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Sowing the Empire: Eucalyptus *in Angola, c.1875–1975*

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This article explores the evolution of forest resource use in Angola from the late 19th century to the end of colonial rule, focusing on the provinces of Benguela, Huambo, Bié and Moxico within the zone of influence of the Benguela Railway. The initial exploitation of native woody resources to fuel the Benguela Railway Company's steam locomotives gradually led to the establishment of large-scale eucalyptus plantations, driven by the scarcity and rising cost of locally available fuelwood. This article relies on archival research, historical cartography and forestry and botanical reports to examine the intersection between environmental history, colonial economics and the sciences of plant acclimatisation. It analyses how the introduction of the exotic genus Eucalyptus *illustrates the Angolan landscape's plasticity and the human-driven transformations resulting from colonial economic and ecological strategies. The study emphasises how botany and forestry were utilised to bolster colonial governance, providing scientific validation for the systematic selection of* Eucalyptus*. More than merely a technical response to resource scarcity,* Eucalyptus *developed into a bioeconomic agent and a crucial species within the Portuguese colonial endeavour, playing a significant role in transforming Angola's economic infrastructure and forest landscape. From this perspective, the article offers new insights into the dynamic relationship between forest exploitation, scientific understanding and imperial ambitions in 20th-century Angola.*

Keywords: colonialism; environmental history; Angola; Benguela Railway; Benguela Railway Company (CCFB); forestry; eucalyptus; pulp industry; Lobito Corridor

Introduction

Portuguese colonial expansion from the 16th century onwards established one of the earliest intercontinental systems for circulating botanical species, profoundly affecting landscapes, economies and food production across continents.[1] This article argues that the drive to mobilise nature for imperial projects, inaugurated in the Age of Discovery, was powerfully embodied in 20th-century Portuguese colonial forestry in Angola.

Nowhere is this more clearly illustrated than in the history of forest resource use in Angola, particularly in Benguela, Huambo, Bié and Moxico, which underwent significant changes during the 20th century, driven by railway development, industrial growth and forest exploitation. The Benguela Railway Company – Companhia do Caminho de Ferro de

1 J. Mendes Ferrão, *The Adventure of Plants and the Portuguese Discoveries* (Lisbon, Institute of Tropical Scientific Research, 1994).

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Benguela (CCFB) – and its railway were central to this transformation, as they had a significant impact on both the economy and the environment.[2] Initially, the CCFB relied heavily on local wood resources to fuel steam locomotives. Over time, the scarcity of native resources led to the large-scale planting of exotic trees, such as eucalyptus, along the railway after the 1930s onwards to sustain transportation.

The historiography of Portuguese colonialism in Africa, particularly in Angola, has primarily focused on commodities such as cotton, coffee and minerals, often overlooking the strategic importance of forestry and exotic tree genera such as *Eucalyptus*. This article investigates how the introduction and expansion of the genus *Eucalyptus* from the late 19th century until the end of colonial rule reflected and reinforced colonial economic and environmental transformations. It considers *Eucalyptus* (*E.*) as a bioeconomic agent and a 'driving genus' in reshaping Angola's economy and ecology from 1875 to 1975, emphasising the connection between imperialist projects and landscape domestication. The primary objective is to comprehend why, how and when exotic species were introduced and exploited, despite Angola's abundance of forest resources.

This study builds on Alfred Crosby's 'Neo-Europes' framework. However, it explores how Angola, under Portuguese colonial rule, became a site for the development of what I term 'Neo-Australias' or 'Neo-Tasmanias'. Crosby introduced the concept of 'ecological imperialism' to explain how European biological species – such as animals, plants and pathogens – acted as active agents in the success of European colonial expansion. Crosby used the term 'portmanteau biota' to describe all the organisms Europeans transported to the lands they colonised.[3] In the case of the genus *Eucalyptus*, these were taken from territories inhabited by Europeans in the 18th century, specifically Australia.

Eucalyptus planting was initially promoted to combat malarial miasmas, with these trees earning an early reputation for their supposed ability to reduce malaria in endemic regions.[4] They also served to produce firewood, sawn timber, posts, railway sleepers and pulp raw materials on a larger scale. Focusing on *E. saligna* and *E. grandis*, the research shows that these non-European species were used as part of a colonial strategy to promote railway and industrial expansion. The article examines how botany contributed to colonialism, particularly in justifying the use of eucalyptus on the grounds of its rapid growth, adaptability to poor soils and high calorific value, traits that aligned with colonial priorities of resource efficiency and economic extraction.

The landscape of Angola demonstrates the country's strong ability to adapt and change in response to external pressures, especially those caused by human activities. Evidence from the colonial period indicates that this flexibility was intentionally exploited through economic and ecological interventions, which integrated Angolan territory into the broader imperial production and supply system. Initiatives such as introducing exotic species, reorganising land use and developing infrastructure have significantly altered native

2 For further information on the CCFB, see, for instance, E. Esteves, 'O Caminho-de-Ferro de Benguela e o Impacto Económico, Social e Cultural na sua Zona de Influência: 1902-1952' (PhD thesis, Universidade do Porto, 1999); B.J. Navarro Marçal, 'Um Império Projectado pelo "Silvo da Locomotiva": O Papel da Engenharia Portuguesa na Apropriação do Espaço Colonial Africano - Angola e Moçambique (1869-1930)' (PhD thesis, Universidade NOVA de Lisboa, 2016); H.S. Pereira, 'Ferrovia como Infraestrutura Crítica: Estudo de Caso dos Caminhos de Ferro Coloniais de Angola, *c*.1870-1930', *Ler História*, 83 (2023), pp. 69–93; A.T. Relógio, F.O. Tavares and L. Pacheco, 'Importância do Caminho de Ferro de Benguela para o Desenvolvimento Regional', *Cadernos de Estudos Africanos*, 33 (2017), pp. 9–30; S. Tshingi Kueno Ndombasi, 'Le Chemin de Fer de Benguela, 1903-1953: Le Capital Privé et la Colonisation Portugaise en Angola' (PhD thesis, Université Paris Diderot [Paris 7], Villeneuve d'Ascq, Presses Universitaires du Septentrion, 1996).

3 See A.W. Crosby, *Ecological Imperialism: The Biological Expansion of Europe, 900–1900*, 2nd ed. (Cambridge, Cambridge University Press, 2004), p. 270.

4 B.M. Bennett, 'The El Dorado of Forestry: The Eucalyptus in India, South Africa and Thailand, 1850–2000', *International Review of Social History*, 55, S18 (2010), pp. 27–50.

ecosystems – not in a neutral way, but by maximising resource extraction and reinforcing territorial control. In this context, the exploitative use of forest resources led to the adoption of eucalyptus as a pioneering species, which provided energy for railways and supported the colonial pulp and paper industry. By examining the roles of institutions such as the Benguela Railway – Caminho de Ferro de Benguela – and the Portuguese Overseas Pulp Company – Companhia de Celulose do Ultramar Português (CCUP), it becomes clear how Angola's Central Plateau was systematically transformed into a mixed biome, where industrial productivity consistently overshadowed ecological integrity. This process displaced native Miombo woodlands and deepened dependence on monocultures, reflecting Crosby's concept of ecological imperialism, but through intercolonial species transfers, with lasting effects that extended beyond the colonial period.

Within this framework, the article examines the global forces that shaped the introduction of eucalyptus into Angola. Angola emerged as a paradigmatic example of how colonial powers used intercolonial transfers of species to transform local ecologies and economies across Africa. Among other African colonial players, it surpassed its neighbours to become the central African region with the largest area of eucalyptus plantations. In contrast, Zambia, the second-largest producer, accounted for only about seven per cent of Central Africa's eucalyptus plantation area. Angola was Africa's fourth-largest producer of eucalyptus, a notable achievement, considering that the former Portuguese colonies are often perceived as lagging behind in investment and capital deployment.[5]

This study uses colonial sources such as reports, archives, maps, statistics and scientific literature on tropical forestry, environmental history and economic history, critically interpreting the discourse of Portuguese colonial authorities amid environmental and economic changes caused by exotic species, especially eucalyptus, in Angola's Central Plateau. The research is supported by forest ecology literature, cross-referencing data on introduced species such as *E. saligna* and *E. camaldulensis* with native ecosystems, notably the Miombo woodland. This multidisciplinary approach offers a nuanced understanding of the introduction, adaptation and management of eucalyptus within the ecological and political context of colonial Angola. Three phases of eucalyptus integration are identified, highlighting environmental, economic and political factors, and emphasising the role of forestry science and colonial planning in ecological change.

The article proceeds with three main parts. The first describes Angola's phytogeography and vegetation, placing it within African ecoregions, and explains how eucalyptus and other exotic species were introduced, contextualising these events in Africa. The second discusses eucalyptus afforestation under CCFB initiatives. The third examines the growth of multiple species of *Eucalyptus*, highlighting the late 1950s establishment of the CCUP in Alto de Catumbela, Benguela, driven by eucalyptus as a raw material for pulp production.

From Native Forests to Exotic Plantations: Angola's Vegetation and the Introduction of *Eucalyptus* (from *c.*1875)

Angola covers an area of 1,246,700 square kilometres and boasts rich forest resources, mainly found in regions dominated by Miombo and Mopane forests. Miombo formations

5 For further information on the late industrialisation of Angola and the other former Portuguese colonies, see, for example, M. Murteira, 'Formação e Colapso de uma Economia Colonial', in F. Bethencourt and K. Chaudhuri (eds), *História da Expansão Portuguesa: Volume 5: Último Império e Recentramento (1930-1998)* (Lisboa, Círculo de Leitores, 1999), p. 109; M.E. Ferreira, 'O Império e as Relações Económicas com África', in P. Lains and Á.F. Silva (eds), *História Económica de Portugal, 1700-2000*, Vol. III (Lisboa, Imprensa de Ciências Sociais, 2005), pp. 343–71; A. Torres, 'A Economia do Império (Séculos XIX-XX)', in V. Alexandre (ed.), *O Império Africano: Séculos XIX-XX* (Lisboa, Edições Colibri, 2008), pp. 55–67.

extend across southern and central Africa and, in this article, the term 'Miombo forest' is used to refer to a broad vegetation formation rather than to a single, bounded place. Such formations are generally associated with open woodlands, wooded savannas and tree communities dominated by *Brachystegia* (known as *miombo* in Swahili), *Julbernardia* and *Isoberlinia*, all part of the *Fabaceae* family.[6] Miombo formations, which comprise much of the ecoregion influenced by the Benguela Railway, are tropical humid or dry deciduous woodland formations and are among the most extensive in southern Africa.[7] The Miombo hosts an estimated diversity of 8,500 plant species,[8] about 54 per cent of which are endemic, meaning that they occur exclusively within the Miombo woodland, according to biogeographical principles. In Angola, the Zambezian regional centre of endemism, which includes the Miombo forest, is home to 71.6 per cent of the country's endemic species.[9] Alongside Mopane forests, these ecosystems are among the world's five biodiversity hotspots.[10] Although the Miombo forest ecoregion is often seen as a uniform ecosystem, local differences exist in species composition, diversity and structure.[11] In essence, Miombo (primarily composed of *Brachystegia* or *Julbernardia* trees) and Mopane forests (dominated by *Colophospermum mopane*) are vital parts of Africa's Zambezian region.[12]

The initial studies on Angolan vegetation were conducted by John Gossweiler and Francisco d'Ascencão Mendonça in 1939, who produced a phytogeographic map of Angola with notes on vegetation distribution (Appendix). This filled a significant gap in African phytogeography and enabled greater understanding of a little-known country. A subsequent map, created by Luís Grandvaux Barbosa in 1970,[13] served as a key reference: it depicted the vegetation in considerable detail using various colours and patterns, and included a legend explaining the classification. Barbosa identified 32 vegetation types, ranging from deserts to forests.[14] This classification helps relate the broad term 'Miombo' to the specific vegetation formations traversed by the Benguela Railway. In particular, the railway's eucalyptus plantations were strongly associated with vegetation type no. 16: 'Miombo', savannas and submontane 'ongote' formations, on ferralitic or related soils of the Central Plateau.

