Appropriate Tenure Model for Sub-Saharan Africa

Augustine MULOLWA, The Netherlands

Key words: Sub-Saharan Africa, Land Tenure, Tenure Unification, Entitlement, Registry.

ABSTRACT

Land privatisation or nationalisation programmes have not had widespread success in sub-Saharan Africa. Although well known, the basic reason for failure, that private and state tenure concepts are foreign to the region, has largely been ignored in the design and implementation of such programmes. Being foreign, they have lacked a firm basis upon which to thrive. In a way, it has been like building on sand. At the same time, it is widely acknowledged that change to customary tenures is inevitable, due to different pressures, such as increasing population and changing ideologies.

The question, therefore, is not whether or not customary tenures should change, but rather how to successfully manage the change process and sustain the changes. To answer this, two rarely raised issues must be addressed. Given the failures, the need for efficient, equitable land markets and sustainable resource use, what is appropriate land tenure in the context of sub-Saharan Africa where multiple tenures persist, and the required structure and content of the supporting land registry? In this paper, it is argued that the alternative tenure model most likely to succeed is one that builds on existing customary tenures, rather than creates separate, multiple tenures or eliminates the customary ones. Tenure unification is proposed as a process for building on existing tenures. A unified, generalised land tenure model is first elaborated. From this model, the required land registry is then derived.

CONTACT

Augustine Mulolwa
Department of Geodesy, Delft University of Technology
Thijsseweg 11
2629 JA Delft
THE NETHERLANDS
Tel. + 31 15 278 2554
Fax + 31 15 278 2745
E-mail: a.mulolwa@geo.tudelft.nl
Web site: http://www.geo.tudelft.nl/gigb

Appropriate Tenure Model for Sub-Saharan Africa

Augustine MULOLWA, The Netherlands

1. INTRODUCTION

Countries in Sub-Saharan Africa (SSA) and indeed in the rest of Africa have at one time or the other embarked on land tenure reforms. The results of these have been somewhat mixed. This paper addresses three questions in this respect. (1) Is customary tenure an obstacle to efficient land market operation, and to equitable and sustainable management of land resources? (2) What tenure is likely to achieve efficiency, equity and sustainability in land resources management? (3) How should the registry (or cadastre) be structured to support such tenure?

To answer the first question, the paper first reviews land tenure and reforms in a few SSA countries. This reveals the reasons for reforms and the resulting tenure. The argument is then made as to whether customary tenure is or is not an obstacle. Given the nature of tenure in SSA and the arguments, the case is then made for an alternative model that can achieve efficiency, equity and sustainable management of land resources. Granted that some form of registration is needed, the registry that is required to support the appropriate tenure model is then derived.

It is important to define some key terms before proceeding. In this paper, SSA refers to east, central and southern African countries. A general, appropriate model is deemed possible in this case because the countries have similar historical and cultural backgrounds (that is, largely Bantu speaking), and customary tenure characteristics. Land tenure refers to the social relations between individuals and groups of individuals in which rights and obligations with respect to control and use of land resources are defined (Birgegård, 1993, Talle, 1990). Unification is the process of building on the existing customary tenure by incorporating selected aspects of statutory (ownership-based) tenure to create a unified tenure system. Entitlement here describes the "bundle of rights" or container, which may comprise one or several rights. The registry (or cadastre) is the documentation system of persons, their rights, land resources and their use.

2. LAND TENURE AND REFORMS

2.1 Botswana

African countries have a pre-colonial, colonial and post-colonial (or post independence) history that has shaped modern day tenure. In Botswana, however, unlike other southern African countries, such as Zimbabwe, Namibia and South Africa, less than 6.3 % of total land was alienated for white settlement.

