

Chapter 13:

Access and benefit sharing: beyond the Nagoya Protocol and its ideals

Andrew Muma

1 Introduction

This chapter analyses the utility of the Nagoya Protocol in the conservation and sustainable use of biodiversity resources, both flora and fauna. Sustainable development aims not only to conserve the resources that exist in the environment for the present generation but also generations to come.¹ This has a bearing on food sufficiency, preservation of heritage, intellectual property, climate change and sustainability.² Clear juridical rights of ownership in community-owned areas ensure that resources are not abused.³ This chapter looks at community rights over land and resources on it as a possible tool for enhancing sustainable development.⁴ Sustainable environmental management is important for life on earth.⁵

In this chapter, it is argued that one of the causes of environmental degradation is the crusade for private land ownership which has led to the neglect of values and principles of communitarianism that were geared toward sustainable resource utilisation.⁶ This is premised on the fact that private property ownership is hedonistic and broods an attitude of total disregard for the impacts of current actions on the future.

The Nagoya Protocol restates principles of the past and proposes a bottom-up approach that puts communities at the centre of the ownership of biodiversity. By enhancing the status of communities' tangible rights over the finite resources, it has the potential to eradicate poverty and simultaneously to facilitate the reinvention of value systems needed for effective biodiversity management and that as a check against rapid resource depletion.⁷

1 Fimbel et al. (2005: 33).

2 Okoth Ongendo (2006: 65). Okoth argues that the formal regime ought to ensure that there is security of tenure for the juridical persons entitled to such rights if sustainable development is to be achieved in the larger society.

3 Nyukuri (2017: 266); and Seppälä et al. (2009).

4 Nyukuri (2017: 266).

5 Obare & Wangwe (2004); and Ogolla & Mugabe (1996: 85-86).

6 Ross (2009: 5).

7 Nnadozie (2003: 58).

2 Background

2.1 An ontological perspective on land ownership policies

It is becoming increasingly clear that the subjugation of traditional systems of property ownership occasioned by colonisation is no longer justifiable.⁸ This is because the premise upon which the neglect was founded – the economic efficiency of private ownership of resources – is flawed.⁹ Historical evidence shows that the introduction of private ownership of land and resources in Kenya was a ploy to dispossess indigenous communities and create room for the settler community.¹⁰ Further, before the advent of colonisation, land and allied resources were owned by the community as a unit with different categories of rights granted to clans, families and individuals.¹¹ However, upon declaration of the Kenyan protectorate in 1897, Ordinances were introduced whose effect was to take away ownership of the land from the communities and vest it in the Crown – the equivalent of the state in modern day terms.¹²

Owing to the wrong perception that land and land-related resources could not be efficiently managed using communal/customary tenure, communities directly collided with the introduced ‘formal’ system of ownership.¹³ The western ownership patterns, which had matured through the industrial revolution slowly, replaced the institutions that had been in existence for centuries and had sustained the communities.¹⁴ Propponents of the market believed that only easily transferrable property rights were desirable¹⁵ contrary to emerging literature.¹⁶

With the taking away of land rights, communities became squatters on their own land¹⁷ and their access to flora and fauna was curtailed. They were forced into reserves, which were the only places in which they were allowed to roam.¹⁸ Most forests, which were part and parcel of the traditional life, became state property and were fenced off. This curtailed access to wildlife, fruit, traditional shrines, areas demarcated for traditional rites, medicinal plants. Settlers were allowed access into some of the forests to

8 Kameri Mbote et al. (2013: 37).

9 Nyamu-Musembi (2006).

10 Odote (2017: 119-120). See also *Kalabri v. AG* (1938) 18 KLR.

11 Blackburn (1976).

12 Ghai & McAuslan (1970: 3). See also *Ole Njogo v. A.G of E.A.P.*, (1914), 5 E.A.L.R. 70.

13 Kameri-Mbote et al. (2013: 40), argue that colonial and post-colonial policy was geared towards privatisation of land and customary tenure was neglected and ignored. See further Swynnerton (1995).

14 Kenyatta (1965: 38).

15 Kemboi (2015: 88).

16 Angeles (2011: 2).

17 Okoth Ogendo (1995).

18 Anderson (2000).

clear and commence farming. The colonial government required permits and licenses for hunting and gathering activities.¹⁹

Upon the attainment of independence, the emphasis on private property continued.²⁰ Some of the land taken away was sold back to the natives who could access credit in order to pay for the land.²¹ Ownership of reserves where customary tenure operated was transferred to the county councils to hold as trust land on behalf of these communities.²² It is important to note that before the advent of the wave of land reforms in the global south in the 1990s,²³ the Land (Group Representatives) Act was the only post-independence Act of Parliament in Kenya that recognised some form of community tenure. Nevertheless, Odote has argued that this was not the end, but a means to an end.²⁴ The alleged recognition was to facilitate the conversion of the ranches to private land holdings.

2.2 The history of natural resource management

The displacement of communities is clear from the foregoing discussion. Once the land was taken away, native communities were deprived of their sources of livelihood,²⁵ exacerbating poverty. Mborio et al.²⁶ note, discussing the future of the Khasigau, that upon the forceful taking away of land from the community, poverty struck and is still felt by the Kasighau relative to its neighbours in Taita Taveta County. Community resources in Kenya were taken away from communities for imperialist interests.²⁷

The colonial government set up the Department of Forests to manage forests²⁸ after Kenya became a protectorate. This was done without a policy to guide the delineation of forests and highlight the goals and objectives of setting them aside. The communities living around the forests were, and still are, prevented from accessing the forest areas, and where access is allowed, utilisation is circumscribed to the extent of rendering their proximity to the forests' resources useless.

A policy was crafted in 1957, but by that time the areas gazetted as forests had already been set aside.²⁹ It is therefore likely that the demarcations were not based on

19 Peluso (1993); and Baker (1997).

20 Doyle (2016).

21 Mweseli (2000: 21-22).

22 Okoth-Ogendo (2000).

23 Knight (2010).

24 Odote (2010).

25 Sen (2001).

26 Mborio et al. (2016).

27 Lindholt (2005).

28 Ogada (2012).

29 See <http://www.kenyaforestservice.org/index.php?Option=com_content&view=article&id=406&Itemid=563> (accessed 28-11-2017).

equitable grounds but were meant to protect the interests of the regime. In 1968, another policy was crafted which continued the process of exclusion of communities from direct participation in the management and use of the forest resources. This revision happened at a time when the increasing population had inadequate land to settle on. A few changes were introduced such as the *shamba* system, to allow communities living around the forests to use land gazetted as forest areas for farming, as they also cultivated crops for domestic use. Members of the community remained squatters on land that originally belonged to them. Alarmingly, little has changed even with the Forest Management and Conservation Act No. 36 of 2016 and the Forest Policy of 2007. The depletion of forest cover continues at an alarming rate.