6 *Ibid.*

7 P. Frost, 'The Ecology of Miombo Woodlands', in B.M. Campbell (ed.), *Miombo in Transition: Woodlands and Welfare in Africa* (Bogor, Center for International Forestry Research, 1996), pp. 11–55.

8 E.S.P. Assédé, A.F. Azibou, C.J. Geldenhuys, P.W. Chirwa and S.S.H. Biaou, 'Sudanian Versus Zambezian Woodlands of Africa: Composition, Ecology, Biogeography and Use', *Acta Oecologica*, 107 (2020), art. 103599, https://doi.org/10.1016/j.actao.2020.103599.

9 B.J. Huntley, 'Outlines of Wildlife Conservation in Angola', *South African Journal of Wildlife Research*, 4, 3 (1974), pp. 157–66; B.J. Huntley, 'Estratégia de Expansão da Rede de Áreas Protegidas da Angola/ Proposals for an Angolan Protected Area Expansion Strategy (APAES)' (unpublished paper, Luanda, Ministério do Ambiente, 2010).

10 N.S. Ribeiro, S. Syampungani, N.M. Matakala, D. Nangoma and A.I. Ribeiro-Barros, 'Miombo Woodlands Research towards the Sustainable Use of Ecosystem Services in Southern Africa', in Y.-H. Lo, J.A. Blanco and S. Roy (eds), *Biodiversity in Ecosystems: Linking Structure and Function* (Rijeka, InTech, 2015), p. 477, https://doi.org/10.5772/59288.

11 I. Backéus, B. Pettersson, L. Strömquist and C. Ruffo, 'Tree Communities and Structural Dynamics in Miombo (Brachystegia–Julbernardia) Woodland, Tanzania', *Forest Ecology and Management*, 230 (2006), pp. 171–8.

12 C.M. Ryan, R. Pritchard, I. McNicol, M. Owen, J.A. Fisher and C. Lehmann, 'Ecosystem Services from Southern African Woodlands and their Future Under Global Change', *Philosophical Transactions of the Royal Society of London, Series B (Biological Sciences)*, 371, 1703 (2016), art. 20150312, https://doi.org/10.1098/rstb.2015.0312.

13 L.A. Grandvaux Barbosa, *Carta Fitogeográfica de Angola* (Luanda, Instituto de Investigação Científica de Angola, 1970).

14 D.J. Goyder and F.M.P. Gonçalves, 'The Flora of Angola: Collectors, Richness and Endemism', in B. Huntley, V. Russo, F. Lages and N. Ferrand (eds), *Biodiversity of Angola: Science and Conservation: A Modern Synthesis* (Cham, Springer, 2019), p. 84.

According to Neil Burgess *et al.*, Angola displays the most remarkable diversity of biomes and has Africa's second-largest variety of ecoregions.[15] The biomes in Angola, as defined by David Olson *et al.*,[16] include seven of the nine recognised for the African continent, namely: i) tropical and subtropical moist forests; ii) montane grasslands and shrublands; iii) tropical and subtropical grasslands, savannas, shrublands and woodlands; iv) tropical and subtropical dry and broadleaf forests; v) deserts and xeric shrublands; vi) mangroves; and vii) flooded grasslands and savannas.[17] Angola hosts 15 ecoregions, surpassed on the continent only by South Africa, which contains 17.[18] The zone of influence of the Benguela Railway primarily overlaps with the biome of grasslands, shrub savannas and tropical/subtropical forests. This area includes two main ecoregions: the Angolan Miombo forest and the Central Zambezian Miombo forest, which cover most of the railway's zone of influence, where eucalyptus has been extensively planted.

Within the ecological complexity of the Miombo, especially in areas near the Benguela Railway, eucalyptus trees were planted using intensive forestry. James C. Scott notes in *Seeing Like a State* that scientific forestry aimed to make ecosystems legible and manageable, prioritising uniformity and efficiency over local ecological knowledge.[19] In Angola, this process resulted in replacing diverse Miombo forests with fast-growing eucalyptus, particularly near the Benguela Railway. However, managing such extensive forests proved nearly impossible, and local communities continued grazing, collecting firewood and producing charcoal, which hindered management plans. Despite these challenges, the initiative based on intensive forestry left a lasting, though partial, mark on the natural forest. This local transformation, rooted in intensive forestry principles, reflects a broader history of eucalyptus cultivation worldwide. When it was discovered in the 19th century that eucalyptus – indigenous to Australia and Tasmania – could adapt to new environments, grow quickly and resist pests, it sparked a global boom.[20] Introduced to Portugal in the mid 19th century, the first cultivation in Angola probably occurred in Humpata, near Lubango in south-western Angola, in the late 19th or early 20th century.[21] In Angola's Central Plateau, particularly in Bié province, eucalyptus spread in the early 1920s, with the oldest trees in Nova Sintra (today's Catabola) estimated to be 35–40 years old at the time of a 1962 study.[22] Records show that earlier introductions, such as 1908 in Luanda, and plantations in Malange in the 1910s, were served by the Luanda Railway.[23]

15 N. Burgess, J. D'Amico Hales, E. Underwood, E. Dinerstein, I. Itoua, K. Newman, D. Olson *et al.*, 'Terrestrial Ecoregions of Africa and Madagascar: A Conservation Assessment' (Washington, DC, Island Press, 2004).

16 D.M. Olson *et al.* define biomes as groups of vegetation with similar characteristics, clustered within habitats, with the broadest categories of habitats at the global level being referred to as biomes. See D.M. Olson, E. Dinerstein, E.D. Wikramanayake, N.D. Burgess, G.V.N. Powell, E.C. Underwood, J.A. D'Amico *et al.*, 'Terrestrial Ecoregions of the World: A New Map of Life on Earth: A New Global Map of Terrestrial Ecoregions Provides an Innovative Tool for Conserving Biodiversity', *BioScience*, 51, 11 (2001), pp. 933–8.

17 Huntley, 'Outlines of Wildlife Conservation in Angola', pp. 32–3.

18 *Ibid.*, p. 33.

19 For further information see J.C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven, Yale University Press, 1998), available at http://www.jstor.org/stable/j.ctt1nq3vk, retrieved 5 May 2026.

20 J. Radkau, *Nature and Power: A Global History of the Environment* (New York, Cambridge University Press, 2008), p. 21.

21 A. Quaresma, 'O Eucalipto Como Fonte de Madeiras', *Boletim do Caminho de Ferro de Benguela* (CFB Bulletin), ano II, 1 (1962), p. 20, retrieved from the Publications and Documentation Department of ISCSP-University of Lisbon Library.

22 *Ibid*., p. 20. The city of Nova Sintra, now named Catabola, is located in Bié province. The Germans mentioned in the CFB Bulletin article settled in this region during and after the First World War.

23 *Angola Official Bulletin*, Series I, no. 42, 17 October 1908, Office Department: Agriculture Section – Eucalyptos (Luanda, General Government of Angola, 1908), p. 642.

Eucalyptus was valued for both health and economic reasons, as it provided timber, bark, medicinal products, fibres, bee forage, durable fencing posts, construction timber, railway sleepers and telegraph poles. The initial eucalyptus species in Angola resembled those in Portugal, such as *E. camaldulensis* and *E. globulus*, but later silvicultural experiments favoured *E. saligna* and *E. grandis* due to their higher yields.[24] After studies on eucalyptus species planted along Angola's Central Plateau railway, *E. saligna* was selected.[25]

The introduction of eucalyptus and other Australian exotics such as acacia, casuarina and hakea in Africa began in early 19th-century South Africa for ornamental and botanical purposes. Over 130 years, they transformed landscapes and economies as settlers and foresters used them for timber, windbreaks and shade, believing that planting trees increased rainfall.[26] Based on Darwinian ideas, John Croumbie Brown regarded eucalyptus as the 'fittest' genus.[27] From the 1870s to the 1890s, trials in the Cape Colony selected taxa suited to local climates, driving their rapid expansion from the late 1800s. Their success, as noted by William Beinart and Peter Coates, stems from rapid growth (up to six metres in four years), coppicing, drought tolerance, ease of naturalisation and adaptability to poor soils.[28] After 1860, Australian and French enthusiasts promoted eucalyptus for timber and supposed sanitary benefits, with Ferdinand von Mueller claiming that it fought malaria by draining swamps and releasing oils against 'marsh miasmas'.[29] Mueller and Joseph Maiden organised seed exchanges, with Maiden acting as the Cape Colony's seed collector from 1896.[30] By the mid 20th century, South Africa possessed about 500,000 hectares of eucalyptus and 100,000 hectares of acacia, mainly in monocultures in KwaZulu-Natal and Mpumalanga, as a result of acclimatisation efforts.[31]

Comparable trends emerged across the continent: by the 1950s, eucalyptus had become the most widely planted exotic tree in Africa, with large concentrations not only in South Africa but also in Madagascar, Morocco and Nigeria. This pattern highlights how *Eucalyptus* became the emblematic genus of colonial reforestation, closely associated with intensive silvicultural practices and the goals of economic modernisation. The quantitative data (Tables 1 and 2) illustrate the national and regional distribution of planted forests in the mid 20th century, emphasising the central role of eucalyptus in African afforestation policies.