Three types of land ownership are recognised: tribal, state and freehold. Under Tswana customary law, every tribesman is entitled to the grant of sufficient land for cultivation and

housing to meet a household's subsistence needs in addition to access to communal grazing land and natural surface water sources for both domestic and livestock use (White, 1999). These rights are heritable, but cannot be freely exchanged and may not be sold without the consent of a land authority. With respect to grazing land and natural surface water sources, tribesmen have virtually open access. However, access to arable land, residential land or artificial water sources is exclusive. As of 1998, 71 % of the total land area was tribal land, 25 % state land and 4 % freehold. Tribal land has increased from 48 % in 1966 whilst state has decreased from 47%.

The exercise of rights to residential or arable land and development of artificial water sources is regulated by land boards created under the Tribal Land Act (1968). The Act transferred the role of land authority from traditional chiefs to the land boards, and introduced certificates of customary grant for individual rights to wells, boreholes, arable land and individual plots. The land boards also allocate land by lease under common law for non-customary uses, e.g. shops, fenced ranche, or to non-tribesmen. No fees are payable for the exercise of customary rights under the Tribal Land Act. Only grants made after the Tribal Land Act became effective in 1970 are validated by certificates from the land boards. Those granted prior to 1970 by chiefs are undocumented. After 1993, grants of tribal land could be made to any citizen of Botswana without the consent of the Minister of Local Government, Lands and Housing.

The Tribal Land Act sought to modernise rural land administration and management by providing a written law, reducing public complaints in relation to land allocations by chiefs, and by promoting social and economic development of all citizens (Kalabamu, 2000). However, "neither the Tribal Land Act nor the Tribal Grazing Land Policy achieved its fundamental goals: to make land grants more democratic and accessible for the landless citizens of Botswana. In fact, they have perpetuated the concentration of land holding in the hands of a select few" (Bishop, 1998). The laws have diminished rights of the minority tribes referred to as the San people. Land is still being transferred without the consent of the land boards. In case of urban state land, the laws have lengthened rather than shortened the alienation process for low income earners, and created two-tier system of administration in customary areas with the transfer of land authority to the land boards from the chiefs on which they still depend (Kalabamu, 2000). In addition, there is not one land act in Botswana. Instead, legislation has roughly been divided into that dealing with state and with tribal land (Bishop, 1998).

2.2 Namibia

Management and use of rights over natural resources are devolved to local communities, but ownership is vested in the state. Over communal land, tenure security is absent. The law dealing with communal land was derived from South Africa in the apartheid era. Under colonial administration, magistrates and superintendents controlled the reserves within their districts including making allocations of communal land. Traditional leaders were merely consulted during the process. During this period, 44 % of total land area and 74 % of arable land was owned by 0.2 % of the population (commercial farmers), whilst 60 to 70 % of the

population occupied 43 % of the total land area designated as communal land. The rest of the land was made up of conservation and diamond areas, and state land (Corbett, 1999).
After independence in 1989, most of the indigenous population is still confined to communal land. Government wants to address these injustices through the Agricultural (Commercial) Land Reform Act (1995) and the Communal Land reform Bill (tabled mid-1999). Agricultural land will be equitably distributed to Namibians who formerly were disadvantaged, through sale, lease or customary grant. The Communal Land reform Bill is intended to remove uncertainty over legitimate access, rights to land, and administration of land that has occurred in some communal areas. Due to this uncertainty, rights over communal land have been perceived as second-class rights.

The Bill provides for the vesting of communal land in the state in trust "for the benefit of the traditional communities residing on such land and for … promoting the economic and social development of particularly the poor". All customary rights will continue to be valid until when they have been converted to other forms. Customary grants, leasehold, freehold and state ownership have been accorded equal status before the law. Communal land boards will grant long leases (exceeding 10 years) subject to approval of traditional authorities and Minister of lands. No freehold will be granted on communal land. Customary grants will be inheritable and unlimited in time for residential and subsistence farming, but will not be transferable without the consent of communal land boards. Individuals, including women, families, communities, cooperatives, companies and the state are eligible to own land rights. All recognised rights will be registered with the land boards. For reasons of modernisation, efficiency, and transparency of procedures, the authority to administer communal land has been transferred to the boards from the traditional leaders. However, overseen by the boards, traditional authorities will verify applications, resolve or help the boards to resolve land disputes.