Other resources taken away from communities³⁰ include wildlife and extractives that form the *raison d'être* for the Convention on Biodiversity and its Protocols.³¹ The case studies used by Kameri Mbote et al.³² show that resources such as minerals, pasture and wildlife become the property of the state and their use is controlled by the state.³³ However, in the case of pasture in areas that are predominantly pastoralist, access is not limited. The challenge that arises is that in seasons of scarcity, there is a scramble for pasture on public land. In the case of minerals, exclusion fuels violent clashes and the minerals become a curse disguised as a blessing.³⁴

In the case of genetic resources and the intellectual property of communities, exploitation is never brought to their attention. Furthermore, due to the sophistication with which such activities are conducted, the communities are totally excluded from the benefits that accrue. If such activities were brought to public light, communities could demand their entitlements. For instance, Lake Baringo residents benefitted from the use by a Japanese company of enzymes from the geysers in Lake Bogoria.³⁵

Aquatic resources are also being depleted and degraded. The water hyacinth in Lake Victoria has really affected the ecosystem. The fish population in Lake Victoria is also dwindling, raising poverty levels and diminishing food sources for communities living around the lake. In terms of wildlife resources, continued deforestation has led to increased human-wildlife conflict owing to increased mobility of wildlife due to disturbed habitats. Communities that live near gazetted national parks do not often benefit directly from the revenue that accrues from such parks. It is channelled to national coffers thus making it difficult to convince communities living near the parks to participate in wildlife conservation.

30 Nyamwaya (2013).

31 Convention on Biological Diversity (1992) 31 I.L.M. 842.

32 Kameri-Mbote (2014).

33 See Article 71 of the Constitution of Kenya 2010.

34 Quinn & Conway (2008).

35 Muheembwa (2014).

3 Conceptual framework

3.1 Property rights and the management of biodiversity

3.1.1 Property rights

Property has different meanings to different people. To the layperson, property is a thing represented by physical resources. However, it is a legal concept, economic concept and a social relationship.³⁶ A right is a claim by an individual or institution-holder of a right on another upon whom there is a duty for an act or forbearance; and the failure to perform, entitles the right holder to use coercion to extract compliance or compensation in lieu thereof.³⁷

Property represents a social relationship between the rights holder and persons amongst whom he lives.³⁸ It is a relationship between an individual and the community regarding the use and exploitation of resources, and is dependent on the enforcement mechanisms of the state.³⁹ It is the duty of the law, as the expression of the will of the people, to provide mechanisms to protect property in the interest of all citizens.

A property law system must protect and curtail the right of property holders to ensure an environment in which the rights of other property holders and the public interest are safeguarded. This view of property is very important for the discussion going forward because natural resource use that entails degradation affects the entire society. It is therefore important to emphasise the point that property is not just a commodity over which the owner has absolute rights. Choices on the use and regulation of property go beyond individuals to shaping social relationships generally.

Property is a legal relationship by virtue of a claim backed by law, a bundle of rights and expectations in a tangible or intangible thing that are enforceable against third parties including the government.⁴⁰ These are entitlements to possess, use, exclude, allow others to use, sell, give away, dispose of by will, recover from a thief and receive compensation in case of damage. With the encoding of these presumptions into law and policy, communal rights have been marginalised in Kenya since the official dogma openly supports private individual rights and actively encourages the transformation of community rights into private individual rights.⁴¹ At the centre of all this property discourse is the maxim *cuis est solum eius est usque ad coelum et ad infernos* – he who owns the land owns everything reaching up to the heavens and down the depths of the earth – which underscores the sacrosanct nature of land rights in English common

36 Bentham (1976: 133).

37 Becker (1977).

38 Kameri-Mbote (2007: 75).

39 Akech & Kameri-Mbote (2008: 15).

40 Cohen quoted in Sprankling (1991).

41 Kameri-Mbote et al. (2013: 37).

law.⁴² Its subject matter includes the surface of the soil, the things on the soil enjoyed as part of the land (such as air, water, trees and animals); the things artificially attached to the land like buildings; and things found beneath the surface of the earth. It also includes biological resources.

There are three distinct property rights regimes that affect biodiversity management: individual/private property; communal/common property; and government control.⁴³ At the international level ownership of genetic resources have for a long time been a point of contention between developed and developing countries. A good case in point was the coining of the concept of farmers rights (FRs), a genus of intellectual property rights seeking to balance benefits enjoyed by donors of germplasm and technology versus the interests of farmers who preserve protect and conserve genetic resources and share them with others. Developing countries saw the abrogation of the common heritage of humankind concept as a step towards equity with developed countries in terms of genetic resource and commercialisation, but this has not been the case. Countries like Kenya have since moved to align their laws to regulate access to genetic material whilst neglecting land tenure arrangements, which are key to sustainable development. The result undermines the best interests of citizens.

Property rights are discussed under two headings at the national level: state regulation and market regulation. Both positions assume that human beings cannot use common pool resources in a sustainable manner without state regulation. In instances of state regulation, the state undertakes, through regulatory command and control mechanisms, to elicit behaviour conducive to biodiversity management. Market solutions, on the other hand, rely on personal motivation derived from granting private individual rights with the hope that it will provide incentive enough to right holders to maximise the benefits, thereby promoting sustainability.⁴⁴ The upshot of the foregoing campaign for private property rights in biodiversity conservation, both at the international and national level, is the view that property held in common encourages a rush by all having access to it to appropriate as much of it as possible while it lasts.⁴⁵ Food shortages and environmental degradation have led to disenchantment with command and control approaches to environmental regulation, raising the need to change the narrative. A change would call for an understanding of economics and property rights in addition to embracing relevant property rights regimes that work.