A comparative reading of these figures highlights several key points. In 1970, Angola had a high proportion of eucalyptus in its plantations: 102,000 out of 120,000 hectares were eucalyptus, roughly 85 per cent. Angola's eucalyptus plantations dominated Central Africa, comprising over 92 per cent of the region's total, and far surpassing Zambia's 8,000 hectares. Beyond Central Africa, Angola ranked among the countries with the largest areas of eucalyptus plantations, behind South Africa, Madagascar and Morocco.

These figures illustrate that eucalyptus in Angola was not just another plantation option; it was by far the prevailing choice. However, this expansion occurred within a region of remarkable ecological richness, characterised by various biomes and ecoregions and a high

24 C. Delgado-Matas, E. Jiménez and D. Kiala-Kalusinga, 'Los Eucaliptos en las Tierras Altas de Angola, Su Papel Social Durante el Conflicto Armado y en el Desarrollo de las Comunidades Rurales y Urbanas', *Boletín del CIDEU*, 3, 2007, p. 100; F.M. Sampaio, 'As Plantações de Eucaliptos na Companhia do Caminho de Ferro de Benguela', *Gazeta dos Caminhos de Ferro*, ano 77, 1851 (1965), pp. 467–9.

25 Radkau, *Nature and Power*, p. 22.

26 M.B. Bennett, 'Naturalising Australian Trees in South Africa: Climate, Exotics and Experimentation', *Journal of Southern African Studies*, 37, 2 (2011), p. 265.

27 Radkau, *Nature and Power*, p. 22.

28 W. Beinart and P. Coates, *Environment and History: The Taming of Nature in the USA and South Africa*, 1st ed. (Abingdon, Routledge, 1995), p. 40.

29 *Ibid*.

30 *Ibid.*, p. 270.

31 *Ibid*.

Table 1. Artificial forest plantations by country, with total planted area and area planted with *Eucalyptus*, 1969–75

Country	Year	Total planted area (thousand hectares)	*Eucalyptus* planted area (thousand hectares)	Percentage planted to *Eucalyptus*
Angola	1970	120	102	85
Burundi	1970	25	17	68
Eswatini	1973	96	22	23
Ethiopia	1970	40	40	100
Madagascar	1975	280	200	71
Malawi	1971	37	2.5	7
Morocco	1971	294	169	57
Mozambique	1971	21	2	10
Nigeria	1975	100	3	3
Rwanda	1970	29	22	76
South Africa	1974	1099	362	33
Sudan	1969	81	8	10
Uganda	1971	20	8	40
Zambia	1974	24	8	33
Zimbabwe	1975	100	20	20

Source: R. Persson, 'Forest Resources of Africa: An Approach to International Forest Resource Appraisals. Part II: Regional Analyses', *Research Notes No. 22* (Uppsala, Swedish University of Agricultural Sciences, Department of Forest Survey, 1977), pp. 190–1, with further interpretation by the author.

Table 2. Artificial planted forest area, by region of Africa, *c.*1970–72

Region	Planted forest area (thousand hectares)	*Eucalyptus* planted area (thousand hectares)
Central Africa	220	110
East Africa	800	315
North Africa	700	340
South Africa	1300	405
West Africa	190	3

Source: R. Persson, 'Forest Resources of Africa: An Approach to International Forest Resource Appraisals. Part II: Regional Analyses', *Research Notes No. 22* (Uppsala, Swedish University of Agricultural Sciences, Department of Forest Survey, 1977), p. 87. Note: The figures are based mainly on information for 1970–72.

rate of endemism, particularly within the Miombo and Mopane forests. This growth was driven by the consolidation of large monocultures reliant on intensive land and labour use, recurrent chemical inputs and ecological simplification. As I will show towards the end of this article, such practices transformed the ecosystems where they were implemented and extended their effects beyond the economic realm, influencing the structure of rural communities and their relationship with the land. In this context, as Donald Worster reminds us, we can understand this new type of agroecosystem as a monoculture, a part of nature that has been reconstituted to produce a single species, which grows on the land only because of intense market demand for it.[32] This serves as a poignant reminder of the tension between subsistence needs and the drive for profit, which led to the adaptation of various landscapes to cultivate more commercially viable species such as eucalyptus. This shift from ecological diversity to systematic homogenisation underscores the transition from the natural richness of Angola's Miombo and Mopane woodlands to the political and corporate imperatives of eucalyptus forestry. The following section examines how these principles were put into operation, revealing the intersection of corporate strategy, ecological management and local socio-environmental realities.

32 D. Worster, 'Transformations of the Earth: Toward an Agroecological Perspective in History', *The Journal of American History*, 76, 4 (1990), pp. 1087–106.



Figure 1. The Benguela Railway route to Katanga, later called the Lobito Corridor, showing the planned connection to the Katanga mines. (Source: Courtesy of Fundação Mário Soares, Documentos Bernardino Machado Collection, untitled, undated, available at http://hdl.handle.net/11002/fms_dc_98769, retrieved 11 August 2025.) Note: The thick dashed line indicates sections still under construction when the map was produced. To the north, the Luanda Railway is also shown, including a projected extension that was never completed (drawn as a thin dashed line continuing eastward from Malange [Malanje]); this route was intended to approach the diamond-producing districts of Lunda, whose diamond traffic was later carried by road to the Benguela Railway line.

Eucalyptus and Afforestation in the Benguela Railway Company's Operations (1935–60)

The Benguela Railway played a crucial role in transforming how Angola utilised its forest resources. Established in 1902 and running for 1,348 kilometres, the railway was primarily operated by English and Portuguese staff in managerial, technical and operational roles.[33] Its main purpose was to connect the Katanga mining region[34] (then part of the Belgian Congo, now the Democratic Republic of the Congo) and the Copperbelt[35] (in Northern Rhodesia, now Zambia) to the port of Lobito in Benguela province, in order to facilitate the export of minerals to Europe and the USA (Figure 1). Lobito was chosen as the railway's terminus because of its strategic location, earning it the epithet 'the shortest route to Central Africa'.[36] The railway's

33 Anonymous, 'Companhia do Caminho de Ferro de Benguela', *Gazeta dos Caminhos de Ferro*, 2, 1628 (1955), p. 381.

34 Between 1971 and 1997, this region was called Shaba, a name derived from the Swahili word for copper. The mines in this area historically produced much of the Democratic Republic of the Congo's copper, cobalt, uranium, zinc, cadmium, silver, coal, manganese, tin and various other minerals.

35 This region is also referred to as the African Copperbelt, or the Central African Copperbelt. Together with the Katanga region, it forms a mineral belt extending approximately 450 kilometres and containing major deposits of copper and other minerals.

36 Located on the coast and serving as a link between Angola's interior and the Atlantic Ocean, the name Lobito originates from a lusophone adaptation of the original Umbundu word *olupito*, which means passage, gangway or walkway. This etymology later gave rise to the epithet 'Lobito Corridor', highlighting its strategic role as a gateway for the export of inland resources.

chief engineer was Sir Robert Williams, a British businessman involved in African copper mining.[37] Williams believed that copper mines' success depended on a faster, more economical route to the sea. The Lobito route shortened the journey to about 1,879 kilometres, in comparison with that from Katanga to Cape Town (3,976 km) or to Beira in Mozambique (2,875 km).[38]

The construction and operation of the Benguela Railway not only connected the interior of Angola to global markets but also acted as a major agent of ecological change. The railway transformed local landscapes and altered traditional resource use by enabling the movement of people, goods and commodities. In its early stages, the railway's dependence on fuel and timber highlighted the limitations of local forest resources, prompting the colonial administration and CCFB engineers to seek long-term solutions for sustainable supplies. These initiatives laid the groundwork for later afforestation programmes, including the systematic large-scale planting of eucalyptus from 1935 onwards. The decision to cultivate exotic species was driven by industrial needs to ensure a consistent supply of fuel and building materials, as well as by the perceived adaptability of these species to the Angolan environment. In this way, the Benguela Railway can be seen not only as a transport enterprise, but also as a catalyst for environmental experimentation and the development of plantation landscapes that would influence the region's forestry policies.

From the earliest years of its operation, the railway faced difficulties in securing affordable fuel for its steam locomotives, given the lack of coal deposits in Angola. The CCFB's 1912 Annual Report documented the effects of a coal shortage, worsened by strikes in British coal mines, which drove up prices by nearly 40 per cent, with predictions of further increases.[39] To reduce this financial burden, the CCFB decided to use firewood as an alternative fuel, particularly along the gentler gradients of the railway line. By 1912, firewood had already been used in fixed machinery – described in the company report as *machinas fixas* – with consumption reaching 1,012 tonnes per annum, while the traction report also recorded the use of 1,431 tonnes of firewood in locomotive operations.[40] The same report also warned shareholders about the high cost of coal. According to data from South African Railways for 1911, coal prices ranged from four shillings per tonne in the Transvaal to 20 shillings in Rhodesia, with an average of 9.2 shillings per tonne. In contrast, imported coal landed at Lobito port cost between 40 and 48 shillings per tonne, prompting the company to describe the situation as being 'of utmost urgency requiring immediate remedy'.[41] Firewood, abundant in areas near the railway line, offered a cost saving of up to 70 per cent compared to coal.

Wood, having a lower energy density than coal, required larger volumes and the more frequent refuelling of locomotives, thus limiting operational range. Efficiency depended on properly cutting and drying, as well as on the regular stoking of the locomotive firebox. In forest-rich regions such as Angola, wood was an economical and locally accessible fuel option. According to the 1916 report, using firewood between 1912 and 1916 prevented coal expenses from fully consuming the company's net revenue, which in that year totalled 239,991$71 (approximately US$161,600).[42] It was estimated that if coal had been used,

37 Robert Williams founded Tanganyika Concessions Ltd., a company that would come to hold approximately one-third of the shares in the Union Minière du Haut Katanga and 90 per cent of the shares in the CFB.

38 Anonymous, 'Companhia do Caminho de Ferro de Benguela', p. 381.

39 Companhia do Caminho de Ferro de Benguela (CCFB), 'Relatório dos Serviços de Exploração em 1912 [Report on the Operating Services in 1912]' (CCFB company report, 1913), p. 11.

40 *Ibid*., pp. 11–17.

41 *Ibid.*, p. 18. The original Portuguese report gives 'Rhodhezia'. In this context, this is most likely to refer to Southern Rhodesia, now Zimbabwe.