Some concluding remarks on the reforms: The creation of separate institutions to existing traditional structures will extend the alienation process. The envisaged unified tenure system is limited in the sense that it refers only to the equal status of the different rights at law. However, the different rights do not carry the same benefits and conditions, and tenure regarding other land resources (e.g. water, wildlife, etc.) is in different Acts.

2.3 Uganda

In Uganda, 90 % of the population is engaged in agriculture for subsistence and for sale. Most of these rely on customary tenure. Although it sustains multiple goals, customary agriculture is perceived as being too patriarchal to support women's, children's, and disabled persons' rights. Customary tenure is blamed for stifling large-scale investments and exploitation of economies of scale in agriculture. Therefore, the Land Act (1998) was designed to "support agricultural and overall economic development through a functioning land market, which permits those who have rights in land to voluntarily sell their land, and for producers and investors to gain access to the land".

The Act is yet to be implemented due to excessive financial and manpower needs (total cost excluding capital expenditures: ≈ 14 million US$). It recognises customary, leasehold,

freehold and 'mailo' tenure, and an individual, family, community or the state are eligible to own land. ('mailo' refers to land that was granted to the Kabaka and his chiefs in recognition of their collaboration with the colonial powers). The Act invalidates decisions by traditional authorities that violate women's, orphans', and disabled persons' rights, and provides for the granting of a certificate of customary tenure in case of customary land. This is convertible to a leasehold or freehold. Occupants of mailo land who earlier were turned into squatters through the creation of mailos can be granted certificates of occupancy. The holders are required to pay annual ground rent to their landlord (Shs.1000, i.e. 0.70 US$). Resources such as natural lakes, rivers, ponds, ground water, wetlands and forest reserves are held in trust for all Ugandans, and cannot be leased. Only concessions, licences or permits can be issued in respect of them.

The Act provides for the creation of parish land committees, sub-county and district land tribunals, and district land boards. All applications for land are to be considered by the parish land committees. Traditional rulers, however, have a role in hearing and settling disputes over customary land.

A concluding remark over the Uganda tenure system is that it integrates tenure issues of all land resources in a single legislation, the Land Act. However, it envisages the creation of a huge bureaucracy in addition to the existing traditional structures.

2.4 Zambia

In Zambia, two types of tenure are recognised at law: statutory and customary. However, only a statutory tenure right can be registered. This can be a lease for 99, 30 or 14 years, or a 30-year occupancy licence. A 99 year lease requires an approved boundary survey. A 14-year lease is provisional issued mainly in case of customary land. It is renewable and convertible to a 99-year lease with an approved boundary survey. The 30-year lease is issued in case of settlement programmes. The 30-year occupancy is issued in case of upgraded squatter compounds. Unlike the leases, which are issued by the Ministry of Lands, the licence is issued by district councils.

The main statutes regulating administration of land are the Land Act (1995), Land Survey Act (1960), Land and Deeds Registry Act (1914), Common leasehold Act (1994), Housing (Statutory and improvement areas) Act (1975), and Town and Country Planning Act (1962).

About 56 % of the Zambian population rely on customary tenure. However, customary rights, though recognised by law, cannot be registered. Registration is only possible after conversion to leasehold. Chiefs and headmen play mainly a regulatory role, they do not own customary land (Mvunga, 1980). The main modes of acquiring land are through clearing virgin bush, grants from parents and through inheritance. Three types of customary rights are exercised in customary areas. Individual ownership or exclusive rights are exercised over residential and cultivated fields. Concurrent interests or parallel interests apply to the same land, such as in case of collection of wild fruits on a field owned by another person. Communal interests are exercised in respect of tracts of land, which are not individually owned.

There is evidence in some parts of Zambia that investment in durable homes is not hindered by lack of formal title to land. Kanduza (1987) also observed that amongst the Nsenga tribe many people expressed strong confidence in customary ownership. In addition, some studies (PPU, 1989) have indicated that not all shifting cultivation practices lead to soil losses.

