

The White Highlands and the Establishment of the African Settlement Schemes in Kenya

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Summary

In the age of new imperialism, European Nations pursued an aggressive expansion policy that was motivated by economic needs of the industrial revolution. Each European Nation needed to expand its market globally in order to guarantee a ready market for their manufactured goods and a continuous supply of raw materials. Businessmen in Europe had excess capital for investment, and foreign investment offered the incentive for greater profits despite the risks. The need for cheap labour and supply of raw materials such as oil, rubber, and manganese for steel production required that the industrial nations maintain direct control over the unexploited areas. It was also argued that by directly controlling the new market areas meant setting up colonies. Leading European superpowers such as Britain also felt that colonies were vital for military superiority, national security, and nationalism; thus naval vessels were required to maintain military bases for defence and supply of coal and other products. The new colonies also guaranteed safe harbours for the growing European Navies and coaling stations in times of war. Britain in particular needed to occupy Egypt and control the Suez Canal, and by extension the route to the East. The Suez Canal shortened the sea-route to India and the Far East, where several European Nations already had great economic interests.

Between 1870 and 1914, Europe went through the second industrial revolution which quickened the pace of change, as science, technology, and industry spurred unprecedented economic growth. The improvements in steel production revolutionized ship building and transportation. The development of the rail road, the internal combustion engine, and electrical power generation contributed to the industrial economies of Europe and their need to search for avenues for territorial expansion. Because Britain was the first country to industrialize in Europe, it was technologically ahead of many other countries throughout the better part of the 19th Century; and provided more than 25% of the world's output of industrial goods. However, by the end of the 19th Century, other countries such as Germany, the United States, France, Russia and Italy matched Britain in technological capacity and were also able to supply same goods to the British-dominated markets. After the loss of the American thirteen colonies, Britain shifted

its attention to the less vulnerable markets to Asia, the Pacific and Africa.

As competition for goods and resources intensified in Europe, each country turned to Africa and other overseas colonies for natural resources which supported their growing industries as well as potential market for their manufactured goods. The countries started to send scouts to Africa to secure treaties from the indigenous people. King Leopold II of Belgium was already competing for resources in the Congo with the French while the Portuguese were enjoying territories in Angola and parts of Congo since 1491. The Portuguese interest dated back to the time when the early explorers, Bartholomew Diaz and Vasco Da Gama, made diplomatic relations with the African Kings in West and Central Africa regions. Meanwhile, the French and the British were fighting for the control of the Suez Canal and by extension, the rout to the Far East [Ochieng, 1985: 84].

Therefore, in order to check the influence of the Belgians, the Portuguese and the French in the Congo, the British agreed to sign a treaty recognizing Portugal's right to territory around the mouth of river Congo. France and Belgium immediately appealed to Germany to intervene and hence Chancellor Otto Von Bismarck convened the Berlin conference (1884-1885), to resolve the conflicting European interests in Africa and lay down the basic rules for colonization of Africa [<http://en.wikipedia.org/wiki/Berlin-conference>].

1.1 The Colonization of East Africa

The Berlin conference of 1884-5 and the subsequent Berlin Act established the principle that European occupation of African territories had to be based on effective occupation that was recognized by other European states, and that no single European power could claim Africa on its own. The Berlin conference effectively set out general principles for the colonization of Africa by the European superpowers. Under this agreement, Britain occupied Uganda and Kenya and declared protectorates over the two countries in 1894 and 1895 respectively; Uganda became the Uganda Territory while Kenya was named the British East Africa Territory. Under the same agreement, Tanzania became German East Africa Protectorate. Queen Victoria took advantage of the

Berlin Conference¹ and granted a charter to the Bombay-based Imperial British East African Company (IBEACO) in 1888 to operate and administer the East African Territory from the Coast inland, with Sir William Mackinnon as the first administrator.

The main objectives of the IBEACO were to: undertake the administration of the ten-mile coastal strip; acquire territory from the native chiefs in the British sphere of influence by treaty, purchase, or any other means; establish civil and judicial administration in the districts under the Company's rule; and levy taxes, customs, grant licenses, construct roads and public works, coin money, and, exercise all rights pertaining to sovereignty over the acquired districts [Caukwell, 1977]. Within one year, the Company had concluded 21 treaties with Native chiefs in the hinterland.

Apart from negotiating treaties with the local chiefs, the Company also made some land grants; and in 1894, the Company published a set of land regulations (The East African Land Regulations 1894) which provided for country lots for renewable leases not exceeding 21 years. Under this arrangement, grazing leases (20,000 acres), agricultural leases (2000 acres) and homestead leases (100 acres) were granted to the would-be settlers. This effectively interfered with the known customary tenure arrangements, introducing unknown concept of land leasing and limitations of movements and use of land which later formed part of the contentious pre independence land issues. The Company however soon became bankrupt due to lack of physical infrastructure and public administration system.

In 1891, the IBEACO and the Royal Charter and revoked and its property rights (including interests in land) and privileges were handed over to the British Government in return for a parliamentary grant of £250,000 [Were and Wilson, 1968:122]. Kenya was soon thereafter declared a Protectorate on the 15th June 1895 [Sorrenson, 1968:17], although the administration was formally transferred from IBEACO the protectorate authorities on the 30th of June 1895 [Sorrenson, 1968: 17]. The administrative headquarters of the new protectorate was in Zanzibar under the British Consular General, Arthur Henry Hardinge who also doubled-up as the first Governor of the new Protectorate (1895-1900).

