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Forest and Forestry in Tanzania: Changes and Continuities in Policies and Practices From Colonial Times to the Present

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Abstract

The forest sector has a very important role to play in Tanzania's economy. Although, in absolute terms, their contribution to total gross domestic product (GDP) is relatively low, the country's forests contain such a high level of resources that make Tanzania one of the richest and most bio-diverse countries. Due to such importance, forestry has variably featured in Tanzanian policies from colonial time to the present. This paper, therefore, examines such policies relating to forests and forestry in Tanzania from the colonial to recent times. It argues that, although there has been a change in the approach from a preservationist approach in the colonial and postcolonial period towards a managerial/win-win approach in the current forest conservation, there is a resurgence of the preservationist tendency in the focus on managing forest solely to increase carbon stocks. Drawing evidences from various existing policy documents and other literature, this paper concludes that forestry policies have been, and continue to reveal a notable protectionist and reservationist propensity while also expecting revenues from them through various forest products. These policies, to a greater extent, have throughout resulted into conflicts between both colonial and post-colonial states and local population who demands free access to the forest resources for their survival.

Keywords: *forest, management, conservation policy, environment*.

1. Introduction

As significant features of socio-environmental landscape, forests in Tanzania have been important to the country's history. Hurst (2003), FAO (2000), and Rodgers et al. (1985) point out that, while historical data on forest cover is notoriously unreliable, periodic estimates have put forest cover at different places (34% to 48%) of mainland Tanzania land area in the post-colonial period. Of this forested land, approximately 90% is *miombo* woodland. The

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remaining portion consists of coastal and delta mangroves, and the closed forests of the highlands in Arusha region, the Eastern Arc Mountain chain and the Southern Plateau. Approximately 37% of the forested land is classed as forest reserve, controlled and managed by the state Forestry and Beekeeping Division (Hurst, 2003: 358-59). The remaining forests, found outside the reserve network, lie on village and general land. While most of these unreserved forests are poorly managed, traditional and customary management practices have supported the conservation and maintenance of forest cover for sacred, religious or social purposes in numerous localities across the country (Blomley & Iddi, 2009: 7).

Because of such importance, forest resources of Tanzania are the focus of much attention from various directions. Peasants, city dwellers, foresters, state officials, NGOs, private firms, foreign national development organisations, researchers, the media and the general public seem to be concerned about the development of forest resource management. Forest management has been an activity of national government and its various agencies established through constitutions and regulations. Primarily, the administrative and political lead of these activities has throughout been based on economic, scientific and planning criteria (Haruyama & Toko, 2005: 586). The management and utilisation of forest resources have been reflected in various policies that have been put in place at various periods in the history of Tanzania from the colonial to post-colonial times.

Like all other economic sectors, the Tanzania forest sector has been influenced by policies and the implementation of those policies by various stakeholders. Therefore, forest policies in Tanzania have undergone a broad transformation based on the recognition of the growing variety of goods and services provided by forests and trees at the local, national and global levels. Forests are increasingly no longer seen as just wood production or extraction plots, but are valued for non-wood forest products and a range of environmental and social services: for example, biodiversity conservation, carbon storage and appropriation, soil and water conservation, provision of employment and recreational opportunities, and protection of natural and cultural heritage. This transformation has affected the institutional and organisational landscape in which forests are managed and utilised, with public forestry institutions expected to pursue an increasing multiplicity of objectives.

The multiple values of forests to different sections of people have led to the preservationist and the win-win discourse. The preservationist discourse sees human-environmental conflicts from a bio-centric viewpoint, where humans have no place in wildernesses (Svarstad et al., 2008: 119-122). On this viewpoint, the solution is fortress conservation to conserve biotopes,

species and landscapes. While the preservationist discourse is characterised by bio-centrism and emphasis on the negative anthropogenic impacts on nature, the win-win discourse gets its name for proposing solutions to environmental management in developing countries that leave both the environment and the rural poor as winners (ibid., 119-120).

Although there has been a change in the approach from a preservationist in the colonial and post-colonial period towards a managerial/win-win approach in current forest conservation, in practice, there is continuity in preservationist tendency in its focus on managing forest solely to increase carbon stocks. This is particularly true when we consider the current international call for reducing emissions from deforestation and forest degradation in developing countries (REDD+), and the emphasis on the role of conservation, sustainable management of forests and enhancement of forest carbon stocks. These changes and continuities can better be noticed when we bring a historical perspective to trace the policies and practices relating to forest and forestry all the way from the colonial to recent periods.