Most recent changes to land tenure only apply to the recognition of customary land rights at law and the registration of common leaseholds. Other changes are concerned mainly with making land administration processes more efficient and effective.

3. IS CUSTOMARY TENURE THE OBSTACLE?

3.1 Reasons for and Results of Reforms

Granted that the reasons for reforming tenure are valid, is the method justifiable? The reasons for reforming land tenure in Namibia are to equitably re-distribute land and to remove uncertainty over land rights and administration in communal areas. In Uganda, the main reason has been to encourage large-scale investment in agriculture. Both these countries have followed the approach taken by Botswana; that is, codifying the rules, providing title to customary rights, and establishing parallel structures to existing traditional ones. However, results from Botswana show that this approach has not resulted in a more democratic and equitable granting of land. What this suggests is that establishing new structures instead of improving on what exists may not be the best option. When weaknesses are found in a system, it is not a reason that an existing system should be replaced or undermined. Furthermore, in all the countries referred to above, it is shown that people who rely on customary tenure are in the majority. So how democratic is it to disregard a system on which many people depend in preference to a system, which many do not even well understand?

3.2 Tenure Insecurity

In case of Namibia, the issue of uncertain land rights and administrative authority was given as one of the reasons for tenure reform. It is clear that the power of traditional authorities was undermined when authority was given to magistrates and superintendents, and that over time this led to the breakdown of traditional structures of authority. This in turn affected the legitimacy of the rights awarded by these weakened structures. In Zambia, there is evidence that customary tenure is secure enough to allow for investments in durable homes. In Burkina Faso also, land rights were found to be generally quite stable and secure even in the absence of formal land titles (Ouedraogó et al, 1996). These findings suggest that perceptions of tenure security may be as important to households as legal status. Payne (2001) argues that while perceived security of tenure is a precondition for investment, full titles are not the only means of achieving acceptable levels of it.

3.3 Effect on Efficiency

The assertion that customary rights cannot be freely exchanged, can also apply to the transfer of statutory rights. In Zambia, where statutory tenure is largely based on the English common law, all transfers of land need the consent of the President in whom all land is vested. This

condition was introduced in order to control the prices of land. Botswana, Namibia and Uganda, which have allegedly based their current tenure on customary tenure, have retained this condition in regard to transfers of customary grants, apparently in order to keep the law in line with customary tradition. However, it is argued that though outright alienations were discouraged for reasons of conserving the land resources for future generations, it was not positively forbidden by customary law (Ezigbalike and Benwell, 1997). It is also argued that the economic, social and cultural conditions determine land transfers, including sales. Therefore, it would still not make sense to a farmer who has title to sell the land on which his survival depends if there are no alternative investment opportunities (Birgegård, 1993).

3.4 Effect on Equity

The case of Botswana shows that modernisation has not produced equity in land distribution. The San people, for instance, whose occupation of the land is estimated to range from 1,500 to 30,000 years, have lost their ancestral rights (Bishop, 1998). Other observations collaborating this are that access to land in Botswana does not depend on need but on category or income group of people, and that the benefits accruing to holders of rights depends on the type of rights (Kalabamu, 2000). Customary grants cannot be used as collateral for loans from commercial banks. Kalabamu further comments that land policies and programmes in Botswana are influenced by class struggles between the small landed aristocrat, traditional leadership, grassroots powers and the national leadership. This view is supported by (White, 1999) noting "Current government policy towards the livestock industry and its land tenure needs represent a triumph of hope and greed over expectation and equity. In spite of the lessons …and extensive evidence, the government is again trying to transform a working indigenous system of cattle raising … into ranching on the North American model". "The policy is addressed to the aspirations of a small minority … and completely ignores the needs and aspirations of the great majority who operate small herds"

3.5 Effect on Sustainable Use of Resources

As regards sustainable use of land resources, land privatisation or titling itself does not guarantee sustainable use. It is the attendant instruments, built into the administration, which will insure sustainable use. If such instruments were also built into customary tenure, it is possible that sustainable use will be achieved. The study from Zambia supports that traditional practices does not necessarily imply destruction of resources. In Botswana, the San people because of their dependence on scarce food and water in the Kalahari "rarely remained in one area for an extended period of time. A rotating land use pattern is considered to be the most efficient way to utilise resources in a sustainable way" (Bishop, 1998). In fact, Government take-over of management of communal resources has often resulted into open access, which in turn has led to abuse and over exploitation (Birgegård, 1993).