In biodiversity management, both real and intellectual property rights are relevant where real property comprises tangible commodities capable of exclusive possession and delineation.⁴⁶ Land exemplifies this form of property as it hosts an array of species and ecosystems, thus making land tenure arrangements central to biodiversity

42 Blackstone & Blackstone (1809).

43 Miller (1995).

44 Kameri-Mbote (2002: 20-25).

45 Ostrom (2015).

46 Swanson (1995: 118).

management. Land tenure defines the range of persons able to control and manage resources found on that land and the form of land management to apply to it. It also determines who may participate in resource extraction and to what degree.⁴⁷

The value of intellectual property rights (IPRs), on the other hand, results from creating a shortage of information by limiting access to non-owners. IPRs have proven to be a challenge in communal setups as they are premised on the understanding that a creator has invested labour. This concept is akin to private property ownership and does not accommodate community knowledge developed over time and passed from generation to generation; knowledge that cannot be traced to a particular individual and which is available for use by all members of the community.⁴⁸ IPR regimes are, however, slowly warming up to the realisation that communities cannot be wished away and traditional knowledge and indigenous peoples property rights protection are taking centre stage in international debates.

3.1.2 The moral hazard theory

In the context of agency, an agent is seldom more concerned with the affairs of the principal than the principal would be. Therefore, an agent is likely to be less concerned with the long-term performance of the endeavours of the principal as long as the agent's short-term goals are catered for. In the context of corporate governance, a stakeholder other than the owner of an entity will likewise be less concerned with the performance of the affairs of the said entity. This rationalises the effort that is being expended in modern-day toward the creation of governance structure in entities, whether public or private, in order to protect the interests of the real owners of entities and to the factors of production.

Building on the argument above, stakeholders, other than the communities that live next to areas rich in natural resources, may theoretically not be the best institutional entities and/or persons to manage and conserve natural resources. This is because they do not bear first hand, the brunt of the mismanagement of such resources be they forests, aquatic resources, minerals or wildlife.⁴⁹ On this premise, it is therefore proposed to grant more pronounced rights to communities to enhance their chances of better biodiversity management.⁵⁰ Furthermore, the current system of vesting the rights of control, use and access to resources in the state has shown that the said powers are

47 Ochola et al. (2010: 399-406).

48 Mudiwa (2002).

49 Okidi Odidi & Odote (2017: 278).

50 Odote (2010).

prone to abuse.⁵¹ Further, there has been continued depletion of the said resources and increased poverty for the people living around the natural resources.⁵²

3.2 Commons as the institutional arrangement that may alter behavioural challenges

There is ample evidence that the current institutional arrangements fail because of the fallacy that common property regimes are inefficient. This, according to Okoth, was based on a lack of proper understanding of the nature of commons as a legitimate regime governed under customary law.⁵³ As opposed to private systems that are focused on individual advancement and optimal gain, commons are based on the understanding that individuals are interdependent. Therefore, the concept of mutual vulnerability is at the centre of societal development.⁵⁴ This is what other authors view as the requirement for reciprocity in dealings with property owned communally. From the foregoing, it is clear that the approach to property under customary or communal tenure had common interests as the chief goal of institutional arrangements.

On the other hand, under common property regimes, resources on land and in land were considered to be trans-generational assets.⁵⁵ Persons who were alive knew well that they were not exclusively entitled to benefit from the resources but to consider future generations as well.⁵⁶ This shows that under communal systems of ownership, sustainability of resource utilisation was paramount. This explains why communities would demand that once land that had been tilled for some time and had become depleted in terms of mineral richness, the land had to be left fallow for years before tilling would be allowed on it again.⁵⁷ The same applied to wildlife and forest resources, which were used under strict supervision.

Owing to the misunderstanding of the intrinsic nature of the commons, it has been argued by Hardin that due to a lack of restrictions on access, commons face a tragedy.⁵⁸ Musembi⁵⁹ has illustrated that such a theory is fallacious. Moreover, this is squarely because of the confusion of commons with open access. This position has been taken up by Akech who argues that there is a need to revive the commons as an alternative or complementary driving force to ensure sustainable use of not only land but other

51 Government of Kenya (2004).

52 Abwoli (2009: 315-333).

53 Okoth-Ogendo (2002: 7).

54 di Robilant (2011: 1363) discussed in Okoth Ogendo (1995).

55 Okoth Ogendo (1995).

56 Kameri-Mbote (2007).

57 Ibid.

58 Hardin (1968: 1243).

59 Musembi (2007).

resources too.⁶⁰ This position has been properly captured by Bromley and Cernea who have refuted the position that commons are wasteful in the following terms:⁶¹

Resource degradation in developing countries while incorrectly attributed intrinsically to common property systems actually originates in the dissolution of local level institutional arrangements whose purpose was to give rise to resource use patterns that were sustainable.

3.3 Resource management decentralisation as a panacea

Irresponsible human activity is one of the main causes of resource degradation and depletion.⁶² This explains why deforestation singularly accounts for between 12-18% of greenhouse gas emissions. It is noteworthy that globally, there is a push towards recognising community or indigenous rights. This recognition has converged with the growing importance of climate change and environmental degradation. Decentralisation places individual communities at the centre of resource management enabling them to individually and collectively manage the resources.⁶³ This ensures that they benefit from the resources and view them as a trans-generational asset. The results of this decentralisation range from the alteration of human behaviour in respect of resources to the improvement of livelihoods.⁶⁴

The formal recognition of communities as juridical persons in law is a step in the right direction.⁶⁵ For instance, the Northern Rangelands Trust (NRT) was created to allow for proper use of pasture while at the same time conserving wildlife, which is a source of revenue.⁶⁶ Similarly, in Arabuko Sokoke, participatory forest management has been used to allow communities to access the forest resources while at the same time engendering conservation. This has contributed to changing the perception of communities toward natural resources and helped reduce human-wildlife conflict.