2. Early Conservation Efforts (Germany Rule)

Mainland Tanzania (the then Tanganyika) was officially declared German colonial territory in 1891. The initial years of German presence were turbulent since the pacification of indigenous resistance held top priority (Voss, n.d: 17). The early forest history of Germans in Tanzania, therefore, seems to be little known. This phenomenon is probably because the literature is mostly in German, or documents are widely dispersed and often difficult to locate and obtain (Schabel, 1990: 130).

During this early time, issues of forestry were dealt with by administrators who also happened to have education on forestry. The Germans arrived in Tanzania with a vision of scientific forestry derived from European templates of forest management that was premised on the creation of forest reserves that emptied human settlement (Sunseri, 2005: 365). It was unfortunate that the Germans found a landscape and human environment that was not agreeable to establish practices of rotational forestry. In particular, a general labour dearth and resistance from Tanzania peasants and labour migrants forced German foresters to compromise their forestry blueprint (ibid).

Almost immediately after effective German control of East Africa began, the colonial state enacted laws circumscribing peasant access to forests and the use of their products. This steady expansion of state control over forest use began with DOAG (German East Africa) Concession Company's effort to grab the coastal trade in forest product after 1885 (Sunseri, 2003: 432-33). In 1892, Eugen Kruger became the first professional forester to set foot in what is now

mainland Tanzania. In conjunction with his supervisor, Dr. Franz Stuhlmann, he provided the impetus for the gradual development of forestry in the territory (Schabel, 1990: 130). In 1898, von Bruch-hausen, who had explored the Rufiji Delta, recommended a government ordinance to terminate unregulated exploitation of local mangrove forests (ibid: 131). This suggestion implied a demand for sustainable exploitation of forest recourses.

This first effort to introduce forest management was also reinforced by the first international agreement of 1900 in which Africa was put in focus on matters of environment. In the agreement, the European colonial powers agreed on the intent to protect African wildlife from extinction[1] (Jensen, 2009: 1). In line with the agreement, the Germans developed a scientific forestry in the eighteenth century, the time when officials worried that their forests were being fast depleted, threatening the industrial development of German states (Sunseri, 2003: 436). The scientific model was transferred to Tanzanian forestry, as the Crown Land Ordinance from 1895 empowered the colonial state to create forest reserves. The ideal forest, according to the German model, was one of uniform tree species and size that could be quantified and harvested in set rotations to meet fiscal and industrial needs. The ability to create forest reserves not only provided the Germans with means to extract resources, but it also provided them with a mechanism to control people, especially those who did not easily submit to its economic ventures (ibid. 432). Traditional African forest use, in the German colonial mind, was responsible for the scarcity of forests in the colony (ibid., 437). Indeed, during the German colonial regime, there existed a preservationist approach to forest management. Africans were considered to be a clear threat to forests, and legislation was issued accordingly.

In this regard, Juhan Koponen describes German management of forest resources as "...a mixture of keen ecological interest and gross environmental neglect, high technical competence and a lack of elementary cultural understanding" (Koponen, 1994: 530). Germans attributed deforestation to indigenous practices deemed as *Raubbau* (implying careless and detrimental resource use) (Voss, n.d.: 18). The era of intensive German forest reservation began in 1903, the time when East Africa was perceived to be in state of crisis (Sunseri, 2003: 383). Consequently, a forest conservation ordinance was issued in 1904, and the reservation of forest areas began (Voss, *op. cit.*). The ordinance aimed to declare, as much reserved forest land as possible, to be state property. Gotzen wrote that:

[1] The colonial powers were increasingly concerned about the preservation of flora and fauna because they wanted adequate stocks of game species for their own hunting parties

> I consider the retention of the forests, as well as the founding of new forests stands in the demanded parts of the colony to be not only the foremost, but also the most urgent task of the government (quoted in Sunseri, 2003: 383).