Through the protectorate status, the colonial government could deal with land by virtue of concessionary agreements entered into in 1888 between the British and the Sultan of Zanzibar [Okoth-

Ogendo, 1991]. The agreement granted Britain full powers of executive and judicial administration, the right to levy taxes, regulate trade and other works, and the power to deal with all questions affecting land and minerals. Nominally, the Sultans sovereignty was preserved over the coastal strip where he flew his flag; as the British had promised not to interfere with Muslim laws and customs.

In order to have a better administrative control over East Africa and the entire catchments area of the Nile Basin, it was necessary for the British to develop some form of economy in order to encourage fiscal independence of the Protectorate. It was immediately realized that there was a need to provide sufficient infrastructure in order to open up the East African hinterland and control the source of the Nile in Uganda. The government therefore initiated the construction of the Uganda railway from Mombasa to Kisumu (1896 - 1901²) at a total cost of £8 million [Sorrenson, 1968:19].

The construction of the railway line achieved three major milestones: it solved the problem of communication into the hinterland and enhanced the economic viability of the region, it linked Uganda to the Coast and improved the administration of the new territory; and it enhanced the returns of business from the East Africa region and India. In order to develop and safeguard their strategic and economic interests, the British acquired effective control of land in the region by extending Indian Land Acquisition Act into the interior of the country in 1897³ [Okoth-Ogendo, 1991:9]. Furthermore, the British foreign Jurisdiction Act of 1890 and the East African Land Regulation of 1897 were revised and incorporated into one document, the East African (Lands) Order in Council (1899), which gave the British control over unalienated African land. In May 1897 Hardinge, the Governor issued a proclamation reserving for the railway line land one mile on either side of the railway line beyond the coastal strip, subject to any rights that may be proved to his satisfaction [Sorrenson, 1968:25].

This declaration formed the basis for the enactment of the Crown Lands Ordinance (1902) which provided a legal basis for the alienation of indigenous land and

²The Railway was constructed under the management of a committee of experts in London and George White House as the Chief Engineer of the Uganda Railway. He had constructed railways in Mexico, Brazil, South Africa and India.

³ In 1897, the East Africa Land Regulations were issued which recognized private occupation and granted certificates of occupancy for twenty one years. These regulations replaced the earlier Land Regulations published by IBEACO in 1894 [Maini, 1967: 218-219]

¹Berlin conference (1884-1885) was called by Otto Von Bismarck, the First Chancellor of Germany to settle European rivalry in Africa. The outcome of the conference and the subsequent Berlin Act formalized the scramble for Africa.

subsequent settlement of the first batch of the white settlers in Kenya. It was felt at the time that the white settlers would create an agrarian land reform in East Africa and generate enough funds to offset the costs and maintenance of the railway line. Subsequently, the Governor of the Protectorate, using the Land Acquisition Act of India (1894) appropriated all lands situated within one- mile on either side of the Uganda railway for the white settlers. This was the beginning of a massive dispossession of indigenous Kenyans of their land as the demand for land for the construction of the railway line and European settlement took precedence.

1.2 The White Highlands

Charles Elliot (the second Governor of the Protectorate in 1901) and Lord Delamere recruited white settlers from South Africa, Europe, Australia and New Zealand to come and settle in the Kenyan Highlands; and by the end of 1904, 220,000 acres of land had been alienated to the white settlers. The highlands of Kenya had a temperate climate like that of South Africa and provided scope for high veld pastoralism [Sorrenson, 1968: 04]. There were also other parts of the country with a tropical climate, suitable for various tropical raw materials such as; cotton, rubber, cocoa, coffee and sugar cane. Because of its peculiar geography and variation in climate, Kenya seemed to represent a confluence of several streams of colonial development both temperate and tropical.

Among the major beneficiaries were: the East African Syndicate, an offshoot of the Rand Corporation of South Africa (320,000 acres), the Uplands of East Africa Syndicate Limited (350,000 acres), Grogan Forest Concession (200,000 acres), and Lord Delamere (150,000 acres). Between 1905 and 1914, a total of 5 million acres of land had been alienated to the European settlers [Ochieng, 1985:105]. The alienation of the African land to Europeans and subsequent encouragement of the white settlers to settle in the Kenya Highlands created what is referred to as the "White Highlands" [Wangari Gikenye, 1992]. These settlers set up the foundation for the edifice of the White Settler domination in Kenya.

The second phase of the process of alienation of land for the white settler's occurred after the First World War when the colonial government introduced the Soldiers Scheme settlements by inviting Ex-Soldiers into the White Highlands to provide extra security to the White settlers. The returning African Soldiers had discovered the weaknesses of the Europeans during the war and realized that when disarmed of his technology, the white man was just like any other person, hence the need to improve on their security. To accommodate the scheme, the Governor appropriated 12,810 square kilometres of African land [Ochieng, 1985: 113] and 1500 European ex-soldiers were settled in the White Highlands to ensure security for the white settlers, and

by 1919, there were already 9000 European settlers in Kenya [Okoth-Ogendo, 1991:46]. This process of alienation of the African land for the European settlers continued until at independence in 1963, 7.5 Million Acres (3 Million Hectares) of land was under European occupation. This constituted more than 50% of arable land in Kenya [Syagga, 2011].

1.3 Survey and Registration of the White Highlands

All the White Highland parcels were surveyed accurately to cadastral standard and in fact, the Kenya cadaster was established in 1903 specifically to support the survey of the newly alienated plots in the White Highlands. The cadastral surveys were also tied to the National Geodetic Network through triangulation observations. The Kenya triangulation network was in turn tied to the African Geodetic Network (the 30th Arc) through Uganda. The cadastral surveys were checked and authenticated by the Director of Survey to support issuance of deed plans for registration through the Registration of Titles Act, Cap 281 (Now Repealed) of 1919. The RTA was enacted in 1919 but implemented for the first time in 1920 and the White Highlands were the first cases to be registered under the RTA.

