COLONIAL AND POST-COLONIAL LANDSCAPES I

ARCHITECTURES, CITIES, INFRASTRUCTURES IN AFRICA

COAST TO COAST RESEARCHERS' BOOK

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Colonial and Post-Colonial Landscapes I

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Coast to Coast researchers' book

This first volume of the book series Colonial and Post-Colonial Landscapes presents the work of a group of researchers who, since 2010, have organised themselves into teams, crossing different research projects funded by the Portuguese Foundation for Science and Technology (FCT), starting with *The Colonial Urbanisation Offices: Architectural Culture and Practice* (PTDC/AUR-AQI/104964/2008). The book brings together the main themes and arguments presented at the *I International Congress Colonial and Post-Colonial Landscapes: Architecture, Cities, Infrastructures*, as a result of the project *'Coast to Coast' – Late Portuguese Infrastructural Development in Continental Africa (Angola and Mozambique): Critical and Historical Analysis and Postcolonial Assessment* (PTDC/ATP- AQI/0742/2014).

The congress was held in Lisbon, at the Calouste Gulbenkian Foundation, from the 16th to 18th of January 2019, and was attended by 166 scholars. Its parallel programme included the exhibition *Colonizing Africa – Reports on Colonial Public Works in Angola and Mozambique (1875-1975)* at the Overseas Historical Archive [Arquivo Histórico Ultramarino], also in Lisbon. As a follow-up, a cycle of six seminars and a workshop for children were based on the exhibition theme and held at the Archive's facilities, until April 2019.

The *Coast to Coast* project aimed to survey, catalogue and contextualize the infrastructural process of the former Portuguese colonial territory in continental Africa (Angola and Mozambique) during the last century of Portuguese colonisation (1875-1975). The research questioned the influence of colonial strategies on current architectural and urban praxis in both these countries. It started from the analysis of the infrastructure process by mapping three specific typologies of colonial public works, approached from the perspective of archival and documental analysis, cartography, and historiographical description to the phase of identification and critical analysis of the state of these infrastructures (reuse, consolidation or abandonment) after Angolan and Mozambican independence in 1975.

The central argument was based on the hypothesis that colonial territorial infrastructure processes left resilient marks on the post-colonial landscape, whose impact should be analysed to support future actions. Three programmatic typologies were chosen which were decisive in the territorial occupation and are still visible today: (i) transport networks (roads, ports, railways, and airports); (ii) hydro-electric power production (dams and facilities); (iii) settlements associated with the exploitation of natural resources (mining and agriculture). The three programmes were interconnected, reproducing the centralising model of Portuguese colonial exploitation.

The team gathered Portuguese, Angolan and Mozambican researchers, architects, historians, and archivists. The Calouste Gulbenkian Foundation, Arquivo Histórico Ultramarino, Eduardo Mondlane University (Mozambique) and Universidade Técnica de Angola were partner institutions.

Ana Vaz Milheiro
Principal Investigator / Coast to Coast - Late Portuguese Infrastructural Development in Continental Africa (Angola and Mozambique): Critical and Historical Analysis and Postcolonial Assessment

CHAIR

COLONIAL AFRICA: ARCHITECTURE AND INFRASTRUCTURES IN THE LATE *ESTADO NOVO* REGIME

ANA VAZ MILHEIRO

[ABSTRACT]

The late settlement of the Portuguese colonies was directly linked to the outcome of World War II and the fact that Portugal retained the status of colonial power up until the Revolution of April 1974. In 1945, the map of the then "Portuguese Empire" was formed by colonies in Africa and Asia. The end of the war only served to accentuate the differences between these territories in the realm of implementing infrastructures, exploiting natural resources and the legislation governing the treatment of the different peoples who remained under Portuguese administration. At a time in which most African countries were gaining independence, Portugal was to fight a war on three fronts in three continental African colonies (Portuguese Guinea, Angola and Mozambique), which lasted until 1974. The armed conflict would also have a strong impact on late territorial infrastructuring processes. Over a period of 30 years, the different Public Works departments (both based in the Metropole and locally) were to leave their mark on these territories, responding to requests that were defined by the various political, economic and military agendas. The research presented here is essentially based on the collection of documentation and information in the colonial archives, having also benefited from in-situ missions to confirm the state of some of these infrastructures. Since it is still the result of surveys that in the area of architecture are partly in their initial stages, no further cross-references with other colonial pasts are made for the time being.

KEYWORDS: African Colonial Architecture, Colonial Public Works (CPW), Colonial/Overseas Planning Office, Colonial Infrastructure, Portuguese Colonialism.

BACKGROUND

The late settlement of the Portuguese colonial territories in Africa was directly related to the outcome of the World War II. The country that survived the European conflict was a dictatorship led by António Oliveira Salazar (1889-1970) and would maintain its colonial power status intact, until the democratic revolution of April 1974. Besides its five African colonies (Cape Verde, Portuguese Guinea, São Tomé e Príncipe, Angola and Mozambique), the map of the so called "Portuguese Empire" included what was known as "Portuguese India" (Goa, Daman and Diu and the island of Angediva, as well as the enclaves of Dadra and Nagar Haveli, Simbor and Gogolá), East Timor and also Macau. Nevertheless, the end of the war in Europe was to have differing impacts on the Portuguese African colonies, underlining inequalities in terms of the infrastructures' completion, exploitation of natural resources and legislation governing the treatment of the various peoples that remained under Portuguese colonial administration.[1]

Angola and Mozambique were regarded as colonies par excellence for the settlement of large contigents of "Europeans" (Castelo, 2012),[2] as well as being suitable for the launch of industrialisation processes in the primary and secondary economic sectors. Publicised as a way of absorbing the demographic surplus of the metropole,[3] the real objective was to settle permanently in the colonial territories, focusing on the rural regions, since African cities were considered to be poles of attraction per se. The rural settlement project with roots in the 19th century, strengthened in 1928 in the Angolan case, had implications for the infrastructure of the territory, often involving the displacement of local populations and the reproduction of Western and Portuguese models on the ground. Among the different attempts, with emphasis on the so-called 'directed colonization' more favourable to the centralizing ideology of the *Estado Novo* regime, were the studied cases of Cela and Cunene in Angola and Limpopo in Mozambique. This "dysfunction" caused by territorial infra-structuring by late Portuguese colonialism would end up having strong repercussions today (Fiúza; Milheiro, 2019).[4] The occupation model based on village networks and reproducing experiences developed in Portugal by the Internal Colonisation Board (Junta de Colonização Interna) created in 1936, thus reinforcing the verisimilitude between such distinct geographies in a clear process of territorial acculturation.

The exploitation of natural resources – linked to agricultural practices – naturally entailed a set of infrastructures which in fact formalised the longest lasting occupation by completely transforming the pre-colonial

1. Cf. *Estatuto dos Indígenas Portugueses das Províncias da Guiné, Angola e Moçambique* [Status of Portuguese Indigenous Groups in the Provinces of Guinea, Angola and Mozambique] Decree-Law No. 39.666 of 20 May 1954. *Organic Law on Overseas Colonies* Law No. 2.066 of 27 July 1953.
2. Castelo, C. (2012). "«O branco do mato de Lisboa»: a colonização agrícola dirigida e os seus fantasmas", *in* Castelo, C.; Thomaz, O.R.; Nascimento, S.; Silva, T.C. (org.). *Os Outros da Colonização – Ensaios sobre o colonialismo tardio em Moçambique,* Lisbon: ICS – Imprensa de Ciências Sociais, p. 27-50.
3. The argument would arise in colonial political speeches such as that given by Angola's Governor José Agapito da Silva Carvalho on the occasion of the visit of the then President of the Portuguese Republic General Francisco Craveiro Lopes (1894-1964) to the 'European' settlement of Cela in the 'province of Angola' , 1954, in *Boletim do Ultramar*, November-December 1954, p. 365.
4. Fiúza, F.; Milheiro, A.V. (2019). "Colonizing and infrastructuring the Angolan territory through colonial settlements. The case of the Cela settlement", in Silva, C.N. (ed.). *Routledge Handbook of Urban Planning in Africa*, Routledge, New York: Routledge, p. 90-106.

landscapes on a scale never before achieved. The implementation of transport networks associated with energy production (Fig. 1) or water reservoirs with large hydraulic works would have implications for the future management of colonial territories, confirming the beginning of modern occupation. This occupation was supported and driven by the exploitative development of natural resources, i.e. a capitalist model in the configuration of territories and landscapes. With different scales and impacts, all the Portuguese colonies in Africa would see their territory irreversibly transformed through these large engineering and architectural works, railways, ports, roads or hydro-electric power stations, of soil or concrete, affecting the pre-colonial landscape and creating urban and rural scenarios for the settlement of people coming from the metropole, but also encouraging migration between Africans of different origins and places, within the Portuguese colonial space.

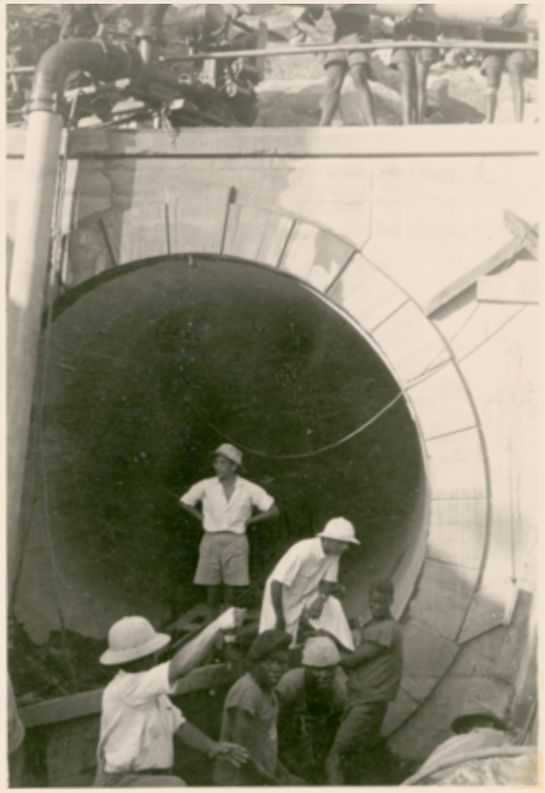


Fig. 1. Mabubas Hydroelectric Dam/Power Station, Angola, 1948. Concreting of the threshold. Inspection report of the Mabubas Dam (formerly known as President Craveiro Lopes Dam), by the engineer António Pinto Coelho*. There were three 8-hour working shifts. In October, the month covered by the report, it was also noted that "despite the intensive work regime", the "state of health" of the workers was "more than satisfactory," with only 1.7% registered as unhealthy. The search for new sources of energy, in particular hydroelectric power, would be one of the key programmes to promote the development narrative of the Estado Novo regime. This dam was one of the first large-scale modern achievements of its kind in Angola. Source: *Aproveitamento Hidro-elétrico das Mabubas, Fiscalização das obras: Relatórios do engenheiro chefe,* AHU, OP3010.

* The engineer António Vecchi Pinto Coelho designed the dam project (1944). It was approved by the Technical Board for Colonial Development. Cf. Ordem dos Engenheiros (2003), *100 Obras de Engenharia Portuguesa no Mundo no Século XX*, Lisbon: Ordem dos Engenheiros.

The process gained momentum during the World War II, making the 1940s a pivotal period in the colonial occupation. In Angola and Mozambique, the essential railway structures were practically complete by the time of the war in Europe, reinforcing the 'progressive and civilizing' spirit that the colonial government wanted to impose and which would be reflected in rapidly growing cities in the following years, with impressive demographic growth. The remaining colonies retained their essentially agricultural path, even with the exploitation of cocoa in São Tomé and Príncipe already on a downward slope. This decline in agricultural production was endangering the colonial project in the islands and forcing the public authorities to interfere in an unusual way in the history of the archipelago, even denouncing beatings

of forced labourers, work accidents and miserable salaries. In the middle of the world war, the colonial government complained about the arrogance of the major farmers compared to the general lack of conditions on the plantations or roças. The large sanitary facilities – like the large private hospitals – that had ensured the maintenance of a labour force in healthy conditions were then in collapse. Local Public Works offered alternatives, creating opportunities for small villages to start receiving modernisation projects. Although on a minimal scale, these operations showed a colonial state at different rates, heavily reliant on local capacity and with strong intervention from the public domain (Fig. 2).

Fig. 2. Vila da Madalena, São Tomé and Príncipe. Report caption: "People rejoice with the improvements of their new town", 1946. These public works were presented by Governor Carlos de Sousa Gorgulho as evidence of "the beginning of an era of prosperity for the colony and the structural transformation of the labour system". Gorgulho would later be the mandatary of the Batepá massacre of 3 February 1953 in São Tomé, which involved immigrants from other Portuguese colonies in Africa. The total number of deaths is still not consensual. The governor enjoyed great charisma with the authorities in Lisbon, precisely because he was considered a "progressive colonial leader" as a consequence of the infrastructural improvements introduced in the territory in the 1940s, but which would result from the sacrifice of coercively recruited labourers. Source: *4º Relatório confidencial a que se refere o número 4º do artigo 32 da Carta Orgânica do Império Colonial Português do Governador Carlos de Sousa,* AHU, AMU10488.

In Cape Verde, probably the poorest colonial country in natural resources, named the archipelago of thirst *and famine*, and therefore with a large supply of labour, the agricultural sector dominated all improvements, with local departments such as the Brigada Técnica de Estudos e Obras Hidráulicas playing a leading role during this period (Milheiro, 2017).[5] Small-scale infrastructure aimed at improving subsistence practices was built using the few local material resources, leaving little room for the colonial authorities to manoeuvre (Fig. 3).

5. Milheiro, A.V. (2017), *"Cabo Verde Boletim de Propaganda e Informação* (1949-63): Building the periphery of the Portuguese Empire in the local press", International Congress Politics and Culture in Colonial Periodical Press, Universidade de Lisboa, ISCTE-IUL, Universidade Nova de Lisboa (oral communication: ISCTE-IUL, 23 May 2017).

Fig. 3. Water supply works, Santo Antão Island, Cape Verde, 1948. The precarious social conditions in the archipelago made Colonial Public Works one of the few jobs with a regular salary, resulting in low wages and leading to the impoverishment of the population. Source: *No Arquipélago da Sede e da Fome*, Higher Inspector of Colonial Administration António de Almeida, AHU, A2.01.02.009/0045.

In Guinea, until the commemorations of the 5th centenary of the arrival of Nuno Tristão[6] in the region, infrastructure work focused on ensuring the mobility of the territory through the construction of a network linking roads and bridges. This period was marked by the elevation of Bissau to the capital of the country.. Once again, the local population had to carry the burden of construction, often without wages and using their own tools, as a 1940 inspection report makes clear,[7] reinforcing the material precariousness of local Public Works services. The government of Manuel Sarmento Rodrigues (between 1946 and 1949) would extend the urban improvement already initiated in Bissau and Bolama to the interior villages through a set of facilities that included educational, healthcare, sanitary and water supply programs (Milheiro, 2012a).[8] (Fig. 4)

Between World War II and the 1960s, the Portuguese state began a process of centralisation of the Public Works structures with the aim of optimising the occupation effort, as will be described in the following pages. The situation was to change in the early 1960s. During the independence processes in many African countries and United Nations pressure to begin a decolonization process, Portugal began to fight a war in Africa on three

6. Nuno Tristão was a 15th century Portuguese navigator at the service of Prince Henry, known as "the Navigator" (1394-1460), to whom the first incursion into Guinean territory is attributed. He had at least reached the River Gambia in present-day Senegal.
7. *Inspecção Administrativa Extraordinária na colónia da Guiné, 1940*, relatório do Inspector, Ministério das Colónias, Inspecção de Administração local.
8. Cf. Milheiro, A.V. (2012a). *Nos Trópicos sem Le Corbusier – Arquitectura Luso-Africana no Estado Novo*, Lisbon: Relógio d'Água.

Fig. 4. Bissau, Guinea-Bissau, 1945. Four years after Bissau became the capital of Guinea, the engineer José António Guardiola visited the colony with the architect José Manuel Galhardo Zilhão of the Gabinete de Urbanização Colonial and described the city as being in "such a disadvantaged location". Guardiola believed that the ongoing construction of the port would affect and "correct" the swampy system of the area. Source: *Relatório sobre o inquérito à cidade de Bissau e outros centros populacionais da colónia da Guiné*, Gabinete de Urbanização Colonial, AHU, IPAD 994.

(5)

A obra portuária em estudo resolverá em parte este problema, mas nunca deixaremos de cogitar nas razões, já não digo porque se implantou uma povoação neste local — visto que Bissau Velho e a Amura devem ter sido a natural evolução da "testa de ponte" estabelecida na Ilha dos Papeis — mas porque se estimulou ou se permitiu o crescimento desta urbe em local tão desfavorecido.

As coordenadas geográficas, referidas ao extremo Este da base da triangulação geodésica em execução pela "Missão Geo-Hidrográfica da Guiné", são:

continental fronts (Portuguese Guinea, Angola and Mozambique). The armed conflict would last until 1974 and was to be reflected in the settlement and infrastructuring policies. This last period was to be different in character to the preceding ones. The *illusion of permanence* – described by Hutchins in 1967, related to the British Empire[9] – was openly embedded in the actions taken by the different departments of Portuguese Colonial Public Works (CPW) at the time. The war made consciousness of continuity more urgent and physically more visible through architectural and landscape practices built from regulatory protocols. While practical, and generically described as "developmental", the policies embraced long-term objectives cherished by the local Public Works, whereas military-based infrastructuring operated on a short-term scale, with the aim of halting the advancement of the liberation groups.

Often, these two positions were diametrically opposed. The former included light infrastructures for maritime, terrestrial and air transport, basic sanitation, the construction of farming colonies and mining operations, energy generation investment, consolidation of urban networks and their public facilities, with strong investment in welfare and educational programmes. The military decisions were more pragmatic, even if they also benefited from territorial infrastructure already implemented, given that a lack of presence of the colonial power could easily favoured African "insurrection" (Bender, 1978). Through the military approach the territory was

9. Reference to Hutchins, F. (1967). *The Illusion of Permanence: British Imperialism in India*. New York: Princeton by Scriver, P. (1994), *Rationalization, Standardization, and Control in Design: A cognitive historical study of architectural design and planning in the Public Works Department of British India, 1855-1901*, Publicatiebureau Bouwkunde, Delft University of Technology, p. 423.

designed from counterinsurgency's patterns. The military focused mainly on strengthening defence infrastructures, planning the reorganization of rural African populations (a practice that was applied in Guinea, Angola and Mozambique) (Fig. 5) and the provision of medical and educational services of proximity.

Fig. 5. Nhabijões Resettlement, Bambadinca, planned and led by the Portuguese military with the approval of the CPW, Guinea-Bissau, c. 1970. The Portuguese military employed counterinsurgency strategies based on colonial concepts of "social promotion" of the indigenous population. These operations consisted of providing social assistance to the communities, from health care and education to the digging of wells and support in the construction of houses, creating large-scale new villages. Such territorial actions had different names and expressions according to different war scenarios – as new resettlements, population regrouping or strategic villages – and paved the way for specific rural landscapes that functioned not only as a counterpoint to the conventional colonial landscape promoted by architects and planners, but
also as a consciously different space from the traditional African villages. These "new sites" had a territorial expression: in Guinea-Bissau, almost 100 resettlements were built; in Angola, 730 strategic villages were intervened in the Lunda region alone; in Mozambique, the new settlements caused one million peasants' displacements. In general terms, the new Guinean villages were structured by an orthogonal grid that revealed the underlying military matrix. This grid organised the layout of the dwellings, which followed simple square shapes of 11,00 to 9,00 metres. The plan was subdivided into four compartments separated by a corridor and had a veranda around the building. The houses were built with adobes made in the region with a standard size of 20 to 20 to 40 centimetres. The adobes had to be dried in the sun for at least two days. About 633 983 adobes were used in Nhabijões. Each day, 10 residential units were built. Ideally, there was a hierarchy in the typology of the houses resulting from the social order of each ethnic group, and different building materials and more elaborate finishes ensured social distinctions (but there is no evidence of its application). Workers were paid in food. Source: Personal archive of the agronomic engineer J.A.L. Simões Santos, Reconnaissance and Information, Infantry No. 11569169, team leader for the integration reorganisation of Nhabijões.

The Colonial War/War of Liberation was to accentuate even more the differences between the five African colonial territories. Diferences that were determined by the balance that was possible between civil priorities and military demands defined up to the revolution that put an end to the *Estado Novo* regime. Even the territories affected by the war would be distinctly approached among themselves, not only as a consequence of the different guerrilla groups, but also of the Portuguese military leaderships who were interpreting the three

war scenarios as independent. This fact would be reflected in the territorial infrastructure itself from the protagonism of successive Portuguese generals.[10]

STRATEGIES

For a better understanding of the *Estado Novo* occupation strategies in Africa, one must go back in time to the Berlin Conference (1884-85), which defined the borders of the African colonies, distributing them amongst the various European powers, including Portugal. A new colonial landscape imposed by the Portuguese administration began to take shape between the end of the Constitutional Monarchy – one should recall here the symbolism of the visit of the Infante Prince Luís Filipe to the Portuguese colonies in Africa in 1907[11] – and the period of the First Republic (1910-26). The republican regime was to invest in the strengthening of the port infrastructures and the railway lines that penetrated the interior away from the coasts, as well as the foundation of new settlements in the African bush, thus completing the network that was already installed on the coasts. Essentially, this was a continuation of 19th century strategies. But colonization that was more rationalist in nature was also in course, with the promotion of the construction of territories structured in accordance with maritime, river and land transport networks, thus completing the existing network of urban settlements. These networks benefited from pre-existing conditions that characterized a first modern occupation phase (Milheiro, 2021a):[12] i) the existence of pre-colonial routes that were used for commercial trading between the indigenous peoples and the westernized populations that settled in coastal regions; ii) gradually more scientifically-based knowledge that was consistent with the region's potential for the production of raw materials of interest to international trade, having an effect on some of the sections of those infrastructures. To this second condition the founding of the Geographic Society of Lisbon in 1875 was to make a significant contribution; and iii) military interests that confirmed an effective physical occupation of the territory by Portuguese settler groups (Caldeira, 2013) (Fig. 6).[13]

Population migrations between the various African regions under Portuguese administration were already a common practice, motivated either by cycles of shortages (as in Cape Verde) or by a cyclical need for labour (whereby the migratory circuits between São Tomé e Príncipe, Angola and even Mozambique that remained in effect well into the late Salazarist period

10. In "Three generals, three concepts", A. Afonso and C. de Matos Gomes identified three protagonists: Francisco Costa Gomes in Angola (with a pragmatic approach applied between 1970 and 1972); António de Spínola in Guinea (with an idealistic vision that included the integration of local cultures, by the constitution of the so-called "People's Congresses", an innovation even in relation to Metropolitan Portugal, between 1968 and 1973); and Kaúlza de Oliveira de Arriaga in Mozambique (a "negationist" who did not admit military failure, a position defended between 1969 and 1974). Cf. Afonso, A.; Gomes, C. de M. (2020). *Guerra Colonial*. Porto: Porto Editora, pp. 379-432.
11. Luís Filipe was the heir to the Portuguese crown, having been assassinated together with his father, King D. Carlos in 1908. This episode marked the end of the monarchy in Portugal.
12. Cf. Milheiro, A. V. (2021a), "Colonial landscapes in former portuguese southern Africa a brief historiographical analysis based on the colonial transport networks", *African Geographical Review* DOI: 10.1080/19376812.2021.1910851.
13. Caldeira, A. M. (2013), "O telégrafo, o telefone e os novos meios de transporte como armas de guerra na ocupação portuguesa do sul de Angola, no início do século XX", in *Africana studia: revista internacional de estudos africanos - International journal of African studies*. – No. 21 (2nd semester, 2013 2013), p. 13-27.

Fig. 6. Military troop movements in northern Mozambique using road transport infrastructure. Cabo Delgado, Mozambique, 1934. 2nd Indigenous Infantry Company. Source: *Distrito de Cabo Delgado, Relatório do Governador*, AHU, AMU8824.

Fig. 7. Praia, Santiago Island, Cape Verde, 1948. The caption "people going south" refers to Cape Verdean men who went to the Portuguese colonies in Southern Africa to work in agriculture and public works. These workers were often differentiated from the locals and treated as "assimilated", i.e. not subject to the *Indigenous Statute*, which was only abolished in 1961. Source: *No Arquipélago da Sede e da Fome*, Higher Inspector of Colonial Administration António de Almeida, AHU, A2.01.02.009/0045.

were particularly well known). These migratory contingents also had to do with the dynamics of the Public Works themselves as providers of labour and future users of infrastructures (Fig. 7).

The Colonial Act,[14] which was enacted during the first Nacional Dictatorship (1928-33), even before the Estado Novo, helped to outline the

14. *Colonial Act*. Decree-Law No. 22.465 of 11 April 1933.

general principles for occupation to be observed by the new regime from 1930s onwards. It highlighted the "nationalistic" path and the historic right to continuation of the Portuguese "civilizing mission" in Africa (Jerónimo, 2010).[15] The execution of large-scale infrastructure works was to be one immediate consequence of this constitutional law, particularly thanks to the centralized use of natural resources and materials.

It is likewise true that the *modus operandi* of the *Estado Novo* in Africa in the field of Public Works followed the same principles as those that applied in Portugal itself (Saraiva, 2009).[16] To the functional and technical profitability of the public undertakings was added a requirement for low maintenance levels and few financial resources, resulting in formally and technically "conservative" projects, which nevertheless aspired to monumentality and representation of the state. In the fields of colonial architecture and urbanism, these factors led to conventional designs that were adverse to experimentation, had a tendency towards standardization and were based on typified solutions, even if they varied depending on the differing geographic and climatic conditions of the colonized territories. As far as public transport systems, complementary works, sanitary infrastructures and energy networks are concerned, Portuguese engineering revealed a capacity to adapt to the requirements of tropical regions while seeking solutions that were also economical and did not require excessive expenditure on maintenance.