3.4 Access and benefit sharing: definition and importance in economic development

Access means obtaining, processing and using genetic resources, including derived products and where applicable, intangible components for purposes of research, bio-prospecting, conservation, industrial application or commercial use. Before the

60 Akech (2001).

61 Bromley & Cernea (1989: 47).

62 Adger et al. (2009).

63 Salick (2007).

64 Mariku et al. (2012).

65 Odote (2010).

66 Kameri Mbote et al. (2013: 54).

Convention on Biological Diversity (CBD)⁶⁷ came into effect in 1992, genetic resources were free to all humankind. They would be collected from countries of origin and taken to other countries without any regulation. This led to countries of origin seeking to share the benefits arising from the use of the resources sourced in their territory. Benefit sharing is a hotly debated topic in law, medical ethics and political philosophy. Its ordinary definition is the action of giving a portion of advantage or profit (monetary and non-monetary benefits) to others. However, for purposes of the international legal discourse, benefit sharing is used to mean giving a portion of advantage/profit derived from the use of genetic resources or related knowledge to resource providers.⁶⁸

Economically, access and benefit sharing (ABS) regimes are important to channel benefits that accrue from the use of genetic material. Namibia, for example, exports the devil's claw, which is used as an analgesic anti-inflammatory drug. Export revenues are estimated at USD 2 million annually, but communities receive no benefit.⁶⁹ Similarly, *Prunus Africana*, used for boosting immunity and the treatment of prostate cancer, generates about USD 220 million annually, yet people who have nurtured it receive no benefit.⁷⁰ Industrial enzymes from microbes used for fading jeans are a trade worth USD 600 million annually, and the communities around Lake Bogoria in Kenya where the enzymes are sourced, do not benefit from the proceeds.⁷¹ Communities living around Lake Ruiru in Kenya are also unaware of, and do not benefit from, the EUR 278 million generated from a diabetes drug processed from microbes sourced from the lake.⁷²

4 Legal and regulatory framework governing natural resource management and conservation

From the foregoing, it is evident that community involvement in natural resource management has become necessary and ABS can facilitate it. ABS has achieved recognition in international treaties and protocols emphasising the need to legislate on ABS nationally. This part of the chapter looks at ABS treaties and the extent to which their provisions have been domesticated in Kenya.

67 Convention on Biological Diversity, 31 *International Legal Materials* opened for signature on 5 June 1992 and entered into force on 29 December 1993.

68 Carrizosa (2004).

69 Government of Namibia (2010).

70 Stewart (2003).

71 Lacey (2006).

72 Munyaradzi (2014: 117).

4.1 International framework for access and benefit-sharing

4.1.1 Convention on Biological Diversity

The CBD is a key instrument in discussions on ABS. It was opened for signature in 1992, entered into force in 1993 and has to date been ratified by 193 parties making it nearly universal. It has three objectives:⁷³

- the conservation of biological diversity;
- the fair and equitable sharing of benefits arising out of the utilisation of genetic resources; and
- the sustainable use of the components of biological diversity.

Fair and equitable sharing of benefits arising from the use of genetic resources is addressed in Articles 15, 16 and 19 of the CBD. Article 15 provides for access to genetic resources on mutually agreed terms and subject to prior informed consent of the contracting party providing such resources. It requires contracting parties to take legislative, administrative and policy measures for fair and equitable sharing of the benefits; results of research and development; and the commercial and other use of genetic resources.

Article 16 focuses on access to, and transfer of, technology and requires contracting parties to undertake to provide both access to and transfer of technologies relevant to the conservation and sustainable use of biological diversity. Additionally, while recognising that patents and other IPRs may have an influence on the implementation of the CBD, it calls on parties to cooperate to ensure that IPRs support and do not run counter to its objectives.

Article 19 specifically addresses biotechnology and its benefits, emphasising the need for all parties to effectively participate in biotechnological research especially in developing countries. It also calls for practical measures to promote and advance priority access on a fair and equitable basis. Notably, it anticipates the need for and exhorts parts to consider a protocol with appropriate ABS procedures.

In a nutshell, the CBD represents a paradigm shift from the concept of common heritage of mankind to the concept of national sovereignty over genetic resources. While it lays a basis for ABS, it has been argued that it concentrates on access for chemical and pharmaceutical purposes and is difficult to apply to plant genetic resources used for food and agriculture.⁷⁴

Implementation of the ABS provisions at the national level has been slow in Africa, owing to: a lack of ‘user measures’; the absence of support for user compliance with ABS legislation in provider countries; and the difficulty in negotiating mutually agreed terms of ABS. According to the multi-donor ABS development capacity building

⁷³ Article 1 of the Convention on Biological Diversity.

⁷⁴ Santilili (2012: 56).

initiative, only six out of 54 African countries had developed ABS legislation by 2011.⁷⁵ While these few countries developed access oriented policies and legislation, the lack of corresponding benefit sharing policies and legislation in industrialised countries resulted in the adoption of the Nagoya Protocol in 2010 at the World Summit on Sustainable Development.⁷⁶

4.1.2 African model law

The African Model Law for the protection of rights of communities, farmers and breeders, and the regulation of access to biological resources, was adopted in 1998 and provisions on plant breeder's rights (PBRs) included in 2001. This is not a law or agreement, but rather an information package for use in drafting national laws. It provides a framework for African Union member states to develop specific national legislation in compliance with their international commitments.⁷⁷ The African Model Law needs revision, but the question is whether it is useful within the context of a detailed international ABS instrument – the Nagoya Protocol.⁷⁸

4.1.3 International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)

The ITPGRFA,⁷⁹ adopted in November 2001 and which entered into force in June 2004, seeks to ensure the conservation and sustainable use of plant genetic resources for food and agriculture and the fair and equitable sharing of benefits arising out of their use, in harmony with the CBD. It only regulates access to plant genetic resources for food and agriculture (PGRFA) while access to other genetic resources is to be negotiated bilaterally in accordance with national ABS policies in the context of the CBD. Under the Treaty, ABS goals are to be achieved through a multilateral system where facilitated access is provided based on a standard material transfer agreement, which establishes benefit sharing obligations when PGRFA are commercialised.

75 GIZ (2011).

76 Paragraph 44 of the plan of implementation of the World Summit on SD A/Conf 199/20 (2002).

77 Munyi et al. (2012).

78 Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity, 29 October 2010, UNEP/CBD/COP/DEC/X/1.

79 International Treaty on Plant Genetic Resources for Food and Agriculture, adopted in November 2001 and which came into force in June 2004 <www.fao.org/3/a-i0510e.pdf> (accessed 30-5-2018).

4.1.4 Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilisation

The Bonn Guidelines⁸⁰ were adopted in April 2002 by the sixth meeting of the Conference of Parties to the CBD. They apply to genetic resources covered by the CBD but not those covered by the ITPGRFA. The Guidelines are voluntary and flexible and were designed to guide countries in developing ABS legislation. They deal with the involvement of relevant stakeholders and capacity building; steps in the ABS process; elements of a prior informed consent system; potential monetary and non-monetary benefits; incentives; national monitoring and reporting; and accountability.⁸¹

4.1.5 Nagoya Protocol on Access to Genetic Resources and Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity (Nagoya Protocol)

This protocol to the CBD, adopted in Japan on 29th October 2010, sets out the rules and mechanisms for access to genetic resources and associated traditional knowledge (TK) and supports the fair and equitable sharing of benefits arising from their use. It draws significantly from the Bonn Guidelines. Articles 5 and 6 of the Protocol require that access to genetic resources by users be based on prior informed consent and that equitable benefit sharing must occur on mutually agreed terms.