Previously, the government had registered the White Highland parcels under the Deeds Registration systems such as the Registration of Documents Act (RDA Cap 285 of 1901), the Crown Lands Ordinance, and awarded 99 year leases or freeholds. In 1915, government repealed the Crown Lands Ordinance and enacted the Government Land Act Cap 280 which authorized the Commissioner of Lands to issue the white settlers with 999 and 9999 year agricultural leases [Okoth-Ogendo, 1991]. The Ex-Soldiers settlers however refused the Deeds registration (i.e. the GLA) on the ground that the surveys were not guaranteed by the government and one had to dig back in time to determine the authenticity of the title and a new registration Act, the Registration of Titles Act (RTA) was enacted to support title registration. The RTA was modeled on the Torrens system of Australia and partly on the English Common Law as spelt out in the Land Registry Act of England of 1862 [Larsson, 2000].

The RTA took over all the previously registered deeds under the GLA, or those parcels which were subject to the certificate of mortgages, or any other interests which may have been issued by the Recorder of title under the LTA and the RDA. It also applied to all leases which had been converted from the term of 99 years since 1902 (or even those of 999 years) to freeholds, and any other title that converted on a voluntary basis from GLA or LTA to RTA. Basically, with the enactment of the RTA, the inheritance of the African communities in Kenya, within the framework of the colonial Law, was complete [Okoth-Ogendo, 1991]. The

enactment of the RTA guaranteed the land title through the application of the *Mirror and Curtain principles*; and there was therefore no need to look elsewhere for the authenticity of the title as all the information about the parcels were contained in the title document. The RTA is now repealed in Kenya but majority of the urban titles in Kenya and in the pockets of the former White Highlands have still retained the RTA titles.

The continued alienation of the African land for European settlement and confinement into special African reserves resulted in land shortage and insufficiency in food supply. This situation soon precipitated a major discontent among the African communities. The colonial government realized that the European settlers would not enjoy any security in their land unless some form of stable property arrangement was provided for the Africans; and it therefore became necessary to raise the juridical status of the African Reserves in order to safe-guard the security of the white settlers. Figure 1.1 shows the extent of the White Highlands in Kenya by 1963.

1.5 Individualization of African Tenure and Creation of the Settlement Schemes

At independence, Kenya had three substantive regimes in property law⁴ governing land of various tenures, five registration systems and an elaborate infrastructure of administrative agencies dealing with land and related issues [GoK, 2002]. The purpose of the infrastructure was to perpetuate a dual system of economic relationships consisting of an export enclave controlled by a small number of European settlers and a subsistence periphery operated by a large number of African peasantry. After the attainment of political independence in 1963, it was expected that the transfer of power from the colonial authorities to the indigenous Kenyans would lead to fundamental restructuring of the dual land policy. This did not materialize and instead, there was a general re-entrenchment of the African ruling elites into the European economy, hence continuation of colonial land policies, laws and administrative structure.

Infact, this scheme had been the main reason for the Sywnerton⁵ plan in 1954, where the colonial

⁴These were the Indian Transfer of Property Act (ITPA) of 1882, the Registered Land Act, Cap 300 of 1963, and the Customary Land Act.

⁵Mr R.J.M Sywnerton proposed a five-year plan to intensify the Development of African Agriculture through land adjudication and issuance of individual title deeds to Africans for the first time.

authorities realized that the most effective protection of the white settlers was the incorporation of the emerging African political elites into the principles of colonial agriculture. The colonial authorities were convinced that once firmly inducted into the white settlers' economy, the African elites would be prepared to defend it after independence.

With that arrangement in place, colonial authorities proceeded to negotiate power transfer arrangement based on the principle that the settler economy would not be dismantled. The final outcome of the negotiation was an independence settlement-plan that provided limited scope for land redistribution by removing racial barriers to land ownership in the settler areas, while at the same time confirming and safeguarding property rights acquired during the colonial period [GoK. 2002: 31]. One major product of the plan was the introduction of the settlement schemes which were designed to take off pressure for land redistribution exerted by the landless and squatters.

The concept of the establishment of the settlement schemes and implementation of individual land tenure in the former native reserves, through the land adjudication, was part of a wider land reform programs that were occasioned by the vagaries of the Second World War in Europe and subsequent American intervention to restore the shattered economy of the European Nations after the War. There was a general feeling that European Nations should move away from their colonies and grant them political independence. At the same time, the new world order required that some form of land reforms be implemented in these decolonized countries in order to spur economic growth promote self-sufficiency in food, and restore the degraded lands.

In order to support the economic recovery of Europe, the USA government launched a massive economic recovery plan to reconstruct the economy of Western European nations and to stop the influence of the Soviet Union into Europe by launching the Marshall Plan in 1947 and provided a capital some \$13 Billion into European economies of. Part of the requirements of the Marshall Plan was decolonization process where former European Nations were expected to grant political independence to their former colonies in different parts of the World. In tandem with the decolonization process was the requirement for land reforms, which required the colonizing European Nations to immediately implement some form of land reforms in their former colonies. India takes credit as the first country to be granted political independence by Britain in 1947. The Marshall plan therefore paved the way for the major land reforms in Kenya including adjudication and the establishment of the settlements schemes in the former White Highland.

Four important interventions were immediately implemented to safe-guard the African land interests and try to salvage the deteriorating relations between the Africans and the white community in Kenya. The first intervention involved programmes designed to decongest the African reserves through settlements on vacant crown land and reconditioning of the degraded land. To implement these programmes, a post-war Development and Reconstruction Authority (DARA) was set up in the middle of 1940s, assisted by an African Land Utilization and Settlement Board (ALUS), later renamed, the African Land Development Board (ALDEV). These programs involved setting up trial settlement schemes at Simba Hills in Coast, Makueni and Giaki Gaitu [Wangari Gikenye, 1992:28]. These programmes did not succeed for the following reasons; the inherent unsuitability of the land ear-marked for resettlement; the coercive manner in which the reconditioning schemes were administered; and general cultural aversion to the dislocation of families, clans and lineages in the process of resettlement [GoK, 2002].