Numerous technical reports issued by those in charge of the various colonial administration departments asserted the general competence of said departments, but also highlighted the weaknesses and difficulties experienced in implementing the occupation strategies that took the concrete form of the execution of infrastructures (Milheiro, 2019).[17] The reports of the Public Works departments, which were made legislative practice from 1911 onwards,[18] identified the same problems and their extension: on the one hand, the lack of technical and human resources given the territorial scale of the colonies; and on the other, the persistence with inefficient bureaucratic procedures, delays in payments to suppliers and uncompetitive salaries. During the *Estado Novo,* the moralistic depictions that filled the reports of the late 19th century – where the colonization services were highlighted as civilizing vehicles for the "African"[19] – were to be replaced by more technocratic and economist-led perspectives. Due to their technical profile, engineers were valued over other professionals with equally technical skills

15. Jerónimo, M. B. (2010), *Livros Brancos Almas Negras. A "Missão Civilizadora" do Colonialismo Português (c.1870-1930) [White Books, Black Souls. The "Civilizing Mission" of Portuguese Colonialism (c.1870-1930)]*, Lisboa: Imprensa de Ciências Sociais.
16. Saraiva, T. (2009), "Laboratories and Landscapes: the Fascist New State and the Colonization of Portugal and Mozambique", *Journal of History of Science and Technology*, vol. 3, Fall 2009, p. 35-61
17. Milheiro, A.V. (2019). *Colonizing Africa - Reports on Colonial Public Works in Angola and Mozambique (1875-1975)/Relatórios das Obras Públicas em Angola e Moçambique (1875-1975)*. Exhibition at the Arquivo Histórico Ultramarino, Lisbon, 17/01-18/04/2019.
18. Cf. *Regulamento Geral das Direcções e Inspecções das Obras Públicas das Colónias* [General Regulations for the Directorates and Inspection Services of the Colonial Public Works Departments] Diário do Governo, No. 268 (Nov. 1911), p. 4602-4610. (published with rectifications in issue no. 274, 23 November 1911 p. 4679-4686). Chapter V, Article 40, paragraph i.
19. Namely through the infrastructural improvements for which they were responsible. See, for example, Relatório sobre a 2ª secção d'Obras Públicas da província de Angola, Henrique dos Santos Rosa, 1877-81, p. 139 and 139 v. [AHU, OP13914].

to design and supervise construction sites, including architects (Fig. 8). In one report of the Guinean Public Works, dated 1953, despite recognising the importance of hiring an architect given the volume of public buildings lacking, the greater need for an engineer is highlighted for functions, mostly the construction of bridges and piers, where the former would have "almost no" collaboration.[20] Involvement in the execution of public works was placed on one level with the spirit of colonization itself, both in symbolic and political terms, thus emphasizing the importance that territorial infrastructuring assumed in terms of maintaining a stable colonial system and highlighting the professionals as agents of that infrastructuring.

Fig. 8. Engineer José Guedes Quinhones, ca. 1920s, Public Works Department, São Tomé and Príncipe. Source: Quinhones Levi Personal Archive.

AGENTS AND CENTRALIZATION

Despite the differences that characterized the various Public Works departments, the *Estado Novo's* obsession with centralized power was to have an influence on how its own professionals worked. This aspect was also to have consequences in terms of how these men were received socially, namely through the dissemination of their works in the official press of the *Estado Novo*. In the context dominated by men, it is worth pointing out that the number of women working in the colonial Public Works departments was always minimal. In the context of this aspect, one can highlight the figure of Maria Emília Caria (1926-2000), an architect who began working in Lisbon for the

20. *Relatório da Repartição Provincial de Obras Públicas da Província da Guiné*, Carlos Abel Aires, engenheiro chefe dos serviços, 1953, AHU, OP3523.

Ministry of Overseas Affairs in the 1960s (Milheiro, Fiúza, Portela, 2016;[21] Milheiro, Fiúza, 2020[22]). But there were others, particularly from the field of engineering, which a few studies have now revealed (i.e. WomArchStruggle project, 2023-24)..

The bureaucratic logic of the regime thus favoured the centralization of services and decision making, a trend that had begun during the First Republic, as borne out by certain administrative decisions taken on the basis of resource management. The closure of the general agencies for Angola and Mozambique and their merging into the General Agency for the Colonies, which was set up in 1924, was also a good example of this practice before the *Estado Novo* regime came into power. Taking its inspiration from its French counterpart, the *Agence Générale des Colonies*, the Agency was to have an important role in the dissemination of colonial policies through its publications, primarily the General Colonies Bulletin, which was published from 1925 onwards. In the final phase of its existence, television and cinematographic resources were mobilized, as the Agency became definitively associated with propagandistic goals that were by no means its only objectives.[23]

By disseminating the work of the Public Works departments, the Agency became a pivotal vehicle in the publication of the colonial occupation strategies and policies. As a result, the work carried out by the Colonial Planning Office (GUC)[24] was also to be the object of recurring reports, after publication in the *General Bulletin for the Colonies* (no. 235 of 1945, pp. 332-334) of the decree that legally enshrined the drawing up thereof. The GUC, which reported to the Ministry of Colonial Affairs, was likewise the result of the same centralization policies, having been set up by Marcelo Caetano (1906-80)[25] in 1944 when he was the minister responsible for the colonies. Having as its general objective the standardization of urban development plans and architectural designs for the colonies, the office was to have a considerable societal impact both in the metropole and in the colonies, despite its low performance rate when compared to the local Public Works departments

21. Milheiro, A.V.; Fiúza, F.; Portela, R. C. (2016), "Women architects and pioneers building modern Africa in the late period of Portuguese Colonization (1945-1975)", Fifth annual meeting of the All Ireland Architecture Research Group, (AIARG) Cork, 29-30 January 2016. Ms. Caria's work began to be mapped as part of a research project financed by the FCT entitled: *The Colonial Planning Offices: Architectural Culture and Practice* (2010-13). [PTDC/AUR-AQI/104964/2008]. Lead researcher: A.V. Milheiro.
22. Milheiro, A. V.; Fiúza, F. (2020). "Women Architects in Portugal: Working in Colonial Africa before the Carnation Revolution (1950–1974)", *Arts*. Special number: *Becoming a Gender Equity Democracy: Women and Architecture Practice in Spain and Portugal (1960s–1980s)*. Arts 2020, 9 (3), 86; https://doi.org/10.3390/arts9030086
23. The General Agency for the Colonies – or the General Agency for Overseas after 1951 – focused a lot of its bureaucratic work on the administrative functioning of the colonies, and it is difficult to say exactly what its responsibilities were during the whole *Estado Novo* period. Decree No. 41.407 of 28 November 1957, which covered part of the period studied herein, restructured the Agency and divided into four departments/sections: the Administrative Services Department (Library, Secretariat and Accounting Section, and Prosecutor's Office Section); the Tourism Services Department; the Technical Services Section; and the Department of Information and External Relations Services. But, despite the institutional propaganda, one can be certain about one thing: a more fruitful relationship between the Agency and the colonial Public Works departments was not achieved, and direct investments, for example, were made in specialized training.
24. Cf. Decree No. 34:173 Ministry of Colonial Affairs: set up, with base in Lisbon, the Colonial Planning Office, a body common to all the African colonies, and defined its powers. *Diário do Governo*, series I, No. 269, 6 December 1944, p. 1167-1168.
25. Caetano was the political heir to Salazar, who he replaced first in 1968 and two years later, after his death, in the Presidency of the Council of Ministers. Between 1944 and 1947, Caetano served as minister of the colonies.

(Milheiro, 2017b).[26] The architecture promoted by the GUC designs was also to have repercussions on the designs produced in Portuguese Africa, thus contributing to a technical and formal "standardization" effect.

However, the operations of the GUC did not reduce the work volume in the local Public Works departments which were normally responsible for the implementation of design projects in the field. These departments were organized on the basis of functional organizational responsibilities that subdivided each local Public Works Directorate into central, regional and provincial departments (with minor differences depending on the colony), and these varied only very slightly over the course of the last thirty years of the colonial occupation. In 1941, for example, the Angola department was made up of only three regional services (North, Centre and South), which were sub-divided into five smaller sections. In Mozambique in 1947, four provinces had their own provincial departments (Sul do Save, Manica and Sofala, Zambézia, and Niassa), which were further sub-divided into eight sections. These units literally monitored the progress made in the basic infrastructure networks and were distributed along the most important train or road transport routes (Fig. 9).

Despite this tendency towards standardization on the part of the *Estado Novo,* the main agents of transformation of the colonial landscape

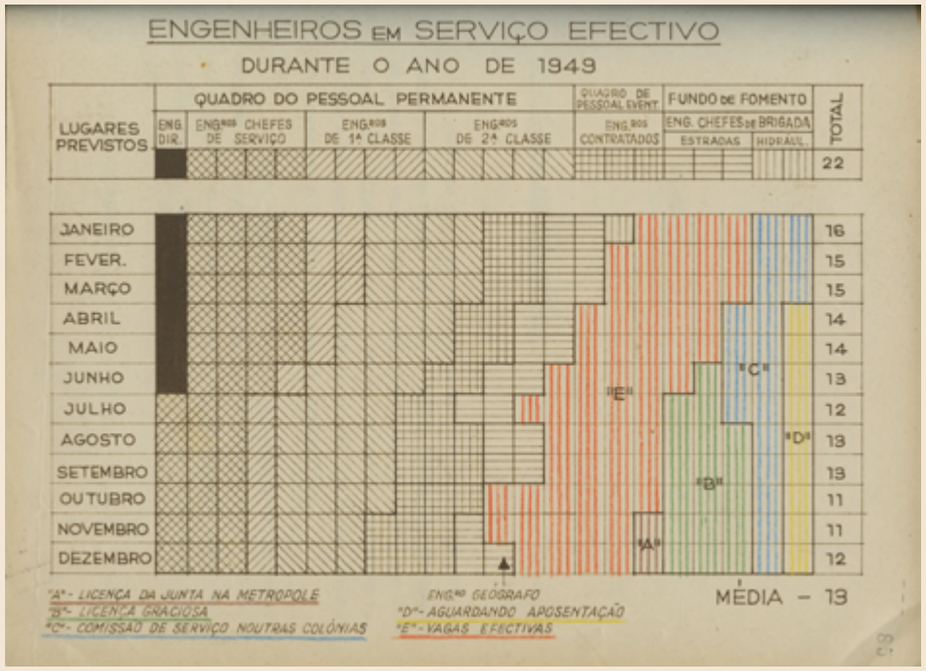


Fig. 9. Engineers on full duty, Angola, 1949. The annual table of engineers working for Colonial Public Works in Angola shows that the Board allowed for 22 positions and that the monthly average of actual occupancy was around 60%. This information highlights the difficulties and shortcomings of the managerial and technical staff. Source: *Direcção dos Serviços de Obras Públicas, Relatório do Eng. Director José Rodrigues Moutinho*, AHU, OP1106.

26. Milheiro, A. V. (2017b). *African Colonial Architectures at the end of the "Portuguese Empire"*. Lisbon: Relógio d'Água.

operated in layers, complementing each other.[27] The infrastructure on the territorial scale likewise depended on the fixation of a number of independent companies that were allowed by the Portuguese state. These were a means of overcoming economic shortfalls, but also of boosting the exploitation of exceptional resources (Serrazina; Milheiro, 2017).[28] In this network of agents, private developers also had their place, as they invested mostly in the construction of recreational facilities, manufacturing structures or the real estate market, hiring professionals from the Portuguese metropole or ones already established in the colonies (Milheiro, 2017).[29]

The joint work of these diverse entities resulted in a structured landscape based on a rational approach that was applied to the occupation of the territory with a view to dominating, controlling and exploiting it, using to those ends routine and effective practices. However, in addition to the underlying professional culture of each agent and implementation thereof in the territory, there was also a huge negotiation effort. Difficulties that came with the existence of the colonial state, the vastness of the occupied territory, the lack of technical and human resources, the precariousness and the distance from the Portuguese metropole characterized daily life for the majority of specialists working in the African colonies. Complaints as to the precarious working conditions were a concern in the aforementioned reports sent to the hierarchical superiors' bodies which, on behalf of the colonial government or the government in Lisbon, were responsible for the initial triage of projects and produced summaries the politicians were to use as guidelines for new strategies. From a lack of materials to non-payments, and from unfavourable climatic conditions to the flight of native workers – at times recruited using forceful means – the descriptions these professionals gave of most of the everyday situations that characterized work sites during the *Estado Novo* period were anything but promising. In Africa, reality thus emerged as a challenge for any more centralized planning effort. This fact, which was duly noted and disseminated, became clear in the difficult management of labourers on the various work sites and Public Works programmes. In Cape Verde, for example, women were recruited as construction workers for Public Works teams and colaborated on road repairs or transporting stones from quarries.[30] (Fig. 10)

In other regions, the information available on large-scale infrastructures, such as railways, as was the case of the Nacala railway, in Mozambique, refers to the hiring of approximately 6,000 men to achieve effective contingents of more or less 4,000,[31] thus revealing the failure of recruitment operations. Analyses of

27. The identification of the work of these colonial Public Works departments was initially the result of such work: Ferreira, A. F. (2008). *Obras Públicas em Moçambique – inventário da produção arquitectónica executada entre 1933 e 1961*, Lisbon: Edições Universitárias Lusófonas; and Fonte, M. M. A. (2007). *Urbanismo e Arquitectura em Angola – de Norton de Matos à Revolução,* Lisbon: Faculdade de Arquitectura da Universidade Técnica de Lisboa. Doctoral Thesis in Urban Planning.
28. Milheiro, A. V.; Serrazina, B. (2017), "Diamang's urban project – between the Peace of Versailles and the Colonial Act", II International Conference African Urban Planning 2017, Lisbon, IGOT, 7-8 September 2017 (7 September, room A).
29. Milheiro, A. V. (2017). *African Colonial Architectures at the end of the "Portuguese Empire"*. Lisbon: Relógio d'Água.
30. *No Arquipélago da Sede e da Fome* – Report of the Head Inspector, António de Almeida, Inspection Mission in Cape Verde in 1948 [AHU, A2.01.02.009/00045].
31. Report on the work carried out by the construction brigade for the Nacala railway line, Head of Division Engineer Eduardo Veríssimo Dias Barbosa, 1942-44 [AHU, OP3531].

Fig. 10. Malagueta Mountain range, girls carrying stones to build a wall. *"Income: three 'escudos' ... or less,"* Cape Verde, 1948. This inspection report is one of the few documents from the colonial administration to highlight the condition of African women in public works, even including photographic records. The report was published after the great drought and famine of 1946, which left a trail of death across the islands. The author, Inspector António de Almeida, had strong links with the archipelago. His father belonged to the local public works department, and he grew up on the islands. He would thus consolidate an extremely paternalistic view of this reality, which places Cape Verdean women in a subordinate position in relation to Cape Verdean men. Much as Spivak explained in her canonical text Can the Subaltern Speak? Almeida saw it as the duty of the "white" European man to protect Cape Verdean women from their compatriots. He criticised unequal pay, women's dedication to work, the neglect of men, and their employment in heavy labour. As an alternative to public works, these women had no choice but to prostitute themselves. In this way, according to Almeida, these tasks helped Cape Verdean women to survive through "honest work" – although, as he points out in the caption, they were poorly paid. Source: *No Arquipélago da Sede e da Fome*, Higher Inspector of Colonial Administration António de Almeida, AHU, A2.01.02.009/0045.

the proportions of European workers to African workers confirm a ratio of 1:7 and an average of nine to 10 hours per workday.[32] (Fig. 11)

During the 1950s, machinery started to be introduced in a systematic manner, leading to a slight alteration in the workforce balance, i.e. presenting the figure of the skilled "European" worker (in addition to the already present carpenter, bricklayer and foreman) and contributing to a reduction in the contingents of anonymous African workers (Fig. 12 and 13). The political and structural aim was to make the construction of infrastructures progressively less dependent on large masses of "native" workers.

LOCAL ASPECTS

Despite the determination to homogenize the work of the colonial Public Works departments through the implementation of standardized solutions, there were differences between the "centre" and the "periphery". Larger regions, with better economic performance and capacity for appealing "European" immigrants, which was the case for Angola and Mozambique, also attracted greater public and private investment than the relatively marginal territories as Cape Verde, Portuguese Guinea and São Tomé e Príncipe. Such differences were also manifest in the four Development Plans that characterized the profile of applied public investment from 1953 onwards.[33]

Reflecting the different territory scales and capacity for local Public Works departments technical and aesthetic renovation, regional specificities also became more visible in the architectural designs. There was, however, a desire for convergence that could be understood as a way of disseminating a

32. Mabubas Hydroelectic Power Station. Works Inspection. Reports of the Head Engineer, António V. Pinto Coelho, 1948 [AHU, OP3010].
33. Since 1953 and following international economic support to Portugal in the post-war period, four development plans have been implemented to develop the country and its colonies. The focus on "developmentalist" models with broad support for industrialisation and infrastructure would change the landscape built in both realities. Some colonies, however, maintained their agricultural vocation throughout the plans. All its application ceased with the 1974 revolution.

Fig. 11. Nacala railway line. View of the curved trench (km.62.500), Mozambique, 1942-1944. Source: DSPCFT, *Relatório dos trabalhos realizados pela Brigada de Construção do CF de Nacala, Dezembro de 1942 a Fevereiro de 1944*, AHU, OP3531.

Fig. 12. Prestressed concrete bridge over the N'Gunza River, Benguela, Angola, 1954. Source: *Direcção dos Serviços de Obras Públicas, Relatório do Eng. Director José Rodrigues Moutinho*, AHU, OP1107.

Fig. 13. Two aspects of the completion of the earthworks for the EN 6 national road near the border with former Rhodesia. The bridge over the border river is a few metres from the port of Alfândega, Mozambique, 1955. The reports frequently describe the problems contractors have in meeting project deadlines, and the lack of adequate equipment for work considered to be less machine-intensive, such as asphalt paving. As an alternative, the purchase by the state of machinery to be rented to local contractors, together with an increase in the values and deadlines for completion, was suggested. Source: *Revisão do Plano de Estradas de Moçambique*, AHU, OP00383.

"style" that would standardise the regime's works (Milheiro, 2012a).[34] Before the formalisation of a nationalist ideal that could aggregate the post-war production, evidences of this appeal for a "colonial style" can be found in the admiration that Portuguese technicians expressed at the same time to French and British architectural and urban cultures, during the first stage of the Salazarism (Fig. 14).

If buildings features were closer to French models, like Art Deco aesthetics, the Garden City structure provided the right urban design for the tropical colonial settlements.[35] Not only it assured efficiently climatic demands, as its functional partition served the racial segregation assumed in the planning. This became particularly recognized in African cases where the formal city was associated with the "white and European neighbourhoods" and the informal periphery was occupied by "native and African" communities. Despite this clear distinction, urban plans did not clearly identify extended areas free of construction, as "green belts" or *"cordons sanitaires"*, as had been in the case in the former Belgian Congo, a neighbour of Angola. Nevertheless, if not assumed in the documents, racial separation was evident in the design as the ones authored by the architect João António Aguiar (1906-1974) from the GUC where subtitles as "indigenous neighborhoods" were explicit. Control of access for African population groups to European residential areas was a Portuguese colonial reality that only served to heighten inequality and the obstacles to urban mobility.

34. Milheiro, A.V. (2012a). *Nos Trópicos sem Le Corbusier – Arquitectura Luso-Africana no Estado Novo*, Lisbon: Relógio d'Água.
35. Strong Art Deco influence characterized undertakings that generally preceded Second World War, marking a presence in numerous regions and through different agents, for example in Angola and Mozambique, and later showing up in more peripheral colonies, such as Cape Verde.

Fig. 14. Isolation Pavilion for Europeans at the Miguel Bombarda Hospital in Lourenço Marques (now Maputo), Repartição Técnica de Obras Públicas, Mozambique, 1947.* The public tender for the construction work had been launched four years earlier by the local Public Works Department. Source: *Relatório da Direcção dos Serviços de Obras Públicas de Moçambique*, AHU, OP1554.

* Tostões, A.; Nunes, J. (2022), "A transcontinental process: healthcare facilities envisaged as postcolonial built heritage", Milheiro, A.V.; Fernandes, A.S. (ed.) *Colonial and Postcolonial Landscapes: Architecture, Cities, Infrastructures - I International Congress: Proceedings*, Lisboa: ISCTE

Following 1945, the particularities of the African regions favoured the development of two dominant lines in colonial urban planning and architectural design practices. The first, which has been more systematically studied and divulged by recent Portuguese historiography, was characterized by the development of a trend affiliated to the International Style. (Fernandes, 2002; Magalhães, Gonçalves, 2009; Tostões, 2013).[36] The second was defined by increasing dependence on the culture of the Portuguese metropole, taking on characteristics of a "third way" in the 1960s. It also manifested at a late stage in the departments that survived after closure of the Colonial/Overseas Planning Office.

In Angola and Mozambique, a modern culture served, from the 1950s onwards, the goals of economic and industrial development, aimed by the colonial society. That culture also reflected "autonomist" ambitions that progressively took hold of the elites of European origins. These were aspirations that found full justification in the Tropicalist achievements of the Modern Movement and the commitment of a small circle of architects that gradually became autonomous of the metropolitan discourses, by created their own colonial roots.[37] (Fig. 15)

Most of these architects were European in origin and trained in the only two Portuguese schools of Fine Artes, based in Lisbon and Porto. Fernão Lopes Simões de Carvalho, for example, born in Angola in 1929 and was a

36. Cf. Fernandes, J. M. (2002). *Geração Africana – Arquitectura e Cidades em Angola e Moçambique, 1925-1975*, Lisbon: Livros Horizonte. Magalhães, A.; Gonçalves, I. (2009). *Moderno Tropical – Arquitectura em Angola e Moçambique 1948-1974*, Lisbon: Tinta da China. Tostões, A. (ed.) (2013). *Arquitectura Moderna em África: Angola e Moçambique*, Lisbon: ICIST, Instituto Superior Técnico, FCT [PTDC/AUR-AQI/103229/2008].
37. Some of them opted to stay in the newly founded countries after independence.

Fig. 15. Companhia de Seguros Universal Housing Building, Lobito, Architect Francisco Castro Rodrigues (1920-2015), ca. 1967. Source: Personal Archive of Luís Possolo.

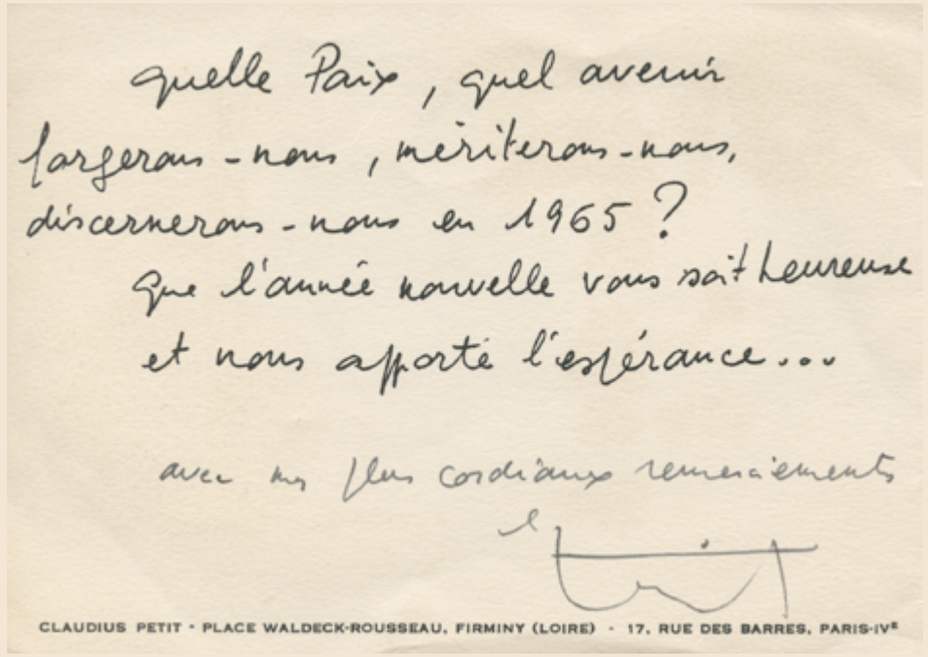


Fig. 16. New Year's card signed by Le Corbusier addressed to Fernão Lopes Simões de Carvalho (1929) during his period at the Luanda City Hall, 1964. Courtesy: Inês Lima Rodrigues, Personal Archive of Fernão Lopes Simões de Carvalho.

former Andre Wogenscky and Le Corbusier intern, returning to Luanda to head the City Council Planning Office between 1961 and 1966 (Fig. 16).

Only a rare few architects were from African ethnicity, as the Cape Verdean Pedro Gregório Lopes, three years younger than Simões de Carvalho, and former Porto School graduate. During the *Estado Novo*, Portuguese Guinea, São Tomé e Príncipe, or even Cape Verde – where Gregório Lopes was integrated at the local Public Works department, after 1959 – were regions

considered unattractive for the settlement of qualified professionals outside of the civil service. In these territories the urban planning and architectural output was closer to solutions already tested in Portugal, showing greater aesthetic and formal proximity with the metropole. "Being modern", comparing to the larger continental colonies, revealed to be a difficult accomplishment, orienting the design to the use of conventional building techniques and architectural solutions, inspired in vernacular culture (Fig. 17).