42 The '$' symbol stands for the Portuguese currency of that time, the escudo. The practice was to place the symbol to separate escudos from centavos. Conversions from Portuguese escudos to US dollars are based on

costs would have reached 392,000$00 (approximately US$263,900), which would have resulted in a loss of around 150,000$00 (US$101,000) – equivalent to 63 per cent more than the net revenue. Between 1912 and 1916, the most used firewood came from 'a tree known by the natives as "ungerite", very rich in calories and which, fortunately, has the property of regenerating when cut properly, as happens with teak, eucalyptus, etc.'.[43] The same document also mentions the establishment of 'nurseries with their seeds, as well as those of other woody species, to promote the formation of forest masses in suitable locations near the railway line'.[44]

References to the firewood used by the CCFB are only given using their vernacular names: *ungerite*, *tacula* and *mutiati*.[45] 'Ungerite' corresponds to *Spirostachys africana*, native to the Mopane woodland ecoregion and present in a residual form in the transitional zones towards the Miombo, such as Benguela and Ganda.[46] Timber from this species was also widely used by locomotives on the Moçâmedes Railway in southern Angola.[47] However, transporting firewood became expensive because the Mopane woodland covers only a narrow strip along the route of the railway. The same applies to *mutiati* firewood, sourced from *Colophospermum mopane*, and to *tacula* from *Pterocarpus* species, in this case a secondary species of the Miombo.[48] Therefore, the CCFB preferred to source its most commonly used locomotive fuel from the tropical and subtropical dry deciduous forests in the transitional zone between the dry savanna and the Miombo.

The railway line began full operation on 7 June 1929. In June 1931, the connection with the Belgian Congo Railways – marking the line's arrival at the Congo frontier – was inaugurated, linking it to the South African railway network.[49] Intensive wood extraction along the 1,348-kilometre line rapidly depleted nearby forests. To address this shortage, the CCFB initiated a reforestation process with exotic species, particularly eucalyptus, after establishing its Agricultural and Forestry Section in 1933, which was later renamed the CCFB Forestry and Agricultural Service. The creation of this department, which launched intensive afforestation campaigns along the railway in 1935, prompted similar initiatives by the state and private sectors.[50]

In the same year, an experimental European settlement group was established within the railway's area of influence through an initiative promoted by the company itself. This proposal was regulated under Decree No. 25027 of 9 February 1935, which aimed to promote Portuguese settlement in the region, given the failure of previous state-led attempts.[51] Although focused on the establishment of white settlements and agricultural exploitation, the legislative decree explicitly mentioned forestry exploitation in the organisation of allocated land: it stipulated that each plot (approximately 200 hectares)

historical exchange rates and gold value: £1 = 7,032 escudos (1916); £1 = 7.2536g gold; gold price = US$4.7345 per 7.2536g. Source: Instituto Nacional de Estatística, *Publicações Estatísticas Históricas* (Lisbon, INE, 2001), p. 737, available at https://www.ine.pt/xurl/pub/138364, retrieved 2 November 2025.

43 CCFB, 'Relatório e Contas Correspondentes ao 13° Exercício [Report and Accounts for the Company's 13th Fiscal Year]' (1917), p. 12.

44 *Ibid.*

45 CCFB, 'Relatório e Contas Correspondentes ao 32° Exercício [Report and Accounts for the Company's 32nd Fiscal Year]' (1936), p. 9; V. Cóias e Silva and A. Segadães Tavares, 'O Caminho-de-Ferro de Benguela: Património Luso-Britânico em Solo Angolano', *Pedra & Cal: Os Caminhos-de-Ferro como Património Cultural*, 16 (2002), p. 6.

46 J. Gossweiler, 'Nomes Indígenas de Plantas de Angola', *Agronomia Angolana*, 7 (1953), p. 126.

47 *Ibid.*, p. 443.

48 *Ibid.*, pp. 120–6.

49 Anonymous, 'Companhia do Caminho de Ferro de Benguela', p. 381.

50 *Ibid.*

51 Government of Portugal, Decree No. 25027 of 9 February 1935, *Diário do Governo*, 32, Series I, 9 February 1935, pp. 258–60.

should set aside 60 hectares for agriculture, with the remaining area allocated to pastures and forestry (Decree No. 25027 – Article 1, §2). Thus, colonial policy integrated forestry into the economic model for European settler settlement, incorporating it into the management of assigned lots. Afforestation, in this context, emerged as a complement to the agrarian economy envisaged in colonial planning – a strategy for the economic exploitation of forest resources, combining agricultural production, livestock rearing and timber provision for Benguela Railway locomotives.

The CCFB selected exotic species to be planted in Angolan territory, particularly eucalyptus, based on economic factors and scientific research. These studies favoured eucalyptus for its high calorific value, soil adaptability and rapid growth.[52] The company's 1935 Report and Accounts, under its Forests and Crops section, references a comparative study of various tree species conducted in Brazil. The results showed that the genus *Eucalyptus* had the highest calorific value among the analysed species:

> Having recognised the urgent need to establish forest stands in areas where indigenous woodlands are severely depleted – and where they would take many years to regenerate – the planting of 400,000 eucalyptus trees was authorised in 1935 in the Cubal and Silva Porto regions. For 1936, an equal quantity was permitted, and we expect to continue granting similar authorisations in subsequent years until a sufficient volume is achieved to ensure regular fuel supplies for our locomotives. According to experiments conducted in São Paulo (Brazil), Eucalyptus firewood provides 4,870 calories per kilogramme. Our best firewood, from ungerite, offers 4,776 calories per kilogramme. For passenger trains, using ungerite or other high-calorific-value firewood is indispensable on the section between São Pedro and Cubal.
>
> Ungerite firewood is currently only found at great distances from the railway line, making its cost prohibitively high. Necessary studies confirmed that besides having a higher calorific value than ungerite, eucalyptus firewood would be significantly cheaper, as the respective forests could be established along the line.
>
> Our eucalyptus forest firewood will, in due course, advantageously replace ungerite. A specialised body was created to oversee these plantations and manage firewood cutting, as well as to direct all matters related to the European colonisation our Company is trialling and to promote crops vital to the development of regions served by our Railway.[53]

As can be seen, eucalyptus firewood was distinguished by its superior calorific value compared to ungerite, which had previously been regarded as the best available. Additionally, ungerite was only found at significant distances from the railway line, increasing logistical costs. Beyond the calorific advantage over species from the Miombo and Mopane woodlands, *Eucalyptus* trees could be planted along the railway due to the species' adaptable plasticity in both ecoregions. Its rapid growth rate, reaching 30 cubic metres per hectare per year, was in stark contrast with that of the native firewood species.[54] A further distinctive feature of this genus was that it lost a greater proportion of moisture when air-dried than other timbers used by the Benguela Railway, making it easier to handle and more suitable as a fuelwood.[55]

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52 The most crucial index regarding the calorific characteristics of fuels is assessed by the amount of heat released during complete combustion, under specified conditions, of a given quantity of material, expressed in kilocalories per kilogram (Kcal/kg).

53 CCFB, 'Relatório e Contas Correspondentes ao 32° Exercício', pp. 8–9, translation by the author.

54 E.N. Chidumayo, 'Estimating Fuelwood Production and Yield in Regrowth Dry Miombo Woodland in Zambia', *Forest Ecology and Management*, 24, 1 (1988), pp. 59–66; C. Delgado-Matas and T. Pukkala, 'Comparison of the Growth of Six *Eucalyptus* Species in Angola', *International Journal of Forestry Research*, 1 (2011), art. 980259, pp. 1–9.

55 Tshingi Kueno Ndombasi, 'Le Chemin de Fer de Benguela', p. 136.

To ensure a stable and uninterrupted fuel supply for the locomotives, a large-scale reforestation programme using multiple *Eucalyptus* species was launched, resulting in the creation of 20 Forest Perimeters, extending from Kilometre 200 (near Cubal) to Kilometre 1,300 (Luau). Most of these plantations were concentrated in the Central Plateau region (Benguela, Huambo and Bié), particularly in areas of sandy soil, including those near the Cuanza river, in Bié province. Nova Lisboa (now Huambo), the headquarters of the CCFB forestry service, became the administrative centre of the company's forestry operations. At the same time, the Dango Arboretum, located 12 kilometres from Nova Lisboa, served as the experimental field site.[56] Initially established to supply fuel for the 102 steam locomotives, the plantations later began providing raw materials for the CCUP in Alto-Catumbela. The decision to adopt industrial-scale forestry confirmed eucalyptus as a vital component of colonial infrastructure, replacing indigenous ecosystems in areas adjacent to the railway (which were depleted for their timber resources) with highly productive monocultures.

The extensive planting programme of exotic species overseen by the CCFB was conducted using scientific methods supported by research and aligned with economic planning, integrating livestock farming, agriculture and forestry to ensure economically profitable exploitation.[57] Between 1931 and 1950, approximately 31 million trees were planted along the railway, of which 28 million were *E. rostrata* (now classified as *E. camaldulensis*). The seeds for these plantations were sourced from South Africa, Angola, Brazil and Portugal.[58] The initial preference for *E. rostrata* was mainly due to the species demonstrating hardiness and adaptability, as shown in experimental trials, particularly under the adverse climatic and soil conditions of Angola's Central Plateau.[59] However, owing to its small crown and sparse foliage, this species encouraged the proliferation of spontaneous vegetation, which competed with the young eucalyptus saplings and ultimately hindered their rapid development.[60]

Subsequently, the company preferred *E. saligna*, mainly due to its rapid growth on fertile soils and its crown traits, which, being denser and more developed than those of other species of the same genus, reduced the need for silvicultural operations to control unwanted vegetation in the early stages. This resulted in economic efficiency and reduced the chance of regrowth into understorey vegetation.[61] The selection of *E. saligna* was thus based on various experiments and research into the woody material along the railway line.[62] The decision was made following experiments conducted at the Dango Arboretum, an experimental centre affiliated with the CCFB's forestry service.[63]

The initial seeds originated in South Africa and were collected from specimens on farms established by German settlers in the Nova Sintra area. Due to their size, rapid growth and ease of adaptability, they met the company's requirements and expectations.[64] In addition to collecting seeds from these farms, imports were made from countries where the species is

56 Sampaio, 'As Plantações', p. 468.
57 Quaresma, 'O Eucalipto Como Fonte de Madeiras'.
58 A. Quaresma and C. Reis, 'A Evolução das Plantações do CFB', *Boletim do Caminho de Ferro de Benguela*, VI, 3 (1966), p. 13.
59 Sampaio, 'As Plantações', p. 468.
60 Quaresma and Reis, 'A Evolução das Plantações', p. 12.
61 Sampaio, 'As Plantações', p. 468. Understorey vegetation refers to the layer of plants growing beneath the main tree canopy, including shrubs, young trees, grasses and herbaceous plants. In plantation forestry, this vegetation may compete with planted trees for light, water and nutrients, thereby reducing their growth.
62 Quaresma and Reis, 'A Evolução das Plantações', p. 14.
63 The Dango Arboretum, established in 1947, evaluated 24 species of eucalyptus, showing that some, such as *E. grandis* and *E. saligna*, grew well, while others experienced high mortality or limited growth, with height developing rapidly in the first years and diameter growth occurring mainly during the first seven years. For more details, see F.M. Sampaio and E.C. Frade, 'O Arboreto do Dango', *Agronomia Angolana*, 18, Luanda, Direcção Provincial dos Serviços de Agricultura e Florestas de Angola (1963), pp. 3–21.
64 Quaresma and Reis, 'A Evolução das Plantações', p. 14.