4.1.6 Rights of indigenous people and local communities

Recognising that respect for indigenous knowledge, cultures and traditional practices contributes to sustainable development and proper resource management, several covenants and declarations have been signed, including: the Covenant on Intellectual Cultural and Scientific Resources; the Declaration of Principles of the World Council of Indigenous Peoples;⁸² the UN Declaration on the Rights of Indigenous Peoples;⁸³ the Kari-Oca Declaration and the Indigenous Peoples Earth Charter;⁸⁴ the Charter of the

80 Secretariat of the Convention on Biological Diversity, Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization (2002).

81 Carrizosa et al. (2004).

82 World Council of Indigenous Peoples Declaration of Principles (CIRCA1984) adopted by the General Assembly of the WCIP at a gathering at Panama City, Panama (1984).

83 United Nations Declaration on the Rights of Indigenous Peoples, adopted by the General Assembly on 13th September 2007, A/RES/61/295.

84 KARI-OCA Declaration and Indigenous Peoples' Earth Charter, World Conference of Indigenous Peoples on Territory, Environment and Development KARI-OCA 25-30 May 1992.

Indigenous-Tribal Peoples of the Tropical Forests;⁸⁵ the Recommendations from the Voices of the Earth Congress;⁸⁶ the COICA/UNDP Regional Meeting on IPRs and Biodiversity basic points of agreement;⁸⁷ the UNDP Consultation on the Protection and Conservation of Indigenous Knowledge;⁸⁸ and the UNDP Consultation on Indigenous Peoples Knowledge and IPRs.⁸⁹ All these build momentum for communities' rights to participate actively in matters affecting their livelihood, including ABS relating to environmental management and conservation.⁹⁰

4.2 National laws on ABS elements

Kenya signed the CBD in 1992 and ratified it in 1994 and the Nagoya Protocol in 2012. Kenya is also a party to the ITPGRFA. Some ABS elements are contained in some national laws, but their actual implementation is far from perfect.⁹¹ Prior to CBD, there was little or no exchange of knowledge or compensation for access to resources. There is an urgent need to correct this position.

The ABS regime at the national level is fragmented with instances of role duplication, which makes enforcement difficult. Nyamwaya suggests the need for a comprehensive regime recognising the role of communities.⁹² Internationally, the Universal Declaration of Human Rights recognises the rights of people to own property and natural resources, stating:⁹³

Indigenous peoples have the right to redress, by means that can include restitution or, when this is not possible, just, fair and equitable compensation, for the lands, territories and resources which they have traditionally owned or otherwise occupied or used, and which have been confiscated, taken, occupied, used or damaged without their free, prior and informed consent.

Community involvement in natural resource management ought to be embraced, and for this to be successful, it must be looked at both from a land ownership perspective and from the perspective of implementary ABS.

85 Charter of the indigenous and tribal peoples of the tropical forests (IAIP Charter), Penang, Malaysia (1992).

86 Recommendations from the Voices of the Earth Congress, Amsterdam, Netherlands, 10-11 November 1993. Cited in Posey and Dutfield (1996).

87 COICA/UNDP Regional Meeting on Intellectual Property Rights and Biodiversity, Santa Cruz de la Sierra, Bolivia, 28-30 September 1994.

88 UNDP Consultation on the Protection and Conservation of Indigenous Knowledge, Sabah East Malaysia (24-27 February 1995).

89 UNDP Consultation on Indigenous Peoples' Knowledge and Intellectual Property Rights, Suva (April 1995).

90 Posey & Dutfield (1996: 175-179).

91 Joseph (2012).

92 Nyamwaya (2013).

93 Article 28(1) of the Universal Declaration of Human Rights, proclaimed by the United Nations General Assembly in Paris on 10 December 1948 (General Assembly Resolution 217A).

4.2.1 Current legislation and regulations in Kenya

The Constitution of Kenya 2010,⁹⁴ the Land Act⁹⁵ and the Community Land Act⁹⁶ are of relevance here. The Community Land Act recognises, protects and provides for the registration of community land rights, and Sections 35 and 36 provide that natural resources found on community land shall be managed sustainably, with benefits accruing shared equitably subject to a clear agreement entered into between the investor and the community. However, the question is what happens to natural resources on public land held by the government that communities are entitled to? This is the issue graphically discussed in Kasighau in November 2011.⁹⁷

There is no land that is unclaimed. If we were to be told: each one to your positions go! There would be no vacant spaces left that anyone could point to and call 'ours' as everything would be labeled 'mine'. The government land is therefore what we are eyeing when we speak of community land.

On the other hand, natural resource laws include the Constitution of Kenya 2010, the Environmental Management and Coordination Act (EMCA),⁹⁸ the Forest Management and Conservation Act⁹⁹, the Fisheries Management and Development Act,¹⁰⁰ the Water Act,¹⁰¹ the Wildlife Management and Conservation Act,¹⁰² the Mining Act 2016,¹⁰³ and the Petroleum (Exploration and Production) Act.¹⁰⁴ The yet to be passed Natural Resources (County Royalties) Bill (2013)¹⁰⁵ and the Natural Resources (Benefit Sharing) Bill (2014)¹⁰⁶ which have a more direct bearing on sharing revenue from the use of natural resources, are yet to be passed.

Section 53 of EMCA deals with ABS and under it, the Environment Management and Co-ordination (Conservation of Biological Diversity and Resources, Access to

94 The Constitution of Kenya, 27th August 2010 <<http://www.refworld.org/docid/4c8508822.html>> (accessed 25-05-2018).

95 The Republic of Kenya, Laws of Kenya, Land Act No. 6 of 2012.

96 The Republic of Kenya, Laws of Kenya, Community Land Act No. 27 of 2016.

97 Mborio et al. (2016).

98 The Republic of Kenya, Laws of Kenya, Environmental Management and Co-ordination Act No. 8 of 1999. See further: Kenya Gazette Supplement No. 74 Act No. 5 of 3rd June 2015; and the Environmental Management and Co-ordination (Amendment) Act (2015).