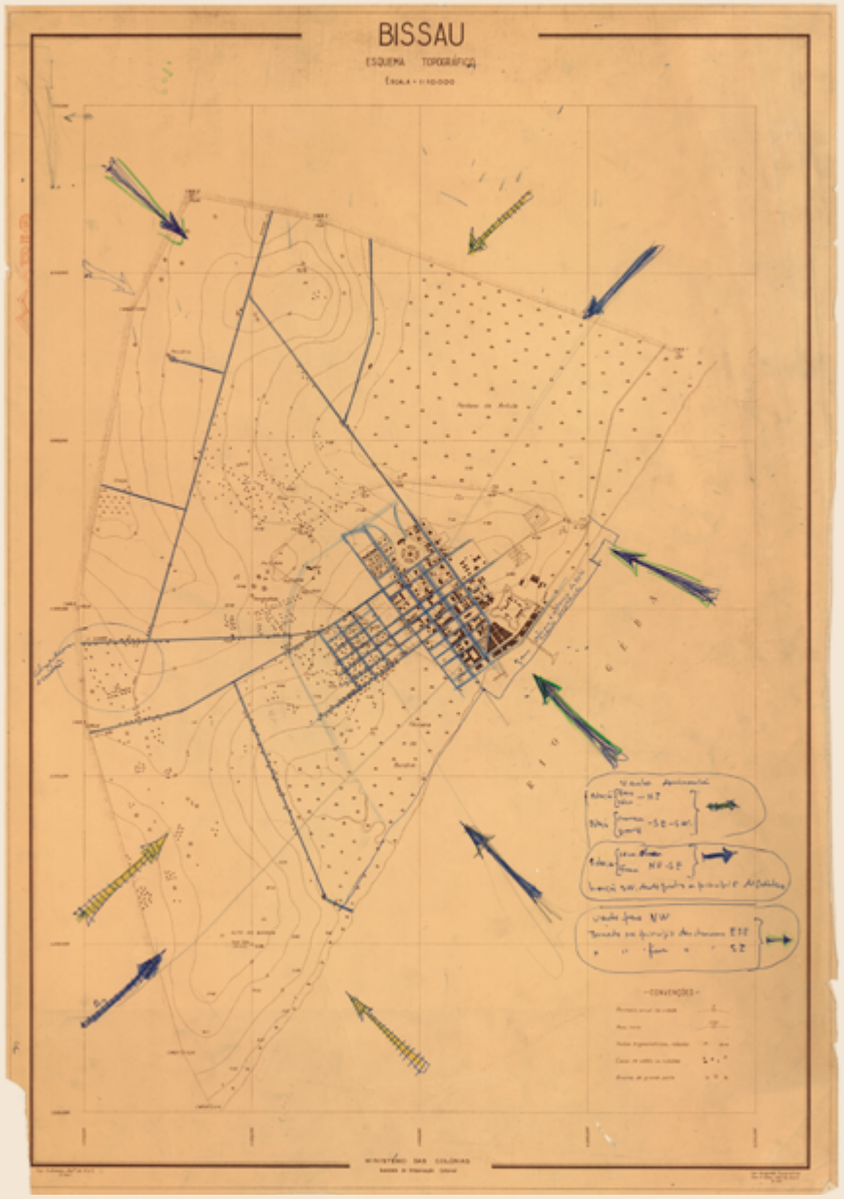
Discussions about the resilience of traditional systems were emerging through the practice of Cape Verdean and Guinean Public Works, becoming current among decision-makers in Portugal who still supervised large equipment to these territories, such as high schools or hospitals. In these geographical contexts, the scarcity of building materials, productive, industrial or technical incapacities advised the moderate use of more modern or technically innovative solutions.[38]

URBAN PLANNING PRACTICES, THE COLONIAL PLANNING OFFICE (GUC) AND ITS FOLLOW-ONS

The urban planning practices officially promoted by the *Estado Novo,* reached, as is known, one of their high points in the period immediately following the end of World War II, continuing on for a decade (Lobo, 1995).[39] This phase of intensive urban planning output in the Portuguese metropole also corresponded to a period of parallel activity in the context of new urban plans for the Portuguese colonies. It was also the period that saw the creation of the already mentioned Colonial Planning Office (GUC), which was set up to optimize Portuguese efforts in the fields of urban planning and tropical architecture; it formed qualified

Fig. 17. Porto Novo (?), Santo Antão Island, Cape Verde, 1948. Being "modern or progressive" in Cape Verde often meant simulating contemporary design by using local techniques and materials. However, the use of basalt stone, which was abundant in the region, determined the design applied. Source: *No Arquipélago da Sede e da Fome*, Higher Inspector of Colonial Administration António de Almeida, AHU, A2.01.02.009/0045.

38. Escudeiro, J.; Cruz, L. "Aditamento ao parecer da Comissão de revisão" in Lopes, E.P. (1960), Liceu para a Cidade do Mindelo, processo No. 612, Lisboa: DSUH-DGOPC. Arquivo Histórico Ultramarino.
39. Lobo, M. S. (1995). *Planos de Urbanização, a época de Duarte Pacheco*, Porto: FAUP.



technical teams consisting of architects, engineers and specialists in tropical medicine and climatology.[40] The focus of Decree No. 34:173 was urban planning, the importance of which was also explained by the implementation of a network of occupation settlements. Generally speaking, underlying the urban layouts was the definition of a set of functions that reflected the responsibilities of each agent in building a colonial city. More than operative designs (Fig. 18), the urban plans of this period painted an image for the colonial city – in truth, they built an identity based on functional transport structures and administrative and civil service buildings that were representative of the colonial power (Fig. 19).

40. This body later underwent name changes – to the Overseas Planning Office (GUU, 1951-1957) and Directorate of Urbanism and Housing Services of the Directorate General for Public Works and Communications of the Ministry of Overseas Affairs (DSUH, DGOPC, 1958-1974).

Fig. 18 and 19. Bissau, Guinea-Bissau, ca. 1948. Comparison between the topographical sketch of Bissau, with the study of the prevailing winds in relation to the dry and cool seasons, showing the "formal" city and the "adobe or hut" houses (right), and the Urbanisation Plan for the City of Bissau (not implemented) of 1948, indicating the main axes of political and religious representation of the colonial power (left). In the latter, there is no reference to the "Indigenous quarters". Drawings by the Colonial Planning Office (GUC). Source: AHU, GUI Roll 22; Geographical and Cadastral Services Department and Colonial Planning Office (GUC).

The urban planning approach inherent to the spirit of the creation of the GUC was rooted in the definition of the two other programmes that were also promoted in the founding decree: medical/sanitary assistance and housing for civil servents, which were the colonial administration engine. The former was the most comprehensive objective in the GUC's first phase, which was to last until 1951, as it included all strata of the colonial population. It encompassed central and regional hospitals for European settlers, most of which were in urban centres (Fig. 20 and 21), and health facilities for the rural African communities, the sanitary intervention plans for which provided for the installation of standardized services (health posts, nursing stations or basic maternity hospitals).

Fig. 20 and 21. Regional Hospital in Nova Lisboa (now Huambo), architect Lucínio Cruz/GUC, Angola, ca. 1947; and its construction site, 1949. The design for the hospital was part of a wider plan for hospital buildings proposed by the Portuguese state for Angola. It was located in the city's urban plan by João Aguiar/GUC, in 1947, in a wider area for health facilities, adjacent to the education area, as shown in the plan for the Urban Arrangement Study of the School Zone. The proposed implantation of the hospital was in line with the generic principles advocated by Aguiar, evidencing the urban vision based on structuring and monumental axes, low-density buildings and functional sectorisation. Sources: AHU, roll 79; *Direcção dos Serviços de Obras Públicas, Relatório do Eng. Director José Rodrigues Moutinho*, OP1106.

The residential programmes were strategic in the sense that they directly involved the European population groups, which, since the end of the 19th century, were the main focus of the Estado Novo's colonization policies, and this would continue until the eve of the colonial war, that is, until the late 1950s.

The single-family house was associated with the option for the Garden City, forming part of most urban planning proposals drawn up by the GUC, an idea that remained in place for the tropical regions well into the 1960s. The programmes distinguished between the professional activities of the respective workers, as well as their level or category, and the houses were dimensioned in functional and aesthetic terms in accordance with those two principles (Fig. 22).

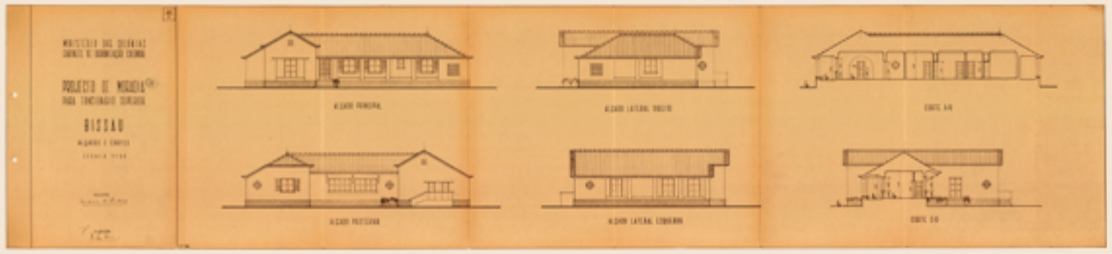


Fig. 22. Senior Staff housing project, Bissau, architect Mário de Oliveira/GUC, Guinea-Bissau, 1948. Source: AHU, OP7720.

Together with the welfare and assistance programmes, the housing projects helped to define a first idiomatic approach to state-developed tropical architecture that was tested in the area of climatic adaptation and aesthetic expression. In this context, the architect João António Aguiar, the main ideologist of the urban planning culture that was practised during the first phase of *Estado Novo* operations in Africa, emerged as the second most important figure at the office, behind the mining engineer Rogério Cavaca, the GUC's first director. Aguiar's authorship of a number of colonial urban plans proposed by the GUC between 1946 and 1959, has been fully established, with Cape Verde having been the location of the last plans executed by the architect (Morais, 2010),[41] who also worked profusely in the Portuguese metropole. There were similar situations, i.e. where professionals designed simultaneously for the metropole and the colonies, not only with regard to urban planning practice, but also with regard to architectural design and, generally speaking, infrastructure construction. This is a phenomenon that has not yet been sufficiently studied by Portuguese researchers, but it probably reflected the migration of knowledge that only gained greater realism by adapting to the geographic and climatic conditions whilst nevertheless maintaining identical approaches.

41. Morais, J. S. (2010). *Mindelo - Património Urbano e Arquitectónico - assentamento urbano e os seus protagonistas*, Lisbon: Caleidoscópio.

Up until 1959, the architects of the GUC/GUU – which first reported to the Ministry of Colonial Affairs, and then, from 1951 onwards, to the Ministry of Overseas Affairs – were responsible for the majority of urban plan for the overseas colonies. But in the following decade, the main colonial capitals, Luanda and Lourenço Marques (today Maputo) and a number of middle-sized cities, gained autonomy in terms of the production of their own plans. This situation resulted from the increased capacity of such cities to attract qualified professionals, whose work was carried out in competition with the professionals based in Lisbon (Fonte, 2007[42]; Pinto et al, 2021[43]). The overseas local governments were also given the means to hire freelance professionals and private firms to execute design projects. The various urban design models were closely related with the different stylistic approaches Portuguese architects were developing for the Tropics. The evolution of the architectural culture that characterized the GUC/GUU in the period from 1945 to the independence of the new states can best be understood if seen in three separate phases (Milheiro, 2012b):[44]

(i) **The Garden City and "tropical" architecture.** The period from1945 to 1950 is defined by the adoption of the *City Beautiful* model, crossed with the teachings of the Garden City movement. It had three main aesthetic pillars: monumental avenues, a strengthening of the zoning instruments for the pre-existing colonial city and continuation of racial segregation measures – with the definition of, amongst other things, residential, hospital, school and military establishment perimeters, leaving a standardized set of urban facilities. This start-up phase was dominated by a first generation of architects, including Lucínio Cruz (1914-1999), Mário de Oliveira (1914-2013), Eurico Pinto Lopes (1914-1988), Luís Coelho Borges (1922-2001), José Manuel Galhardo Zilhão and Alberto Braga de Sousa led by João António Aguiar. Some of them already had practice in the project for tropical regions, resulting from both public and private commissions. The influence of João Simões, born in 1908, founding member of "modernist" ICAT (Cultural Initiatives Art and Technology) and future editor of the magazine "Arquitectura", stood out for his continuity with previous experiences. João Simões' African buildings followed a rationalist approach, both aesthetically and economically, displaying a "pitoresque tropical Portuguese" based on interpretations of vernacular metropolitan architecture which had already served as inspiration for some proposals for the Portuguese colonial territories put forward by the architect Vasco Regaleira (1897-1968) at the Portuguese World Exhibition (Exposição

42. Fonte, M. M. A. (2007). *Urbanismo e Arquitectura em Angola – de Norton de Matos à Revolução,* Lisbon: Faculdade de Arquitectura da Universidade Técnica de Lisboa. Doctoral Thesis in Urban Planning.
43. Pinto, P.T.; Milheiro, A.V.; Miranda, E.; Pinto, P. (2021). "From Monumentality to Diversity – Lourenço Marques between the urban plans of Aguiar and Azevedo (1950-1970)", *Planning Perspectives,* 10.1080/02665433.2021.2004213.
44. Milheiro, A. V. (2012b). "O Gabinete de Urbanização Colonial e o Traçado das Cidades Luso-Africanas na última fase do período colonial português" *in Urbe – Revista Brasileira de Gestão Urbana, Circulação de Ideias no Mundo Lusófono*, p. 215-237

do Mundo Português) set up in Lisbon in 1940.[45] This aspect contributed to the establishment of an ideal model, which crossed the expression of the vernacular constructions of the south of Portugal with the tradition of tropical architecture of large balconies and double ventilated roofs, in an effort to adapt to the climate. During the 1st National Congress of Architecture, held in Lisbon, in 1948, Simões insisted on the urgency of deepening a Portuguese "colonial architecture", "one as regards the concerns of better defence of human life conditions, both that of the indigenous and that of the settler" (Simões, 1948).[46] (Fig. 23) It is in current Guinea-Bissau that some of his works are among the most representative of this first moment: the Cathedral renewal (GUC, 1945)[47] and the Museum and Public Offices Headquarters (GUC, s.d.), both in Bissau, and the mixed-race infirmary of Bafatá (GUC, 1946). Simões would leave the Office in 1948, and part of his more traditionalist heritage would be metamorphosed into progressively more monumental and historicist expressions.

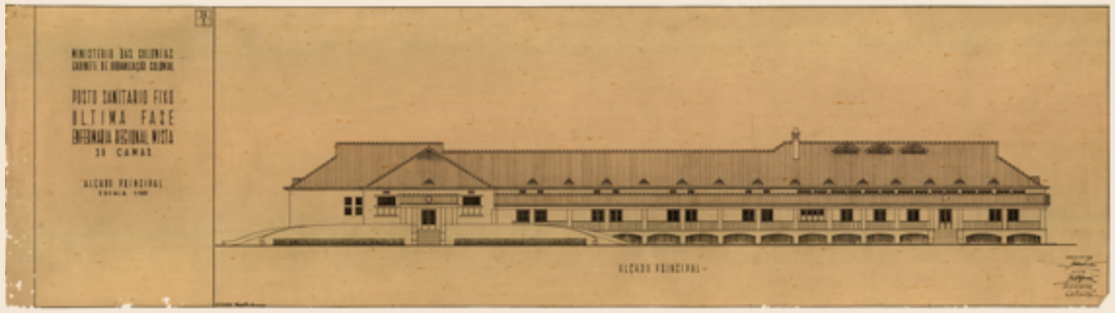


Fig. 23. Permanent Health Post for Hot and Humid Regions, Final Phase, architect João Simões/GUC, Standard Project, 1946. Source: AHU, ULT Roll 5 - proc. 36.

(ii) **The functional city and representative architecture.** The period from 1951 to 1957, which corresponded to a phase of consolidation of "representative" statement architecture that conferred meaning upon the urban policies that were established in the preceding phase, combining functional criteria with monumentality. In conformity with the bureaucratic expectations of the *Estado Novo,* this architecture was intrinsically associated with the administration, constituting a colonial variation on "Bread and Butter architecture" (Agarez, Mota, ed. 2015)[48] – appropriate for routine use, aesthetically conservative and without technical or functional innovations (Fig. 24).

45. The aim of the exhibition was to celebrate both the Foundation and the Restoration of Portuguese nationality, and it was held on the grounds bordering the Manueline Monastery of Jerónimos. The generation of Portuguese architects who had been involved in the first renewal of the Portuguese architectural language during the inter-war period were called upon to intervene. The plan was directed by the architect Cottinelli Telmo.
46. Simões, J (1948). "A Profissão de Arquitecto nas Colónias". In: *Actas do I Congresso de Arquitectura*. Lisboa: Sindicato Nacional dos Arquitectos, pp. 147-150 (p. 147).
47. Original design project by Vasco Regaleira (1942), adapted by the architect Paulo Cunha, as head of the Housing Construction Brigade for Civil Servants of 1944, which already had João Simões in his team.
48. Mota, N.; Agarez, R. (ed. 2015). Especial 17, Autumn/Winter, The 'Bread & Butter' of Architecture, Vol. 9, No. 2.

Fig. 24. Former Escola Técnica Silva e Cunha, São Tomé, architect Mário de Oliveira/DSUH/DGOPC, São Tomé and Príncipe, after 1969. One of the most important buildings designed by the architect Mário de Oliveira for the city of São Tomé was this technical school, inaugurated in 1969 and now known as the Liceu Nacional de São Tomé e Príncipe. In line with the practice advocated by the GUC (then renamed DSUH- DGOPC), the school was described in the local newspaper A Voz de S. Tomé as "the largest group of public buildings ever built in São Tomé", completing the provision of preparatory and secondary education. The structures were designed by the engineer Brazão Ferreira with the assistance of Simões da Silva. The climatic problems were solved by means of shading, cross-ventilation and the insertion of grilles in perforated prefabricated elements to ensure the entry and circulation of air. The use of covered galleries also contributes to the sustainability of the building. Following the usual practice of the GUC's architects, the plan reflects the functional organisation of the programme, and the section solves the climatic issues (insolation and cross ventilation). The integration of the plastic arts played an important role and was closely linked to the architectural project, involving a major investment. The cartoons were made by the architect Mário de Oliveira, and João Barata painted the tile panels that decorate some of the façades and the main entrance. The figurative theme focused on the main productions and economic activities of the archipelago, in an attempt to integrate the colony into the project of a "multicultural country", which was the last propaganda effort of the Portuguese colonial regime to maintain its status. In Lisbon, institutions such as the Marquês de Pombal Industrial School, inaugurated in 1962 with a very similar programme, demonstrated the transfer of aesthetic and technical choices between the metropolis and the colonies. Source: Personal Archive of Luís Possolo.

It was carried out in line with the best traditions of the Colonial Public Works departments, as described by Peter Scriver in the 1990s (Scriver, 1994),[49] perceiving a normative procedure that ran through all the stages of project design. As a recurrent expression, the practice of these departments was based on "trial and error" dynamics, converting empirical processes into operational protocols. A second generation resulted from a renewal of the technical staff with the entry of newly graduated professionals from the Schools of Fine Arts of Lisbon and Oporto. During the 1950s, architects as António Saragga Seabra (1929-2015), António Sousa Mendes (1921-2018), Fernando Schiappa de Campos (1926-2018) and Luís Possolo (1924-1999) were involved with Overseas Planning Office (GUU). Older profissionals, as Leopoldo de Almeida (1898-1975) or Fernando Batalha (1908-2012), were also active in this period. Alberto Braga de Sousa, Eurico Pinto Lopes, João

49. Scriver, Peter (1994), *Rationalization, Standardization, and Control in Design: A cognitive historical study of architectural design and planning in the Public Works Department of British India, 1855-1901,* Publicatiebureau Bouwkunde, Delft University of Technology.

António Aguiar, José Manuel Galhardo Zilhão, Lucínio Cruz, and Mário de Oliveira transited from the previous team.

A general architectural composition emerged that was appropriate for the Tropics and, at the same time, adequate for the new symbolic purposes: a pavilion building featuring arcades on the ground floor, with galleries on the upper levels that were introduced along recessed facades, and a four-pitch roof (Figs. 25 and 26).

Figs. 25 and 26. Luanda Treasury and Accounting Services, architect João Aguiar/GUU, Angola, 1954. The building was designed in 1953 under the auspices of the GUU, following the path initiated by the GUC in defining a monumental typology for public administration buildings in Luanda. The building, now the Ministry of Finance, followed the guidelines of the Luanda Urbanisation Plan, simplifying the historicist language and emphasising the functional and constructive aspects, while abandoning "useless decorative details, as Aguiar put it. The option of figurative austerity would eventually become the hallmark of the GUU's administrative buildings. Source: *Direcção dos Serviços de Obras Públicas, Relatório do Eng. Director José Rodrigues Moutinho*, AHU, OP1107.

Without doing away with division into sectors, the colonial city became more monumental, with an obvious trend towards the recreation of "imperial squares" inspired by the Praça do Comércio in Lisbon. Multiple examples of such constructions followed, many of them resulting from designs by João Aguiar, such as the Luanda Port Authority building and the Treasury and Accounting Department building, now the Ministry of Finance (Eurico Pinto Lopes, 1948; and João Aguiar, 1953, respectively), the

Fig. 27. Luanda, Angola [undated]. In the centre of the picture is the Finance and Accounting Department, showing the scale of buildings designed in Lisbon for Portuguese colonial cities in Africa. Source: Personal Archive of Luís Possolo.

Treasury Building in São Tomé (Mário de Oliveira, 1951) and the Lourenço Marques Civic Centre (also attributed to Aguiar). The latter building was part of an ambitious urban plan that was not built but explicitly cited the Lisbon square from the Pombaline period, unequivocally manifesting the "imperial" design that characterized the urban imaginary in the context of Portuguese colonization.[50] (Figs. 28 and 29)

(iii) Master plans and organic architecture. The final two decades of the Portuguese colonialism, would bring increasingly more pragmatic approaches to urban planning, influenced by the new generations of "master plans". These plans' ideals took the form of division into sectors, the idea of "functional zones" and the consolidation of the general practices of transport and sanitary infrastructuring. This corresponds to the period when the Colonial/Liberation wars became more acute, leading up to the Revolution of 1974 in Portugal. As a direct consequence of the warfare, the planning decisions of the military often trumped the work of the architects who, by remaining in the service of the DSUH/DGOPC, after the extinction of the GUU, continued to draw up new urban plans; mostly for Portuguese Guinea, but also for Cape Verde and São Tomé e Príncipe (Milheiro, 2012a). Being probably the most creative design period of the DSUH/DGOPC, was also the least productive in terms of achievements. It would rely on professionals such as Maria Emília Caria, already mentioned, Alfredo Silva e Castro (1936-2000), António Moreira Veloso or José Luís Amorim (1924-1999), whose technical thinkings would introduce significant changes, even if the majority of its proposals were never executed, partially thanks to the looming independence processes (Fig. 30). As an example of the new procedures, methods

50. Aguiar. J.A. (1947-55). Plano Geral de Urbanização de Lourenço Marques, Lisbon: GUC/GUU [AHU, IPAD 13083]

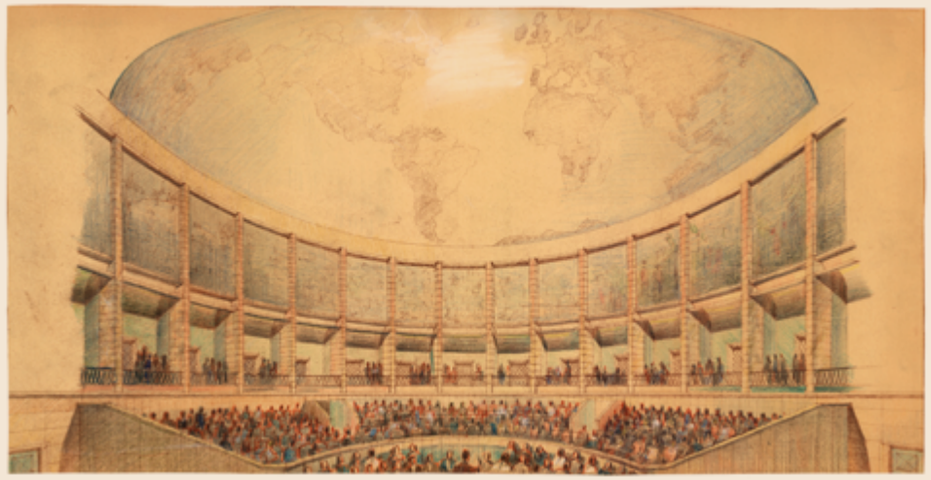


Fig. 28 and 29. Preliminary Design of the Building for the General Government of Mozambique Province (unbuilt), former Lourenço Marques, current Maputo, architect João Aguiar/GUU, Mozambique, 1951. Source: AHU, MOC Roll 34, 1/2 – 15 and 12..

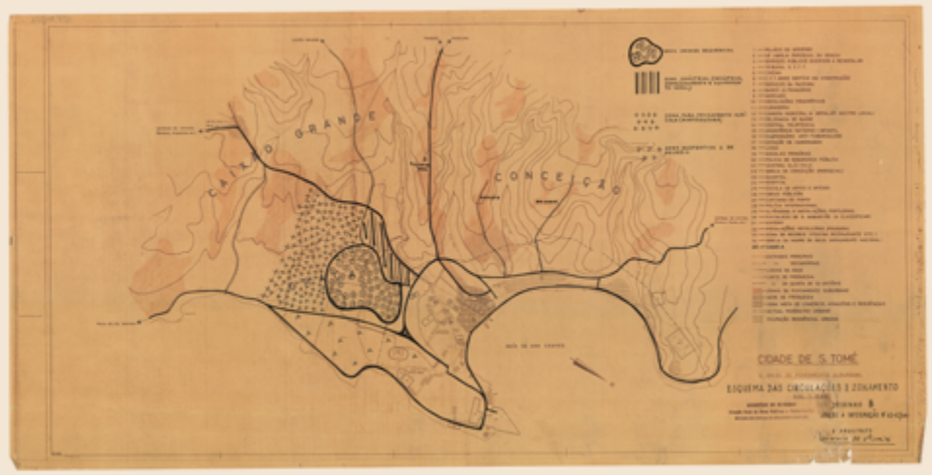


Fig. 30. City of São Tomé and suburban settlement areas: circulation and zoning scheme, architect Mário de Oliveira/DSUH/DGOPC, São Tomé and Príncipe, circa 1963. Source: AHU, STP Roll 10D/2.

of quantitative analysis, including surveys of populations and their economic activities, would be reinforced to determine zoning areas and future facilities. These developments would transform traditional cultural-oriented plans into strategic planning tools.

PUBLIC COLONIAL ARCHITECTURE IN THE PERSPECTIVE OF THE OVERSEAS PLANNING OFFICE

Following the constitutional review of 1951,[51] the body set up by Marcelo Caetano was renamed the Overseas Planning Office (GUU), reflecting the change in name of the ministry itself. This change had little effect on administrative procedures and up until 1957, when new legislation came into force,[52] there was an identical regularity in the design projects executed in most of the colonies. The architecture of the GUU architects reproduced a standardized, straightforward language that contrasted with the experimental nature of the first modern experiments that began to emerge in the former Portuguese African regions since the earlies 1950s.[53] Where the programmes were marked by a more functionalist purpose – hospitals and schools, for example – the design tended to assume less of a figurative nature, combining the monumental scale (a reflection of the urban importance most of these buildings had) with an idiomatic abstraction that resulted from the functional organization and the building systems employed. The result was a modern building in terms of programmatic aptitude, but conservative in terms of "physiognomy".