Although Koponen made reservation initiatives sound as merely an effort to abuse local people, Schabel argues that many reserves were gazetted in watershed areas from the point of view that they would be crucial to the fertility of the land and, thus, the livelihood of people in the future (Schabel, 1990: 133). However, it remains pertinent to argue that reservations were undertaken with regard to exploitation in the future. It is obviously expected that these restrictions of colonial policy combined with rapid population growth that had begun to upset local communities' relationships with their environments. The restrictions on forest use resulted in 'bad blood' among the locals and, occasionally, in behaviour described as 'deplorable indolence' or 'passive resistance' by foresters (Schabel, 1990: 131). Supporting peasants' resistances in Sothern Tanzania, Sunseri says that "... the colonial control of forests would elicit resistance that should not be surprising given the multifaceted uses, cultural and economic, that forests held for south-eastern Tanzanians" (Sunseri, 2003: 433). In spite of the fact that the control was not always efficient in practice, an important aspect of the German policies was that they introduced new discursive and physical boundaries between the diverse elements of landscape, including forests reserved for production and conservation and public land (Conte, 1996: 109).

3. Forest Management during British Rule

After the First World War, the British came to rule Tanganyika, the current mainland Tanzania, under the League of Nations mandate. Concerning natural resources management, the mandate agreement stated that, "...in framing the laws relating to the holding or transfer of land and natural resources, the administrating authority should take into consideration native laws and customs, and respect the rights of the native population" (Neumann, 1997: 48). Bound by the mandate and with comparatively limited economic interest in the new Tanganyika territory, the British chose an inexpensive administrative system of indirect rule, with native authorities carrying out local administration.

However, the British followed the German forestry policy in terms of adhering to the idea that the ultimate ownership of the forests was held by the government. Almost all forest lands, whether occupied or unoccupied, were declared public land or Crown land. In addition, forest policies had direct and indirect impacts on resource control and access. The exclusive discourse and practices of control that started under the German rule were intensified during the British rule (Conte, 1996). The forest reservation and

strict regulation of access to protected forests, and certain valuable tree species, were again justified in terms of both conservationist ideas and economic interests.

By 1925, there were a total of 212 forest reserves covering 3,707 square miles (Neuman, 1998: 50). In 1953, a forest policy was adopted emphasising the need to protect forest resources and managing them in the most productive way (Maddox et al., 1996). Neumann (2002) calls the period after the Second World War *"the Conservation Boom in British Colonial Africa,"* as the period is characterised by a push for forest reserves without human settlements (ibid. 22). Besides forest reserves, large areas of woodlands and grassland were now laid out as game reserves and national parks intended to protect the African fauna for purposes of tourism, hunting and scientific study. The establishment of the National Parks Ordinance of 1959 can be seen as a final move in a process towards a rigid form of conservation that had been going on since the end of the Second World War. The forest laws became increasingly hostile to Tanzanians living inside the reserves, and it culminated into the British re-gazetting the Serengeti National Park in 1959, and resettling the Maasai outside the park (Nelson et al., 2007: 237).

The British limited access to natural resources to the indigenous people. They launched a policy that allowed the 'natives' to get forest resources only to fulfil their household needs (Neumann, 1998: 5). This illustrates the continuation of the fortress conservation discourse, and related practices of enforcement and exclusion in forest control. However, the strict regulations were not accepted without resentment by the local population. Forest reserve boundaries were sometimes challenged by herders and farmers. These contestations show clearly that the indigenous people were against forest reserve practices that denied them access to forest resources which were so important for their social and economical lives.

Unlike the German period, during the British rule effort was also made to decentralise the control in specific areas. A new decentralised institution — called Native Authority Forest Reserves — was established in the early 1930s. The institution not only served the policy of indirect rule, but also served to eliminate free issue of the indigenous people in a politically acceptable way (Neumann, 1997). The idea was to delegate a part of the responsibility of forest protection to the 'natives', and to create a separate system of reserves that would provide for their needs. At the same time, government forest reserves were to remain under the control and exploitation of the government and timber concessionaires. In addition to the decentralisation process, the objective of protecting forests in the

policies continued, as exemplified in the increase of land under government forest reserves. The reservation of forests was supported by scientific discourse, and concerns over the maintenance of the mountain watersheds.