The second intervention involved strategies designed to improve production structures and infrastructure through the provision of limited extension services and new farming techniques. These programmes were known as the “Better Farmer” schemes chosen for their ability to cope with technical demands for production of cash crops on a limited scale. These programmes also failed because no attempts were made to integrate these interventions into the overall colonial economy. The third intervention involved a major land tenure reform in the African Reserves through the process of adjudication and re-settlement of the Africans in the White Highland. The plan sought to individualize titles in the African reserves and thereby create a group of Africans elites who would participate effectively in intensive and large-scale agriculture. The colonial government felt that individualization of title in the reserves would achieve the following objectives; enhance proper decision-making in land use and encourage individual initiative, confer exclusive rights of ownership over parcels of land and thereby remove conflicts, and improve agricultural production through the allocation of large economic units of land. The colonial authorities believed that once the African elites were adequately inducted into the settler economy, they would be prepared to defend the system after independence. The fourth intervention was the decolonization of the White Highlands and creation of the African Settlement Schemes to accommodate landless Africans in the former White Highlands.

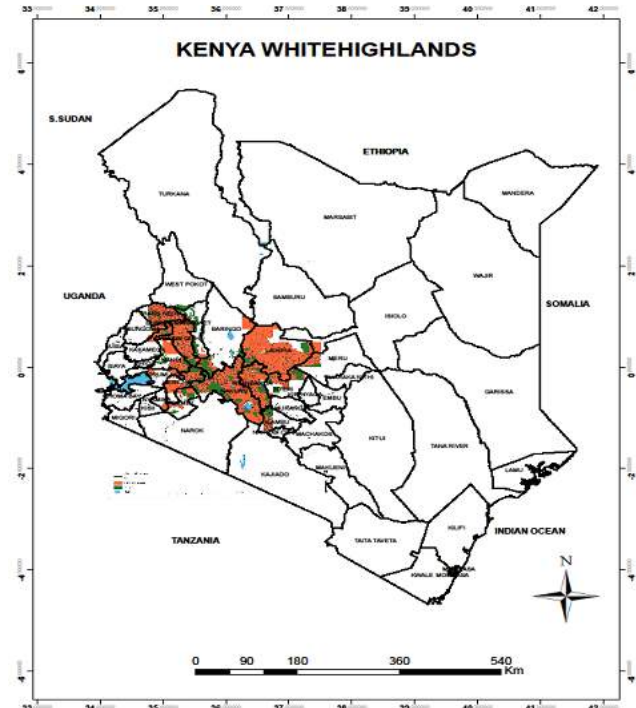


Fig. 1.1 Map Showing the Location of the White Highlands in Kenya (Source: Author 2017)

1.6 Creation of the Settlement Schemes in Kenya

The opening up of the White Highland to Africans took place in 1960 at the First Lancaster House Conference with the enactment of the **Kenya Order in Council** which opened the White Highland to all races, leading to the establishment of the African Settlement Schemes [Harbesson, 1962]. In fact as early as 1906, Lord Elgin (The Foreign Colonial Secretary) had insisted that the White Highland was exclusively for the white people and other races (including Asians) were not allowed to own land in the White Highlands. However, in January 1960, the British Government suddenly and unexpectedly announced that Kenya would move rapidly to political independence under African rule. African and European political leaders were equally surprised and confounded by the decision; and it became necessary that African Political leaders rally African support around the decolonization of the White Highlands [Harbesson, 1962].

The British government however, pre-empted the issue of the White Highlands through the creation of the land re-settlement programmes. Land Re-Settlement was promised by the British in return for the moderate European settler's support of the decision to move Kenya towards political independence. The promise reflected the belief of the Colonial Secretary, Ian Macleod that rapid political change could occur without racial strife only if moderate Europeans helped to achieve interracial understanding and co-operation. With this strategy in place, colonial authorities proceeded to negotiate a power transfer arrangement based on the principle that the settler economy would

not be dismantled or otherwise destabilised. The outcome was an independence settlement plan that provided limited scope for land redistribution by removing racial barriers to land ownership in settler areas; while at the same time confirming and safeguarding property rights acquired during the colonial period [GoK, 2002]. This was the primary rationale for the introduction of several settlement schemes such as; the one Million Acres scheme, Yeoman, and Z schemes of the early 1960s. The effect of introducing the ruling African elites into the settler economy ensured that the machinery of the state would continue to flow towards the settler agricultural economy.

1.6.1 The Yeoman Settlement Scheme

In 1960, a Land Development and Settlement Board (LSDB) were established to devise and administer resettlement schemes for 20,000 families of all races financed by the World Bank. During the years 1961-1965 the Bank also offered credit facilities to 140 assisted land owners and other large-scale farmers to purchase a total of 229 large and medium-scale farms from the Europeans [Syagga, 2011:10]. The first phase of land resettlement enabled 5,000 experienced farmers, who had proved their ability and accumulated some savings, to purchase the farms with the financial aid of the World Bank, the Commonwealth Development Corporation, and the British Government. This so-called 'low-intensity scheme' (or the Yeoman Scheme) was aimed to permit African farmers to earn \$280 per year, after all operating costs and loan repayments. It planned to purchase 240,000 acres in the white Highlands to be subdivided into 100-acre parcels and distributed to a select group of Africans who would farm alongside the whites.