It was precisely educational facilities, mainly secondary and vocational schools, which also served other cultural purposes, albeit to a lesser degree – one such example is the Regional Museum in Nampula by Mário de Oliveira (1955, partially built),[54] today the Nampula National Ethnographic Museum – that dominated this second phase of Office's operations (Fig. 31 and 32).

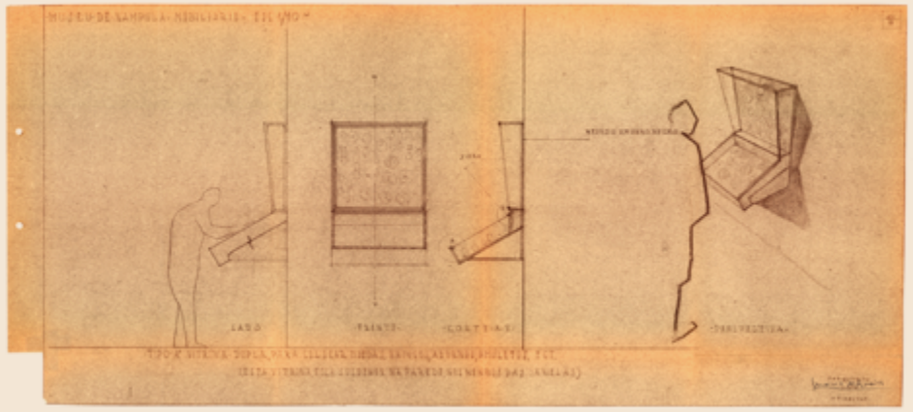


Fig. 31. Nampula Regional Museum, type A double display case for placing coins, earrings, ornaments, amulets, etc. (*this display case hangs on the wall…*), architect Mário de Oliveira/DSUH/DGOPC, Nampula, Mozambique, 1955. Source: AHU, OP7872.

51. Law No. 2:048 of 11 Lune 1951.
52. Decree-Law No. 41169 of 29 June 1957. Changed the organizational structure and management levels at the Ministry [of Overseas Affairs].
53. Works by architects as Vasco Vieira da Costa (1911-1982), future founder of the Architecture course at Agostinho Neto University after Angolan independence, are often pointed pioneer by using a modern language as was the case of the Quinaxixe Market (Luanda, 1951-1958), demolished in 2008.
54. Oliveira, M. (1955). Museu Regional de Nampula, trab. 491, Lisbon: GUU, 1955 [AHU, OP7872].

Fig. 32. Museu Regional de Nampula, architect Mário de Oliveira/DSUH/DGOPC, Nampula, Mozambique, 1956. Source: AHU, A2.050.03.022.00136.

In most of the Portuguese-occupied cities in Africa, this was also the period of the launch of projects for the improvement of existing hospital installations (Fig. 33). Parallel to this, the focus on religious education was expanded, with it functioning as a complementary structure to the public school network.

But, as pointed out above, it was in their approach to the school building programme that the design practices followed by the GUU architects were to be most effective. The layout of these buildings was based on two secondary

Fig. 33. Luanda "Indigenous" Hospital, Infirmary Block, 1954. This report of the Directorate of Public Works highlights the construction of hospitals in Angola, particularly in Luanda and Huambo. The image of the infirmary for the African population also reveals the policy of racial segregation that forced the duplication of infrastructures. The pavilion structure continued to be favoured, reinforcing a functionalist design in which aesthetic and technical solutions were derived from programmatic factors. The technicians involved from the Office were often Lucínio Cruz, João Aguiar as deputy director, and Rogério Cavaca, director. Source: *Direcção dos Serviços de Obras Públicas, Relatório do Eng. Director José Rodrigues Moutinho*, AHU, OP1107.

schools designed for Luanda and Lourenço Marques (Fig. 34) from Lisbon by José Costa Silva still in the 1930s, in the context of the work of the Technical and Secondary Education Construction Board, a reference body in the Portuguese metropole for the construction of schools (Marques, 2003[55]; Milheiro, 2011[56]). One can say that the typology used by the GUU from the second half of the 1950s onwards had evolved out of the design for the Salvador Correia National Grammar School for Luanda in 1936 (current Mutu Ya Kevela Secondary School), where the issue of ventilation was resolved at the level of the window span, and that for the Salazar Grammar School in Lourenço Marques of 1939 (current Josina Machel Secondary School, Maputo), which used a circulation gallery as a means of controlling exposure to the sun. The pavilion-based approach was maintained, with ornamentation simplified to the extent that any abstraction conferred by building systems that were too manifest was reduced. The result the GUU architects arrived at was thus a design that occupied a place somewhere in the middle between the necessary symbolic character and the desired building system performance.

Fig. 34. Liceu Salazar [High School], Lourenço Marques (now Maputo), architect José Costa Silva, Mozambique. Source: *Relatório da Direcção dos Serviços de Obras Públicas de Moçambique*, 1947, AHU, OP01154

As these were designs that were produced in the metropole, the technical performances – particularly climatic behaviour – were generally conditioned by factors such as solar exposure dictated by the plot provided for by the urban development plans (also executed at a distance) (Fig. 35 and 36). For this reason, plots that were free of constraints and allowed for the insertion of isolated buildings, were more favourable to a design culture that was perfected within a logic of standardization of solutions.

55. Marques, F.M. (2003), Os Liceus do Estado Novo, Lisbon: Edições Educa. The Technical and Secondary Education Construction Board (Junta das Construções para o Ensino Técnico e Secundário) was created in 1934 and lasted until 1969. One of its most important taks is to promote studies and building new schoolar facilities.
56. Milheiro, A. V. (2011), "Escolas em Angola durante o Estado Novo: Arquitectura e Arte", in *Revista de História das Ideias*, Vol. 32 – Artes, Instituto de História e Teoria das Ideias, Faculdade de Letras da Universidade de Coimbra, p. 601-630.

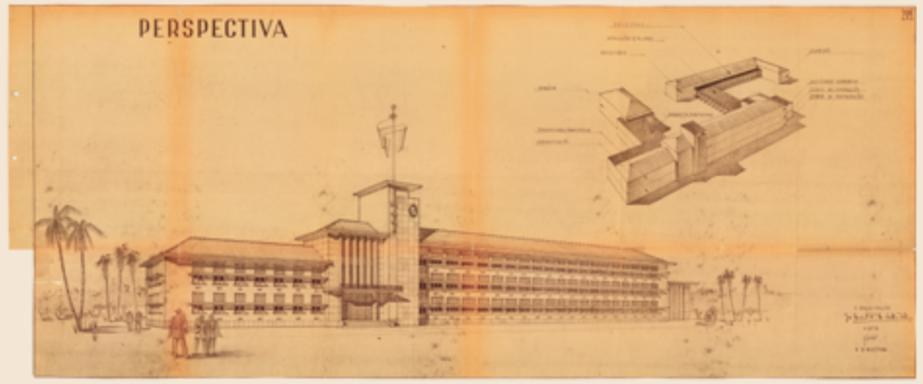


Fig. 35. Industrial and Commercial School of Luanda, architect José Manuel Galhardo Zilhão/GUU, Angola, 1952. Source: *Projecto da Escola Industrial e Comercial de Luanda*, AHU, OP7530. The plan for the Commercial and Industrial School (now the Luanda Industrial Medium Institute) was a second version of the GUU. Both proposals were designed by the architect José Galhardo Zilhão in 1952. The building was directly linked to Luanda's Urbanisation Plan, also of 1952, by João Aguiar, which defined the new areas and clearly identified the locations of this school and the former D. Guiomar de Lencastre Female High School (now Njinga Mbande Secondary School). The plan assumed a low-density urban expansion of the city. The school facilities were to maintain a residential scale, shortening the distance between facilities and homes, in an interpretation of the ideals of modern neighbourhood units.The Commercial and Industrial School was a male/female equipment, with a capacity of 520 pupils, organised around open courtyards, using the gallery as a means of distribution. The architect described each room and its technical equipment in detail, with particular emphasis on natural lighting. The building materials were also listed exhaustively. The design was based on the classroom as a module, considering this area as the "basic cell of the school building". There was a reference to the former Liceu Salvador Correia (1936-1945) in the ceramic grilles that fill the upper part of the openings. The elevations, of "great simplicity", were considered to reflect the "character of an educational building", and the architect added decorative allegorical elements to the ornamentation of the entrance doorContrary to the guidelines followed in similar facilities proposed for smaller urban agglomerations, the author did not foresee a phased construction and advised against future enlargements of the building. There are stylistic and structural similarities between this school in Luanda and its counterpart in Nova Lisboa, the Sarmento Rodrigues Industrial and Commercial School, now the Huambo Polytechnic Institute (1952), designed at the same time by different authors. In addition to the similarity in plan, both projects integrated a clock tower to mark the main entrance, another element inherited from the former Liceu Salvador Correia.

Fig. 36. Construction site of the Industrial and Commercial School of Luanda, Angola, 1954. Source: *Direcção dos Serviços de Obras Públicas, Relatório do Eng. Director José Rodrigues Moutinho*, AHU, OP1107.

The configuration aimed at producing an architectural standard that could be used for the greatest number of units. It was the beginning of a system that saw its distribution throughout the colonies as a development infrastructure. The definition of *Standards for Secondary Schools and Vocational Schools in the Overseas Provinces*,[57] in 1956, was to agilize the whole process, revealing a more technical written discourse while the reality showed buildings that were aesthetically more committed to the regime. The former Dona Guiomar de Lencastre Girls Secondary School in Luanda, now the Njinga Mbande Secondary School, was the result of this standardization. Designed between 1954 and 1956 by Lucínio Cruz, and later refined by Eurico Pinto Lopes,[58] the Angolan capital's new secondary school was the first in a series of similar projects throughout the colonies – with the respective programmatic alterations and individual climatic adaptations.

The building was structured along an axis of symmetry that was ideal, for example, for the duplication of departments when the building served different education levels or was used for mixed schools.[59] It was organized around two closed patios and used circulation galleries that also guaranteed protection from the sun for the facades and shelter in the case of heavy rains. The main elevation was characterized by an entrance in the form of a monumental portico, which was located precisely axially. Standard solutions, detailing and materials made it ideal for serial production. The Dona Guiomar de Lencastre Secondary School consolidated the idea that the architecture produced by the GUU – and which best publicly represented formal and technical capacities of the Office – configured a gentle but monumental modernity, an "authentic" architectural style. Paradoxically, what has been referred to as "nationalistic", came close in formal and construction method terms to what the local Public Works departments had been producing in the neighbouring African colonies during the same period of the 1950s, thus confirming the dissemination of a "transcolonial" architectural style that coincided with the most influential period for the Office (Fig. 37 and 38).

Fig. 37. Industrial and Commercial School of Moçamedes (now Namibe), architects Fernando Schiappa de Campos, Luís Possolo, and Lucínio Cruz/GUU, Angola, 1956. Source: *Projecto da Escola Industrial e Comercial de Luanda*, AHU, OP12400. The Moçamedes school would result from the standardisation of design rules applied to educational institutions by architects from Lisbon. The project would not be implemented in its entirety. It is a rare example that reinforces the adaptability of design to different needs, and is also the only technical school to adopt a typology optimised to function as a secondary school. Buildings based on the same principles have been identified in Luanda, Benguela, Namibe, Maputo and Beira.

57. Aguiar, J., Machado, E., Campos, S. (1956), *Normas para as instalações dos Liceus e Escolas do Ensino profissional nas províncias ultramarinas*, Lisboa: AHU, MU, GUU
58. Cruz, L.; Lopes, E. P. (1954), *Projecto do Liceu Feminino de D. Guiomar de Lencastre, Luanda*, Memória descritiva do Trabalho n. 455, AHU, MU, GUU, 21.09.1954
59. Agência Geral do Ultramar (1960), *Relação dos Estabelecimentos de Ensino Oficial em funcionamento nas províncias do Ultramar em 31 de Dezembro de 1958*, Lisboa: Ministério do Ultramar, Direcção Geral do Ensino. The former female high school in the Angolan capital, programmed for an original capacity of 720 students, inaugurated a series of similar projects that spread throughout the various colonial territories. In Angola it was reproduced in Benguela (former Liceu Commander Peixoto Correia), Huambo (former Liceu Norton de Matos) and Moçâmedes (although not finished), and in Mozambique there are two similar school buildings, one in Maputo (former Liceu António Enes) and the other in Beira (former Liceu Pêro Anaia).

Um arquitecto português vai estudar urbanismo em Espanha

No «Lusitania-Expresso», parte hoje para Espanha, em missão de estudo, patrocinada pelo Instituto para a Alta Cultura, o distinto arquitecto sr. Mario Gonçalves de Oliveira, que terminou o curso superior de arquitectura na Escola de Belas Artes do Porto. Começará por trabalhar em Oviedo, sob a orientação do arquitecto Gonzalo Cárdenas, dos serviços das «Regiões Devastadas», frequentando depois os cursos de urbanismo e de esgotos e saneamento, na Escola de Arquitectura de Madrid, sob a orientação do arquitecto Cesar Cort. O nosso compatriota tem tambem como objectivo elaborar um trabalho original urbanistico.

Fig. 38. "Portuguese architect is going to study urbanism in Spain". Newspaper announcing Mário de Oliveira's departure for the School of Architecture in Madrid, where he would study "the courses of urbanism and of sewage and sanitation", [undated]. Source: Personal Archive of Mário de Oliveira.

LOCAL HABITATS

The following decade was to bring new developments to the Portuguese colonies, the phase in which most African states were now sovereign nations. Studies of local habitats were to characterize the last 15 years of colonial occupation, following the publication of *Vernacular Architecture in Portugal* (National Union of Architects, 1961),[60] having a strong impact on the orientations followed by the Office architects and later by the Directorate of Urbanism and Housing Services (DSUH), which replaced it. Greater attention to buildings and urban settlements for the local populations was to be reflected in attempts at aesthetic approximation and analogue solutions for adaptation to the climate.

The professionals working in this period were increasingly experienced in the field of tropical architecture, having skills they acquired outside the Portuguese schools, under the sponsorship of bodies that supported the specialization of higher-level professionals in the service of the State, such as the Institute for High Culture, which had been operating since the 1930s.[61] Some of these international experiences in professional circles in Lisbon are documented – such as those of Mário de Oliveira in the 1940s[62] (Fig. 39) and, in the following decade, Luís Possolo (Saldanha, 2012),[63] Fernando Schiappa de Campos and António Saragga Seabra. The latter three attended the classes of Otto H. Königsberger and his disciples at the Architectural

60. Sindicato Nacional dos Arquitectos (1961), *Arquitectura Popular em Portugal*, 2 vol., Lisbon: SNI.
61. The Institute for High Culture (IAC) - a direct consequence of the legislation legitimising the establishment of the *Estado Novo* in 1933 -, had as its main objective the financing of research projects and promotion of the constant updating of the knowledge held by an investigative elite, with a view to complying with the strategies of the Portuguese government. Of the many articles on this subject matter, see Gaspar J.; Gago, M. do Mar; Simões, A. (2009), 'Scientific life under the Portuguese dictatorial regime (1929-1954): the communities of geneticists and physicists', *Journal of History of Science and Technology*, vol. 3 (Fall 2009), pp. 74-89.
62. Oliveira attended a specialisation course in Health, Hygiene and Urbanology at the Higher Institute of Architecture in Madrid (Spain), and one in Urbanism at the Institute for Local Administration Studies oriented by the architect César Cort (1893-1978). Diniz, C.M. (2013), *Urbanismo no Ultramar Português: A Abordagem de Mário Oliveira (1946-1974)*, Mestrado Integrado em Arquitectura, Lisbon: ISCTE-IUL, p. 29 ff.
63. Saldanha, J. L. (2012). *Luís Possolo – um arquitecto do Gabinete de Urbanização do Ultramar*, Lisbon: CIAAM, FCT [PTDC/AURAQI/104964/2008].

Fig. 39. Industrial and Commercial School of Moçamedes (now Namibe), Angola, architects Fernando Schiappa de Campos, Luís Possolo, and Lucínio Cruz/GUU, ca. 1970s. Source: Personal Archive of Luís Possolo.

Association in London, where, at the time, learning from indigenous peoples as a means of perfecting the technical aspects of tropical construction was a favoured trend.

Programmes that emphasized representative urban presence were gradually replaced by facilities that focused more on the local populations – as part of a final effort to "westernize" native Africans. There emerged an architectural output designed with "indigenous" groups in mind, including typologies of a smaller scale – from the single-family home to greater diversity of facilities (primary schools, health centres, drinking fountains and wells, community laundry facilities, collective sanitary installations, etc.) (Fig. 40 and 41).

Parallel to this, a new approach to the building of public facilities for the African community with a strong representative potential, such as religious

Fig. 40 and 41. Lossol Nucleus, two-room school (main and rear elevations), Caconda, Cela, 1964, Angola. *Junta Provincial de Povoamento de Angola. Brigada de estudos e construção das obras de engenharia do colonato da Cela.* Source: AHU, 13016.

education and vocational training structures, was taken. Such actions were part of the "psychological actions" launched by the colonial government; in regions where the military conflict had progressed, such as in Portuguese Guinea, these were particularly important in the scope of what was described in circles close to Governor Spínola as the "social and cultural promotion of the indigenous population".[64] Until the eve of the April revolution, it was customary for military information about the construction of infrastructure in the service of the colonial war to be promoted among the population, recruited locally as Public Works workers, as if this equipment was at "their own service", and it was in their interest to *collaborate* in its completion.[65] (Fig. 42 and 43)

The Public Works architects invested in the design projects of this period the hope of an "assimilation process". The transformation shifted to the organization of the interior spaces, i.e. a redesign of the floor plan (for example, for a house), endeavouring to neutralize the ethnical aspects and introduce European functionalities. The plan for the traditional house – which had been changing since the 17th century – was once again the object of specific thought (Fig. 44).

Generally speaking, formal questions – while decisive for the overall reading of an architectural product – played a less important role, coming

64. Government of the Province of Guinea Report – Construction of Residential Neighbourhoods and Villages. Province of Guinea/Governor's Office [António de Spínola], undated. [Fundação Calouste Gulbenkian, G-6/69, COOP 2430].
65. *Military information on the construction of the road between the villages of Binta and Guindage*, 25/01/1974. 4ª Repartição 40_340 Processos de Empreitadas de Obras e Manutenção de Prédios Militares – pasta 101. [AHM, CTIGuiné]

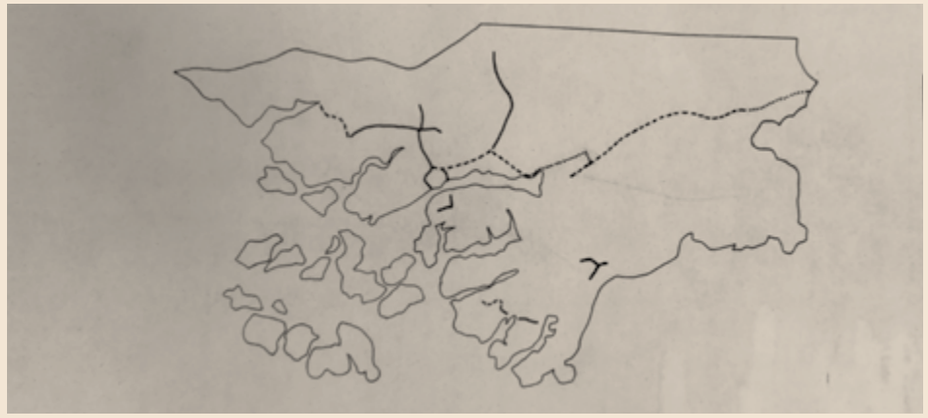


Fig. 42. Diagram showing asphalted roads in Guinea-Bissau during the colonial war. Most of the roads built under colonial rule were made of packed earth. Colonial engineers experimented with different soil compaction techniques in different tropical climates. The war would encourage faster infrastructure, better suited to the dynamics of counter-insurgency. Source: *Batalhão de Engenharia da Guiné 447, História da Unidade*, 1964-1974, AHM, 2/4/124/15.

Fig. 43. Militar Road, Bambadinca, Guinea-Bissau, ca. 1970. Source: Personal archive of the agronomic engineer J.A.L. Simões Santos, Reconnaissance and Information, Infantry No. 11569169, team leader for the integration reorganisation of Nhabijões.

way behind climatic issues. In extreme cases, however, commitment to more westernized aesthetic and programmatic approaches continued, in an effort to neutralize vernacular African features (Fig. 45).

The military paradoxically also looked to "indigenous" building styles in its efforts to "reorganize" the rural populations around settlements that were integrated in conflict zones. To build rudimentary houses that were rectangular in plan (11 x 9 m), had four rooms with a central hallway, with straw or zinc roofs, with and without plastered walls, and featuring flooring or clay floors, the military used local building methods – with ample use of the adobe block in Portuguese Guinea – and climatic solutions inspired by

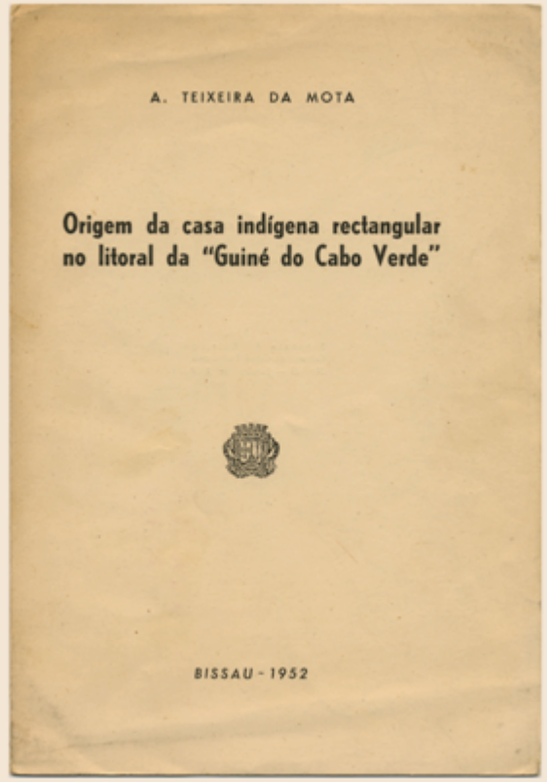


Fig. 44. "*Origin of the Indigenous Rectangular House on the Coast of Guinea-Cape Verde*", A. Teixeira da Mota, Bissau, Guinea-Bissau, 1952.

Fig. 45. Inhambane. Some houses of native Africans who were members of Zavala housing cooperatives, including interior views, Mozambique, 1959. Source: *Governo do Distrito de Inhambane, Relatório do Governador Augusto Vaz Spencer*, AHU, A2.050.04/029.00179.

Fig. 46. Sketch of a military resettlement in Guinea from a photograph, Guinea-Bissau, [undated].
Source: *Batalhão de Engenharia da Guiné 447- História da Unidade, 1964-1974,* AHM, 2/4/124/15.

traditional experiences (of the Balanta people in Guinea, for example) which they included in their practical building manuals (Fig. 46).

In contrast to the architects, the military did not aspire to change the familial intimate relationships by means of the house plan. Instead, they offered elementary solutions that were easily adaptable to different lifestyles. The orthogonal alignments of its housing developments broke with the organicity that was common to African settlements, which was precisely the structure and layout that the architects sought to integrate into their designs from the 1960s onwards. *Problemas essenciais do Urbanismo no Ultramar* (The Essential Issues for Urbanism Overseas) by Mário de Oliveira, published in 1962, was one amongst several publications by the General Agency for Overseas that reflected that conceptually more organic urban planning perspective. It was based on the field missions carried out by Oliveira, who had been working at the Office since 1948. It contained, however, a list of principles that lacked a developed theoretical interconnection, as it was based essentially on the author's own empirical experience.

In the context of the Public Works departments set up in the colonies, the respective professionals – engineers and architects – were also free to circulate in neighbouring regions and take note of urban planning and architectural practices developed in countries that had already become independent. This reinforced the idea that this was a complex period, particularly with regard to the neighbourly relations between independent African states and regions still under colonial administration. Participating in international seminars and conferences was also an integral part of this pan-African mobility. Once again, it should be noted that the relations between sovereign states and colonial territories in Sub-Saharan Africa at this time have not yet been sufficiently studied.

CLOSING REMARKS

In the final phase of colonial occupation, the Portuguese state progressively altered the legislation and political discourses relating to the colonies, even if the colonial departments maintained trialled and tested practices. The Public Works departments housed a complex group of services under its roof, in which architects constituted a small part of the workforce, and they were often subordinate to other specialists, mostly from engineering areas. They ended up having to compete with the military, a force that included amongst its ranks professionals with a wide range of training considered appropriate for intervention in the territory – from engineering to agronomy and to architecture itself.

But from the point of view of colonial architecture, it is perhaps legitimate to end this overview article by returning to a question that was already suggested above: is it possible to attribute to the colonial Public Works departments an attempt to establish a "style"? The first aim of the work of the various public agents linked to Public Works in the African colonies was to extend a feeling of empathy through buildings and urban spaces that were similar to those that existed in cities in the Portuguese metropole, with a view to preventing the uprooting of the European settlers. That argument was to be used on diverse occasions to justify historicistic elements in colonial buildings that served administrative, religious or corporate purposes – but generally lacked public space. The setting up in the metropole of the Colonial Planning Office (GUC) shortly before the end of the Second World War supported that notion of homogenization. But the GUC also represented part of the political effort to begin a new cycle of infrastructural development, anticipating the African liberation movements and international criticism. Against this backdrop, the GUC's mission was seen as a progressive act more focused on functional and economic routines that favoured low-maintenance levels for buildings and the public space. A more aesthetic approach was seemingly relegated to a secondary level or even rejected by the professionals. But an attentive look at the urban planning and architectural projects reveals not only technical and functional, but also formal, similarities, which are three assumptions necessary to argue for the "existence" of an "architectural style". The centralized structure of the GUC, which was based in Lisbon, also facilitated the consolidation of a more stylistically engaged approach. Despite these arguments, the GUC professionals rejected the idea that there was an official style especially conceived for the colonial context. This is borne out when one compares their African works with the buildings they designed in the metropole. Locally, the Public Works departments offered equally standardized and progressively more competent responses to requests for infrastructure. Without doubt one can say that rational and everyday processes dictated the construction of landscapes that were to be seen as analogue when viewed from outside but retained autonomous features when viewed from the inside. The research of how the colonies, particularly those in Africa, were constructed, is still in the initial stages and cannot yet provide complete answers to every question.