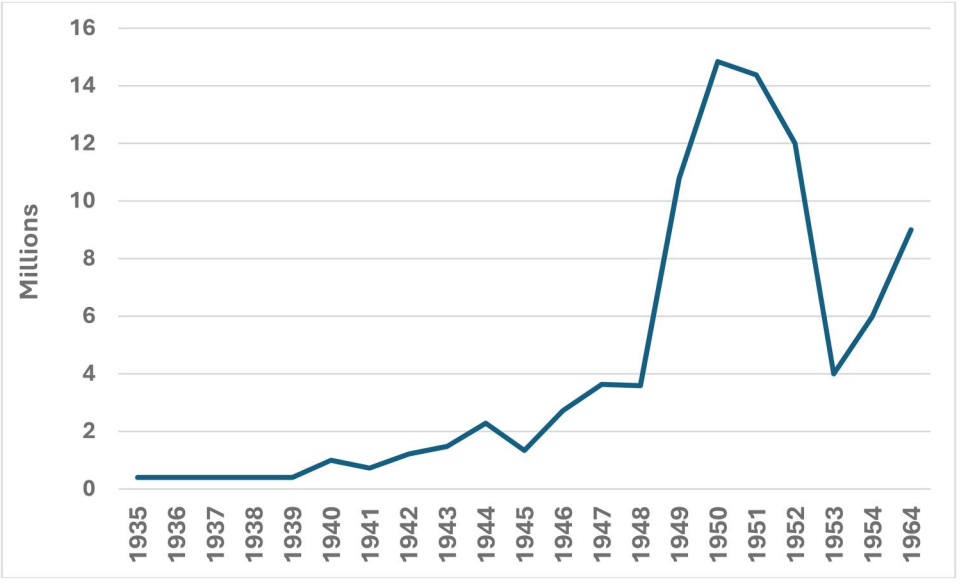


Figure 2. Number of *Eucalyptus* trees planted by CCFB, 1935–64. (Source: Author's graph, based on data from Companhia do Caminho de Ferro de Benguela [CCFB], Company reports and accounts for 1935–54; F.M. Sampaio, 'As Plantações de Eucaliptos na Companhia do Caminho de Ferro de Benguela', *Gazeta dos Caminhos de Ferro*, ano 77, 1851 [1965], p. 468, for 1964 data.)

native, such as Australia, and from other regions with well-established cultivation, such as those in Brazil.[65]

The case of Brazil clearly illustrates how colonial policy could prioritise the interests of privately funded companies when their activities were framed as serving the public interest. In 1949, the CCFB emphasised the need to obtain eucalyptus seeds from the Companhia Paulista de Estradas de Ferro, based in São Paulo, Brazil. The CCFB directly contacted the seed producer, and the head of its Forestry and Cultivation Service even visited the Brazilian company's forestry services. However, the Companhia Paulista cited difficulties in obtaining an export licence, leading to a request for intervention from the Portuguese authorities. Between 1949 and 1950, the CCFB sought support from the Lisbon government to acquire *E. grandis*, *E. alba* and *E. saligna* eucalyptus seeds essential for reforesting the railway line in Angola. The seeds were only available at the Tremembé Forestry nursery in Brazil. The process involved co-ordination between the Consulate, the Embassy, the Ministry of Foreign Affairs and the colonial Directorate-General for Political and Civil Administration, highlighting both colonial dependence on foreign resources and the strategic economic importance of reforestation for Angola.[66]

Annual campaigns ranging from one million to approximately 15 million trees resulted in about 64 million *E. saligna* trees being planted up to the early 1960s, excluding the campaigns of 1956/57 and 1963/64.[67] This extensive afforestation programme, promoted by the CCFB Forestry and Agricultural Service, as shown in Figure 2, accounted for nearly 93 million eucalyptus trees being planted and under exploitation, spread across 20 forest

65 *Ibid*.

66 For further details, see Arquivo Histórico Ultramarino, Lisboa (hereafter AHU), Ministério do Ultramar (MU), 2G-CF, cx. 1940–1956, 'Processo Sobre o Pedido da Companhia do Caminhos de Ferro de Benguela, de Sementes de Eucalipto para Arborizar as Margens da Linha Férrea, 1948-56', fl. 1-67v.

67 Quaresma and Reis, 'A Evolução das Plantações', p. 14.

areas.[68] *E. saligna* made up nearly 70 per cent of all the eucalyptus species planted in Angola's Central Plateau region.

Eucalyptus sowing, planting, land preparation, timber cutting and railway maintenance predominantly depended on local black Angolan labour. Local workers were integrated into what was called the 'volunteers system'. In practice, however, this term often concealed coercive recruitment, as participation was rarely entirely voluntary. Indigenous labour became a sensitive issue for the Portuguese colonial administration as it came under increasing international pressure. This pressure, from the League of Nations, grew from 1926 onwards, when global scrutiny was focused on forced labour – a widespread practice in the Portuguese colonies, where authorities actively enforced the conscription of workers for both public works and private companies.[69] In response, on 6 December 1928, the regime passed a decree setting out its Indigenous Labour Code.[70] However, as Valentim Alexandre observes, there is evidence that compulsory practices experienced only a temporary setback as a result of the new legislation.[71]

Europeans held administrative positions, while *mestiços* (mixed-race Angolans), who had access to basic schooling, performed intermediate functions.[72] Wage distribution reflected a deeply rooted racial hierarchy: African workers were paid subsistence wages and assigned degrading tasks and denied the benefits and safeguards that were available to European staff.[73] To attract and keep 'volunteers', the CCFB built *sanzala* quarters – African workers' housing compounds – and modest villages near plantations and forests. These were places where workers could live with their families, but which functioned more as tools of spatial and mobility control than as investments in comfort.[74] From 1935 onwards, forestry and timber-related labour work became a regular source of employment for African workers, as Portuguese immigrants showed little interest in such labour. African workers therefore became central to the expansion of timber exploitation and eucalyptus cultivation.[75]

Between 1935 and around 1955, the CCFB employed approximately 13,000 indigenous workers for these tasks, within an average workforce of 15,000. The available figures also record approximately 1,500 Europeans and 1,000 *assimilados* – a category that, while officially applied to black Africans, was sometimes used more broadly in contemporary sources to include *mestiços* who were considered 'civilised'.[76] Among the roughly 13,000 indigenous workers, the company's 1956 workforce included 10,658 'volunteers' and 1,348 contract workers.[77] Two decades after the start of the afforestation programme, official reports highlighted a worker shortage for maintaining firebreaks and weeding plantations. This shortage led the company to consider mechanisation as the only feasible solution, enabling faster work at lower costs within its Forests and Crops budget.[78] After discussions

68 Sampaio, 'As Plantações', pp. 467–9; Quaresma and Reis, 'A Evolução das Plantações', pp. 12–14.
69 V. Alexandre, *Velho Brasil, Novas Áfricas: Portugal e o Império 1808-1975* (Porto, Afrontamento, 2000), p. 188.
70 Decree No. 16.199, Indigenous Labour Code in the Portuguese African Colonies, 6 December 1928.
71 Alexandre, *Velho Brasil, Novas Áfricas*, p. 188.
72 In colonial Angolan society, the racial hierarchy distinguished between 'civilised' and 'indigenous' (non-civilised) people, with *mestiços* – those born to unions between white and black people – regarded as an intermediate class. This category was further divided into 'civilised mestiços' and 'indigenous mestiços', a distinction that influenced the CCFB's recruitment of workers. For further detail, see Tshingi Kueno Ndombasi, 'Le Chemin de Fer de Benguela', p. 290.
73 Tshingi Kueno Ndombasi, 'Le Chemin de Fer de Benguela', p. 291.
74 *Ibid.*, p. 301–2.
75 *Ibid.*, p. 385.
76 Arquivo Histórico Ultramarino, Lisboa (hereafter AHU), Ministério do Ultramar (MU), Direção-Geral do Fomento (DGF), 'Caminho de Ferro de Benguela: Relatórios e Atas', f. 21.
77 AHU, MU, DGF, 'Caminho de Ferro de Benguela', f. 22.
78 AHU, MU, Inspeção Superior de Administração Ultramarina (ISAU), 'Fiscalização das Empresas Ultramarinas: Companhia do Caminho de Ferro de Benguela', ff. 55 and 63.

between central services and the Reforestation Section, the CCFB Board initially decided to purchase only a tractor and a disc harrow.[79]

The introduction of mechanisation marked a crucial turning point in managing eucalyptus plantations. Previously hampered by the labour shortages, the CCFB was able to implement more efficient and systematic operations, opening the way for expansion. This period of technological adaptation established a firm foundation for a phase of consolidation and growth, during which plantations were intensified and extended across Angola's Central Plateau. The next section examines this process under the leadership of the CCUP between 1957 and 1975, emphasising the interplay of corporate strategy, ecological management and regional development.