Ever since the beginning of British forest administration, the primary goal of forest management had been the generation of revenues (Neumann, 1997: 51-52). Timber from forest reserves would generate income through concessions and royalties, and forest resources would contribute to growth in other sectors such as railways and mines. Despite such economic gains, in practice the institutions controlling resource use were implemented and interpreted varyingly. For instance, criticism towards restrictive policies appeared among territorial governors, and down to district level officers. Some of the colonial administrators conceived wildlife and forest conservation proposals as disregarding 'African' claims of customary rights, and tried to turn the outcomes less adversary. In the Usambaras, the foresters blamed the Africans for 'encroachment' in the forest reserves, whereas district officers were more sympathetic towards the indigenous population's claims over natural resources (Conte, 2004: 71). At the time of independence in 1961, Tanganyika forest estates covered 106,366km^2 of state forest; and 11,409km^2 of native authority forest (Sangster, 1962: 122).

4. Forest Conservation in Post-Colonial Tanzania (1961-1980)

Tanzania's independence of 1961 came at a time when there was a growing international focus on the environment. This trend also resonated in Tanzania, and in the country's process of decolonisation, there can be pointed two trends concerning the environment. One is the international conservation organisations' critical perspective on the implications decolonisation would have for nature (Jensen, 2009: 15). The second is Tanzania's response to the environmental debate (ibid). With regard to the criticisms, the WWF was concerned that the major game species would disappear as soon as Africans themselves were to manage their resources. It was argued that Africans thought only to see animals as food, and that they had a general lack of knowledge about their nature-degrading activities (ibid.: 16). On the contrary, in Tanzania, the newly elected president, Mwalimu Julius Nyerere, was particularly active in counteracting the discourse on African nature (ibid. 17). This can especially be read out of Nyerere's often-cited Arusha Declaration of 1967, which laid the framework for wildlife and forest policies in the decades after independence.

> The survival of our wildlife is a matter of grave concern to all of us in Africa. These wild creatures amid the wild places they inhabit are not only important as a source of wonder and inspiration but are an integral part of our natural resources and of our future livelihood and well being. […]. The conservation of wildlife and wild places calls for specialist knowledge, trained manpower, and money, and we look to other nations to co-operate with us in this important task… (URT, 1998: 1-2)

From this quote, Tanzania declared that nature is important as a resource for Tanzania's development, and natural resource management should be based on a combination of tradition, experience, as well as external support. Therefore, the Arusha Declaration can be taken as an example of one of the first times Tanzania's statement towards the use of its natural resources. It is, henceforth, a stepping stone towards studying conservation trends in post colonial Tanzania.

In the Arusha Declaration, forests were recognised as major means of production, and therefore they were nationalised. This meant that the authority and responsibility for forest resources were once again placed in the hands of the state, with few provisions for community participation (Kihiyo, 1998: 1). Tanzanian foresters believed that state-led forestry could provide a lasting contribution to the development aspirations of the newly independent country. Mwalimu Nyerere embarked on a policy of African socialism, called *ujamaa,* which set the principles of collective production and self-reliance; and resources were extracted to benefit the common good and secure development of the country. This resulted in an increased number of forest reserves, the centralisation of forest management, and forced villagisation.

Despite Mwalimu Nyerere's political will, the first years of independence saw a break-down of the often unpopular colonially imposed soil and watershed conservation schemes. Many people ignored measures such as the prohibition of cultivation on steep slopes, control of bush fires and timber exploitation, often supported by politicians who denounced any colonial heritage (Power et. al., 1997: 27). Although the late colonial goal of reserving 14% of the landscape as forest reserves had been achieved by 1961, the forest state did not remain static after independence. Many peasants saw the independence struggle as bringing access to land that was often located in recently declared forest reserves. These peasants were sometimes supported by newly elected Tanzanian local officials who sympathised with the peasants' need for land, often annoying British foresters.

District officials often granted access to forest lands to villagers who believed that they could increase cash crop production, and excised some reserves or re-adjusted their boundaries to make way for peasants (Sunseri, 2009). For instance, in 1964 there was an administrative order informing forest officers that some reserves were definitely of no value, either because their original purpose had vanished or because they were acquired during the reservation drive without detailed consideration of their value. Access restrictions in government forests that had been strongly enforced during this period remained in effect on paper, but sufficient funds were no longer available to protect these forests, and so they became *de facto* open access (Elizabeth et. al., 2009: 5).