The decision to open up the White Highland to all races at the Lancaster House Conference had a profound effect on the European settlers in Kenya as they believed that with an African government in position, they would lose what they had invested in the land. To calm the nerves of the European settlers, a small settlement project was planned. This project intended to settle selected African farmers and allocate them land among the White Highland farms. This project never took off as independence neared and the needs of the country changed. In 1961, this programme was renamed as Assisted Farmers Scheme and formed part of the independence negotiations as the Million-Acre Settlement Scheme to be funded by the World Bank and the British government and handed over to the incoming Kenyatta government [Syagga, 2011; 10]. A group of people with money joined hands and bought farms which they later subdivided among themselves. SFT granted land loans covering 90% of the sale price which was repayable at the rate of 6.5% interest per annum after the Allottee paid 10%. Where necessary, development loans payable over a period of 10 years at

the same interest were also granted. They were issued with charged titles

1.6.2 The Million Acre Scheme

The Million-Acre Settlement Scheme involved the promotion of a rapid and orderly transfer of ownership of European-owned farms belonging to those settlers who wanted to leave or who otherwise could not stay after independence. The scheme was designed to comprise small- to medium-size holdings covering a total of 1.15 million acres to be sold to individuals who would be facilitated by a loan from the British government to buy out the departing settlers. The transfers were based on a willing-seller/willing-buyer principle, and the loans could only be given to those who qualified to repay or had the financial means to pay on cash basis [Belshaw, 1964]. The schemes were considered schemes of landless, unemployed and under-employed Africans on extensive mixed farming areas; basically the process of partitioning and redistribution. This project took place in the mixed farming areas of the White Highland which occupied approximately 2.5 Million acres out of the total acreage of the entire White Highland (7.5 Million Acres). The original one Million acres planned to purchase 200,000 acres of mixed farming per annum of high density settlement, financed by grants and loans from the British Government; and 30,000 acres per annum for low density settlement, financed by the World Bank and Colonial Development Corporation [Belshaw, 1964].

The size of high density plots varied from 5 Acres in the high potential areas to 100 acres in the grazing areas. Each scheme consisted of approximately 10,000 acres of land accommodating about 500 families; and by the beginning of 1964, 10,000 families had been settled on the former White Highlands. The high density areas aimed to provide subsistence for the peasant families and a cash income of 25 pounds per annum, while the target income from the low density schemes were expected to provide subsistence and cash income of 100 pounds per annum. By the end of 1964, nearly 10,000 families had been settled in the former White Highlands.

The political purpose of this, as one official of the lending agencies put it, was to 'put raisins in the cake'. The program was intended to integrate the Highlands in accordance with the multi-racial thinking of moderate Europeans while serving two important economic purposes: developing previous underdeveloped areas of the 'White Highlands', and restoring a market in land for the benefit of farmers of both races. This program was handed over to the independent Kenya Government as the 'Million-Acre Scheme' and was the last and largest settlement program pioneered by the Land Development and Settlement Board (LSDB) in 1969-70. It involved the promotion of a rapid and orderly transfer of ownership

of European owned farms belonging to those settlers who wanted to leave or who otherwise could not stay after independence. A million acres of high potential agricultural land, concentrated in the highland areas was obtained and transferred to the Africans from the colonial settlers on loan basis from the British government. Farms of hundreds or thousands of acres each were subdivided into plots of a few or at the most few dozen acres each.

Most settlers in this scheme were supposed to be landless and unemployed people, general lacking in land management skills and financial resources; many of them being ex-labourers in European farms. The plots given out were expected to yield net annual income of only 500/=. This was not to be so, when the influential and political connected African were allocated land. In 1962, early stages of planning for the scheme was done its main objective being to preserve undisturbed areas of highly skilled farming which fed the country and produce export surpluses and to relieve pressure on the most overcrowded. It was agreed that one million acres be purchased and resettled at the rate of about 200,000 acres a year or more rapidly if it were possible.

The general intention was to resettle land adjacent to Native Land Units and to leave relatively undisturbed to large areas in order to safeguard continuing production. The centres would be in Kitale and Nakuru. This was the first type of settlement to be launched where wananchi were settled on plots varying from 7-100 acres e.g. Cherangani, Sinyerere, Burnt Forest and South Kinangop. The million acre programme is the basis of the current loan system, though albeit modified from the initial total recovery of the loans advanced. Million Acre scheme was completed in 1971, a total of 1.25million acres had been used in resettlement.

1.6.3 'Z' plots -Approximately 100 acres with a house in it (PI-Permanent Investment)

The genesis of the infiltration of the scheme by the "big fish" arose from an order by President in early 1964 that all colonial farmhouses together with 100 acres surrounding the farmhouses be reserved for "prominent people" alongside poor farmers in the settlement schemes. The idea of farmhouses and the 100 acres, called the "Z plots", was unknown to the British government, which had given loans for the purchase of the farms to be allocated to the landless. In this category of settlement, the homestead area of an ex-European farmer with a standard house was planned to go along with approximately 100 acres around it [Syagga, 2011:11]. Such plots were allocated to applicants who were financially able to oblige with SFT loaning conditions. The aim of the 'Z' plots was that the farms were used as demonstration centres. Z Plots occur within the other settlement schemes since in almost all European farms there was a house in it.

Examples are Olkalau Salient in Nyandarua and Liavo Settlement Scheme in TransNzoia.

1.6.4 Haraka settlement schemes

The Haraka settlement schemes were initiated by the Commissioner of Squatters as a crash programme (as its name depicts) to settle landless squatters towards the end of 1960s. A land board to check management of the white settlers land was established. Most of the farms which were mismanaged were handed over to Settlement Fund Trustees (SFT), which were then given to squatters. Examples of these schemes are Ithanga in Yatta and Kondoo in Uasin Gishu.