99 The Forest Conservation and Management Act, Kenya Gazette Supplement No. 155 (Acts No. 34) of 7th September 2016.

100 The Republic of Kenya, Laws of Kenya, Fisheries Management and Development Act No. 35 of 2016.

101 The Republic of Kenya, Kenya Gazette Supplement No. 164, Water Act No. 43 of 2016.

102 The Republic of Kenya, Laws of Kenya, Wildlife (Conservation and Management) No. 47 of 2013.

103 The Republic of Kenya, Laws of Kenya, Kenya Gazette Supplement No. 71, Mining Act No. 12 of 2016.

104 The Republic of Kenya, Laws of Kenya, Petroleum Exploration and Production Act Chapter 308.

105 Republic of Kenya, Natural Resources (County Royalties) Bill 2013.

106 Republic of Kenya, Kenya Gazette Supplement No. 137 Senate Bills No. 34 of 2014.

Genetic Resources and Benefit Sharing) Regulations Legal Notice No. 160 of 2006 were made. The regulations provide for access at Part III and benefit sharing at Part IV, with implementation placed under National Environmental Management Authority (NEMA). All applications for permits are to be made to NEMA whose requirements include: payment of a fee; prior informed consent; mutually agreed terms; and minutes of meetings and research authorisation from the National Council of Science and Technology (NCST).¹⁰⁷ In the case of wildlife, prior informed consent should be sought from Kenya Wildlife Service (KWS),¹⁰⁸ and from the Kenya Agricultural and Livestock Research Organization (KALRO) in case of agriculture.¹⁰⁹

Complaints about a lack of clarity in the systems, the multiplicity of regulators and a lot of paperwork abound with many seeing compliance with CBD lost as the obligation to pay fees imposed by NEMA takes centre stage. The expectation that communities would benefit has not been realised.¹¹⁰ It is proposed in the draft National Bio-sciences Policy¹¹¹ that a National Biosecurity and Bioscience Research Authorization Committee be established to reduce the red tape. The involvement of the community in crafting access legislation is critical for progress to be made.

Section 5 of the Water Act¹¹² vests water resources in the government in trust for the people of Kenya. It also creates a Water Resources Authority to regulate the management and use of water resources, and grant and enforce permits for water abstraction, use and recharge. A Water Basin Committee has been established, with four to seven members including representatives of farmers/pastoralists. Its function is to advise the authority and county governments on conservation, use and apportionment of water resources, permit issuance and cancellation, equitable water sharing and related issues. There is an attempt at decentralisation in this Act, but ABS mechanisms for communities living around water bodies to motivate them to conserve the resources are absent. Benefits can be derived from bulk water revenues, tourism, water sports, energy generation, large-scale irrigation and aquatic resources. The Wildlife (Conservation and Management) Act¹¹³ also makes no mention of ABS for communities living around the parks, only providing compensation for personal injury or death.

107 NEMA, ABS Brochure, Access and Benefit Sharing from Utilization of Biological Resources and Associated Traditional Knowledge in Kenya (2014). NCST is a semi-autonomous government agency established by the Science and Technology Act Cap 250 Laws of Kenya main role being research clearance and authorisation.

108 KWS is a state corporation established under the Wildlife Conservation and Management Act No. 47 of 2013.

109 KALRO is a corporate body created under the Kenya Agricultural and livestock Research Act of 2013.

110 Brink (2013: 45).

111 Science Technology and Innovation Act, 2013 Laws of Kenya, National Commission for Science, Technology and Innovation (NACOSTI), became the successor of NCST, currently developing the Bioscience Policy 2018.

112 The Republic of Kenya, Laws of Kenya, Water Act No. 43 of 2016.

113 Republic of Kenya, Wildlife Conservation and Management Act, No. 47 of 2013.

The Fisheries Management and Development Act¹¹⁴ creates the Kenya Fisheries Advisory Council and Kenya Fisheries Service (KFS), whose functions are to ensure the development of standards on management, sustainable use, development and protection of the fisheries resources and aquaculture activities. Notably, Sections 35 and 36 of the Act provide for a working relationship between the county government and the KFS pursuant to the Constitution of Kenya 2010, Schedule 4. However, KFS retains a supervisory role over so many functions with the county government taking a back seat. Section 37 of the Act establishes Beach Management Units (BMUs) to ensure structured community participation in fisheries' management. The role of communities in the BMUs is left to future regulations.

The Forest Conservation and Management Act¹¹⁵ establishes the Kenya Forest Service whose function is to conserve, protect and manage all public forests. Section 20 of the Act provides for a forest conservation area and a committee, which includes a community forest association nominee. It is worth noting that Part V of the Act provides for community participation in forest management through Community Forest Associations (CFA) with user rights in forests, which is meant to ensure sustainable forest management. However, it is not clear what their influence is on ABS relating to forest resources.

The Petroleum Exploration and Production Act¹¹⁶ governs exploration of crude oil, natural gas and petroleum within Kenya and the continental shelf. It vests these resources in the government. There is no mention of community or benefit sharing anywhere in the Act even though communities can be occupiers of land with, or contiguous to, resources. The existence of these resources on land removes them from individuals and communities and vests them in the government. For private land, Section 10 provides that access will not be denied where a contractor intends to enter land to carry out petroleum operations. The Mining Act¹¹⁷ also makes no mention of community rights and ABS in the exploitation of the natural resource and all decision approvals, permits licenses and benefits accrue to government through the Ministry, Mineral Rights Board and National Mining Corporation. The Energy Act,¹¹⁸ which regulates electrical energy supply, petroleum and natural gas licensing and permits, renewable energy and energy efficiency and conservation, also has no ABS elements. This is despite the fact that communities live around windmills, hydroelectric power plants and geothermal plants.

The upshot of the above analysis is that CBD and Nagoya provisions on ABS are yet to be realised in Kenya. There is a need to review land ownership and natural

¹¹⁴ Republic of Kenya, Laws of Kenya, Fisheries Management and Development Act, No. 35 of 2016.

¹¹⁵ Republic of Kenya, Laws of Kenya, Forest Conservation and Management Act, No. 34 of 2016.

¹¹⁶ Republic of Kenya, Laws of Kenya, Petroleum Exploration and Production Act, Chapter 308.

¹¹⁷ Republic of Kenya, Laws of Kenya, Mining Act, No. 12 of 2016.

¹¹⁸ Republic of Kenya, Laws of Kenya, Energy Act, No. 12 of 2006.

resource laws to balance entitlements and restore public trust, which demands that we conserve our environment and right glaring wrongs.¹¹⁹ Granting communities entitlements is one way of securing public trust.