KEYNOTE-SPEAKERS — CONSULTANTS

ANGOLA: COUNTERING THE "TABULA RASA"

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COUNTERING THE “TABULA RASA” [ABSTRACT]

The systemic problems that exist in the Angolan built environment(s) today reflect historical processes and the continuation of certain aspects of late-colonial ideology by post-colonial actors in the period following independence and the civil war that followed. This paper seeks to provide critical reflection on the historical development of the Angolan territory throughout the colonial and post-colonial periods. We aim to challenge some assumptions commonly held by the public, practitioners and policy-makers alike, and question certain narratives that are frequently present in the discussion of architecture in Angola. Beginning with the erasure of the pre-colonial period and the birth of an extractive economy and continuing through to the modernist era of ‘nation building’ and the post-civil war construction boom, our aim is to politicise that which is often presented as ‘neutral’ or ‘objective’. In doing so, we hope to identify the opportunities that lie ahead, as we look towards an uncertain future, and outline philosophical considerations for contemporary and future designers, architects, engineers, urban planners (and other construction industry professionals, be they practitioners, educators, or working in governmental organisations), together with policy-makers.

THE PROBLEMS OF A EUROCENTRIC CANON

The discussion of architecture and urbanism in Angola typically begins with the arrival and settlement of the Portuguese. This is an issue that constantly rears its head: the (hi)story of Angola beginning with colonialism. What is today known as Angola was a *tabula rasa*. This silence to which the pre-colonial period is condemned, easily gives rise to the assumption that there was nothing of great value in the country prior to the arrival of European powers. The reasons for this assumption are: firstly, the deficient documentation of non-European built structures; and secondly, because the archives on architecture in Angola were produced within the framework of a colonial administration that had an inherently Eurocentric view of what constitutes ‘architecture’.

The lack of documentation of African or pre-colonial material cultures and their architectures does not mean that they did not exist, but simply that they were not documented for one reason or another or were not deemed ‘architecture’. One illustration of this is Fernando Batalha’s survey of Mbanza Congo — a regional city that includes the archaeological remains of the capital of the Kongo Kingdom (Batalha, 2006: 15-31). Apparently, this survey found nothing that was worth considering as architecture aside from the structures built by Europeans (although there exist descriptions by early European explorers, as well as some remains of pre-colonial structures). Yet this was a large capital city of an empire that covered an area 4 times the size of France at the height of its power.

It is worth considering how we actually define architecture — does the concept remain relevant when applied to a non-Eurocentric place, time or society? The perceived lack of ‘architecture’ in non-European cultures, places and eras is often pointed to as evidence of a lack of civilisation, inferring that a society without ‘architecture’ can only ever be a rudimentary or primal society. However, there have always been other ways of being-in-the-world that do not fit the prevailing view. One need only think of the various semi-nomadic and pastoral peoples in the south of Angola to understand that the relevance of ‘architecture’, as we understand it, is necessarily different.

The fundamental problem of the nature of the colonial records has been noted by Achille Mbembe:

> “A Eurocentric canon is a canon that attributes truth only to the Western way of knowledge production. It is a canon that disregards other epistemic traditions. It is a canon that tries to portray colonialism as a normal form of social relations between human beings rather than a system of exploitation and oppression.” (Mbembe, 2016)

We would go further, and suggest that a Eurocentric canon not only ‘normalises’ but positively renders invisible the historical processes that have led to the erasure of cultures and the dwindling of traditions, leading to a contemporary perception that pre-colonial societies were ‘lacking’ — lacking ‘culture’, or of greater interest to us, lacking an admirable ‘traditional’ architecture. This ‘lack’ is understood as being inherent to the places and peoples in question, rather than being understood as the result of the

historical processes that have actively erased cultural and social practices.

When we discuss 'infrastructure', we haul the entire narrative of 'development' to the table – along with all its Eurocentric baggage. As has been argued by many people from different fields, the 'development' and industrialisation of Europe was made possible by colonial expansion, both materially and financially speaking. The modernisation of Europe was refined over a period of several hundred years, financed by colonial systems, and exported to the colonial spaces, largely to facilitate extraction of wealth. This was explicit in the early colonial period. However, in later periods the development and modernisation of colonial spaces was wrapped up in various palatable narratives, many of which are still present today, even in high-brow discussions of architecture and infrastructure in the colonial and post-colonial eras.

The contemporary discussion of 'infrastructure' tends towards the pragmatic and is generally assumed to be something that is objective and neutral — the 'social' component or impacts are discussed primarily when something isn't working — but we need to acknowledge that there are deep philosophical and historical contradictions in relation to this matter that continue to manifest themselves in today's contemporary urban environments. In order to implement development and infrastructure models (and by extension, architecture) that are appropriate to post-colonial contexts, and to avoid repeating historical mistakes, it is important that practitioners and policy-makers are aware of these contradictions and the history of these concepts as applied to the places in question.

In the following, we will outline what we see as critical moments in the colonial development of Angola, with a view to illustrating the roots of some of today's systemic problems. It is crucial for practitioners such as ourselves to be able to navigate this complexity, in an attempt to develop a body of work that is relevant for current and future generations.

EARLY COLONIAL PERIOD: THE BEGINNINGS OF AN EXTRACTIVE ECONOMY

The early Portuguese expansion in the region was limited to the coastal areas and immediate hinterland regions, with a series of coastal centres established at strategic ports along the coastline (many of which later became important cities or towns) connected to each other via sea rather than via land, and, of course, to Europe and, most importantly, the Americas. The economic basis of these settlements (and indeed the early colonial enterprise in Africa) was the slave trade, with these ports functioning as funnels for the extraction and sale of people. Considerable wealth was generated in these port cities, financing the development of the early urban centres which followed the logic of this extractive economy.

19TH CENTURY: CONSOLIDATION OF THE TERRITORY, SHIFT IN THE ECONOMY

This dynamic of relatively independent coastal colonial centres with little incursion into the inland areas began to shift dramatically in the 19th century for various reasons:

1824 — the independence of Brazil (Portugal's most important colony at that time);
1838 — the official end of the Portuguese transatlantic slave trade (although it continued illicitly after this date);
1869 — the outlawing of slavery in Portuguese territories (although various forms of forced labour continued into the 20th century);
1884-5 — the Berlin conference and the European 'scramble for Africa'.

The loss of Brazil as a colony meant that the African territories effectively became the base of the Portuguese 'empire'; combined with the end of the slave trade, this implied a massive restructuring of the economics of the Portuguese colonial enterprise. The push to 'legitimise' the economic and commercial interests in Angola that had nothing to do with the slave trade, combined with an increasingly hungry market in Europe, drove resource extraction and agricultural production in the fertile and resource-rich hinterlands. The definition of Angola's borders and the European 'scramble for Africa' required an increased Portuguese presence at the inland frontiers, with military and administrative campaigns to dominate and control the interior of the territory. All of these factors changed the perception of the territory as a whole, required expansion away from the coast and towards the interior of the country and set the scene for the changes to come in the early 20th century.

EARLY 20TH CENTURY: MODERN COLONIAL EXPANSION AND 'NATION BUILDING'

The fall of the Portuguese monarchy and creation of the first republic and the subsequent *Estado Novo* dictatorship was the catalyst for the consolidation of control over the interior of Angola. The late 19th and early 20th centuries saw the production of cotton, wax, corn, sisal and coffee (among other crops) becoming the new, lucrative base of the colonial enterprise. The narrative of one single Portuguese nation that incorporated the colonies as integral parts of Portugal itself was introduced — and the colonies were rebranded as 'overseas territories'. This was accompanied by a push to populate the colonies with white settlers and to modernise, develop and control the territory through the implementation of various forms of urban infrastructure, including:

- The creation of road networks and the construction of railways from coastal centres into the interior;
- The creation of new *colonato* (tenant farmer colonisers) settlements associated with large agricultural projects, such as Santa Comba (now called Waku Kungo);
- Planned urban expansion, initiated in particular by General Norton de Matos as Governor General of Angola between 1910 and 1913. One notable example of this was the development of the city of *Nova Lisboa* (*New Lisbon*, today called Huambo) on a greenfield site located on a rich agricultural plateau.

POST WWII: MODERNIST ARCHITECTURE AND URBANISM

After the Second World War, the price of coffee soared, and Angola became one of the world's largest producers. This latest *boom* financed construction on a huge scale — both private ventures (mainly in established cities) and public ventures that together became a massive nation-building project undertaken to accommodate increasing numbers of white settlers both in the cities and in important agricultural areas. At the same time, a wave of independence movements swept across Africa and strong nationalist sentiments within the various Portuguese colonial spaces emerged. As more Portuguese settlers arrived in Angola, the *Estado Novo* regime employed the *Lusotropicalismo* narrative of a racially integrated society within a Portuguese nation that stretched from "Minho to Timor" (Neto, 1997: 344). This nation-building project became in part a vehicle for justifying to the international community Portugal's retention of its colonies. Modernist architecture and urban planning was embraced not only due to the potential for rapid construction of the required building stock that new technologies such as reinforced concrete provided, but also to exploit the progressive social ideals embodied in the modernist project, so as to posit this considerable investment in the colonial spaces as a reason for their retention, communicating a political narrative of an egalitarian society with all races assimilated into a Portuguese way of life, however different the reality may have been. A generation of idealistic Portuguese architects who were heavily influenced by the International Style that had found favour across Europe, North America and Brazil, left the repressive environment of Portugal under Salazar and headed to the colonies where they not only found better employment opportunities but also greater freedom to innovate and practice this 'new' architecture. At the same time as this massive nation-building project was underway, nationalist and pro-independence sentiments were actively suppressed, often brutally (including more extreme cases such as the bombing of rural communities with NAPALM) (Araújo et al., 2009).

PROBLEMATISING COLONIAL MODERNISM: THE SOCIAL AND POLITICAL IMPLICATIONS OF TROPICAL MODERNISM IN COLONIAL SPACES

Much is made of the legacy of Tropical Modernism that is still present in Angolan cities. While there is much to be celebrated (especially the responsiveness to climate, a trait missing from much of what is being built today), and indeed the current state of decay and neglect of this architectural legacy is painful to witness, nevertheless, the problematic aspects of this programme need to be acknowledged. Firstly, the modernist project as it was implemented in Angola, was embedded within and was a tool of the colonial project. Secondly, the notion of 'universalism' that was embodied in the modernist ideology was not in fact universal, but effectively meant the 'European', or at best, the 'assimilated' groups, and excluded the vast majority of the population. Many modern housing projects required that potential black African inhabitants prove their status as *assimilados* — a legal status that was acquired by demonstrating that one adhered to a European way of life, used cutlery, slept in a bed, did not speak a local language, but only Portuguese, etc. (Milheiro, 2012: 346) The modernist ideology of 'universalism', as supported by these assimilationist policies, effectively led to the further erasure of local cultures — that which existed physically, socially and culturally in a given place. Angola and other Portuguese colonial spaces were seen as a *tabula rasa* for the creation of a new society or a new world. And thirdly, the modern project was never fully implemented, and its egalitarian ideals were never realised: the 'modern' city existed largely for the white, mixed race and *assimilado* minority (Pereira, 2000), physically separated from the informal *musseques* (or slums), which were located on the urban periphery and populated by the indigenous majority. Ironically, during this period the cities actually became more rather than less segregated — the influx of white settlers at the time of this modernist expansion and reorganisation of the cities through the various *plano director* (master plan) projects created more legible divisions between the paved city centres and the dirt-tracked *musseques* on the periphery along racial lines, where previously the city had been smaller and had not had such clear spatial, economic and racial divisions. This created a centre-periphery dynamic in which the modern centre relied heavily on the *musseques* for cheap labour to support the operations of a cosmopolitan society, a characteristic that continues today and has indeed expanded. At the same time as this reorganisation of existing cities was being implemented, a number of greenfield *colonato* towns were designed and built in strategic agricultural areas in the provinces that were intended for an entirely white population, also employing the tropical modernism style (Fonte, 2012: 227).

Over the last 15 years there has been a lot of interest in modernist architecture in the former Portuguese colonies, supported by the wealth of archives that still exist in Europe today. While this recent academic interest is important, especially given the precarious state of architectural heritage care in Angola, there are various problematic aspects of much of this research that need to be addressed. As has been noted elsewhere (Henriques et al., 2014), much of this recent study of the architectural output in the colonial spaces during this era is viewed through a very restricted contextual framework and does not draw on post-colonial critique or analysis, as has become common in academic work in the fields of social science when dealing with this type of material. Much (though not all) of this documentation belies a tendency towards nostalgia, where the period is viewed as something of a golden era for architecture, failing to contextualise what these particular design projects, policies and built works actually meant in relation to, firstly, the larger colonial project and the 'epistemological violence' brought upon local peoples, and, secondly, the specific relationship between architecture and the politics of the day. While this second point can be made about the state of architectural criticism globally, it takes on another dimension when the architecture in question is influenced by 'progressive' social ideas developed in European contexts which are then reproduced and distorted in a colonial setting. The reason we feel it necessary to point this out is: it is important to acknowledge that architecture is always a reflection of (and a tool at the service of) the social order and political power of the day – whether that be in a colonial regime or post-colonial government in an oil-rich nation such

as Angola. This is something that is at best not made explicit, or at worst not even considered, in much of the contemporary discussion of architectural modernism in former Portuguese colonial spaces.

We dwell on this point because many of the attitudes and assumptions underpinning the models of development in this late-colonial era are still present today.

INDEPENDENCE AND CIVIL WAR: IMPACT ON LANDSCAPES AND BUILT ENVIRONMENT

Angola gained independence in 1975 and immediately entered a protracted and highly destructive civil war. There was an immediate exodus of Portuguese settlers and the urban professional class, coupled with the more gradual but even more massive migration of rural populations fleeing the war towards urban centres, particularly Luanda. This put major pressure on the limited building stock and urban infrastructure and spurred substantial informal growth on the peripheries of cities. There was widescale destruction in the smaller towns and rural areas, and also of nationwide infrastructures — roads and bridges fell into disrepair, or strategic connections were deliberately destroyed as the two sides of the conflict gained or lost territory. This period of civil war meant that there was effectively no investment in, nor maintenance of, any form of infrastructure, and it has resulted in a number of systemic problems today, characterised differently across various types of urban settings:

- Dilapidated city centres with significant quantities of unmaintained modernist-era housing stock in need of major upgrading, which is economically impossible for many of the city in question's inhabitants;
- The 'informalisation' of previous 'formal' urban neighbourhoods, with adaptations, modifications and infill growth occurring in a manner that impedes the functioning of basic infrastructures;
- Ongoing migration from rural to urban areas, and informal urban sprawl on the periphery of all cities, with infrastructure provision always in a position of having to 'catch up' with unplanned growth;
- Depopulated rural areas with extremely limited access to the most basic services, infrastructures and employment, resulting in continued migration from rural to urban areas (specifically the urban peripheries) in search of opportunities for betterment.

PEACE, OIL AND CAPITALISM: 'RECONSTRUCTION' AND 'NATION BUILDING' — REPETITION OF LATE COLONIAL APPROACHES

Frantz Fanon [...] did not believe that "nation-building" could be achieved by those he called "the national middle class" or the "national bourgeoisie" [...]. He thought the African post-colonial middle class was lazy, unscrupulous, parasitic and above all lacking spiritual depth precisely because it had "totally assimilated colonialist thought in its most corrupt form." Not engaged in production, nor in invention, nor building, nor labour, its innermost vocation, he thought, was not to

> transform the nation. It was merely to "keep in the running and be part of the racket." For instance it constantly demanded the "nationalization of the economy" and of the trading sectors. But nationalization quite simply meant "the transfer into native hands of those unfair advantages which were a legacy of the colonial past" (Mbembe, 2016).

The civil war finally came to an end in 2002, around the same time that global oil prices skyrocketed. It is hard to overstate the scale of change in the period since. It has involved a massive national reconstruction project, investment in the rebuilding of infrastructure and attempts to kick-start industries that had ground to a halt during the war, an oil-fuelled construction *boom*, as well as the embracing of capitalism, the establishment of an Angolan economic elite and the emergence of middle-class consumers. Unfortunately, but unsurprisingly given the nation's wealth in resources, corruption became entrenched, with the impacts thereof affecting all aspects of daily life.

Three main dynamics are now playing out in the built environment in the post-civil war period:

1. Continued expansion of informal construction and urbanism

This covers the vast majority of the urban population and is generally characterised by unhealthy living environments as a result of poor-quality construction and the lack of basic infrastructure, as well as precarious land tenure. This informal expansion has been driven by the continued migration from rural to urban areas and is exacerbated by housing shortages and speculative real estate prices, effectively pricing the majority of Angolans out of the formal housing market and condemning those without secure tenure (or political connections) to a precarious life in the slums. In recent years, many of these informal neighbourhoods, especially those located on valuable land, have become demolition sites, so as to make way for large-scale urban conversion projects (such as the Sambizanga-Cazenga project) or as yet unbuilt waterfront developments (such as Chicala).

2. A new boom in speculative private sector real estate ventures in the major cities

This boom has been a response to notoriously high prices stemming from the housing crisis, something that is not helped by the fact that multinational oil companies were willing to pay whatever price was asked for the extremely limited housing stock available in the immediate post-civil war period, when oil reached US$160 a barrel. These projects are typically high-end housing, office space or shopping centres, and are financed by both local and foreign capital. They have also been associated with various international corruption scandals (notably the BES Portuguese banking scandal). They are largely designed outside of Angola and built by foreign construction companies, and employ explicitly international contemporary aesthetics. They are aimed at both international investors and the Angolan upper classes and represent the desires of this new elite. Many of these projects embody the concept of the *enclave* — whether the vertical high-security high-rise developments,

or the horizontal gated communities of Talatona. Heritage architecture has frequently been demolished to make way for such projects in city centres, especially in Luanda.

3. Large-scale state-led housing, industry and infrastructure projects

These projects are typically highly centralised in their conception and implementation and are often implemented in joint ventures with foreign entities. The departure point for the design of these projects would seem to be a tabula rasa, with speed of implementation being a factor more important than suitability to the local context or durability of the built work. These projects vary greatly in terms of their success and are often plagued by corruption. Many large housing projects in urban areas have been necessarily modified by the inhabitants — often with negative results — in a manner that highlights their inappropriate design.In rural settings, clusters of high-density middle-class housing were built on the outskirts of many smaller regional towns, such as Uíge or Dundo. While this approach represents a desire to counter the continued migration of populations from rural to urban areas and to attract a class of public servants to live in provincial regions, it also risks perpetuating the 'planning at distance' system implemented for modernist-era *colonatos*, which was equally disconnected from the contextual reality of the place in question (the local traditions and environment, the social function of outdoor cooking and living spaces, and the economic context of the local people). In effect, these projects are not for the local people, unless they are willing to convert (or 'assimilate') to a 'modern' way of (urban) life.

While there are obvious differences between this post-civil war era and the late colonial period, there are also striking similarities between the 'nation-building' approach taken then and the approach today — centralised planning and execution of projects, often approaching the local context with a *tabula rasa* mindset, along with a philosophical desire to transform the character and identity of the local inhabitants. The ideology underpinning the post-civil war era 'reconstruction' project seems by default to have fallen back on and re-initiated the late colonial programme for developing the territory, only this time with the Angolan state driving the agenda and with the input of international partners such as Portugal, Brazil, and China, amongst others.

Clearly, there are serious major works required in this post-civil war period. However, not only the physical infrastructure needs to be rebuilt, but also the human infrastructure. Communities and societies were massively disrupted or displaced over the course of the civil war, education was interrupted for longer than one generation, and a political culture of fear (from which we have only recently begun to emerge) explicitly shut down critical thinking, discourse and debate. The economy effectively stagnated, and although it was kick-started after 2002 with the oil *boom*, it remains largely dependent on that one single commodity, as the current economic crisis that began in 2014 has made painfully obvious. A programme of national reconstruction should not only concern itself with the construction of roads, bridges, and housing stock (although these are all of vital importance),

but also with the 'reconstruction' of communities. It requires the creation of an economy and a society that can integrate the Angolan population (the majority of whom live in poverty) in a manner that enables them to create livelihoods, not only as economic production units, but also with independence, self-determination and agency. Whether this is the type of 'reconstruction' that is underway is debatable — the priority has been physical infrastructure first, with 'social' infrastructure to follow. Nevertheless, the current economic crisis has exposed the fragility of many of the ventures that have been carried out over the previous decade, as they are of extremely poor quality and/or entirely unsustainable from both a financial and political point of view.

TODAY

The built environment in Angola today is characterised by numerous systemic problems. Some of the problems that we have to deal with on a daily basis, both as practitioners and as citizens, are:

- The reflection of poverty and major economic disparity in the built environment and the social implications of this — a vicious cycle of crime and aggressive responses in the form of built structures;
- The contradictory reality of a state that is unable to provide the minimum, basic urban infrastructure to all citizens (that is: power, water, sewerage, rubbish collection and urban mobility systems), let alone the houses themselves, and yet engages in rhetoric that implies that the state aims to provide housing for the masses (a hangover from our Marxist past?);
- A large informal sector contrasted with urban planning policies that seemingly refuse to acknowledge its existence or its potential as a contributor to appropriate solutions in urban development;
- Precarious land and housing tenure for the majority of the population, in both urban and rural areas;
- A 'copy-paste' approach to projects of all scales, both in the public and private sectors, with ideas from elsewhere being implemented in Angola, designed by sub-contracted foreign professionals who often have little knowledge 'on the ground' or little opportunity to question the design brief, which frequently lacks appropriate adaptation to the local climatic, social or environmental context, using contractual models that (at best) do not deliver best practice construction or a high-quality end product, or (at worst) aim to facilitate corruption, and are often isolated and disconnected from a larger system of infrastructure required to support the end product's correct functioning;
- Complete silence and apparent denial of the future challenges that will be thrown up by climate change — which will exacerbate existing problems and have serious social and geopolitical ramifications.

In sum, much of the development that is underway in Angola continues to be defined by visions borrowed from elsewhere, seemingly suffering from amnesia: again, the *tabula rasa*. Similar to the massive nation-building project that

was undertaken in the 60's by the colonial regime, the recent reconstruction and development *boom* has also been closely tied to a set of political ideologies, and the architecture(s) that has/have emerged during this period has/have been equally shaped by the political winds of the time. Architecture is never neutral; it can always be used as a political tool.

TOMORROW

After this framing of the history of urban landscapes in Angola, it can feel as though we are cornered in a situation where the shadow of the contemporary 'systemic problems' looms large over any optimism as we look forward into an uncertain future.

The challenges that we face now and in the future require solutions that are generated outside of a 'modern' or 'universalist' vision, outside of a Eurocentric or anthropocentric model of thought — we find that Escobar's notion of the 'Pluriverse' is helpful as a conceptual framework for this.

> The modern ontology presumes the existence of One World – a universe […] (however) there are indeed relational worldviews or ontologies for which the world is always multiple — a pluriverse. Relational ontologies are those that eschew the divisions between nature and culture, individual and community, and between us and them that are central to the modern ontology. Some of the today's struggles could be seen as reflecting the defense and activation of relational communities and worldview […] and as such they could be read as ontological struggles; they refer to a different way of imagining life, to an other mode of existence. They point towards the pluriverse; […] 'a world where many worlds fit'.
>
> […] we need to start thinking about human practice in terms of ontological design, or the design of other worlds and knowledges. Design would no longer involve the instrumental taming of the world for human purposes, but building worlds in which humans and the Earth can coexist and flourish. (Escobar, 2011: 139)

In order to avoid repeating or perpetuating the 'systemic problems' that we have inherited, models for critical thinking are required that are inherently place-based, as opposed to universalist, and that are able to problematise, understand and work around the contradictions inherent in seemingly neutral areas of concern.

This is a call for local agency. For new knowledge to be generated locally, in the place and of the place for which it is destined. For reflection on what infrastructure needs to be developed and how. For the creation of a dialogue about how to bring the social, cultural and economic lived realities of everyday Angolans into a dialogue with design and architecture, uncovering creative opportunities. For the envisioning of ways in which we can be 'modern' without negating the past or the present, acknowledging that the culture or cultures that exist in a place do not need to be extinguished in order to become contemporary.