Tanzanian foresters enthusiastically participated in the nationalist goal of increasing timber production. At this time, the nationalist agenda assumed a high growth rate of development that would convert backward peasant into modern farmers and workers. However, such kind of vision had, to a greater extent, degraded the dispersed *miombo* woodland environment that covered almost half of Tanzania. It was replaced with cultivated land, tree plantations, and exploitable natural forest interspersed with closed forest reserves that would preserve water catchments and guard against soil erosion (Sunseri, 2009). In many respects, such agenda was torn from the colonial blueprint, save that now the resources and collective national will seemed to be available to bring it to fruition.

During the three year development plan (1961-64), the Forest Division had expected both 'productive' and 'protective' forests to be highly productive of timber. As a result, the Division put much effort in replacing slow-growing indigenous trees with fast growing softwoods. As a result, the forest division had, by 1968, expanded soft wood plantations to 22,000ha. This was a considerable increase from 6,000ha at the end of the colonial rule (Sunseri, 2009). Nevertheless, foresters working during the period highlighted disappointment to the lack of funds for their work. They articulated a sense of frustration that even the first ministers were hostile to their aims to an extent that a particular minister was labelled as 'anti-forestry' (Hurst, 2003: 358). Nyerere's reign can, thus, be likened to the top-down, preservationist approach to conservation, which was practised by the colonial powers. In combination, the state's extended control over the economy and the lives of its citizens resulted in tensions between local villagers and government authorities (Goldstein, 2005).

What can be concluded from studying this period is that Tanzania's post-colonial policies were very much affected by the desire to control its own resources. At the same time, international conservation organisations argued for the protection of African nature from human exploitation. The tension between exploitation and preservation of natural resources thus materialised very clearly in this period, and as we will see later, this tension also underlies the current efforts to mitigate climate change.

5. Current Forest Management in Tanzania (1980 -)

In 1980, the international debate on the environment changed as a new discourse around sustainability was established. The publication of IUCN's World Conservation Strategy was influential, and one of the first to have sustainability as the focal point (Adams &Hutton, 2007: 151; Jensen 2009: 25). The report was a breakthrough for the concept of sustainability and, specifically, the term 'sustainable use'. The term shows that many

conservation organisations had changed their positions with regard to nature. Instead of protecting nature from people, IUCN and WWF now advocated for nature conservation through utilization (ibid.). People were, therefore, no longer pointed as the cause of nature's degradation, but as part of the solution to it. Local communities were now attributed to a positive role as co-partners in natural resource management.

At the national level, the Tanzanian government faced great resource pressure in the 1980s, and foreign donors were, therefore, able to influence reforms by attaching conditions to their funding (Nelson et al., 2007: 254). Thus, the economic crisis contributed to a promotion of the above-mentioned decentralised, community-based approach to forest management. While the IUCN had put sustainability in conservation on the agenda, it was the UN's Brundtland report that made the idea of fusion of conservation of the environment and sustainable development into an internationally accepted global goal (Jensen, 2009: 8)

The Rio-Conference in 1992, and the Third World Parks Congress in Bali in the same year, further emphasised the importance of conservation and consideration of local communities. The idea of 'common, but differentiated responsibilities' was also conceived in this period. It placed the responsibility for environmental problems on the developed world. Following this consensus, developing countries should benefit from the help of developed countries into building necessary technology and know-how to develop in a sustainable manner. The participatory, community-based approach was also adopted during this period. This came as a result of structural adjustment programmes of the International Monetary Fund (IMF) and the World Bank (WB), as well as an overall neo-liberalisation of the world economy. From the 1908s onwards, Tanzania saw an increase in inclusive approaches to forest management. As a result, in 1998 the National Forest Policy of 1953 was reformulated, instigating a major reorientation in its approach to forest management; shifting from a centralised, state-led policy towards a greater emphasis on Participatory Forest Management (PFM) (Blomley et al., 2008).

The new approach was enshrined in the Tanzanian Forest Act of 2002, which provided communities with two different ways of engaging in PFM. The first is known as Community Based Forest Management (CBFM), and takes place on village land or privately owned land in communities. Under CBFM, villages (or groups and private entities within villages) may gazette village forest reserves, and thereby transfer management authority over village forest resources from the state to the community. This includes the right to collect fees on forest utilisation, and to impose and retain fines on illegal use (URT, 2013: xii).