In summary, the arguments given above should not suggest that customary tenure does not have its weaknesses. In many customary systems, women are accorded inferior rights to men. However, land titling or privatisation in many cases has also failed to improve the position of women in terms of land rights. This does not imply indigenous tenure is an obstacle. Rather it suggests instead that provision of titles alone is not sufficient to achieve improvements in

benefits if other supporting instruments are inadequate or non-existent. In fact, it is argued that where there are serious market imperfections, liberalisation could actually make matters worse and that under such conditions the market itself is the problem to address (Coclough, 1991).

Furthermore, tenure systems, especially customary, are based on a wide range of cultural and historical influences, and sustain a broad range of needs, including social and food security (Payne, 2001; Dujon, 1997). Therefore, in economies where tenure arrangements are structured to meet a variety of objectives, tenure reforms driven by economic efficiency may not be tenable. In addition, if each form of tenure has its advantages and disadvantages (Payne, 2001; Dubois, 1997) the best alternative tenure is one that builds on the existing forms rather than replacing them or creating separate parallel ones.

4. APPROPRIATE TENURE AND REQUIRED REGISTRY

4.1 Unified Tenure Model

In countries where formal and customary tenure co-exist, unification offers the possibility to build on existing customary tenure by incorporating some formal, non-conflicting, tenure strengths. Multiple tenure options keep the systems separate, with no synergistic benefits. In some cases, such arrangements are said to create confusion and tensions resulting in quasi-open access to land and to be one of the main causes of resource depletion (Dubois, 1997). Hence, it is not a preferable mode of building on what exists. Incremental approaches may increase rights or extend customary tenure arrangements. However, they only provide intermediate solutions that are required to mature into final (full) title after some agreed period and upon fulfilment of specified conditions. This arrangement runs the risk that the intermediate status can last forever, if the very obstacles that prompted this solution have not been removed. Furthermore, intermediate approaches lengthen rather then shorten the process leading to full title. The unification process instead, by building on existing tenures aims at providing uniform tenure and final entitlements.

By building on existing customary tenure, unification minimises the risk of severing existing tenure linkages and fosters a tenure that is much closer to indigenous rather than foreign reality. The form of entitlement can change only with the maturation of the entire tenure system. However, individual rights contained in each entitlement can change without affecting the final status of the entitlement. The choice of the word ‘entitlement’ is deliberate, to denote a container or jacket in which title or ownership is but one of several land rights.

Having said the above, here the concern is not with the process of unification but rather with the product of that process: a unified tenure. What is the nature of this unified tenure? First, it should support the aspirations of the people, the beneficiaries. These aspirations have in general been expressed in terms of efficient markets and use of land resources, equitable access to resources and attendant benefits including means to use the resources, and sustainable management of the resources. Second, it should capture the key positive aspects of customary tenure: support for individual rights, concurrent and communal interests; serving of multiple goals (e.g. food and social security); and dynamism.

A possible good starting point in the search for tenure likely to meet the above requirements is the definition of tenure itself. In the introduction, land tenure has been defined as the social relations between individuals and groups of individuals in which rights and obligations with respect to control and use of land resources are defined (Birgegård, 1993, Talle, 1990). Social relations are inherently dynamic, so dynamism is taken care of by the definition. To support individual, concurrent and communal rights, emphasis should shift from ownership of land, to rights to use land resources. Use and resources are also mentioned in the definition. Aspirations are however not catered for in the definition. These do influence the nature of rights to be defined. However, given the experiences that changes in tenure alone are not sufficient to achieve these aspirations, there appears to be a need to include some instruments, some rules, to facilitate this achievement.