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"S, M, L, XL". MAPPING A COLONIAL TASKSCAPE ALONG THE MATADI-KINSHASA RAILWAY LINE, DR CONGO, FROM A TRANSIMPERIAL PERSPECTIVE

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ON THE POLITICS, POETICS AND PROMISE OF INFRASTRUCTURE

In 2010, the year coinciding with the 50th anniversary of the independence of the Belgian Congo – the country now known as the Democratic Republic of the Congo (DRC) – *Magnum* photographer Carl De Keyzer presented a series of photographs of vestiges in the former Belgian colony in an exhibition at the Antwerp Museum for Photography entitled *Congo (belge)*.[1] One of the photographs on show depicts a young Congolese policeman with automatic rifle standing in front the remnants of a metal bridge near the port city of Matadi.[2] This bridge, constructed in the late 19th century, originally served as a crucial crossing over the Mpozo river for trains travelling from Matadi to the inland capital city of Kinshasa, the city formerly known as Léopoldville.[3] The photograph depicts a piece of infrastructure which is now obsolete: the railway tracks are completely overgrown and the metal bridge is rusty. Somewhat ironically, given the derelict state of the infrastructure, an inscription in green paint on one of the bridge's beams reads: "metals in the service of man. w.w.w.com", while the presence of the policeman suggests that the bridge, despite its current state, has still kept some of its original strategic importance. In 2009, the Congolese photographer Kiripi Katembo produced his much acclaimed series *Un regard*, capturing vignettes of the city of Kinshasa via reflections in puddles of stagnant water that abound in the capital city's streets.[4] The surprise effect generated by the upside down mirroring of scenes photographed in these pools is particularly striking in two images that capture the remnants of railway tracks, which in the heyday of colonialism connected sites of economic production in the colonial capital city to the Matadi–Kinshasa railway line. Again, we are confronted here with an infrastructure that, at least according to Western standards, is 'failing'. Yet Katembo's photographs should not be read as indictments of DR Congo as a 'failed state'. Rather they testify of the continuing relevance of this infrastructure, even at a moment in time when transport by train has come to an almost complete standstill in Kinshasa: today these tracks function as important short-cuts for the large crowds of the city's inhabitants, or *Kinois* as they are commonly called, making their way on foot through the immense urban territory of Congo's capital city in their daily struggle for survival. De Keyzer's photograph of the Mpozo bridge equally is not to be seen as a nostalgic portrait of a now ruined infrastructure which once

1. Carl De Keyzer, Congo (*belge*), [with a text by David Van Reybrouck], Lannoo: Tielt, 2010. See also https://www.carldekeyzer.com/congo-belge (accessed on 3 January 2021). This exhibition was accompanied by a second exhibition, entitled *Congo belge en images*, curated by Carl De Keyzer and Johan Lagae and displaying a series of almost 100 late 19th- and early 20th-century photographs of colonial Congo.
2. https://www.carldekeyzer.com/congo-belge/xnzpvrvd6gdbofybkfq2i0kb35p4sy (accessed on 3 January 2021).
3. Throughout this chapter, I will use the contemporary names of localities and write Kinshasa rather than Léopoldville, Mbanza Ngungy rather than Thysville, or Lubumbashi rather than Elisabethville. The port city of Matadi has retained the name it had during colonial times.
4. After being displayed at the Picha Biennale in Lubumbashi in 2010, the series *Un regard* quickly gained international acclaim and was included, among others, in the exhibition *Beauté Congo 1926-2015 Congo Kitoko*, which was on show in 2015 at the Paris' *Fondation Cartier pour l'art contemporain*. Photographs of this series are widely available on the internet, see a.o. https://www.featureshoot.com/2014/04/kiripi-katembo-siku-un-regard/. For a very insightful analysis of the work of Katembo, see Tristan Gilloux, "Persée au Congo: la ville africaine dans le miroir de la ruse photographique de Kiripi Katembo", *Play Urban*, n° 1, 2016, pp. 153-156.

was the pride of the Belgian colonial conquest of Central Africa, nor are the other images of his *Congo (belge)* project depicting houses, churches, or schools built in colonial times, for that matter. Rather, the *Congo (belge)* series is an effort to capture the legacy of the – often surreal – physical manifestation of the colonial ambitions of a small country that colonized a territory in Central Africa about 80 times its own size. Or, to use a trope from colonial literature, De Keyer's photographs testify to the fact that in Congo "le petit belge a vu grand".[5]

These two photographs offer a useful starting point for a reflection on the relevance of infrastructure as a topic of investigation for architectural historians interested in things colonial. For while scholarship on colonial architecture and urban planning has significantly expanded in the last two decades, its focus has seldomly been, until recently, on the railway lines, roads, port infrastructures, pipelines, factories and mining compounds, warehouses, or workers' camps that shaped colonial territories and that in many colonial territories make up a major, if not the largest part of the colonial built environment. Architectural historians, I contend, have much to learn from the 'infrastructural turn' that occurred in other disciplinary fields. Anthropologists have in recent years (re-)discovered infrastructure as an "exciting" – rather than a "boring" – subject of inquiry precisely because of its periodic breakdown and malfunction, leading to ethnographic inquiries of clogged pipelines and potholes, especially in (urban) contexts of the so-called Global South.[6] But within this disciplinary field, as well as in the domain of science and technology studies (STS), infrastructure has also been employed as a means to construct alternative narratives of modernity, that allow clichéd notions of efficiency and functionality to be countered. Moreover, ethnographers, geographers and STS scholars alike have by now pointed out the possibility of reading infrastructure "politically", illustrating the extent to which pipelines, highways and electric lines not only "embody visions of progress" but also "serve vested interests, enforce regimes of control, and create geographies of abjection and segregation", while at the same time also "provoking claims and demands from below".[7] "Infrastructure", Marco De Nunzio has it, "has not only shaped ideas of the public good, but also informed people's experiences and understandings of citizenship as a right to infrastructural provision and connectivity".[8] Yet, in line with what Brian Larkin argued in a seminal 2013 article, infrastructure as the "physical network through which goods, ideas, waste, power, people and finance are trafficked" can also speak of something else than just bio- and technopolitics. For it can "release different meanings and structure politics in various ways: through the aesthetic and the sensorial, desire and promise".[9] Infrastructure

5. Pierre Halen has skillfully unpacked the multivalent nature of the trope in colonial literature in his book *Le petit belge a vu grand. Une littérature coloniale* (Brussels: Editions Labor, 1993).
6. Marco Di Nunzio provides a useful and concise synthesis of this emerging field on knowledge, including an extensive bibliography in a piece entitled "Anthropology of Infrastructure", published in *Governing Infrastructure Interfaces - Research Note*, n° 1, June 2018, 4 pages.
7. Marco Di Nunzio, "Anthropology of Infrastructure", p. 1.
8. Ibid., p. 2.
9. Brian Larkin, "The Politics and Poetics of Infrastructure", *Annual Review of Anthropology*, vol. 42, 2013, pp. 327-343 (p. 327).

can have a "poetic mode" in that its "form is loosened from technical function", and recently other scholars have further elaborated this notion of "the promise of infrastructure".[10]

SEEING LANDSCAPES AS TASKSCAPES

While such work can help us, as architectural historians working on colonial territories, to broaden our understanding of the politics, uses and imaginaries embedded in infrastructural elements in the areas we study, we might also learn from the research produced in the disciplinary field of *Landscape Urbanism* in order to find ways of thinking and mapping infrastructure across scales, from the small (a physical artefact, a building), to the medium (a street, a urban site or a complete urban territory) to the large (a region, an administrative territory, a colony) to the extra-large and global scale. This particular field significantly opened up an understanding of cities through the lens of both landscape and infrastructural networks.[11] While much of that work, which flourished in particular during the early 2000s, remains mostly limited to present-day European or North American contexts, it did much for the development of novel graphic and cartographic tools to visualize and map in compelling ways flows of people, goods, materials and energies across scalar dimensions. Pierre Bélanger's 2017 book *Landscape as Infrastructure* comes to mind here, as well as more recent work that engages with mapping territories of extraction between the camp and the city, or with local and global petroleumscapes.[12] Through testing such mapping techniques and visualizations of networks in colonial settings, we can complement the growing body of STS-scholarship on technology in (post)colonial territories.[13] Similarly it is timely to investigate the spatial dimensions of urban machinery and regimes of distributing water or electricity, for instance, which were crucial in governing colonial cities, as some historians of Africa have recently started to investigate.[14] For such research can help in refining the use of

10. Nikhil Anand, Akhil Gupta & Hannah Appel (eds.), *The promise of infrastructure*, Durham: Duke University Press, 2018.
11. For an overview of this interdisciplinary field, see Charles Waldheim (ed.), *The Landscape Urbanism Reader*, Princeton Architectural Press, New York, 2006. For a specific monographic example, see Kazys Varnelis (ed.), *The Infrastructural City. Networked Ecologies in Los Angeles*, Barcelona: Actar, 2009.
12. Pierre Bélanger (ed.), *Landscape as infrastructure: a base primer*, Abingdon: Routledge, 2017; Jeannette Sordi et. al. (eds.), *The Camp and the City. Territories of Extraction*, LISt Lab & Messaggerie Libri Milano, 2017. For various new cartographies and ways of mapping global petroleumscapes, see among others Richard Misrach & Kate Orff, *Petrochemical America*, New York: Aperture, 2014; Eve Blau (ed.), *Baku: oil and urbanism*, Zürich: Park Books, 2018; and research projects on petroleumscapes led by Carola Hein at the TU Delft.
13. An early example of this is Daniel Headrick's still seminal study *The tools of empire: Technology and European Imperialism in the Nineteenth Century*, New York: Oxford university press, 1981. For a more recent example, see David Arnold, "Europe, technology, and colonialism in the 20th century", *History and Technology*, vol. 21, n° 1, 2005, pp. 85-106. Scholars also have started to formulate a postcolonial critique on such STS-studies that see technology in the Global South as an pure result of export from the colonial centre or metropole to the colonial periphery. An interesting initiative in this respect is the STS-Africa network, which brings together a wide array scholars from various origins and disciplinary fields, see: https://lost--research-group.org/sts-africa/about-sts-africa/.
14. Interesting historical research work on urban *équipment*, such as electricity, in francophone colonial contexts is compiled in Chantal Chanson-Jabeur et. al. (eds.), *Politiques d'équipement et services urbains dans les villes du Sud*, Paris: L'Harmattan, 2004. For some discussions in other colonial contexts, see Brenda S.A. Yeoh, *Contesting Space in Colonial Singapore. Power Relations and the Built Environment*, Singapore: Singapore University Press, 2003; Freek Colombijn and Joost Coté (eds.), *Cars, conduits, and kampongs: the modernization of the Indonesian city, 1920-1960*, Leiden: Brill, 2014.

Michel Foucault's notion of "governmentality" in colonial settings.[15]

Looking at colonial territories from the perspective of landscapes and infrastructures can also serve as an invitation to architectural historians to shift their interest from landmark buildings and signature urban landscapes to the realm of the more mundane, the banal, or, to use Alex Bremner's words, to 'grey architecture' that provided the crucial scaffolding for the colonial enterprise.[16] This opens up new venues for research going beyond the focus on representation and the "politics of design" of colonial architecture and urban planning, a trope which gained prominence ever since insights from postcolonial theory entered architectural historiography in the course of the 1990s and has remained rather dominant till now.[17] For if the colonialism was indeed also a cultural project, as Edward Saïd taught us, it was nevertheless triggered, first and foremost, by economic interest.[18] Many, if not the largest part of colonial endeavours were based on the logic of extractive economies, which induced disruptive regimes of forced labour as well as major transformations of existing landscapes.[19] In colonial contexts, it is useful therefore to think of landscape in terms of production and labour, as cultural geographer Don Mitchell has done.[20] Here, however, we propose using the broader notion of "taskscape", which social anthropologist Tim Ingold coined as an alternative to "landscape" in order to describe a socially constructed space of human activity, understood as having spatial boundaries and delimitations.[21] Apart from inviting us to think in other than the purely visual register – Ingold explicitly points out the acoustic when explaining his notion – the advantage of drawing on this notion of taskscape consists of the attention it draws on temporality as a taskscape; it is about being perpetually in process, rather than in a static or otherwise immutable state. This is useful when thinking of the legacies of – often degraded – colonial infrastructures. Instead of reading these as static ruins, it is more productive, as Ann Laura Stoler argued when writing on "imperial debris", to view them from the perspective of an ongoing process of "ruination".[22]

What I propose then, is a plea to rethink the role we can play as architectural historians in investigating colonial infrastructures and landscapes by drawing on a wide array of ideas and concepts borrowed from various disciplinary

15. For an important and still stimulating study on colonial spatial governmentality, drawing on a profound rereading on Michel Foucault's work, see Stephen Legg, *Spaces of colonialism: Delhi's urban governmentalities*, Blackwell Publishers: Malden, 2007.
16. Alex Bremner (ed.), *Architecture and Urbanism in the British Empire*, Oxford: Oxford University Press, 2016 (in particular page 13 of the introduction); Ibid., "Blue, Green and Grey: Toward a new history of architecture, infrastructure and empire", paper presented at *A World of Architectural History-conference*, The Bartlett School of Architecture (UCL), London, 2018.
17. For a discussion of the shifts in historiography in this domain, see Johan Lagae & Bernard Toulier, "De l'outre-mer au transnational. Glissements de perspectives dans l'historiographie de l'architecture coloniale et postcoloniale", *Revue de l'Art*, n° 186, 2014, pp. 45-56.
18. In addition to Edward Said's seminal 1978 book *Orientalism*, we can point here at Nicholas Dirks' classic study *Colonialism and culture* (Ann Arbor: University of Michigan press, 1997).
19. Here we are largely excluding settler colonialism, which was often triggered by other agendas and developed through other dynamics.
20. For a concise discussion of Don Mitchell's approach, see John Wylie, *Landscape*, Key Ideas in Geography--series, Abingdon: Routledge, 2007, pp. 99-108
21. Ingold, Tim. (1993) "The Temporality of the Landscape", *World Archaeology*, 25(2): pp. 152-174
22. Ann Laura Stoler (ed.), *Imperial debris: on ruins and ruination*, Durham: Duke University Press, 2013

fields, while complementing these by bringing attention to their material, spatial and multi-scalar dimensions, ranging from the local to the global. This is, of course, much to ask for. To sketch out what the potential of such an exercise might be, I will focus in what follows on one particular piece of colonial infrastructure and its related taskscape, which I already hinted at by starting from the two earlier-mentioned photographs of Carl De Keyzer and Kiripi Katembo: the Matadi-Kinshasa railway line that formed the economic backbone of the Lower Congo region during colonial times.

"PENETRATING" THE "HEART OF DARKNESS"

In 1958, the year of the famous Brussels' World's Fair and only two years before Congo would gain its independence, René J. Cornet published the fourth and extended edition of his acclaimed and award-winning book *La bataille du rail*. In this bestselling volume of just over 400 pages, the first edition of which had originally appeared in 1947, Cornet presents a detailed account of the construction of the Matadi-Kinshasa railway line, from the first field explorations initiated around 1884, to the long and troublesome execution which started in 1890 in the port city of Matadi and was only concluded by the official inauguration of the arrival of the railway line in Kinshasa on the 6th of July 1898.[23] Early in the book, Cornet explains the *raison d'être* underlying the challenging enterprise which the book's title so compellingly evokes. Indeed, from Matadi, a site located about 150 kilometres upstream from the Atlantic Ocean, to Stanley Pool (today: Pool Malebo), the location where the colonial outpost of Léopoldville, the later Kinshasa, was founded, he Congo

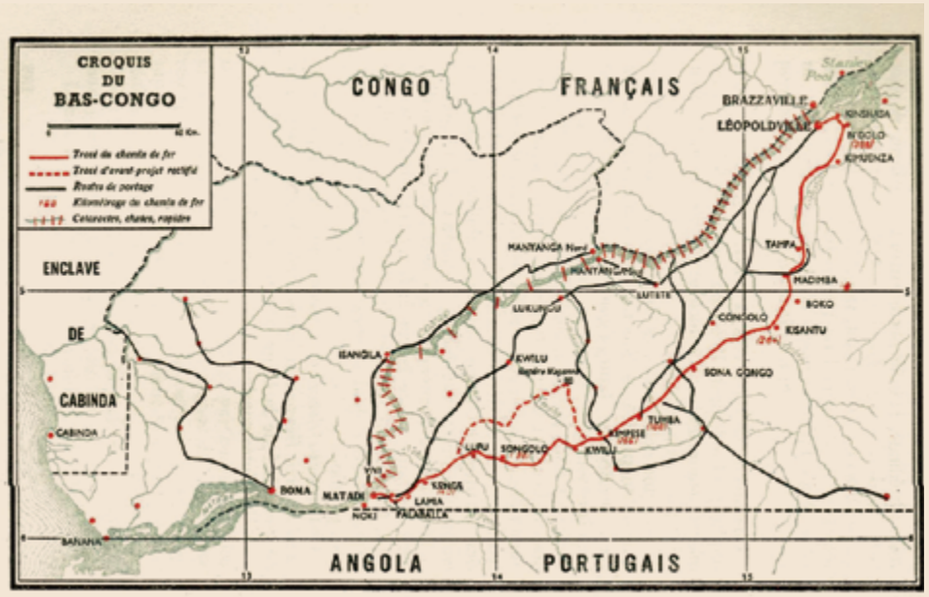


Fig. 1. Map of the Lower Congo region with an indication of the trajectories of the Routes des caravanes as well as the trajectories of the first Matadi-Kinshasa railway line (1890-1898) and the new railroad built during the 1920s. Source: René Cornet, *La bataille*, op. cit., p. 186.

23. Rene J. Cornet, *La bataille du rail*, Brussels: Editions L. Cuypers, 1958 (4th edition; 1st edition: 1947). For a very extensive, yet rather hagiographic documentation of this railway line, situated in the larger networks of railroads constructed in colonial Congo, see Charles Blanchart e.a., *La rail au Congo belge. Tome 1: 1890-1920*, Brussels, Blanchart ed., 1993.

river is unnavigable over a length of about 350 kilometres, due to a series of rapids and waterfalls [Fig. 1].

This "obstacle cyclopéen", as Cornet described it, considerably hampered an efficient economy of exploitation, as it blocked the access to and exit from the Central African hinterland which, in itself, could actually be unlocked quite easily via the fine-grained network of rivers and streams of the Congo basin, allowing one to penetrate by boat deep into what Joseph Conrad famously described as the "Heart of Darkness". No wonder that Henri Morton Stanley, the legendary explorer who was commissioned by King Leopold II to investigate the potential of the region, reported on his return that "sans le chemin de fer, le Congo ne vaut pas un penny".[24] There were, of course, trade routes in use between Matadi and Kinshasa. But late 19th century written accounts, as well as some rare photographs, testify to the horror encountered along these tracks, with corpses of carriers who died of exhaustion not being an uncommon sight.[25] If the Congo Free State project of King Leopold II was to have any future, no effort should spared to construct a railway connection between Matadi and Kinshasa, even if this would inevitably entail huge challenges: large parts of the trajectory would needed to be realized in an environment that was extremely hostile to construction work because of the extreme topography, especially in the region near Matadi, and because of the tropical, hot-humid climate in the Lower Congo region that burdened the acclimatization of the colonizers' white bodies.

Late 19th-century colonial literature and visual propaganda constructed a myth on the railroad scripted along a narrative which, on the one hand, presented the train as an "agent of civilization" and, on the other, played on a sexualized imaginary of the railroad "penetrating" previously unviolated territories.[26] While some echoes of this myth pervade Cornet's book, it first and foremost reads as a celebratory account of a remarkable engineering feat, successfully accomplished under the supervision of military officer and entrepreneur Albert Thys, one of Belgium's prominent "heroes" of this pioneering period.[27] Having been an event with a high level of media coverage in contemporary press and colonial journals, the visual record of

24. This – French version – of Stanley's phrase quickly became a widely cited quote in colonial literature, most often without precise reference. In Stanley's writings we can find various versions of the original, but an important one is to be found in Henri M. Stanley, *The Congo and the Founding of the Free State*, vol. 1, Sampson Low, Marston, Searle and Rivington, London, 1885, p. 463. For the historical context of Stanley's phrase, see Henri Nicolaï, "L'image de l'Afrique centrale au moment de la création de l'État Indépendant du Congo", in Jean Stengers (ed.), *Le Centenaire de l'Etat Indépendant du Congo. Recueil d'études*, Brussels: ARSOM, 1988 (esp. p. 20 and footnote 34).
25. A rare photograph depicting such a scene is reproduced in Carl De Keyzer and Johan Lagae (ed.), *Congo belge en images*, Tielt: Lannoo, 2010, Plate xviii, pp. 34-35 (accompanied by an explanatory text written by the Congolese historian Jacob Sabakinu Kivilu).
26. In his study of colonial literature Pierre Halen has unpacked this myth for the context of the Belgian Congo, referring to similar studies of Edmond Maestri for the francophone colonies (see Halen, *Le petit belge*, op. cit., pp. 270-273), while Raymond Corbey has pointed at this myth as a trope in late 19th- and early 20th--century colonial postcards from Central Africa. See Raymond Corbey, *Wildheid en beschaving. De Europese verbeelding van Afrika*, Nijmegen: Ambo, 1989, p. 52.
27. For an extensive hagiographic biography of Albert Thys (1849-1915), see the *Biographie coloniale belge*, vol. IV, 1955, pp. 875-881 (http://www.kaowarsom.be/fr/notices_thys_albert_jean_baptiste_joseph).

the enterprise of building the Matadi-Kinshasa railway line is immense.[28] In Cornet's book, several photographs present the reader with portraits of a wide array of the pioneering colonial men involved, while others vividly depict the challenges to be overcome. Many images zoom in on the territory's accidented topography with its steep, rocky cliffs, along which the railway line often curves dangerously. Some photographs incorporated in Cornet's book provide a glimpse of the human labour involved in preparing the terrain and constructing large-scale infrastructures such as bridges, tunnels, artificial slopes and retaining walls, especially in the first section of the trajectory in the proximity of the port city of Matadi, a territory described in contemporary sources as particularly hostile.[29]

While such late 19th-century photographs of construction sites at the time acted as vignettes of progress realized, today we can, as visual historian Christraud M. Geary proposes, "read them against the grain", and approach them as accounts of the blunt and gruesome labour regime, which underpinned the colonial penetration of the Central African territory.[30] The construction of this first railroad indeed came at a great financial and, more importantly, human cost. An often repeated quote in early sources reads that "chaque traverse du chemin de fer du Congo représentait un cadavre!" ("every railway sleeper of the Congo railway counts for a corpse!").[31] Cornet's book does not remain silent on the huge mortality rates among those who worked on the railway line during the eight years of its construction. It cites an often mentioned statistic: 132 Europeans and 1,800 Africans and "Asiatiques" lost their lives in building the railway line. Yet, the image on the cover of 1950s editions of the book conveys a totally different message: it depicts the muscled, virile body of an African worker, in the form of a sculpture by Arthur Dupagne, a Belgian artist responsible for some of the most emblematic monuments celebrating Belgium's *mission civilisatrice* in Central Africa.[32] This choice is not a coincidence, as Dupagne also authored the *Monument au chemin de fer à Léopoldville*, erected in Kinshasa in 1948, on the occasion of the 50th anniversary of the construction of the railway line. Its iconography is in line with late 19th-century propaganda of the railway line as an instrument of progress, while it also, tellingly, paid tribute to the 132 fallen Europeans, all listed with their individual names, and the anonymous mass of African and "Asian" labourers.

All in all Cornet's *La bataille du rail* remains, just like many of the contemporary sources, a celebratory narrative framed through the lens of national pride: the construction of the Matadi-Léopoldville railroad served as a testimony to the fact that, above all, "le petit belge a vu grand au Congo".[33] As such, it differs significantly from the *Gruelgeschichte* on the construction of the new Matadi-Kinshasa railway line which Jules Marchal, a former colonial administrator, published between 1999 and 2000 as part of a trilogy on forced labour in colonial Congo. His painstakingly detailed reconstruction of the construction of the new trajectory during the 1920s, indeed stressed almost exclusively the fact that this new piece of colonial infrastructure, just like the previous one, came at great human cost.[34] Yet, we want to argue here that as a piece of colonial infrastructure, the Matadi-Kinshasa railway line in fact urges us to tell another story. Gaining a full understanding of it requires engaging with a more complex and wide-ranging scalar perspective that goes beyond the strict Belgo-Congolese framework which still dominates large part of the current historiography on colonial Congo.[35]

SITUATING THE RAILROAD IN A TRANSIMPERIAL PERSPECTIVE

As historian Jean-Luc Vellut has long argued, the Congo Free State was a well-connected territory and a truly international enterprise from the very beginning, not least because at the Berlin Conference of 1884-1885 King Leopold II had obtained the rule over the territory on the explicit condition that it would remain a free trade zone open to other European powers.[36] Cornet's description of the collection of the library of Matadi demonstrates that already in the early days of colonization news from all corners of Europe arrived in the Congo Free State, albeit it with some delay: "dans une vaste salle de lecture on trouve plus de quarante quotidiens (belges, français, anglais, allemands, portugais, italiens), soixante revues périodiques et trois mille cinq cents volumes qui font l'objet d'un service d'abonnements".[37] Historian Vincent Viaene tellingly wrote that the Congo Free State was an international colony "in which international public opinion disposed of more potential eyes and ears than in any other colony".[38] Moreover, early travel accounts teach us that boats navigating between Antwerp and Matadi made regular stop-overs in Tenerife and Lisbon among others, creating connections and encounters that cannot be grasped via the simple colony-metropole framework.

28. The Africa Museum in Tervuren holds large collections of photographs on this railroad, but one also finds extensive visual documentation in the archives of the missionary congregations involved in the construction. See inter alia the photo album "Catalogue des photographies prises par les aumoniers du chemin de fer du Congo pendant l'existence de la mission de Matadi, fondée par sa grandeur monseigneur Stillemans évêque de Gand, 1891-1899", which is conserved by Kadoc, Leuven (Fund KADOC KFH1841) and which can be consulted online via: http://depot.lias.be/delivery/DeliveryManagerServlet?dps_pid=IE2486317
29. A good example is Edmond Picard, *En Congolie*, Brussels: Ferdinand Larcier, *1896*.
30. Christraud M. Geary, *In and Out of Focus. Images from Central Africa, 1885-1960*, Washington: Smithsonian National Museum of African Art, 2002, p. 39.
31. Cornet, *La bataille*, op. cit., pp. 377-378.
32. For a rather conventional art historical situation of Dupagne in the colonial art scene, see Jacqueline Guisset (ed.), *Le Congo et l'art Belge 1880-1960*, Paris: La Renaissance du livre, 2003, esp. pp. 198-199
33. For a key official and nationalist narrative on the railway line, published at the time of its inauguration, see a.o. A. Gilson, "Le chemin de fer du Congo", in F. Goffart, *L'oeuvre colonial du roi en Afrique. Résultats de vingts ans*, Brussels: Vve Monnom, 1898, pp. 73-109.
34. Jules Marchal, *Travail forcé pour le rail: l'histoire du Congo 1910-1945*, Borgloon: Bellings, 2000. The other two volumes are *Travail forcé pour le cuivre et pour l'or* (1999) and *Travail forcé pour l'huile de palme de lord Leverhulme* (2001).
35. Tellingly, almost all of the contributions included in a recent survey of the most recent historical research on Congo provide analyses that remain within the strict Belgo-Congolese framework. See Idesbald Goddeeris, Amandine Lauro and Guy Vantemsche (eds.), *Le Congo colonial. Une histoire en questions*, Renaissance du Livre, Waterloo, 2020.
36. Jean-Luc Vellut, "Réseaux transnationaux dans l'économie politique du Congo Léopoldien, c. 1885-1910", in L. Marfaing & B. Reinwald (eds.), *Afrikanische Beziehungen, Netzwerke und Raüme* (Münster: LIT Verlag, Münster, 2001), pp. 131-146. See also Jean-Luc Vellut, *Congo. Ambitions et désenchantements 1880-1960. Carrefours du passé au centre de l'Afrique* (Paris: Karthala, 2017).
37. Cornet, *La bataille*, op. cit., p. 322.
38. Vincent Viaene, 'Internationalism and the Congo question: an introduction 1875-1905', paper presented at the International colloquim *Religion, colonization and decolonization in Congo 1885-1960*, Leuven, November 8th – 10th, 2010.