Industrial Consolidation, Growth and Environmental Silence (1957–75)

The consolidation of eucalyptus plantations in Angola, particularly on the Central Plateau, increased between 1957 and 1974, driven by the CCUP. The company's formation is linked to wider shifts in the Portuguese colonial economy after the Second World War. In 1936, the 'industrial conditioning' regime was extended to overseas territories, granting the government the authority to prevent the establishment of industries in the colonies. The following year, economic co-ordination bodies were established to regulate the export of colonial goods.[80] However, from 1939 to 1945 onwards, the pressure from metropolitan economic groups to develop industries in the colonies intensified. These pressures led to a revision of the conditioning system, allowing the formation of industrial companies overseas, albeit in a limited manner. Nonetheless, the overall structure of the imperial economy was still governed up to the late 1950s by the so-called colonial pact – an economic framework that tied Angola to the role of supplying raw materials and primary products to the metropolitan economy, while discouraging local industrial development and foreign investment.[81] According to Adelino Torres, it was only from 1961 onwards that Angola manifested a shift in Portuguese colonial policy, moving away from this restrictive model towards increased investment in infrastructure and industrial expansion driven by the export of iron, oil, coffee and diamonds.[82]

The transformation of the colonial economy in the post-war period was not limited to trade but also extended to productive activities in African territories. Among these was a significant rise in private investment in Angola and Mozambique, not only in mercantile and financial sectors but also in agricultural plantations.[83] During the war years, particularly in 1941–42, there was also an increase in export prices, driven by the international price surge in colonial raw materials, which encouraged the expansion of productive activities directly linked to those sectors. This development was primarily due to protectionist policies established in Lisbon over the previous decade, including the fixing of export quotas and the setting of import prices for the metropolis, supported by strong administrative interventions, such as forced labour and compulsory crop schemes.[84]

79 *Ibid.*, f. 56.
80 Alexandre, *Velho Brasil, Novas Áfricas*, p. 190.
81 J. Pereira Leite, 'La Formation de L'Économie Coloniale au Mozambique: Pacte Colonial et Industrialisation: du Colonialisme Portugais aux Réseaux Informels de Sujétion Marchande: 1930-1974' (Doctoral thesis, Ecole des Hautes Etudes en Sciences Sociales, Paris, 1989), p. 221.
82 A. Torres, 'Pacto Colonial e Industrialização de Angola (Anos 60-70)', in *Análise Social*, 19, 77-78-79 (1983), p. 1101.
83 Alexandre, *Velho Brasil, Novas Áfricas*, p. 192.
84 F. Rosas, *Portugal entre a Paz e a Guerra, 1939-1945* (Lisboa, Editorial Estampa, 1990), p. 239.

However, a decisive turning point came after the outbreak of the colonial war in Angola in 1961, when the Portuguese government, under pressure, abolished the more archaic forms of exploitation, including the forced labour and compulsory crop regulations. While the immediate impact was limited, this move opened the doors to foreign capital, a step that largely contributed to the high growth rates recorded in the economies of Angola and Mozambique in subsequent years.[85] Simultaneously, the country's development plans over the period from 1953 to 1974 became central tools of economic governance. Covering all territories under Portuguese sovereignty, these plans organised productive activities within a programme of growth and modernisation.[86] As Gervase Clarence-Smith observed, such plans align with a broader trend of right-wing authoritarian regimes, where public works and colonial projects serve as mechanisms for political and economic affirmation.[87] António José Telo also noted that the Lisbon government aimed, through these instruments, to strengthen links between the metropolis and colonies and to construct a 'protected zone' to ensure the country's survival and the continuation of the empire.[88]

In this context, the CCUP represented the intersection of industrial capital, ecological management and colonial governance, demonstrating how forest policy was transformed into both an economic strategy and a political argument to support the empire's stability in its final years. This perspective situates the company within the historiographical debate on late industrial colonialism in the Portuguese empire, which has emphasised how development projects served as tools for legitimation and mechanisms that intensified extractive practices and ecological changes in the colonies.[89] To understand how these processes were implemented in practice, it is crucial to examine the foundation and operational strategies of the CCUP, which became the main vehicle for the consolidation and expansion of eucalyptus plantations in Angola.

The CCUP was established by deed in 1955, with its headquarters in Alto Catumbela. Emerging as a private, nationally supported initiative, the CCUP became central to the consolidation and expansion of eucalyptus plantations in Angola. The country was chosen in preference to Portuguese Guinea (now Guinea-Bissau) for the pulp industry precisely because of the availability of eucalyptus in its central highlands.[90] Its strategic location combined several key factors: proximity to water resources (the Catumbela river) and areas suitable for eucalyptus plantations; access to railway transport for product distribution, as the CCFB had even built a branch line to the CCUP's planned factory site and relocated the Alto Catumbela station there; and favourable climatic conditions for staff settlement.[91]

From 1957 onwards, the CCUP concentrated on securing eucalyptus-derived fibrous raw materials to produce various types of paper. Initially, the company sourced eucalyptus from existing plantations, establishing agreements at fixed prices with private landowners.[92] In the second phase, systematic reforestation was undertaken on state-allocated land, mainly with eucalyptus and some cedar specimens. Despite its scale, this reforestation was deemed insufficient and the high costs of expanding these plantations led the CCUP to seek

85 F. Rosas, 'O Estado Novo (1926-1974)', in José Mattoso (ed.), *História de Portugal*, vol. 7 (Lisboa, Círculo de Leitores, 1994), p. 489.
86 V. Pereira, 'A Economia do Império e os Planos de Fomento', in M. Bandeira Jerónimo (ed.), *O Império Colonial em Questão (sécs. XIX-XX): Poderes, Saberes e Instituições* (Lisboa, Edições 70, 2012), p. 251.
87 G. Clarence-Smith, *O Terceiro Império Português (1825-1975)* (Lisboa, Teorema, 1985), p. 176.
88 A.J. Telo, *Economia e Império no Portugal Contemporâneo* (Lisboa, Cosmos, 1994), p. 269.
89 Torres, 'Pacto Colonial e Industrialização de Angola'; Ferreira, 'O Império e as Relações Económicas com África'; Alexandre, *Velho Brasil, Novas Áfricas*.
90 Arquivo Nacional da Torre do Tombo, Lisboa (hereafter TT), Arquivo Oliveira Salazar (AOS), UL-33, cx. 829, pt. 8, 'Angola: Companhias Coloniais: Companhia de Celulose do Ultramar Português, SARL–Pedido de Financiamento', fl. 528–9.
91 TT, AOS, UL-33, cx. 829, pt.8, 'Angola: Companhias Coloniais', fl. 458.
92 *Ibid.*, fl. 528–9.

improved raw material supply methods and government support (such as credits, tax exemptions and licences). Additionally, the CCUP submitted a proposal to the Minister of Overseas Affairs, suggesting collaboration with the Portuguese state and highlighting the potential synergy with local forestry services, the availability of suitable land, and co-operation with the Benguela Railway – which, as noted earlier, managed around 93 million eucalyptus trees – given the CCFB's expertise in forestry and regional operations.[93]

In 1959, a legal dispute over the acquisition of eucalyptus from plantations at Sanguengue – owned by German Kai von Ahlefeldt, with nine million *E. saligna* trees covering an area of 17,000 hectares – exposed tensions between local economic interests and Portuguese colonial policy. The conflict involved the CCUP and the Companhia de Produtos de Madeiras de Angola (COPROMA),[94] a pulp company owned by businessman Harold Brand, who sought to expand the sector in Angola. The dispute centred on access to raw materials from Sanguengue, given the strategic importance of its *E. saligna* for pulp production: the species matures in seven years and can be harvested every five years, ensuring high productivity.[95] The colonial Directorate-General of the Economy, mediating the case, advocated for shared access to the resource, emphasising private investment's role in Angola's development. However, the Portuguese state, prioritising the CCUP – which was aligned with metropolitan interests – rejected COPROMA's project.[96] This decision is an example of how colonial dynamics favoured entities that were more closely aligned with Lisbon's overseas policies, sidelining local or less influential initiatives.

The central and provincial governments supported the CCUP with various concessions, including 'exemptions from customs duties and taxes, import licences, approval of plans and projects, waived formalities, tariff revisions, land grants for plantations, assistance from forestry services, reserved plantation areas and classification of the industry as a "base industry"'.[97] The forest-promoting policy initiated by the colonial government began to take shape in the 1950s, positioning Angola as a key area for forestry-based industrial projects, particularly for producing pulp and paper. One of the initial steps in this process was the appointment of a rapporteur to attend the 2nd Inter-African Forestry Conference, which was held in Pointe Noire, French Equatorial Africa (now the Republic of the Congo) from 3 to 11 July 1958. This conference brought together the scientific community to discuss issues related to tropical humid forests.[98] Angola's participation in the conference stemmed from a preliminary meeting in Paris in January 1957, where the Portuguese delegate, Francisco de Monteiro Grillo, Inspector-General for Development, proposed that José Cristóvão Henriques – then forestry engineer for Angola's forestry services– be appointed Angola's delegate and rapporteur.[99]

The Portuguese delegation identified four main topics that it wanted to be discussed at the conference, two of which deserve particular attention: the first concerned 'the results so far obtained in forest enrichment using species of proven industrial and economic interest'; the second focused on 'exotic species tested; their behaviour and the prospects for economic use in forest plantations'.[100] Another key aspect of the forest promotion strategy promoted by the colonial administration was the preparation of a reforestation plan, initially budgeted at 350,000 contos, equivalent to 350 million escudos, or approximately US$12.1 million at the

93 *Ibid.*, fl. 602–3.
94 Meaning the Angola wood products company.
95 AHU, MU, Direção-Geral de Economia (DGECO), Mg. 2, cx. 16, Doc. 253, 'Consulta Acerca de Madeiras. Instalação de uma Indústria de Celulose em Angola', fl. 122.
96 *Ibid.*, f. 5.
97 TT, AOS, UL-33, cx. 829, pt. 8, 'Angola. Companhias Coloniais', fl. 324.
98 AHU, MU, DGECO, 1K, Mç. 1949–1951, 'Consulta Acerca da Conferência Florestal Interafricana', fl. 14.
99 *Ibid.*, fl. 14-15v.
100 *Ibid.*, fl. 73.



Figure 3. *Eucalyptus* plantations, possibly in Caala, Huambo. (Photo: Courtesy of Calouste Gulbenkian Foundation, Art Library Archive, Mário Novais Studio, Companhia de Celulose do Ultramar Português [Industrial Exhibition].) Note: In the background, a linear plantation of eucalyptus trees can be seen and, alongside the road in the foreground, a continuous patch of reforestation plots.

1958 exchange rate.[101] However, the Corporative Chamber, an advisory body of Portugal's Estado Novo corporatist regime, would later propose reducing this amount to 150,000 contos, acknowledging that 'in the forestry sector, it is not yet possible to undertake the definitive work that Angola requires'.[102]

Faced with these constraints, the CCUP negotiated with the Government-General – the colonial administration – of Angola to acquire two plots near its factory, located in Ganda and Caála, totalling 10,000 hectares.[103] These areas, regarded by the forestry services as ideal for cultivation, were strategically situated close to the factory site. The CCUP made the commitment to preserve forest cover and replant trees after seven rotations, that is, after seven successive cutting cycles. The approval in 1957 of Ordinance No. 9925 transferred 10,000 hectares from land previously designated for colonisation and placed it under state control.[104] After that, the CCUP began negotiations to acquire land adjacent to the factory, completing various transactions that secured thousands of hectares for plantation purposes. Figure 3 shows a landscape from the same or nearby area, marked by a prominent rock formation and eucalyptus vegetation.