5 Beyond the Nagoya Protocol

The government has a key role to play in biodiversity conservation if the current state of laws is anything to go by. The lacuna in law has caused the degradation of Kenya's natural resources, and it is, therefore, time to enhance community participation as a way of reducing government control over natural resources. This can be initiated through pilot projects.

There is also need to reduce the bureaucratic and complex nature of the existing ABS regulatory system. NEMA has already indicated a willingness to streamline procedures by developing templates for prior informed consent, mutually agreed terms and material transfer agreements; and introducing automating licensing. The idea of linking all institutions involved in ABS to create a one-stop shop for prospective users would certainly contribute to decreased complexity and reduced bureaucracy.

Raising awareness about ABS regulations amongst stakeholders is important. It should address issues such as the types of potential benefits, how to access these benefits and negotiation processes. Capacity building to enhance negotiation skills and meetings to align users' and providers' expectations should be convened. Better monitoring of compliance is key to the establishment of structures and the enhancement of expertise. Compliance, monitoring and enforcement should be strengthened in both the user and the provider countries. In addition, to ensure transparency and traceability and to guarantee compliance with the legal requirements in the country of origin, an international certificate of origin has been proposed.¹²⁰ Lastly, there is a need for greater coordination between ministries responsible for ABS in environmental resource sectors and agriculture. These recommendations can be addressed through the introduction of a *sui generis* ABS law, aligning relevant existing laws and anchored on stakeholder and community participation.

References

Abwoli, B (2009) "Emerging local economic dynamics shaping east African forest landscapes" in G Mery, P Katila, G Galloway, RI Alfaro, M Kanninen, M Lobovikov & J Varjo (eds) *Forest and society: responding to global drivers of change* 315-334.

119 Akech & Kameri-Mbote (2008: 15).

120 Wekundah (2012).

Adger, WN, I Lorenzoni & KL O'Brien (2009) *Adapting to climate change: thresholds, values, governance*.

Akech, M (2001) *Rescuing indigenous tenure from the ghetto of neglect*.

Akech, M & P Kameri-Mbote (2008) "Ownership and regulation of land rights in Kenya: balancing entitlements with the public trust" presentation at the Kenya Institute for Public Policy Research and Analysis Conference, Kenyatta International Conference Centre, Nairobi, 31 July 2008.

Anderson, D (2000) "Master and servant in colonial Kenya" 41 *Journal of African History* 459-485.

Angeles, L (2011) *Institutions, property rights, and economic development in historical perspective*, at <https://www.gla.ac.uk/media/media_189284_en.pdf> (accessed 26-11-2017).

Baker, JE (1997) "Trophy hunting as a sustainable use of wildlife resources in southern and eastern Africa" 5(4) *Journal of Sustainable Tourism* 306-321.

Becker, LC (1977) *Property rights. Philosophic foundations*.

Beinart, W (1984) "Soil erosion, conservationism and ideas about development: a southern African exploration, 1900-1960" 11(1) *Journal of Southern African Studies* 143-162.

Bentham, J (1864) *Theory of legislation*.

Blackburn, RH (1976) "Ogiek history" in BA Ogot (ed.) *Kenya before 1900* 53-84.

Blackstone W, E Christian & W Blackstone (1809) *Commentaries on the laws of England: In four books*.

Brink, M (2013) *Implementation of access and benefit sharing policies in sub-Saharan Africa: inventory, analysis and proposals*.

Bromley, D & M Cernea (1989) *The management of common property natural resources: some conceptual and operational fallacies* Discussion Paper No. 57.

Clarke, RA (2009) "Securing communal land rights to achieve sustainable development in sub-Saharan Africa: critical analysis and policy implications" 5(2) *Law, Environment and Development Journal* 130-151.

Doyle, K (2016) "Customary land rights in Kenya in the context of history: from colonialism through independence, from Jomo Kenyatta to Uhuru Kenyatta" in C Odote & P Kameri-Mbote (eds), *Breaking the mould: lessons for implementing community land rights in Kenya* 11-26.

Farbotko, C (2010) "Wishful sinking: disappearing islands, climate refugees and cosmopolitan experimentation" 51(1) *Asia Pacific Viewpoint* 47-60.

Fimbel, C, B Curran & L Usongo (2000) "Enhancing the sustainability of duiker hunting through community participation and controlled access in the Lobéké Region of Southeastern Cameroon" in J Robinson & E Bennett *Hunting for sustainability in tropical forests*, at <<http://cup.columbia.edu/book/hunting-forsustainability-in-tropical-forests/9780231109772>> (accessed 30-5-2018).

Fischer, C (2017) *International experience with benefit-sharing instruments for extractive resources* Paper done for Resources for the Future, World Bank.

Ghai, Y & J McAuslan (1970) *Public law and political change in Kenya: a study of the legal framework of government from colonial times to the present*.

Government of Kenya (2004), *Report of the Commission of Inquiry into illegal/irregular allocation of public land* (Ndung'u Commission Report).

Hardin, G (1968) "The tragedy of the commons" 162 *Science* 1243-1248.

Joseph, W (2012) *Why informal sector is important in food security* African Technology Policy Studies Network Special Paper Series No. 43.

Kameri-Mbote, P (2002) *Property rights and biodiversity management in Kenya: the case of land tenure and wildlife*.

Kameri-Mbote, P (2007) "Land tenure, land use and sustainability in Kenya: towards an innovative use of property rights in wildlife management" in N Chalifour, P Kameri-Mbote, L Heng Lye & JR Nolin (eds) *Land use for sustainable development* 132-160.

Kameri-Mbote, P (2014) "Community land rights: what exactly is at stake?" *The Star* (17-10-2014).

Kameri-Mbote, P & C Odote (eds) (2017) *The gallant academic: essays in honour of H.W.O Okoth Ogendo*.

Kameri-Mbote, P, C Odote, C Musembi & M Kamande (2013) *Ours by right: law, politics and realities of community property in Kenya*.

Kemboi, A (2015) *Resolution of community land disputes and the new constitutional order: a quest for the utilization of traditional justice systems* LLB Dissertation University of Nairobi.

Kenyatta, J (1965) *Facing Mount Kenya: the traditional life of the Gikuyu*.

Knight, SR (2010) *Statutory recognition of land rights in Africa: an investigation into best practices for law making and implementation*.

Lindholt, L (2005) *Human rights in development yearbook 2003: human rights and local/living law*.