Given the above, the definition of tenure can be modified to read as follows:

> Land tenure refers to the social relations between individuals and groups of individuals in which rights and obligations with respect to the control and use of land resources are defined in the pursuit of human aspirations.

From this definition, the following model (Figure 1) is derived consisting of individuals, rights and obligations, land resources and control and use of the resources. The model means the land tenure should define who should hold the rights, what resources they refer to, what uses are allowed, and the sought for aspirations. The rights and obligations set the terms and conditions, which tie the four components together. In terms of grants to individuals or groups, rights are granted as entitlements, where an entitlement may have one or more rights therein defined.

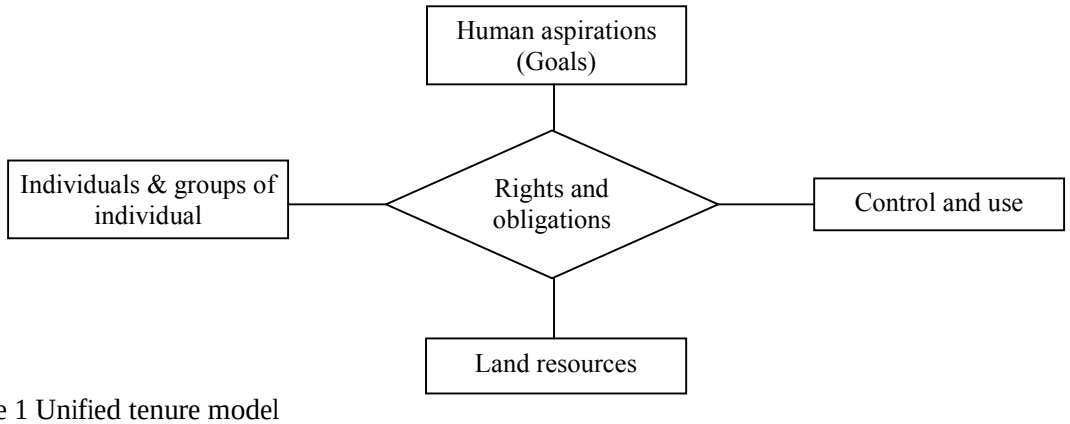

Figure 1 Unified tenure model

4.2 Structure and Content of Registry

The registry is a recording system of rights, use and value of land. If the registry is to support a unified land tenure that is intended to achieve the objectives of efficiency, equity, and environmental sustainability, then its structure and content should reflect these objectives in a way. Conventionally, registries record only ownership, some interests, and parcel information (see e.g. model of required land tenure information in, Nichols, 1993). If rights are secure

and the records can easily be accessible, land rights may be transferred easily, and facilitate its economic use. In addition, efficiency may necessitate that most of the rights are recorded, for if a system has potential to maximise its benefits by utilizing all its resources, it can hardly be said to be efficient if it uses only a small fraction of those resources.

As regards equity, Engle (1988) suggest that fairness in the distribution of resources may depend upon the type of resource, resource constraints of the household, and characteristics or values of the resource allocation. Further, looking at complementary inputs required to obtain rights may shed light on the barriers to equitable access (Meinzen-Dick et al, 1997). However, there may be differences in the understanding of fairness between policy makers and target groups. Therefore, if the resource type and complementary inputs or modes of acquisition are monitored over time as resources are allocated, it may be possible to determine how equitable the allocation was. For this purpose, it would hence be necessary to record in the registry, the resources on a parcel and how the parcel was acquired.

As for sustainability, monitoring resource consumption may be the main reason for recording the resource, how it is used, its quantity and quality. Though parcels are based on land use zones, rarely are land use activities monitored at parcel level. However, many activities take place at this level. Therefore, it appears to be an appropriate spatial unit for monitoring land use activities. Further, land is not just a two-dimensional space, but is a resource with multiple attributes. Viewed as a resource with multiple attributes and hence uses, gives the possibility to assign concurrent or sequential rights to the same piece of land, thus supporting one of the strong attributes of customary tenure- its flexibility in sustaining multiple needs.