1.6.5 The High density schemes

These schemes targeted people of higher income 60-70 pounds per annum. The settlers were generally required to be landless. The net annual income was expected to be up to Ksh1400. During 1962/63 the Board adhered to the rule that those legal farm labourers bought, provided they were of an acceptable region and had four years continuous service should have a priority of selection. Settlers were selected by the then Provincial Administration. The cost of an acre in this schemes was about £7 ½, this low cost was due to the large acreage of semi-ranching land purchased near Machakos for the Akamba Settlement. The cost of land included the cost of permanent improvements and buildings. Their average size 6-10 acres e.g. Ntirimiti settlement scheme in Meru.

1.6.6 Compassionate Schemes

Compassionate farms were farms bought by the government from the Europeans who were unable to run them because of one reason or another e.g. sickness, old age financial difficulties or security risk posed by Africans. These lands were sold to assisted owners. The farms were bought by funds provided by the UK Board of agriculture which was a representation of European farmers through the local Agricultural Committees, which was responsible for the selections of names and the order of priority. The Ministry and Land Development and Settlement Board were responsible for buying the farms listed and by 1963, over 500,000 acres had been purchased for these schemes.

1.6.7 Sugar Settlement Schemes

Sugar Schemes were managed by SFT whereby workers had small farms within. The sugar settlement schemes are found in Nyando where there was cultivation of sugar cane. Here the settlers were allocated 10 acre plots for growing the sugar cane and a 2 acre sub-plot for residential purposes e.g. Muhoroni and God Abuoro settlement scheme in Kisumu County.

1.6.8 Shirika Settlement Schemes

In Shirika programme, the SFT decided to settle the people on group/ co-operative basis as opposed to the

previous mode of individual basis. Shirika programme was started in June, 1971. The Shirika settlement schemes were farms acquired by the government and were converted into large farm management programmes (later referred to as S.F.T. farms or complexes). The farm workers were taken over by the government to continue as employees on these farms. However in order to boost their economic status, the government gave each family 2.5 acres of land within the complexes for subsistence farming. Main farm was run on commercial lines by a competent farm manager.

1.6.9 Squatter Settlement Schemes

Squatters are persons occupying land which they do not own legally and such land may belong to the government or individuals. From the early 1960’s the problem of squatters seem to have been quite virulent especially in Rift valley, part of Eastern and Central and the Coast region. By 1965, the problem of illegal squatting had been brought to the attention of the Central Government necessitating the need to setting up a post of the Special Commissioner of Squatters. This post was set up in 1965 and abolished in 1971 and its role taken over by the Department of Settlement. In 1986, the government initiated another settlement programme whose objective was to identify and regularize squatters on Government land for decades particularly in Coast province. To date the programme is on-going and squatters are regularized on land reserved for this purpose by the Commissioner of Lands.

1.7 Surveying the Settlement Schemes

Surveying of the settlement schemes consisted of the following methodology; land valuation, farm survey, acquisition by the Land Development and Settlement Board (LDSB), plot measurements and provision of conservation services. The areas to be purchased were mapped onto the Survey of Kenya 1:50,000 topo-sheets

which indicated individual farm boundaries and also shown were the Land registration numbers. These data were then redrawn and reduced to the scale of the maps. Plot measurements were carried out by Soil Conservation Surveyors from the Ministry of Agriculture [Opuodho, 1974]. These surveyors were basically Junior Survey Assistants with minimal training in survey measurements. By use of simple survey equipment such as compass and chain. They were able to demarcate the settlement schemes on the ground for tractors to cut out the perimeters for fencing. Once the fences grew and were air-visible, aerial photographs were taken of the settlement schemes to assist in the computation of plot areas and physical planning of the farms for provision of various infrastructure needs. The aerial photos were not ortho-rectified hence the geometric errors of tilt and relief were not corrected. However, considering the level of technology at the time, these methods were quite suitable for the work and hand and could be considered as FIT-FOR-PURPOSE approach.

1.8 Achievements

The main achievements of the decolonization of the White Highlands can be summarized as follows: it provided a massive and mass registration of Africans land for the first time since Kenya became a British Protectorate in 1895; it restored the confidence of Africans by issuing them with a freehold title on land in the former White Highlands and diffused a major political storm that would have engulfed Kenya immediately after independence in 1963; the programme also marked the beginning of the colonial government to create a single market on land; it ended the African dependence on customary tenure system which did not have individual title. The program created elite gentry of African Farmers who practiced modern farming and improved the rural economy through modernized agricultural practices.

Table 1.1: Major Settlement Schemes in Western Kenya December, 1963 (Source: Belshaw, 1964)

Ref. No	Name of Scheme	Area Acquired For Settlement (Acres)	No. of Holdings Occupied	Type of Scheme	Tribe	Major Cash Crop
1	Cherangani	7,600	Nil	High and Low density and grazing	Elgeyo, Pokot and Marakwet	Tea and Maize. Beef Cattle
2	Kabisi	12,400	326	High Density	Maragoli / Bunyore	Maize and Cattle
3	Lugari	15,500	973	High Density	Maragoli / Bunyore	Sisal and Maize
4	Kipkarren	10,800	Nil	High Density	Abaluhya	Maize
5	Ndalat	8,100	402	High Density	Nandi	Dairy and Maize
6	Elgeyo Boarder	8,200	304	High Density	Elgeyo	Cereals and dairy
7	Lessos and Keben	14,900	333	Low Density	Nandi	Dairy, tea and

						maize
8	Ainabkoi East, West and North	16,100	234	Low Density	Elgeyo/Tugen	Pyrethrum, Oars, dairy and wool
9	Kibigori	3000	Nil	High Density	Luo	Maize
10	Muhoroni and Tamu	7,200	Nil	Low Density	Luo	Sugar, maize and milk
11	West Sotil (Lietego, Gelegele, Koye etc.)	19,400	581	Low and High Density	Kipsigis/Kisii	Maize and Cream
12	East Sotik	10,100	398	High Density	Kipsigis	Cream, maize and coffee
13	Sabatia	10,300	187	Low and High Density and Grazing	Tugen	Dairy, beef, pyrethrum and coffee
14	Kilombe	13,200	100	Grazing	Tugen	Beef Cattle