As the above shows, PFM is an umbrella mechanism that comprises of different legal arrangements under which villages and local communities are involved in the management and governance over forests (Blomley & Iddi, 2009: 8-11). However, PFM has also received criticism. It is argued that the managerial tendencies of the scientific forest management that existed during the colonial regime still prevail in the concept of PFM since many of the resources directed towards sustainable forest management have been targeted at forest resources with the highest national values: tree species, biodiversity and wildlife (Neumann, 2005: 80-83). In this way, Tanzanian communities have seemingly secured rights over their forests but captured few of the economic benefits.

While participatory forest management (PFM) may enhance ecosystems and promote more sustainable forms of management and use, such objectives rarely stem from the indigenous or local knowledge of the participants. Thus, PFM exhibits tension between the aims of *management* and those of *participation*. However, PFM continues to play a pivotal role in Tanzania's renewed governance of natural resources and, more recently, in its efforts to accommodate the Reduced Emission from Deforestation and Forest Degradation in developing countries (REDD+) (Blomley & Iddi, 2009; URT, 2009). Thus, REDD+ enters the field where forest conservation has been devolved to the local level. Yet, it is a very bureaucratic system and centralised in the sense that people participate in terms set by others than themselves. Comparable to PFM, REDD+ is also a mechanism that will affect the forms and conditions of participation.

Although the general trend has so far shown how the approach to forest conservation in Tanzania has changed from fortress to participatory, the introduction of REDD+ in Tanzania happens within a participatory scheme of forest management. Yet, we argue that this approach of managing forests in terms of their carbon-uptake value will inevitably transform the relationship between people and forests. If improperly handled, the approach may promote local communities' reluctance to participate in forest management as they will have a feeling of not being part of the entire conservation objectives.

With the current wording, REDD+ function as a multi-donor trust fund that pools resources in an effort to offer financial incentives for developing countries to conserve rather than exploit forests (Gulbrandsen, 2012: 159). REDD+, therefore, arguably presents a win-win opportunity. It provides developing countries with funds and technical support, while allowing industrialised countries to reduce emissions abroad instead of undertaking drastic and unpopular measures at home (ibid.). With the establishment of REDD+, the carbon value in forests has become a part of global common good that maintains a climate suitable for human life. The depletion of the

world's terrestrial carbon sinks can thus be likened to 'tragedy of the commons' (Neumann, 2005: 118-120). Arguably, REDD+ presents the institutional regulation of natural resources, which are found necessary.

By paying local communities to preserve forests in order to store carbon, carbon emerges as something tradable. If local communities can demonstrate an increase in carbon stocks, then they will correspondingly receive compensation. While REDD+ operates through technical and scientific rationalities and practices, the implications of the mechanism are political. REDD+ shapes the ways in which people take part in the management and governance of the forests (Neumann, 2005: 141). This is also why any international mechanism that aims to govern the global forest carbon commons is simultaneously a mechanism that governs forest use on the local level. This automatically necessitates the resurgence of the protectionist and reservationist tendency of forest management.

6. Conclusion

This paper has set a lineage of forest conservation in Tanzania. It has used the genealogical method as a historical analytical approach to study changes in practices and discourse with regard to forestry and forest management. The discussion has shown that Tanzania forest conservation have throughout revealed a shift in discourse and practice: from fortress conservation during colonial and early post colonial periods, to participatory conservation in the 1980s, and then to the current in the name of REDD+. The objectives for forest conservation, both then and now, are linked to political interests in controlling natural resources. Seen over time, these interests are constituted by colonial, African socialist and neo-liberal interventions.

In the early conservation period, fortress conservation secured economic output for the colonial regimes and protected game species. Later, due to international pressure, there was a shift towards a participatory community-based approach. At the same time, as this discursive shift came about, there was also a shift in the approach to managing natural resources. From being a predominant national matter, natural resources became of an international focus for sustainable development, increasingly turned into a global matter. Currently, REDD+ has emerged as a mechanism that intervenes forest conservation in developing countries to make local communities participate in storing and enhancing carbon stocks and sinks. We can conclude, however, that despite such shifts in forest discourse in Tanzania, in practice forest management has throughout revealed a variably protectionist and reservationist propensity, while also expecting revenues from various forest products. The currently emerging REDD+ approach actually portrays the seemingly continuity of protectionism and reservationist tendency as the international mechanism that aims to govern global forest carbon commons is simultaneously a mechanism that governs forest use at the local level.

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