This forest promotion policy extended beyond legislation and land concessions, encompassing technical studies that supported the colonial strategy. At the 2nd World

101 Câmara Corporativa, *Diário das Sessões*, 57, 25 October 1958 (sessão extraordinária), p. 1169. A conto was a unit of currency in Portugal and its colonies, equivalent to 1,000 escudos. The conversion uses the 1958 exchange rate of 28.9 escudos to the US dollar: see Instituto Nacional de Estatística, *Estatísticas Históricas Portuguesas*, p. 737.

102 Câmara Corporativa, *Actas da Câmara Corporativa*, 27, 25 September 1958, p. 448.

103 TT, AOS, UL-33, cx. 829, pt. 8, 'Angola: Companhias Coloniais', fl. 16.

104 *Angola Official Bulletin*, no. 41, Series I, 9 October 1957, Ordinance no. 9925 (Government-General of Angola, 1957).

Eucalyptus Conference in São Paulo (1961), Américo Moreira de Azevedo, a forestry engineer at the CCUP, presented findings from *E. saligna* plantations in Huambo, which extended over approximately 5,000 hectares, with nearly 13 million trees, established from seeds imported from the Union of South Africa.[105] His analysis demonstrated rapid adaptation, high productivity and an optimal seven- to eight-year harvesting cycle. These practices framed forests as controllable, measurable and economically exploitable by translating Angola's Miombo landscapes into growth curves and yield projections. From the perspective of Jason Moore's work, this reflects the creation of 'Cheap Nature', whereby Angolan forests were integrated into global industrial and ecological circuits, linking local environments to expanding pulp and paper production.[106]

Building on these experimental and technical foundations, the formal establishment of the CCUP marked the transformation of eucalyptus plantations into a fully integrated industrial and territorial project. Contemporary reports and accounts emphasise the company's collaboration with colonial institutions such as the Instituto de Investigação Agronómica de Angola and the CCFB forestry services. The 1967 report, in a particularly notable acknowledgement, expresses gratitude to government officials, development banks, the Companhia Portuguesa de Celulose[107] itself, and all collaborators in Angola and the metropole, highlighting how the CCUP was embedded within broader colonial, financial and technical networks.

As previously noted, the CCUP was officially authorised to establish operations in Angola on 17 April 1957. The initial plan envisaged a daily production of 60 tonnes of pulp and 25 tonnes of paper, with a second phase aiming to increase output to 100 tonnes.[108] However, delays in equipment assembly and the events of 1961 in Angola postponed the start-up, which only occurred at the end of that year. Early production was modest: by 1963, the factory operated at approximately 80 per cent of its pulp capacity but had reached only 15 per cent of its planned paper output.[109] Despite these logistical and environmental advantages, the complex faced significant challenges stemming from its relative isolation: distance from key international pulp markets, difficulties in sourcing essential chemicals, and a shortage of skilled labour were obstacles that could not be mitigated solely by proximity to raw materials.

Between 1964 and 1966, the company faced growing financial difficulties, relying on successive capital increases and loans, threatening the project's viability. Under the auspices of the Banco de Fomento Nacional,[110] a 1964 study identified expansion as the only way to ensure survival. By 1969, the first phase of expansion enabled the factory to produce 110 tonnes of pulp daily and 8,000 tonnes of paper annually. Simultaneously, a comprehensive territorial planning and afforestation programme involving colonial bodies such as the Provincial Secretariat for Rural Development and the Provisional Settlement Board was launched. The CCUP's planned planting efforts increased from 17,370 hectares in 1969/70 to 24,000 hectares in 1970/71 and 48,000 hectares in 1972/73, surpassing the 37,500 hectares allocated to the CCFB.[111] Despite the severe drought of 1973/74, the company met its target of 13,500 hectares, securing the forest base necessary for future factory expansion.

105 A. Moreira de Azevedo, 'Produção de *Eucalyptus Saligna* Sm. – Estudos das Leis de Crescimento na Zona Planáltica de Angola', *Agronomia Angolana*, 15 (1962), p. 3.
106 J.W. Moore, 'The Rise of Cheap Nature', in J.W. Moore (ed.) *Anthropocene or Capitalocene?* (Binghamton, PM Press, 2016), pp. 78–115, available at https://orb.binghamton.edu/sociology_fac/2, retrieved 5 May 2026.
107 Portuguese Pulp Company.
108 Companhia de Celulose do Ultramar Português (CCUP), Report and Accounts of 1955 and 1956, p. 6.
109 CCUP, Report and Accounts of 1974, 'Anexo I – Ampliação Fabril de 1974' (1974), p. 2.
110 National Development Bank.
111 CCUP, Report and Accounts of 1974, 'Anexo I – Ampliação Fabril de 1974' (1974), pp. 2–4.



Figure 4. CCUP's nurseries for its own plantations. (Photo: Courtesy of Arquivo Nacional da Torre do Tombo, Lisboa, Secretaria-Geral da Presidência do Conselho de Ministros (SGPCM), cx. 141, pasta 5/A-3, no. 7, 'Companhia de Celulose do Ultramar Português, S.A.R.L.' [Catumbela-Angola], 1960.)

The CCUP's consolidation was thus based on a dual strategy: industrial stabilisation alongside ongoing growth of eucalyptus plantations, which was crucial for integrating the enterprise into the colonial economy.

Annex I of the 1974 Report and Accounts shows that the project of factory expansion went beyond technical and industrial planning, involving a wide social and territorial development programme. The CCUP mobilised local communities to build infrastructure – including housing, clinics, schools, chapels, warehouses and workshops – and to undertake forestry activities such as planting, maintenance, felling and timber transportation.[112] The project aimed to manage multiple eucalyptus areas simultaneously, ensuring a steady supply to the factory and stabilising the workforce within the settlements.[113]

The company employed 56 non-indigenous specialists, 36 indigenous specialists and approximately 7,500 permanent rural workers engaged in forestry tasks, including afforestation, land preparation, planting in and tending seed beds (Figure 4), timber cutting and loading (Figure 5). This number could rise to 12,000 when including seasonal or additional workers throughout the year. In the factory sector, 760 skilled workers were employed, of whom 460 were indigenous.[114] Simultaneously, the company developed a network of social services: schools attended by 1,650 indigenous and 352 non-indigenous students, medical and health posts, housing for hundreds of families, supply provisions through COCEL, the CCUP employees' co-operative, and leisure facilities such as a cinema, clubs, a swimming pool and a golf course. The expansion plan also included establishing a

112 *Ibid.*, p. 9.
113 *Ibid.*
114 *Ibid.*, p. 15.



Figure 5. CCUP rural workers engaged in forestry tasks in *Eucalyptus* plantations. (Photo: Courtesy of Calouste Gulbenkian Foundation, Art Library Archive, Mário Novais Studio, Companhia de Celulose do Ultramar Português [Industrial Exhibition].)

vocational school, a hospital in Alto Catumbela and a performance hall within the Sanguengue perimeter.[115]

Building on industrial and social foundations, it is essential to view the expansion of eucalyptus plantations in Angola within its historical and ecological context. During the colonial era, approximately 82 eucalyptus species were introduced, resulting in forest plantations and isolated trees.[116] An industrial pulp facility, the CCUP, stimulated eucalyptus growth, particularly *E. saligna*, which is considered the most suitable species for local conditions. Manuel Lopes da Silva notes that eucalyptus cultivation covered around 90,000 hectares, with 70,000 hectares in two Miombo woodland regions. Zone I, between 1,700 and 2,000 metres, had favourable conditions but lacked woody vegetation, characterised instead by shrub savannah and grasslands.[117] Zone II, located on the Central Plateau (1,000–1,700 metres), featured open deciduous woodland with *Brachystegia*, *Julbernardia* and *Isoberlinia*,[118] along with species such as Guibourtia, Burkea and Pterocarpus (locally known as *tacula*).[119] *Eucalyptus* plantations

115 *Ibid*.
116 M.L. da Silva, 'Algumas Notas Sobre a Cultura do Eucalipto em Angola', *Instituto de Investigação Agronómica de Angola*, 24, 11 (1971), pp. 2–3.
117 *Ibid.*, p. 10.
118 *Ibid.*, p. 12.
119 Huntley, 'Outlines of Wildlife Conservation in Angola', p. 35.

included 30,000 hectares owned by the Benguela Railway, 12,000 by the CCUP, 7,000 by the state and 21,000 by private owners.[120] Seeds from South Africa, Australia and Brazil were cultivated in specialised nurseries. From 1948 onwards, the Benguela Railway has produced seeds of *E. saligna* and *E. camaldulensis*; the CCUP concentrated on *E. saligna*, while the state's forestry services propagated various species, particularly *E. saligna*.[121]

Hence, the 1974 expansion should be viewed as a dual effort. On one hand, it represented industrial modernisation, aiming for a substantial increase in eucalyptus plantations to supply the factory and elevate bleached pulp production to 800 tonnes daily (one of the most significant planned outputs globally). On the other hand, it established a model of corporate paternalism where the company assumed roles typically assigned to the colonial state, managing labour and the daily lives of populations subordinate to its productive agenda. As emphasised at the end of the previous section, this strategy proved significantly more effective than that of the CCFB, enabling a more organised workforce and carefully planned social and housing infrastructure, which encouraged the settlement of populations in the company villages. Nevertheless, despite these administrative and organisational efforts, wage distribution remained heavily influenced by racial criteria, demonstrating that even within a seemingly modernised framework, social hierarchies and structural inequalities persisted within the colonial-industrial enterprise.

Despite the narrative of progress and technical success, no systematic ecological studies or environmental reports were conducted regarding the pulp and paper complex established on the banks of the Catumbela river. This reflects a broader institutional invisibility characteristic of the late colonial period, in which industrial productivity and modernisation were prioritised over ecological accountability and the livelihoods of African communities.