Additional Farms were acquired (outside these schemes at Kaimosi (5,300 acres and 181 families) and in Nandi area (161,000 acres, 87 families) (Source: Be : 1964)

Table 1.2: Major Settlement Schemes in Eastern Kenya, December 1964 (Source: Belshaw, 1964)

Ref. No	Name of Scheme	Area Acquired For Settlement (Acres)	No. of Holdings Occupied	Type of Scheme	Tribe	Major Cash Crop
15	Oikalous	19,800	650	Low and High Density	Kikuyu	Dairy, Wool, Wheat, Pyrethrum
16	Wanjohi, Malewa and Kipipiri area	76,400	2,300	High Density	Kikuyu	Maize, potatoes, dairy
17	South Kinangop and Njabini area	49,400	1750	High Density	Kikuyu	Cattle and sheep, maize and vegetables
18	Ebaru	3,400	Nil	High Density	Maasai	
19	Mweiga / Amboni (5 schemes)	73,000	800	High Density	Kikuyu	Dairy, pyrethrum, and vegetables
20	NaroMoru and Warazo		1,200	High Density	Kikuyu / Embu	Pyrethrum and dairy or wheat and beef
21	Island Farms	3,300	259	High Density	Kikuyu	Pyrethrum and dairy
22	Maragwa Ridge	5,900	237	High Density	Kikuyu	Beans, Onions, dairy and maize
23	Sigona Estates	500	37	Low Density	Kikuyu	Milk and vegetables and eggs
24	Machakos (Mua Hills Komo Rock Lukenya)	12,100 36,400 43,000	288 60 90	High Density High Density High Density	Kamba Kamba Kamba	Cream, Onions and Peas Beef cattle Cream, Onions and Peas

A further 1700 families were settled in the Central Region in the Jet Schemes (Former Forest Reserves) (Source: Belshaw, 1964)

1.9 The challenges facing the settlement schemes in Kenya Increase in Population and Environmental Degradation

Since the settlement schemes were established in early 1960s there have been several changes in the schemes resulting mainly from high population increase, environmental degradation due to the impact of climate change, urbanization, and deterioration of the general boundaries. There is evidence to show that since the establishment of the settlement schemes, there has been tremendous increase in population without any additional land. This means that more people are competing for the same land resources, resulting into several subdivisions to accommodate the increased population. For example, at Lumakanda

settlement scheme 3000 people were originally settled in the area in 1963 while by 1980 the population had increased to 80,000 people [Lukalo and Odari 2016]. In Trans Nzoia County for example, 11000 people were settled originally and currently, the population has increased to one million. The consequence of these increased population and high land subdivisions are leading to uncontrolled land degradation and increase in social crimes. However, despite the efforts by Lukalo and Odari, [2016], there has been no comprehensive study to re-evaluate the performance of the settlement schemes in Kenya since their inception in the early 1960s.

Additionally, the social amenities such as dispensaries, schools, which were provided for the settlements at the

inception, cannot be guaranteed anymore due to the population increase. There is therefore a need for a comprehensive study to re-evaluate the status of the settlement schemes in Kenya with a view to achieving the following objectives; providing information on the current status of the settlement schemes, e.g. the current level of population in the settlements vis a vis the level of food production, the status of subdivision of land and the economic impact on the social status of the inhabitants, document land use and land cover change over time, and the status of the youth and the available land. Most of these challenges can be addressed if the settlement schemes are mapped with modern geospatial technologies in order to achieve fully orthorectified data based on the Arc 1960 datum.

Urbanization and Peri-urbanisms

Due to tremendous increase of population in the settlement schemes, the rate of urbanization has also increased in the areas which were originally established as market centers, and with the increase in urbanization several new developments take place: areas which were previously rural are converted into peri-urban environment and the quality of the general boundaries and the land tenure system become compromised. Available literature on urbanization and the peri-urban [Cotula et al., 2004 and Arko-Adjei] indicate that the peri-urban tenure comes with new challenges to the inhabitants of the schemes. The new peri-urban areas attract complex urban-like environment but with a rural mix which attract heterogeneous building structures, a complex mixture of different land tenure systems without clear boundaries, and a general proliferation of unplanned neighborhoods. Amid this tenure complex, new informal land markets grow, land values and disputes increase. On the other hand, majority of agricultural land are converted to residential land use without proper planning. As a result, the rural farming communities begin to lose their grip on land and are often displaced by new urban elite who can grab land from the poor members in the settlement schemes and have the capacity to influence the land register without the knowledge of the original land owners.

Additionally, urbanization within the settlement schemes promote overlapping and multiple rights consisting of interlocking tenure systems as the land market attempts to adjust to the new demands on the ground, and consequently, a high uncertainty surrounds the titles to land. A number of problems relating to inequality, landlessness and evictions prevail in the newly urbanizing markets. In majority of cases farmers lose confidence in the settlement schemes and abandon the crops that are supposed to sustain the schemes. In Kenya, most of the farms have been abandoned due to thuggery in the schemes, lack of government intervention and corrupt officials in the factories that process the produce. In some instances, the settlers abandon the farms and move back to their

ancestral homes.