The early colonization of Central Africa benefitted largely from already existing patterns of connectivity and mobility, such as pre-colonial trade routes and commercial networks.[39] Urbanization emerged in many occasions precisely on those sites where inhabitation existed already.[40] Furthermore, earlier political and cultural entities, such as the famous Kongo Kingdom, remained influential to some extent, even if their geographies sometimes were cut up by boundaries defined in the context of the "Scramble for Africa" that took place during the 1884-1885 Berlin Conference.[41] We should not forget, however, that it often took decades to go from the division of the African continent, as agreed upon in Berlin by drawing abstract lines on a map, to an effective implementation of borders between colonial territories on the ground, based on a complex and in many cases convoluted process requiring negotiations in European diplomatic circles as well as the concluding of treatises between explorers and African customary chiefs.

The lengthy process of installing the border between the Congo Free State and Portuguese-ruled Angola forms a case in point. The first Belgian agents arriving in the Lower Congo region needed to position themselves with caution within an already existing and competitive economic milieu as French, Dutch and most importantly Portuguese traders had preceded them for decades, often in the context of the Atlantic slave trade which had thrived in sites like Boma.[42] Even in terms of the *mission civilisatrice*, Belgians could not claim to be the pioneers in the region, as protestant missionaries of British and Scandinavian origin had already been erecting small outposts of religious conversion for several years before the first Catholic congregation, the missionaries from Scheut, arrived from the metropole in the region around 1888.[43]

Such global, regional and local dynamics impacted strongly on the financing, construction and functioning of the Matadi-Kinshasa railway. Funding for construction work was to a large extent secured by playing out ongoing rivalries between Belgium and Great Britain, as both sought to tap into the – albeit until then still quite uncertain – economic potential of the Central African hinterland. British influence in the area would remain strong, particularly during the first decades of Belgian colonization. But so was that of French colonials who, on their way to *l'Afrique Equatoriale Française*, were required to take the Matadi-Kinshasa railroad and then embark on

39. Catherine Coquery-Vidrovitch (ed.), *L'Afrique des routes. Histoire de la circulation des hommes, des richesses et des idées à travers le continent africain*, exhibition catalogue, Museé du Quai Branly, Paris: Actes Sud, 2017.
40. For scholarship that pays attention to such pre-existing settlement patterns in sites that became important colonial cities like Kinshasa and Matadi, see: Léon De Saint Moulin, *les anciens villages des environs de Kinshasa*, Louvain: Nauwelaerts, 197; Jacob Sabakinu Kivilu, "La région de Matadi dans les années 1880", in Jean Stengers (ed.), *Le centenaire de l'État Indépendant du Congo. Receuil d'études*, Bruxelles: Académie Royale des Sciences d'Outre-mer, 1988, pp. 323-349.
41. On the complex geography of the Kongo Kingdom in the *longue durée*, see various contributions in Koen Bostoen & Inge Brinkman (eds.), *The Kongo Kingdom: the origins, dynamics and cosmopolitan culture of an African polity*, Cambridge: Cambridge University Press, 2018.
42. Historian Francois Bontinck has written excellent detailed studies of this Portuguese presence. See also Johan Lagae, Thomas De Keyser & Jef Vervoort, *Boma 1880-1920. Colonial capital city or cosmopolitan trading post?*, [cd-rom], A&S Books/KMMA, Gent/Tervuren, 2005.
43. The Baptist Missionary Society (BMS) initiated its prospection in the Lower Congo region around 1879 and became installed in Kinshasa in the early 1880s, while the Svenska Missionsförbundet (SMF) became active in the Lower Congo region in 1878.

a ferry to cross the Congo river at the Stanley Pool to reach their destination, because the construction on the famous *chemin de fer Congo-Océan* connection between Pointe Noire and Brazzaville would only start in 1921 and last until 1934.[44] Yet, it was the tensions between Belgium and Portugal regarding the control of the accessibility of this part of Africa that impacted most directly on the construction of the Matadi-Kinshasa railway line. At the Berlin Conference, King Leopold II had secured that the estuary of the Congo river would become part of the territory of the Congo Free State, but the obtained tract of land under his rule bordering the Atlantic Ocean remained very small and squeezed in between two Portuguese owned territories: the enclave of Cabinda to the North and Angola to the South [see Fig. 1]. In geopolitical terms, the building of the railroad thus was an undertaking of the highest strategic order. Ongoing discussions regarding the precise trajectory of the border between the Congo Free State and Angola complicated early construction work of the railroad, especially in the immediate surroundings of Matadi, which, in fact, was in very close proximity to the Angolan border [see Fig. 1].[45] Given the challenging topography in the area of and near the port city, the Belgian engineers working on the first railroad project thus had very limited space for manoeuvre in defining possible scenarios for the most

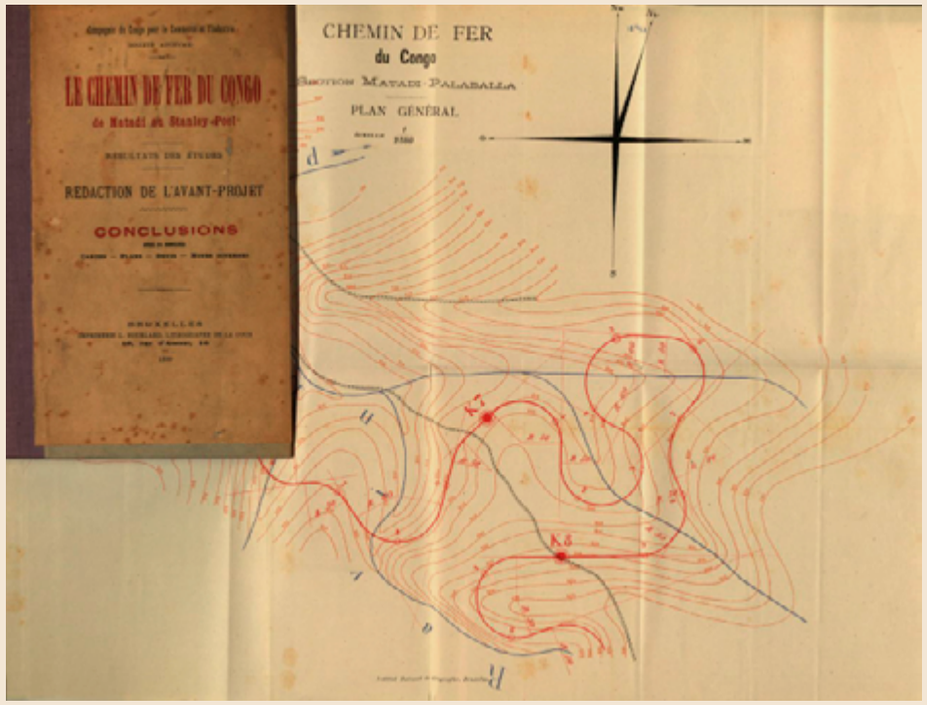


Fig. 2. Plan of "Chemin de fer du Congo. Section Matadi – Palaballa", 1899. Source: *Le chemin de fer du Matadi au Stanley Pool. Résultats des Etudes. Rédaction de l'avant-projet. Conclusions*, Brussels: Compagnie du Congo pour le Commerce et l'Industrie, 1889, n.p.

44. This was still the trajectory taken by the famous French novelist André Gide on his way to Central Africa in 1925, to investigate the devastating human costs linked to the realisation of Congo Océan railway, see André Gide, *Voyage au Congo*. Paris: Éditions Gallimard, 1927 (Ed. 1993, Paris, Gallimard), p. 15.
45. At the Berlin conference it was decided that this border would follow the course of the Congo river from the Ocean to the site of Noki, some 9 kilometres from where the future port city of Matadi would be built. Just above Noki, it would turn inland along a horizontal line drawn on the map, yet tracing this precise trajectory on the ground was still subject of some negotiation. For a discussion of the definition of the border between the Congo Free State and Angola, and the related border conflicts, seen from a Belgian colonial perspective, see Pierre Jentgen, *Les frontières du Congo belge*, Brussels: Institut Royal Colonial belge, 1952.

efficient trajectory. A plan of extremely sinuous trajectory of the railway in the section of Palaballa, included in a preliminary study published in 1889, leaves little doubt on the complexity of the undertaking [see Fig. 2].[46]

Not surprisingly, this section significantly hampered the usefulness of the whole enterprise, and during the 1920s, it became necessary to reroute the railway line, especially in the region in close proximity of Matadi, as the initially executed trajectory proved much too cumbersome for large and heavy trains to navigate. This led to long diplomatic negotiations with Portugal as it was immediately clear that the most efficient technical solution implied that part of the new trajectory should be built on Portuguese-ruled territory. In exchange for the small area of 3 km² near the M'Pozo river that would allow the Belgian railway engineers to proceed with the best spatial solution for the new railway line, the Belgian government finally agreed in 1927 to give Portugal an immense tract of land measuring no less than 3,500 km², the so-called *Botte de Dilolo*, located at a significant distance to the east. This exchange needs to be understood as part of the larger strategy underscoring the construction of the Benguela railway line which would link the port city of Lobito in Angola to the southern region of the then Belgian Congo, thus providing an alternative and efficient route to bring minerals from the Congo to the metropole, avoiding the complicated trajectories from Lubumbashi to the then Rhodesia and from there to harbours situated in Mozambique or South Africa. But the swap of land would also allow Belgium's rival colonial power to tap more efficiently into a very profitable region, rich in diamonds and copper.[47] This episode illustrates that while political forces underscored the division of the African continent among European powers, their economic agendas often forced them to allow flows and connectivity across colonial and imperial borders. Railway lines on the continent thus introduced a spatial order that differed and at times even opposed administrative divisions. Following such infrastructural lines not only allow us to gain a better understanding of what Guilia Scotto has recently termed "colonial and postcolonial logistics" that defy political frontiers,[48] but also to write alternative histories of specific places in Africa, drawing on a notion like "portals of globalization" that speaks of how populations engaged with the global condition in a specific locality.[49] Understanding the Congolese city of Lubumbashi as an urban centre connected until the 1950s to the outside work primarily via railroad connections to *l'Afrique Australe*, all the way to Cape Town, as well as to Lobito in Angola and Beira in Mozambique, rather than to Kinshasa,

46. See the published report entitled *Le chemin de fer du Matadi au Stanley Pool. Résultats des Etudes. Rédaction de l'avant-projet. Conclusions*, Brussels: Compagnie du Congo pour le Commerce et l'Industrie, 1889.
47. For a discussion based on diplomatic correspondence between Belgian and Portuguese authorities, conserved in the Fund *Affaires Etrangères* of Africa Archive in Brussels, see Fien Deruyter and Jana Vandepoele, *Mapping*, op. cit., pp. 65-67.
48. Guilia Scotto, "Colonial and Postcolonial Logistics", *Footprint*, vol. 12, n° 2, 2018, pp. 69-86.
49. This notion was coined and is currently used in productive ways by a group of scholars working around Matthias Middell at the University of Leipzig. See the following themed issues of *Comparativ. A Journal of Global History and Comparative Studies*: "From railway juncture to portal of globalization: making globalization work in African and South Asian railway towns", *Comparativ.* n° 4, 2015; "Portals of Globalization in Africa, Asia and Latin America", *Comparativ*, vol. 27, n° 3 / 4, 2017.

for instance, helps us to see how this mining city in the Belgian Congo was actually made and shaped to a large extent by "des gens d'ailleurs", a term used in contemporary sources to mainly indicate the presence in the city of non-Belgian white colonizers, such as Portuguese, Greeks and Italians, as well as middle figures such as people having migrated from regions in Asia.[50]

In many ways, the Matadi-Leopoldville railway line was also built by "people from elsewhere", as Cornet points out on several occasions. While technical expertise came mainly from Belgian engineers, several of them had already gained a broad international experience in regions like Turkey, Russia or Asia minor.[51] Some foreign engineers were recruited as well, like André Sjökrona from Sweden.[52] Diplomatic manoeuvres were used to recruit the right skilled labour from abroad, as for instance when 200 "terrassiers" from Abruzzo and Calabria in Italy were headhunted by the *Compagnie du chemin de fer du Congo* because of their specific skills.[53] The quality of expertise of the white staff working on the Matadi-Kinshasa railway line, however, often left much to be desired.[54] Yet, the real "nightmare" for those supervising the construction of the Matadi-Léopoldville railway line consisted, as Cornet writes, of finding a sufficient number of black and coloured workers who could be tasked with the most cumbersome and labour intensive operations. The hardship suffered by carriers along the *Route des Caravanes* in the preceding years had left its mark: the region was gradually confronted with depopulation and whenever recruitment campaigns crossed the region in search of "hommes adultes et valides", the men who fitted that category would flee their villages. Construction work thus necessitated an active recruitment of workforce from elsewhere. Initially these came from Guinea and other regions along the West-African coast, including so-called "Crooboys", "Accras", "Sierra Leone", "Haoussas", and workers who had previously laboured on the Dakar Saint-Louis railway line.[55] But recruitment would also extend to the East African coast, and more specifically to Zanzibar, previously already connected to the Central African region because of a long history of trade. The recruitment remained a challenge throughout the whole building process, requiring Albert Thys to conduct intensive negotiations in high circles in Paris and London, as well as with "des intermédiaires bizarres et divers au Mozambique, aux Indes, au Zoulouland, en Chine, en Afrique du Sud, à Sumatra, au Japon".[56] Cornet's account as well as contemporary sources speak of tensions that rose among

50. Sofie Boonen, Une ville construite par des « gens d'ailleurs ». Développements urbains à Élisabethville, Congo belge (actuellement Lubumbashi, RDC), unpublished PhD, Ghent University, 2019; Sofie Boonen and Johan Lagae, "A city constructed by «des gens d'ailleurs». Urban development and migration policies in colonial Lubumbashi, 1910-1930", *Comparativ*, n° 4, 2015, pp. 51-69.
51. A case in point is the engineer Claude Zboinski, who was involved in the first preliminary fieldwork missions in 1884. Cornet, *La bataille*, op. cit., pp. 41-42; See also the lemma on Zboinski in the *Biographie colonial belge*: http://www.kaowarsom.be/fr/notices_zboinski_claude_hyacinthe_th%C3%A9ophile.
52. It should be noted here that engineering faculties of Belgian universities, like those in Liège and Ghent, were internationally acclaimed in the late 19th century and attracted many students from abroad, in particular in domains related to infrastructure and building construction.
53. Cornet, *La bataille*, p. 199.
54. Ibid., p. 256.
55. Ibid. p 180. Later in his book Cornet provides the following data that speak of the colonial obsession with quantitative bureaucracy: on a total of 7,921 African workers, 1,607 came from Senegal, 4,559 from anglophone colonies, 77 from Liberia, 344 from the coastal regions of Congo and only 1,334 from local regions along the trajectory of the Matadi-Léopoldville railway line. Ibid., p. 336.
56. Ibid., p. 220.

this heterogeneous African labour force, with moments of conflict and strikes erupting on a regular basis. Such episodes bear witness to the agency of these workers, who at times skilfully circumvented control and punishment by retreating to the adjacent colonial territories of Portuguese Angola or *l'Afrique Equatoriale Française*, where Belgian colonial agents had no authority. Tellingly, an 1892 experiment of bringing in Chinese laborers, as a result of their successful involvement in building railways in the Dutch Indies and the United States, turned into a complete disaster. Within just a couple of weeks, of the 540 recruited Chinese workers, 300 had either succumbed under the heavy work load or fled to adjacent regions within the Congo Free State, and even as far as Zanzibar.

FLOWS, CONNECTIONS, AND BORDERS IN A GLOBALLY INTERCONNECTED COLONIAL TASKSCAPE

The conventional historiographical perspective on the Matadi-Kinshasa railway line has been to view it primarily, if not exclusively, as an infrastructural instrument underscoring Belgium's extractive colonial economy, as it allowed a direct flow to be created from colony to metropole. In this spatial logic, natural resources such as ivory, rubber, palm oil, coffee or cotton, as well as minerals like diamonds and gold and metal ores like copper or cobalt were harvested and mined in the inner territory of Central Africa. They were then moved by boat to Stanley Pool along the fine-grained fluvial network of the Congo basin and subsequently transported by train from Kinshasa to Matadi, to finally, be shipped to the port city of Antwerp, the main Belgian gateway from and to the colony before airline traffic between the metropole and Central Africa became regular after 1945.[57] Finished products produced by metropolitan industries as well as an increasingly larger number of colonials followed the inverse route to enter the colonial territory and its market via the portal gateway of Matadi. This, however, is a very reductive view on the global interconnectedness triggered by the infrastructure of the Matadi-Kinshasa railway line. In line with the research on "spatial formats under the global condition", initiated by Mathias Middell and in particular the way in which Geert Castryck has applied this to the African context,[58] but also following Jean-Luc Vellut's plea to study the history of Congo in a much broader international perspective,[59] we argue that it is timely to develop a much more comprehensive mapping of the flows and connections related to the Matadi-Kinshasa railway and the colonial taskscape it produced over time. Doing so requires paying attention to complex interactions, both in and

57. As mentioned, minerals harvested in the Southern province of Katanga were transported via other routes, going south, east or west by rail, a practice that continues till this day.
58. Steffi Marung & Matthias Middell (eds.), *Spatial Formats under the global condition*, in the series Dialectics of the Global, Berlin, De Gruyter, 2019 (with a contribution by Geert Castryk). Geert Castryck also edited the themed issue of the journal Comparativ on railway cities as "portals of globabilisation" (see footnote 49) and did fascinating work on the East African city of Kigoma: Geert Castryck, "Bordering the Lake: Transcending Spatial Orders in Kigoma-Ujiji", *International Journal of African Historical Studies*, vol. 52, n° 1, 2019, pp. 109-132.
59. For a concise and clear articulation of this argument, see Jean-Luc Vellut's critical book review of Isidore Ndaywel è Nziem's seminal 1998 survey *Histoire du Congo. de l'héritage ancien à la République Démocratique*, which was published under the telling title «Prestige et pauvreté de l'histoire nationale. A propos d'une histoire générale du Congo» (*Revue belge de philologie et d'histoire*, 77 (1999), pp. 480-517). See also the references to Vellut's work mentioned in footnote 36.

between Europe and Africa, as well as acknowledging the often particular dynamics that occurred at the margins of colonial territories, which recently have become the subject of scholars working in the field of border studies.[60] What is needed, in other words, is a truly transimperial perspective on this piece of colonial infrastructure which, together with the Congo river, formed the economic backbone, or, as engineer Egide Devroey put it in the early 1930s, the "artère vitale" of the Lower Congo region and the Belgian colony at large.[61]

The inauguration of the Matadi-Kinshasa railway line in 1898 formed a watershed moment for the development of an efficient extractive colonial economy in the Congo Free State, with increasing numbers of goods and people being moved. Slowly, but gradually, a number of colonial outposts and production sites started to emerge along the infrastructural line that changed the pre-colonial territorial order of things and initiated a process of gradual – albeit limited – urbanization in the Lower Congo region. Around the turn of the century, a network of both Protestant and Catholic missionary posts also took shape in this territory. Yet, these networks did not necessarily follow the new order installed by colonial government. The congregation of the Jesuit fathers, for instance, developed a particular regional strategy of creating a separate world of their own, an utopian Christian landscape as it were, consisting of a dense network of chapel-farms interconnected via earthen roads – 450 kilometres in total by 1910 – which only connected to the official regional backbone of the Matadi-Kinshasa railway in one specific location: the missionary post of Kisantu, situated at kilometre 247.[62] It was not until the 1920s, however, that a distinct colonial taskscape with a wide array of economic nodes of production really started to take shape in the Lower Congo region, drastically changing existing landscapes in the process. In 1921, the then Minister of Colonies, Louis Franck, launched an extensive public works programme for the colony, comprising transport infrastructure across the colony and the construction of public facilities in the growing urban centres, in order to provide the Belgian Congo with the infrastructural "armature économique" necessary for a more efficient "mise en valeur" of the colonial territory.[63] Now that the Congo had been taken over by the Belgian government from King Leopold II in 1908 and that the Great War had ended, the era of exploration and prospection of the Central African territory came to an end. What was now expected and needed from the colonial enterprise was a real return on investment, which was hampered by the old Matadi-Kinshasa railway because of its material characteristics and complex trajectories in some of its sections.

60. For a compilation of early research on the topic, see Paul Nugent & A.I. Asiwaju (eds.), *African Boundaries. Barriers, conduits and opportunities*, London: Pinter, 1996. Fascinating work on the borderland between Congo and Rwanda from a historical research was done by Gillian Mathys in her PhD entitled *People on the move: frontiers, borders, mobility and history in the Lake Kivu region 19th-20 century*, Ghent University, 2014.
61. Egide Devroey, *Le Bas-Congo: artère vitale de notre colonie*, Brussels: Goemaere, 1933.
62. Bruno De Meulder, "Mavula: An African Heterotopia in Kwango, 1895-1911", *Journal of Architectural Education*, vol. 52, n° 1, 1998, pp. 20-29.
63. Strangely enough, this large investment plan of Louis Franck has not yet triggered much scholarly research. The most comprehensive historical survey of economic activities and colonial companies which were founded during this era to date is Frans Buelens, *Congo 1885-1960. Een financieel-economische geschiedenis*, Berchem: Epo, 2007.

The modernization and rerouting of the Matadi-Léopoldville railway during the 1920s was directly linked to Louis Franck's project of "mise en valeur". While changes in the trajectory near Matadi were induced by the difficulties encountered because of the extreme topography of the rocky landscape, the decision to make a major detour between kilometres 153 and 247 of the old trajectory was taken to facilitate better connections to the new sites of economic production which were popping up in the region [see Fig. 1]: from the site of Lukala where a cement plant had been founded in 1920 (kilometre 153), continuing along plantations for sugar in Moerbeke-Kwilu (kilometre 175) and for palm oil in Kolo (kilometre 193), to a quarry and crushing plant in Kiasi col (kilometre 216) [Fig. 3].

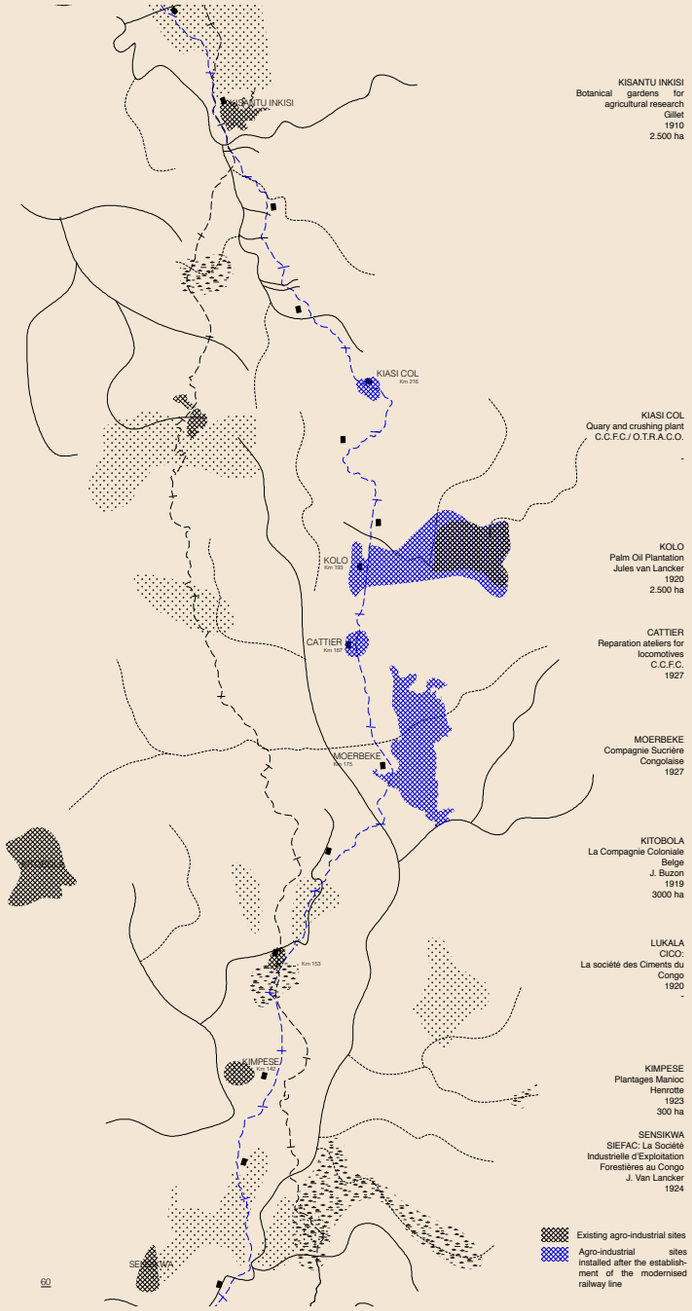


Fig. 3. Economic nodes along the new Kinshasa-Matadi railway line. Source: Deruyter & Vandepoele, Mapping a transforming colonial landscape, unpublished master's dissertation, 2018, p. 70.

In Cattier, situated at kilometre 187, a large maintenance workshop for trains was erected, which replaced the existing, large facilities in Mbanza-Ngungu (then known as Thysville), which had been the main repair centre of the *Compagnie du chemin de fer du Congo* along the old trajectory. The latter site now lost its economic importance, yet remained connected with the new railway line through a small track, as the site profited from a milder climate and thus continued to function as a popular destination for colonials seeking leisure and repose. Today, visitors to the small city of Mbanza Ngungu cannot but be struck by the immense "railway graveyard" of the former maintenance centre [see Fig. 15].