Given the above arguments, therefore, the registry should not only record parcel, ownership and limited set of interests, but the majority of property rights including customary and access rights, who holds them and their obligations, and the quality and quantity of the resource. Figure 2 shows in general terms such a model of the registry that can support the objectives stated above.

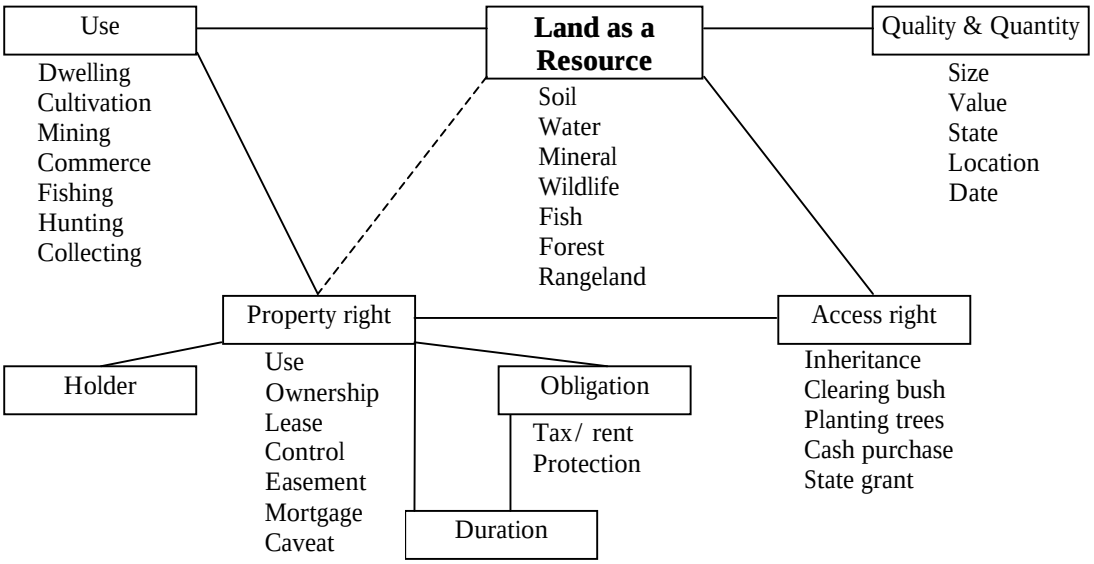

Figure 2 Structure of land registry with examples of information

Land as a resource offers a number of resource types which are accessed via specific access paths, such as inheritance. It is through these paths that property rights are established, never directly. Once the property right is established, then the holder assumes access to certain uses or functions of land. The property right may carry with it certain obligations, such as tax or conservation requirements. A property right (e.g. lease) or obligation (e.g. mortgage) may have a specified duration. Each resource type has a quality and amount, through which benefit streams are realised, and sustainable use can be managed.

5. CONCLUSION

Appropriate tenure should support efficient operation of land markets, equitable access to land resources and the accruing benefits, and sustainable management of the resources. Appropriate tenure does not imply the same rules and practices will apply to every country, but that the general principles will. Efficient operation of the land market is not achievable only through free transfers of land, for there can be several genuine reasons for restricting transfers. Clear specification and documentation of different land rights can help the transfer whether restricted or not, by simplifying the identification of the rights being transferred. Sustainable use is also facilitated if the resources, their use and location are known and documented. In the case of SSA, equity should not be confined to accessibility to land. It should extend to providing instruments that facilitate access to inputs, such as credit, infrastructure, and product markets, that make it possible to realise a stream of benefits for the duration of tenure.