The General Boundary Problem

The concept of general boundaries was introduced into Kenya in 1959 by the Native Land Registration Ordinance to support the newly adjudicated land rights in the former Native Reserves. The efficient use of the general boundaries was premised on the fact that the land owners were expected to plant and maintain air visible live hedges. Each land owner was also expected to maintain the general boundary to the satisfaction of the Chief Land Registrar. A Registry Index Map (RIM) was adopted as the registration map [Mwenda, 2001; Njuki, 2001, Wayumba et al., 2018]. Once the hedges had grown to air-visible heights, aerial photos were acquired at a scale of 1:12,500 but later enlarged four times to a scale of 1: 2,500 to facilitate preparation of the Preliminary Index Diagrams (PIDs). The PIDs were the product of a direct tracing of the adjudicated land parcels directly from the un-rectified photoenlargements which served as interim settlement scheme maps which were used to issue quick titles. It was assumed that after a while, these settlement schemes would be re-flown and the resultant aerial photos would be rectified to support production of more accurate cadastral maps that would support preparation of more secure tenure [Adams, 1969]. However, these re-flies were never implemented due to political pressure in Kenya at the time and lack of technical capacity in Nairobi to undertake such high-end technical operations. The only a few rectified aerial photos which were undertaken in central Kenya during the time of land consolidation, were processed in London.

This requirement of rectification was never implemented and the government has continued to use the PIDs for registration of land parcels in the settlement schemes. Consequently, the settlement scheme registers have remained provisional. This situation compromises the quality of the settlement scheme titles and financial institutions are hesitant to accept them as good collateral. This is a major challenge on all the general boundaries in Kenya and the local geospatial experts have persistently advocated for the accurate re-mapping of these general boundaries with rectified aerial photography in order to improve the quality of the titles and provide better tenure security for the farmers. However, due to lack of accurate and fast geospatial technologies, this has not been possible and the general boundary registration system in Kenya has remained basically a FIT-FOR-PURPOSE approach. De Soto [2000] observed that without proper documentation of the land resources in the developing countries, it is not possible to achieve substantial economic growth.

2.0 Strategies for Modernization of the Settlement Schemes

The emergence of modern geospatial technologies such

as the GNSS, the UAV, and Digital Photogrammetry, means that it is now possible to produce fully orthorectified aerial imagery for the settlement schemes at a much faster pace than before. The improvement in computer technology and quick production of digital photogrammetry even on mobile platforms means that it is now possible to improve the quality of the spatial data of the settlement schemes complete with coordinates and attribute data. The National Land Commission (NLC) has recently embarked on the process of digitization of the settlement scheme maps with a view to producing one map of Kenya showing the location of the settlement schemes in Kenya on one map. The process has however not incorporated the integration of high-spatial imagery data in order to provide information on current land use and land cover situation. One way to improve the data is to fly aerial photography with UAV and also provide accurate GNSS coordinates on a standard reference system.

The benefits of providing such accurate spatial data and their attributes can be summarized as follows; it will be possible to determine the current status of land use and land cover situation, assess population increase in the area since the inception of the schemes, measure the areas of the land parcels more accurately and up-date the register with a more accurate data. It will also be possible to; assess the current status of land subdivision in the schemes, re-organize the settlement land records and create spatial geo databases for future reference and better land management, accurately coordinate boundaries and thereby support more objective re-establishment of the general boundaries as opposed to the current methods which depend on subjective litigations which can be easily compromised.

This would be a major achievement for Kenya government in minimization of the myriad boundary disputes which occupy the courts all over the country. In terms of policy, the NLC aims to combine the existing settlement scheme data with geo coding project in order to generate new historical and policy relevant knowledge [Lukalo and Odari, 2018]. This will also promote a more systematic data Record keeping strategy. At the moment, the international community is grappling with the impact of climate change on various sectors of the economy. It would therefore be possible to use the new geospatial data to assess effect of climate change on the settlement schemes, particularly in areas which were previously covered in thick forest but have been deforested recently. The data will also support the assessment of water quality in the area and settlement patterns and the spatial extent to which the schemes have changed. Because settlement schemes contain a high number of Kenya populations, there are important political and social dynamics which need to be analyzed. In the past, it has not been possible to carry out these studies due to lack of current spatial and attribute data. The availability of

the digital mapping would be able to facilitate such research with minimum ground interaction.

1.3.4 Conclusion

As of 1969-1970, farms in Kenya were still clearly split into two categories - Large Farms (those in the former White Highlands) and Small Farms (those in the former African reserves).^[4] In 1970, some 2,690,000 hectares were divided among 3,175 large farms with an average of 847 hectares (more than 2000 acres) each. Meanwhile, in 1969, 2,646,000 hectares were divided among 777,000 small farmers, averaging 3.4 hectares (8.4 acres) each. Looking deeper into the numbers, the median large farm had between 100 and 499 hectares (247 and 1233 acres) in 1970, whereas the median small farm had only one to two hectares (2.5 to 5 acres) in 1969. Combining these numbers, which is not entirely accurate since the statistics are from two different years, one can see that a mere 0.4 percent of farmers (those on the Large Farms) held just over half of Kenya's farmland, while the other 99.6 percent shared the other half among themselves. Were the land shared equally among Kenyan farmers, each would have had an average land size of 6.8 hectares (about 17 acres). Table 1.1 shows the settlement schemes that were established in the Western Region while Table 1.2 shows the settlement schemes that were established in the Eastern Region of the country, basically the central region of Kenya. Currently, there has been no study to evaluate the performance of the settlement schemes since they were established in the 1960s. It is hereby recommended that this kind of study should be undertaken as soon as possible to provide the current status as far as tenure, land use, environmental conservation and population issues are concerned.

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