The likely effects of the CCUP's operations on the Catumbela river ecosystem can be inferred from contemporaneous cases in Portugal, where identical pulp and paper industries operated under the same technological and administrative framework. The example of Sociedade Industrial de Celulose (SOCEL) in Setúbal, situated on the Sado river, illustrates the severe environmental degradation and social tensions associated with pulp production.[122] Documented protests from fishers, oyster farmers, shellfish gatherers and salt producers, as well as the 1970 lawsuit brought by SADIMAR, a local shellfish-exporting and processing company, demonstrate that even under an authoritarian regime local actors were compelled to take action against environmental degradation.[123] These conflicts were directly linked to the ecological consequences of pulp production: industrial effluents, derived from the same eucalyptus feedstock and kraft (sulfate) process, depleted oxygen levels, suppressed aquatic life and directly undermined traditional maritime activities, including fishing, shellfish harvesting and salt production.[124] The documented social and legal responses thus provide clear evidence of the tangible harms caused by industrial operations.

It is therefore methodologically sound to infer that the CCUP effluents may have produced ecological and social consequences similar to those documented in the Portuguese pulp industry. The colonial administration's dismissive attitude towards African environmental claims ensured that these impacts remained largely unmonitored and undocumented, rendering them effectively invisible in the official record. Accordingly, the well-documented conflicts and ecological degradation in Setúbal serve as an instructive parallel, illuminating the likely

120 M.L. da Silva, 'Algumas Notas', p. 3.
121 *Ibid*.
122 TT, AOS, EC-24, cx. 85, pt. 8, 'Consequências do Funcionamento da SOCEL - Sociedade Industrial de Celulose para a Higiene e Saúde Públicas', 1964–1966.
123 Arquivo Distrital de Setúbal, Tribunal Judicial da Comarca de Setúbal, 'Ação de Processo Sumário da SADIMAR - Sociedade Exportadora e Afinadora de Mariscos, Ld[a]., contra a SOCEL/Sociedade Industrial de Celuloses, S.A.R.L.', 1970.
124 *Ibid*.

hidden costs of the Catumbela project and highlighting the common disregard for the environment that characterised late Portuguese industrial colonialism, with the metropole serving merely as the model for such industrial practices.

Conclusion

Introducing exotic species in Angola, particularly the genus *Eucalyptus*, exemplifies the Portuguese colonial enterprise: a combination of ecology, economy and colonial administration. This process occurred in three distinct stages: first, in the early 20th century, the exploitation of Miombo woodlands was the primary means of meeting the growing demand for fuelwood, mainly driven by steam locomotives of the Benguela Railway. Second, from the 1930s onwards, the shift to eucalyptus monocultures marked a significant change in forest resource management on Angola's Central Plateau. This change was justified by scientific and economic reasons: the genus's rapid growth, high calorific value and excellent adaptability to various soil types. In the third phase, the industrial processing of introduced exotic species, especially *Eucalyptus saligna*, reinforced its dominance over other species within the genus. This phase not only accelerated the establishment of forest plantations but also heightened the role of industrial forestry in Angola's colonial economy.

The CCUP established Angola as a hub for industrial forestry. At the same time, its operations increased colonial Angola's reliance on exotic monocultures, transforming both the physical landscape and local economies to serve colonial interests. *Eucalyptus* was not only an economic resource but also a 'driving genus' – a bioeconomic agent that displaced native ecosystems in favour of the colonial infrastructure network, especially in the copper-rich areas of present-day Democratic Republic of the Congo and Zambia, which were within the influence of the Benguela Railway, the Port of Lobito and the CCUP's establishment in Angola (initially planned for Portuguese Guinea). The choice of this exotic genus was promoted by Europeans across Africa, as demonstrated in this study. Introducing these arboreal species to Angola as part of a 'portmanteau biota' exemplified a pattern where human-driven changes aligned the environment with colonial interests, replacing the native Miombo woodland with plantations where introduced species suppressed or competed with indigenous flora.

Despite the historical expansion of eucalyptus, the Miombo forest remains a vital ecological and socio-economic resource across southern Africa, spanning seven countries and sustaining millions of people.[125] Although its coverage has declined, it still provides timber, fuel, non-timber products and habitat for diverse species, while helping to stabilise local climates and protect soils.[126] The contrast between the Miombo's rich and complex value and the single-species focus of eucalyptus monocultures highlights the tension between ecological integrity and economic exploitation, illustrating the long-term consequences of colonial forestry practices in Angola.

The trajectory of eucalyptus afforestation in Angola also reveals a dual dynamic. Under the CCFB, eucalyptus became part of a racialised and coercive labour system, where African workers bore the heaviest burden of forest exploitation under conditions of profound inequality.

125 Angola, the Democratic Republic of Congo, Malawi, Tanzania, Mozambique, Zambia and Zimbabwe, with a combined population of 247 million inhabitants, predominantly in rural areas. There are four other countries that hold small areas of tree and vegetation cover belonging to the Miombo forest, namely Burundi, the Republic of Congo, Namibia and South Africa. For further information, see Ribeiro *et al.*, 'Miombo Woodlands Research towards the Sustainable Use of Ecosystem Services in Southern Africa': see their introduction to this chapter (Chapter 19), available at https://www.intechopen.com/chapters/47908, retrieved 7 July 2026.

126 T. Brigham, A. Chihongo and E.N. Chidumayo, 'Trade in Woodland Products from the Miombo Region', in B. Campbell (ed.), *The Miombo in Transition: Woodlands and Welfare in Africa* (Bogor, Center for International Forestry Research, 1996), p. 137.

In contrast, the CCUP aimed to expand this model through industrialisation and territorial modernisation, integrating forestry with infrastructure, housing and social services. Yet, despite differences in scale and organisation, both companies used eucalyptus as a strategic tool of the colonial project. In doing so, they reinforced social hierarchies while profoundly and enduringly transforming Angola's ecological landscapes, linking the management of exotic species to the production of cellulose as a commodity of Portuguese imperial exploitation.

Although mediated through intercolonial species transfers, the selection and global dissemination of eucalyptus reflect a broader colonial strategy in which foreign biota were exported and introduced into diverse environments. In Angola, introducing these species exemplified this deliberate approach, adapting landscapes to colonial exploitation by replacing native Miombo woodlands with *Eucalyptus* plantations, where introduced species often outcompete or suppress indigenous flora. Our findings, therefore, refine Crosby's concept of ecological imperialism. They position Angola not merely as a recipient of European biota, but as a key case study in a multidirectional model of ecological dominance. The Portuguese colonial regime exploited a biotic resource from one colonised territory (Australia) to structurally reshape the socio-ecological dynamics of another (Angola). This intercolonial transfer extends Crosby's thesis, illustrating how ecological imperialism operated as a networked system, with lasting effects that extended far beyond the colonial period.

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Published following the 50th anniversary of Angola's independence, this article honours the people of Angola, their courage and enduring legacy; it is written in memory of my father, who inspired my admiration for this country.

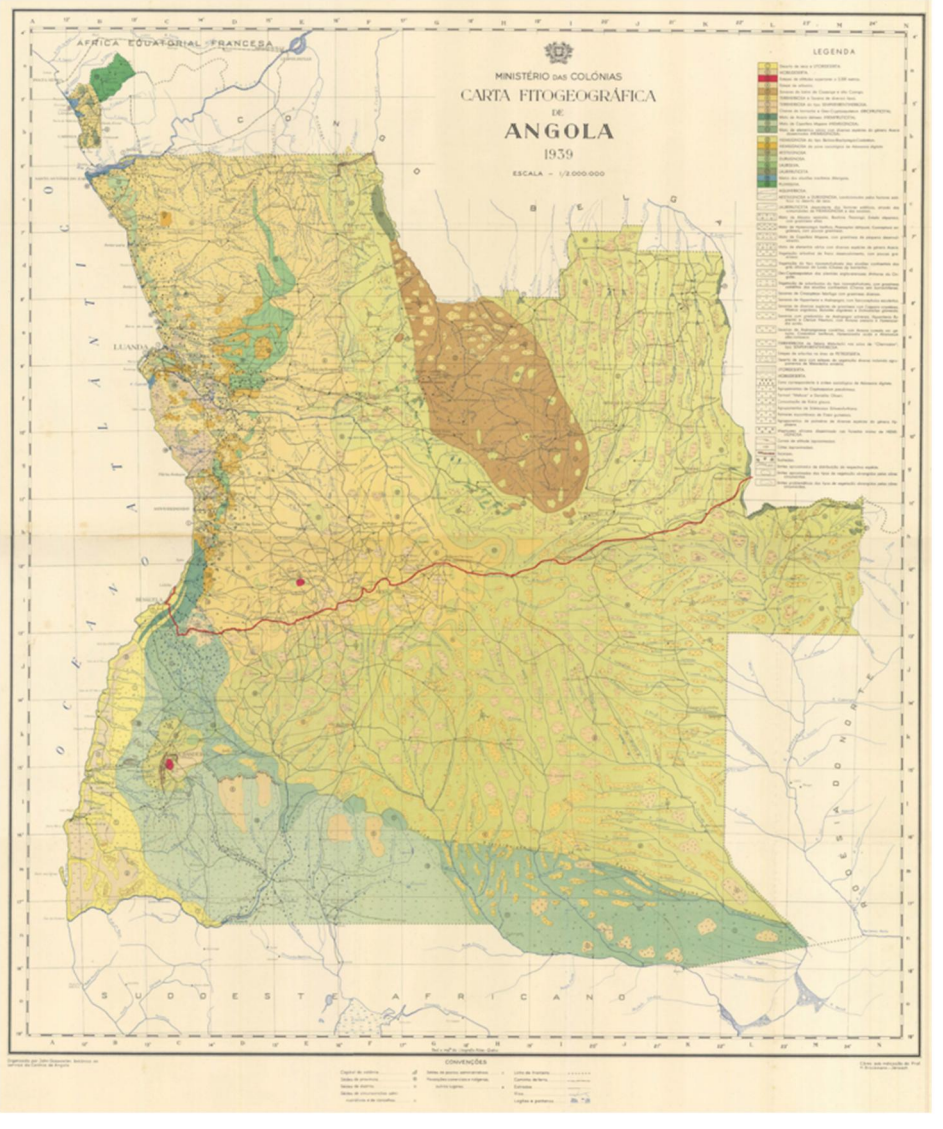
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APPENDIX

Phytogeographic map of Angola: Ministério das Colonias, 'Carta Fitogeográfica de Angola, 1939', scale 1:2,000,000, produced as part of their initial studies on Angolan vegetation by Gossweiler and Mendonça, with notes on vegetation distribution.[1]



1 J. Gossweiler and F.A. Mendonça, 'Carta Fitogeográfica de Angola, 1939' (Lisbon, Ministério das Colonias, 1939), scale 1:2,000,000, available at https://esdac.jrc.ec.europa.eu/images/Eudasm/Africa/images/maps/download/afr_cfda.jpg, retrieved 7 July 2026.