboutus/publications/Documents/>. (August 30, 2015).
26. Pai, A., Mille, J., Sinne, J., & Karigawa, L. (2010), *Land administration and documentation short course*, PNG University of Technology.
27. Prescott, J.R.V. (1987),*Political frontiers and boundaries*, London, Unwin Hyman.
28. Rumsey, A. (1999), Social segmentation, voting and violence in Papua New Guinea, *The Contemporary Pacific*, Vol. 2, No. 2, p. 306. <https://researchers.anu.edu.au/researchers/rumsey-al>. (October 12, 2015).
29. Smith, D., & Vivenkananda, J. (2009),*Climate change, conflict and fragility: understanding the linkages, shaping effective responses*, London.
30. Wehrmann, B., (2008), *Land Conflicts. A practical guide to dealing with land disputes*. Germany: Eschborn.