Mariku P, M Caleb & O Callistus (2012) "Is participatory forest management an asset or liability to the local community households adjacent to Arabuko Sokoke Forest, Kenya?" 4(3) *Journal of African Studies and Development* 112-129.

Mborio, M, C Nyamu-Musembi, M Mwasaru & M Mwandigha (2016) "Kasighau: will constitutional recognition of community land reverse a history of extraction & marginalization?" in C Odote & P Kameri-Mbote (eds) *Breaking the mould: lessons for implementing community land rights in Kenya* 27-46.

Miller, MAL (1995) *The Third World in global environmental politics*.

Muheembwa, H (2014) "Kenyan community benefits from its genetic resources" *Intellectual Property Watch* (17-11-2014).

Munyi, P, M Tonye Mahop, P du Plessis, J Ekper & K Bavikatte (2012) *A gap analysis on the African model law on the protection of the rights of local communities, farmers and breeders, and for the regulation of access to biological resources*.

Musembi, CN (2007) "De Soto and land relations in rural Africa: breathing life into dead theories about property rights" 28(8) *3rd World Quarterly* 1457-1478.

Mweseli, T (2000) "The centrality of land in Kenya: historical background and legal perspective" in S Wanjala, *Essays on land law: the reform debate in Kenya* 3-24.

Nnadozie, K (2003) *African perspectives on genetic resources: a handbook on laws, policies, and institutions*.

Nyamu-Musembi, C (2006) *Breathing life into dead theories about property rights: de Soto and land relations in rural Africa* Institute of Development Studies Working Paper No. 272.

Nyamwaya, C (2013) *Benefits sharing on extractive natural resources with society in Kenya*.

Nyukuri, E, (2017) "Land tenure and use among indigenous communities in Kenya: trade off with mitigation strategies" in P Kameri-Mbote & C Odote (eds) *The gallant academic: essays in honour of H.W.O Okoth Ogendo* 265-276.

Obare, L & JB Wangwe (2004) *Underlying causes of deforestation and forest degradation in Kenya*, at <<http://www.wrm.org.uydeforestation/Africa/Kenya/html>> (accessed 29-11-2017).

Ochola, WO, PC Sanginga & I Bekalo (2010) *Managing Natural Resources for Development in Africa: A Resource Book*.

Odote, C (2010) "Retracing our ecological footsteps: customary foundations for sustainable development and implications for higher education in Kenya" Paper prepared for the annual Strathmore

Law School Conference on Sustainable Development <<http://www.strathmore.edu/ethics/pdf/collins-sustainable-devt.pdf>> (on file with the author).

Odote, C (2010) *The legal and regulatory framework regulating community land tenure in Kenya: an appraisal.*

Odote, C (2014) "Benefit sharing in the extractive industry: which benefits? who shares? comparative analysis and lessons for Kenya" Presentation at the Law Society of Kenya Annual Conference 13-17 August 2014, at <<http://kenyalaw.org/kenyalawblog/benefit-sharing-in-the-extractive-industry-comparative-analysis-and-lessons-for-kenya/>> (accessed 20-12-2018).

Odote, C (2017) "The conundrum of institutional arrangements to govern community land in Kenya" in P Kameri-Mbote & C Odote C (eds) *The gallant academic: essays in honour of H.W.O Okoth Ogendo* 119-147.

Odote, C & P Kameri-Mbote (eds) (2016) *Breaking the mould, lessons for implementing community land rights in Kenya.*

Ogada, M (2012) *Forest management decentralization in Kenya: effects on household farm forestry decisions in Kakamega* Paper prepared for presentation at the International Association of Agricultural Economists (IAAE) Triennial Conference, Foz do Iguacu, Brazil, 18-24 August, (2012) (on file with author).

Ogolla, BD & J Mugabe (1996) "Land tenure and natural resource management" in C Juma & JB Ojwang *In land we trust: environment, private property and constitutional change* 85-116.

Okidi Odidi, C & C Odote (2017) "Developments in environmental governance in Kenya: experiences using the Owino-Uhuru case" in P Kameri-Mbote & C Odote (eds) *the gallant academic: essays in honour of H.W.O. Okoth Ogendo* 277-295.

Okidi, CO, P Kameri-Mbote & JM Akech (2008) *Environmental governance in Kenya: implementing the framework law.*

Okoth Ogendo, HWO (1995) *Tenants of the Crown: evolution of agrarian law and institutions in Kenya.*

Okoth Ogendo, HWO (2000) "Tragic african commons: a century of expropriation, suppression and subversion" in *Amplifying Local Voices for Environmental Justice: Proceedings of the African Public Interests Law and Community Based Property Rights Workshop.*

Okoth Ogendo, HWO (2007) "Climate change adaptation and mitigation: exploring the role of land reforms in Africa" in N Chalifour, P Kameri-Mbote, L Heng Lye & JR Nolin (eds) *Land use for sustainable development* 60-70.

Ostrom, E (2015) *Governing the commons: the evolution of institutions for collective action.*

Peluso, NL (1993) "Coercing conservation? The politics of state resource control" 3(2) *Global Environmental Change* 199-217.

Posey, DA & G Dutfield (1996) *Beyond intellectual property: toward traditional resource rights for indigenous peoples and local communities.*

Robilant, A di (2011) "The virtues of common ownership" 91 *Boston University Law Review* 1359-1374.

Quinn, J & R Conway (2008) "The Mineral resource curse in Africa: what role does majority state ownership play?" Paper prepared for The Center for the Study of African Economies (CSAE) Conference 16-18 March, Oxford University.

Salick, J (2007) *Indigenous peoples and climate change.*

Santilili, J (2012) *Agrobiodiversity and the law: regulating genetic resources, food security and cultural diversity.*

Sedjo, RA & RD Simpson (1995) "Property rights, externalities and biodiversity" in TM Swanson (ed.) *The economics and ecology of biodiversity decline: the forces driving global change*.

Sen, A (1999) *Development as freedom*.

Sen, A (1999) *Reason before identity: the Romanes Lecture for 1998* delivered before the University of Oxford on 17 November 1998.

Seppälä, R, A Buck & P Katila (2009) *Adaptation of forests and people to climate change: a global assessment report*.

Sprankling, JG (1991) *Understanding property law*.

Swynnerton, RJM (1955) *The Swynnerton Report: a plan to intensify the development of African agriculture in Kenya*.

Wekundah, JM (2012) *Why protect traditional knowledge?*, at <<https://www.africaportal.org/publications/why-protect-traditional-knowledge/>> (acceseed 20-7-2018).