The weaknesses of customary tenure should be seen in the same light as those of private (ownership-based) tenure. Therefore, in the case of SSA, they do not warrant the destruction or neglect of customary tenure. A unified tenure builds on identified strengths of existing customary tenures by incorporating strengths from other foreign tenures. For reasons already provided above, this is a preferred alternative to replacing existing customary tenure with foreign tenure or to allowing multiple parallel tenures. In building this tenure, emphasis should shift from ownership of land, to rights to use land resources. This shift supports the view that customary tenure serves multiple objectives, such as food and social security, and the documentation of land resources, their use and location, facilitates monitoring and therefore sustainable management. The term ‘entitlement’ has been adopted to refer to a container of one or several rights and this supports the view that tenure is a “bundle of rights that people hold to a parcel” (Talle, 1990).

REFERENCES

Birgegård, L.E, 1993, Natural Resource Tenure; a review of issues and experiences with emphasis on Su-Saharan Africa, Rural development studies, No.31, Uppsala, IRDC.2, 9

Bishop, K., 1998, Squatters on their own land: San territoriality in Western Botswana, Proceedings of the International Conference on Land tenure in the developing world, pp.52-80, Cape Town, 27-29 January 1998. 3

Coclough, C. (1991) Structuralism versus market neo-liberlism. In C. Colclough, J. Manor (eds.), States or markets: Neoliberalism and the development policy debate. Oxford, Clarendon Press 8
Corbett, A., 1999, land tenure and water management in Namibia, Conference Land Tenure models for 21st century Africa, The Hague, 8-10 Septemeber 1998 4
Dubois, O., 1997, Rights and wrongs of rights to land and forest resources in sub-Saharan Africa, Forestry and Land use Programme, 34p, London, International Institute for Environment and Development 8
Engle, P.L. (1988) Intrahousehold allocation of resources: Perspectives from psychology. In Intrahoushold Resource Allocation, eds B.L. Rogers and N.P. Schlosswan. United Nations University Press, Tokyo, Japan 11
Ezigbalike, I.C. and G.L. Benwell, 1997, Cadastral reform- at what cultural cost to developing countries?, FIG-OICRF records, entered 1997. 7
Kalabamu, F.T., 2000, Land tenure and management reforms in East and Southern Africa-case of Botswana, Land use policy, 17 (4), pp.305-319, Elsevier Science BV. 3
Kanduza, A.M, 1987, Allocation system of land and its gurdianship under traditional tenure in Zambia, Journal of of Eastern African Research & Development, 17, pp.1-17 6
Meinzen-Dick, R.S. et al (1997) Gender, property rights and natural resources. In World Development, Vol.25 (8), pp. 1303-1315,. Elsevier Scince Ltd. 11
Mvunga, M.P., 1980, The Colonial Foundations of Zambia's Land Tenure System, 47p, Lusaka, NECZAM. 6
Nichols. S. E. (1993) Land registration: managing land information for land administration. Technical Report. No.168 10
Ouedraogó, R.S. et al, (1996) Tenure, agricultural practices and land productivity in Burkina Faso: some recent empirical results. In Land use Policy. vol.13(3), pp. 229 - 232. Elsevier Science Ltd. 7
Payne, G. (2001) Urban land tenure policy options: titles or rights? Habitat International 25 (2001), 415 - 429. 8
PPU, 1989, Environmental effects of agricultural change and development in Northern Zambia, Provincial Planning Unit, Zambia 6
Talle, A., 1990, Land and tree tenure in Babati District, Tanzania: an anthropological persperctive, Working paper 194, Uppsala, IRDC. 2, 9
White, R., 1999, Livestock and land tenure in Botswana, Conference on land tenure models for 21st century Africa, The Hague, 8-10 September 1999.

BIOGRAPHICAL NOTES

Augustine Mulolwa was born in Zambia. Obtained Bachelor of Engineering from the University of Zambia in 1987, MSc in Survey Integration for Natural Resources Development from ITC, The Netherlands, in1991. Has been pursuing PhD studies at the Department of Geodesy, TU Delft, integration of land administration processes and land tenures from 1998. Has two years practical experience in government and private sector. First chairman of the Zambia Association for GIS. Also member of Surveyors Institute of Zambia. Has been teaching GIS and Land Resources Planning at the University of Zambia from 1992. Has undertaken several consultancies in GIS and land surveying, and has made about 14 publications since 1992.