At the inland end point of the railway line, in Kinshasa, another detour was implemented to serve the newly emerging industrial neighbourhood of Limete. From there the railroad connected to a new inner city railway

FIG 9
Passerelle du chemin de fer sur l'Inkisi

FIG 10
Usine à Ciment "CICO" au km 172, 1927

FIG 11
Ferme de Luvituku (Bas-Congo), manioc cuttings from the Kimpese plantation

FIG 12
Atelier du chemin de fer

> MAP 6
Rising industries in the Bas-Congo region
<
FIG 9: AP.0.0.23317
FIG 10: AP.0.2.5597
FIG 12: AP.0.1.2814
MRAC

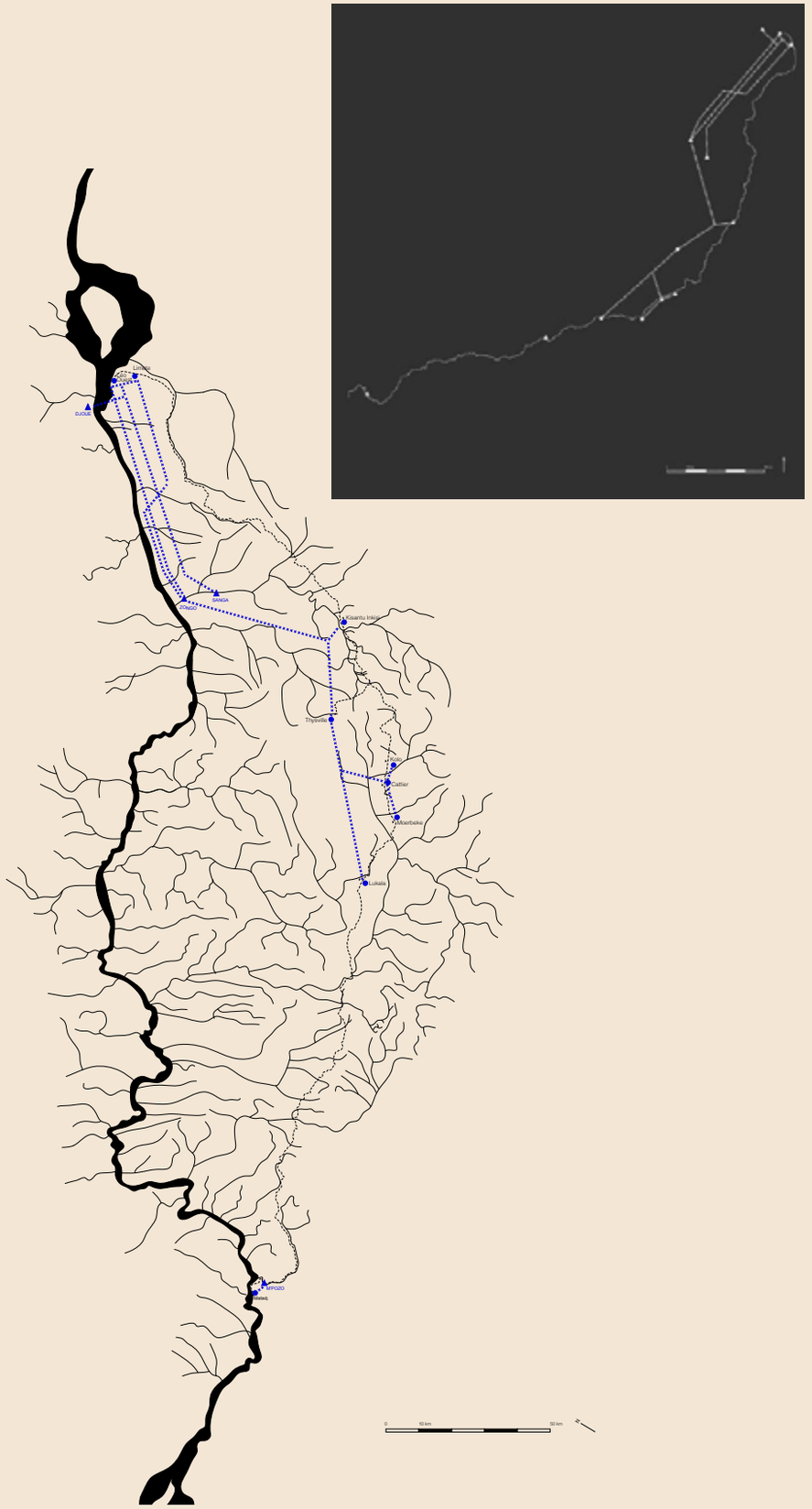
FIG 11: Compagnie Coloniale Belge. Plantations et élevages de KITOBOLA. (PEK)

network serving key sites of economic production dispersed in the urban territory, such as the Utexleo textile factory or the Chanic boat repair ateliers situated in the western part of town, where the first colonial outpost actually had been located.[64] Along the new railway track in the eastern part of the city, a modern harbour infrastructure expanded significantly over the following decades, especially after 1923 when it was decided that Kinshasa would become the administrative capital of the Belgian Congo, a decision that only came into effect in 1929. But it was in particular after 1945 that the skyline of Kinshasa as seen from the Congo river became gradually dotted with large quays, huge cranes, large warehouses and impressive silos. This transformation of the capital city into an efficient transfer hub and a true portal node of large-scale economic activity was preceded by infrastructural developments in the port city of Matadi. Already in the mid-1920s, Matadi was described in one of the most emblematic travel accounts of the time as follows: "Matadi est une révélation. Quelle activité! Quel modernisme! Voilà ce qui est encourageant! S'il n'y avait pas les noirs, l'ambiance et la chaleur, on se croirait dans un port européen".[65] Both cities grew into important reservoirs of "main d'oeuvre". Yet their urban form also underwent a major change in those interwar years as it became subjected to colonial urban planning practices following the principle of spatial segregation along racial lines that, in the era of "segregation mania", was common in colonial cities in sub-Saharan Africa and beyond.[66] As a result, workers' camps, especially in Matadi, but later also in Kinshasa, became gradually disconnected from the main sites of labour, which were the large railway yards and the expanding ports. This had a huge impact on the everyday life of laborers because of the more time consuming trajectories between home and work, which were navigated mostly on foot, and in Kinshasa also by bike or sometimes even by bus.

Huge infrastructural change also started to reshape the whole Lower Congo region, often at considerable distance from the Matadi-Kinshasa railway line itself. The 1920s saw the construction of an ever-growing road infrastructure network, in which both the local government and private companies played their at times conflicting role, shifting between agendas of profit maximization and of territorial control.[67] During the 1930s, a number of impressive hydraulic power stations were built in sites like M'Pozo, Sanga and Zongo, using the energy potential of tributary rivers of the Congo river, to provide the railroad, as well as the different nodes of economic production and the burgeoning urban centres along its trajectory with much needed electricity [Fig. 4].

64. For information on some of these sites, see Johan Lagae & Bernard Toulier (eds.), *Kinshasa*, Brussels: CIVA, 2013 (esp. 'Parcours C: le fleuve et le port', pp. 68-89).
65. Chalux, *Un an au Congo*, Brussels: Librairie A. Dewit, 1925, p. 24.
66. Johan Lagae, Jacob Sabakinu Kivilu & Luce Beeckmans, "'Pour Matadi la question [de la ségrégation] est encore plus grave qu'ailleurs': The making and shaping of a Congolese port city during the interwar years", in Jacques Vanderlinden (ed.), *The Belgian Congo between the Two World Wars*, Brussels: ARSOM/KAOW, 2019, pp. 129-158; Luce Beeckmans & Johan Lagae, "Kinshasa's syndrome-planning in historical perspective: from Belgian colonial capital to self- constructed megalopolis", in Carlos Nunes Silva (ed.), *Urban Planning in Sub-Saharan Africa. Colonial and Post-Colonial Planning Cultures*, Abingdon: Routledge, 2015, pp. 201-224. For a discussion of this era of "segregation mania" in a global perspective, see Carl H. Nightingale, *Segregation: a global history of divided cities*, Chicago: University of Chicago Press, 2012.
67. Laurence Heindryckx, "Governing economic interests: Interwar road construction in Belgian Congo", *Belgeo*, n° 1, 2020, pp. 1-18 (available online: http:// journals.openedition.org/belgeo/43202).

Fig. 4. Scheme of the powerscape of the Lower Congo region, illustrating the locations of hydraulic power stations and how they connect to the Matadi-Kinshasa railway-line. Source: Deruyter & Vandepoele, Mapping a transforming colonial landscape, unpublished master's dissertation, 2018, pp. 158-159.



When in the 1950s the landscape became dotted with a series of pylons to bring this energy to near and far away areas more efficiently, the transformation of the precolonial landscape of the Lower Congo region into a colonial taskscape reached its apogee. However, despite the large infrastructural investments realized especially in the context of the first Ten Year Plan for the Economic and Social Development of the Belgian Congo (1949-1959), the region would never, to use the words of historian Guy Vantemsche, turn into a "Ruhr tropicale".[68]

Mapping the flows of goods entering and leaving this colonial taskscape requires working across scales. Of course, a major part of the economic production was destined for the export markets, with the numbers of goods shipped from Matadi skyrocketing, especially after 1945. But export was not only targeting the metropole, as, for instance, a quick survey of the economic network of the *Sucrerie de Moerbeke-Kwilu* makes clear. Apart from Belgium, sugar produced on its immense plantation indeed was also distributed to Spain and several countries in Africa, from the neighbouring colonies of *l'Afrique Equatoriale Française*, Angola, Rhodesia, and Urundi to Cameroon, Senegal and even Morocco.[69] But production along the railway line was equally destined to local markets. The mid-1920s and again the period from the mid-1940s onwards witnessed a rapid growth of the African population in the major urban centres of Matadi and Kinshasa, as well as in smaller ones like Mbanza Ngungu, Kimpese and Kisantu. Basic but crucial questions needed to be asked on where and how these inhabitants were housed, but also how they were nourished, clothed and kept healthy. As such, several infrastructural elements along the Matadi-Kinshasa railway line, both large and small, played a crucial role in the urban metabolism of these urban centres, as did the drinking fountains, abattoirs or sewer systems that were introduced in these cities.[70]

Archival sources as well as economic studies of colonial Congo provide ample quantitative data on how local consumption rates boomed after the colony recovered from the economic crisis that had hit it profoundly in the early 1930s, in the aftermath of the crash of Wall Street. To give but one telling example: beer production started early on during the interwar years, with the first brewery being built in Kinshasa in 1923, and it quickly became a crucial commodity in urban centres throughout the Lower Congo region. In the following years, beer consumption was closely monitored by the colonial authorities, not only to control alcohol abuse that might trigger unwanted behaviour or even contestation of the colonial order, but also because it generated a significant revenue through taxes, which, in turn, were crucial to

68. Vantemsche in Goddeeris et. al., *Le Congo colonial*, op. cit., p. 187.
69. This information is drawn from an analysis based on documents of the *Sucrerie de Moerbeke-Kwilu*, held in the State Archives in Brussels, see Deruyter and Vandepoele, *Mapping*, op. cit., pp. 146-147.
70. For a recent discussion on urban metabolism and how it relates to dimensions of infrastructure, urban planning and architecture, see David Peleman, Bruno Notteboom and Michiel Dehaene (eds.), "The Household of Urban Metabolism" [themed issue], *OASE*, n° 104, 2019.

reinvest in the infrastructure of the *cités indigènes* or "natives towns".[71] Goods destined for urban consumption thus flowed along the railway line, as well as across the increasingly fine-grained road infrastructure network that linked local sites of food production at sometimes large distances to these urban centres. Landscapes were reshaped accordingly, with vast tracts of land being prepared for agriculture.[72] Some areas became affected by an ongoing process of deforestation triggered by the harvesting of wood to prepare charcoal, or *masala* as it is called in local parlance, which was used at a massive scale by urban families for cooking, a practice that is still widespread in Congo today.

But supplying local markets was often also an international affair. The Belgian Congo, for instance, became one of the first markets in Africa targeted by the Bata shoe company, which was building an African empire from its new UK-based headquarters, after the firm had left its foundational production site in Zlín, Czechoslovakia. While Bata shoes entered the Congolese market from 1930 onwards, the company opened a factory in Kinshasa in 1940, quickly becoming the key player in the local market.[73] In the early 1950s, the Swedish furniture producer Dux, reputed in Belgium for its good design, started a factory in Kinshasa as it saw an immediate potential for selling its products to the rapidly growing white population of Congo's urban centres and for furbishing public facilities, while it might also have already anticipated the future market of African consumers which emerged in the second half of the 1950s, when an albeit limited class of so-called *évolués* emerged in the main urban centres.[74]While goods flowed from and to the colonial taskscape of the Lower Congo region across scales, from the global to the local, so did people and knowledge. German engineering expertise and technology, for instance, was used in both the construction of a large concrete pier in the port of Ango Ango, situated in close proximity to Matadi, and in the cement plant of Lukala.[75] The plantation methods used at the *Sucrerie de Moerbeke-Kwilu* built on knowledge selectively borrowed from tropical zones across the world [Fig. 5].[76]

71. In his 1967 economic study, entitled *Industrialisation au Congo. La transformation des structures économiques*, Jean-Louis Lacroix provides general data on how the beer production in the Belgian Congo grew exponentially from the late 1940s onwards. Annual reports of the provincial administration of the Lower Congo region during the early post-war years demonstrate the obsessional attention given to beer consumption in cities like Matadi.
72. See a.o. Piet Clement, "Agricultural Policies and Practices in the Belgian Congo. The Origins and Implementation of the 'Indigenous Peasentry' Scheme (1917-1959)", in Jacques Vanderlinden (ed.), *The Belgian Congo between the Two World Wars*, op. cit., pp. 83-128.
73. I'm indebted to Robby Fivez for his research on Bata's African empire and its activities conducted in the context of his ongoing PhD-research.
74. For a first, brief discussion of the introduction of 'good design' furniture in Central Africa, see Johan Lagae, "Nomadic furniture in the 'Heart of Darkness'. Colonial and Postcolonial trajectories of modern design artifacts to and from tropical Africa", in Fredie Floré & Cammie McAtee (eds.), *The Politics of Furniture. Identity, Diplomacy and Persuasion in Post-War Interiors*, Routledge, Abingdon, 2017, pp. 15-32. African consumer culture in the late 1950s and early 1960s is still a rare subject of scholarly interest. For some first elements, see Daniel Tödt, *Elitenbildung und Dekolonisierung. Die Évolués in Belgisch-Kongo 1944-1960*, Gottingen: Vandenhoeck & Ruprecht, 2018 (for the question of the interior, see esp. pp. 168-169).
75. Apart from Robby Fivez' PhD research, see especially the project "Conquering with Concrete. German Construction Companies as Global Players in Local Contexts", supervised by Monika Motylinska (Leibniz Institute for Research on Society and Space).
76. Deruyter and Vandepoele, *Mapping*, op. cit., pp. 130-131. This policy of "selectively borrowing" was a widespread strategy in defining colonial policies. In the field of agriculture, it was already introduced before WWI by Edmond Leplae, who headed the Agricultural Department of the Ministry of Colonies in Brussels and went on a worldwide trip in the tropics to "learn from others".

Fig. 5. World map indicating the regions from where expertise was collected on plantation methods by the agents of the Sucrerie de Moerbeke Kwilu. Source: Deruyter & Vandepoele, Mapping a transforming colonial landscape, unpublished master dissertation, 2018, pp. 130-131.

Labourers continued to be recruited from close and far away regions, just as they had been during the construction of the first Matadi-Kinshasa railway line. Moments of conflict and tension documented in the archives provide an excellent lens to trace the existence this heterogeneously composed labour force. In the 1922 strike, which erupted at the cement plant of Lukala, workers from Senegal and Ghana played a crucial role, showing a remarkable capacity for countering colonial dominance.[77] A more emblematic episode of such contestation was the major 1945 strike of dockworkers in the port city of Matadi. Paralyzing the port city for more than 3 days, the strikers brought economic activity to a complete standstill. It required an armed intervention to crush the strike, which colonial authorities experienced as a highly unsettling event of civil disobedience. An investigation of the colonial government concluded that the event had been caused by a small number of workers originally coming from *Manianga*, a small settlement near *Luozi*, situated some 200 kilometres upstream on the Congo river from Matadi. This did not come as a surprise as, according to official sources, this area was infested by "des theories mystico-religieuses à tendance xénophobes" triggered by *Kimbanguism*, an African-inspired evangelic movement that emerged in this specific part of the Lower Congo region in 1921, and quickly spread across the whole Congolese territory.[78] One of the recommendations of the report was, not surprisingly, to ban these agitators from Matadi and send them back to the hinterland of the port city. But, as in the past, some of the key players who initiated the strike would flee to Portuguese-ruled Angola or *l'Afrique Equatoriale Française* to escape harsh sentences.

77. Robby Fivez, "The rubble in the jungle: a fragmented biography of Lukala's cementscape, DR Congo", *Journal of Landscape Architecture*, n° 1, 2020, pp. 78-87.
78. On Kimbanguism, see Elikia M'Bokolo and Jacob Sabakinu Kivilu (eds.), *Simon Kimbangu. Le Prophète de la Libération de l'Homme noir*, 2 vols., Paris: L'Harmattan, 2014. For a discussion of this strike in a broader urban context of conflict, see Johan Lagae and Jacob Sabakinu Kivilu, "Policing the colonial city. Urban planning and the spatial politics of order in the port city of Matadi, DR Congo, 1928-1960", paper presented at II International Conference African Urban Planning, Lisbon, 7-8 September 2017.

Mobility across borders remained a strong characteristic of the interwar period throughout the Lower Congo region. But it was also at this time that a shared urban culture emerged between Kinshasa and Brazzaville, as African workers often took the ferry across the Stanley Pool in search of moments of leisure and freedom in sports events, but also in bars and nightclubs which largely escaped the controlling gaze of the colonizer.[79] Paying attention to such moments that fall outside the strict regime of labour is, we contend, equally relevant and necessary when investigating and mapping a colonial taskscape.

THE ARCHITECTURE AND INFRASTRUCTURE OF A COLONIAL TASKSCAPE

All in all, the Matadi-Kinshasa railway line became a vector of intense interconnectedness on various scales, from S to XL. Much more than just being a blunt instrument of extractive economy, creating a direct and efficient connectivity between colony and metropole, it also triggered new patterns of flows of goods, people and ideas that replaced or complemented earlier trade routes and created corridors that often penetrated deep into the French territory of *l'Afrique Equatoriale Française* or Portuguese-ruled Angola. In doing so, the railroad fundamentally reshaped a precolonial landscape into a colonial taskscape, that came with its own settlement patterns and built environment. While much research has already been done on the architecture and urban landscapes of Matadi and Kinshasa, and, to a lesser extent, Mbanza Ngungu,[80] it is timely to pay attention to the built structures along the trajectory of the railway line, ranging from bridges, tunnels, and ramparts to storage facilities or workers' camps, all of which were crucial infrastructural elements for the successful extractive colonization of Central Africa. In other words, we must, as architectural historians, also be willing to engage with the mundane and "grey architecture" of colonialism. But what is important in this respect is not to think in terms of isolated buildings, but rather of a collection of buildings that together make up an interconnected landscape, and of which each built element is, in itself, also part of larger dynamic flows or systems of movements of materials and of people. If we think of buildings from the perspective of material flows that constitute their coming into being, in line with what architectural historian Kiel Moe has invited us to do,[81] then our understanding of the quite remarkable late 19th-century edifices assembled out of prefabricated metal components that one comes across in various localities along the railway line, from Matadi to Mbanza Ngungu and Kinshasa, as well as some localities deeper inland, like Ngombe Matadi, shifts radically [Fig. 6].

79. Important studies in this respect remain Phyllis Martin, *Leisure and society in colonial Brazzaville*, Cambridge: Cambridge University Press, 1995 and Didier Gondola, *Villes miroirs: migrations et identités urbaines à Brazzaville et Kinshasa 1930-1970*, Paris: l'Harmattan, 1997.
80. See, for example, Yves Robert, "De la villégiature à Thysville au tourisme patrimonial à Mbanza-Ngungu: Des héritages culturels cosmopolites comme levier de développement urbain", in Jean-Louis Genard and Judith le Maire (eds.), *Enjeux patrimoniaux en contexte postcolonial: Patrimoine et développement en République démocratique du Congo*, Paris: l'Harmattan, 2017, 139–163.
81. I'm referring here in particular to how Kiel Moe invites us in his book *Empire, State & Building* (Barcelona: Actar Publishers, 2017) to trace the origins of building materials in order to make an assessment of a building as a complex, interconnected assemblage. Admittedly, I'm reducing Moe's argument here for the sake of brevity, leaving out his plea to study such assemblages over long periods of time.

Fig. 6. Hôtel ABC in Mbanza Ngungu, built between 1904 and 1908 out of prefabricated metal components imported from Belgium. Source: photograph Johan Lagae, 2009.

Instead of considering them exclusively as simple "tools of empire", with their tropical bungalow typology having served to acclimatize the body of the white colonial to the demanding climate in the tropics,[82] such prefabricated edifices should also be seen as mobile commodities produced by Belgian industrial companies which were shipped from the metropole to the colony as part of an efficient exchange process, in which it made no sense to send boats arriving in Antwerp back to Congo completely empty. This counts as well for the wooden houses on metal stilts constructed already in the early 1880s for the members of the Baptist Missionary Society, as fieldwork observation reveals that these constructions were not locally manufactured but rather, at least in part, travelled as separate components along with their future inhabitants from the United Kingdom.[83] Through our ongoing research on some of the construction companies that were active in the region, we can now, similarly, start to begin and understand the changing skylines of Matadi and Kinshasa, as intimately connected to some of the nodes of production in the emerging colonial taskscape of the Matadi-Kinshasa railway line, such as the cement factory of Lukala or the quarry and crushing plant in Kiasi col. When the import of materials from the metropole gradually turned out to be too expensive and time consuming, this generated a discussion on the need to turn to durable "matériaux indigènes". Locally produced cement, combined with local sand and gravel, became an ideal alternative solution, even if it required the introduction of different construction techniques and another division of labour.

82. In previous research I have often presented such a perspective on these metal prefabricated structures, see a.o. Marc Gemoets & Johan Lagae, "Construire sous les tropiques. Quelques jalons de l'architecture climatique à Kinshasa", in Lagae & Toulier, *Kinshasa*, op. cit., pp. 132-137. The notion "tools of empire" refers, of course, to Daniel Headrick's seminal 1981 study *The Tools of Empire* (op. cit.).
83. Lagae & Toulier, *Kinshasa*, op. cit., p. 76.

Moreover, mapping the built environment of the colonial taskscape of the Lower Congo region, and following the flows of materials and knowledge informing it, forces us to go beyond clear distinctions between signature and grey architecture. In line with what Fanny Lopez has demonstrated for the architecture of electricity in France in her 2019 book *L'Ordre électrique*, we should consider all built elements in this colonial taskscape, large and small, and regardless of whether their appearance is dull or interesting in terms of architecture, as part of an interconnected system that forms the scaffolding of the colony as an economic enterprise.[84] This, inevitably, leads us away from the conventional approach in architectural historiography that takes the architect as the individual author of a building as its departure point. A large part of this built environment was indeed (co-)designed and (co-)produced by designers in aggregate offices such as Public Work Departments or the architectural services of colonial companies. Bureaucratic processes and a complex division of labour, implying that multiple parties had to sign off a project before it could go into implementation, governed the making and shaping of the colonial taskscape.[85]

To illustrate this, it is useful to zoom in for a moment on the built legacy of OTRACO, the *Office d'Exploitation des Transports Coloniaux*, a public body founded in 1935 to bring together the main actors involved in building, maintaining and exploiting railway and port infrastructure in the Belgian Congo. OTRACO was, in fact, one of the principal builders along the Matadi-Kinshasa railway line, as well as in the urban centres that constitute its two extremities. The railway stations of Matadi and Kinshasa, both constructed in the 1930s, constitute prime examples of signature architecture in the Belgian colony, even if they never made it into the pages of professional magazines in the metropole as their designers were not prominent members of the metropolitan architectural milieu: in 1930 Brussels based architect Servais Mayne authored the imposing edifice in Matadi [Fig. 7] which in

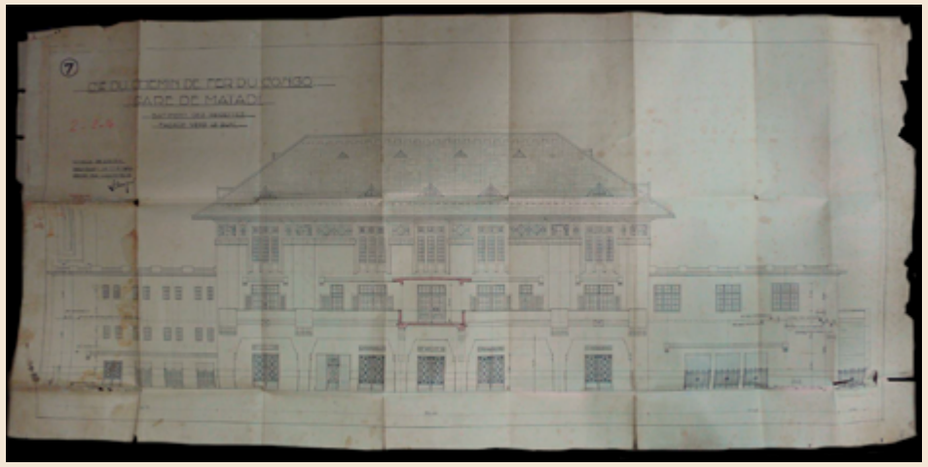


Fig. 7. Façade drawing of the railway station in Matadi, designed by architect Servais Mayne, 1930. Source: Original drawing, ONATRA-archive, Kinshasa.

84. Fanny Lopez, *L'Ordre électrique. Infrastructures énergétiques et territoires*, Geneva: MetisPresses, 2019.
85. In this respect, the work on the cognitive principles at work in public work departments responsible for colonial architecture in Britain, done by Peter Scriver since the mid-1990s remains an important source of inspiration. See a.o. Peter Scriver, "Empire-Building and Thinking in the Public Works Department of British India", in Peter Scriver, and Vikramaditya Prakash (eds.), *Colonial Modernities: Building, Dwelling and Architecture in British India and Ceylon*, London: Routledge, 2007, pp. 69–92.

scale by far surpassed the railway station in Kinshasa, an edifice erected some years later, between 1936 and 1939, according to a project by René Schoentjes, an architect who was previously affiliated with the Ministry of Colonies.

In the mid-1950s, the rather obscure architect Jacques Delire, an employee of OTRACO, drew a project in modernist style for the *Gare Fluviale*, an imposing arrival and departure hall accommodating people and goods travelling on boats on the Congo stream from and to the immense hinterland of Central Africa [Fig. 8].

Fig. 8. Interior of the Gare Fluvial in Kinshasa, designed by architect Jacques Délire, 1956-1959. Source: photograph Johan Lagae, 2017.

Research conducted in both Belgian and Congolese archives, as well as many fieldwork trips since 2003 for Kinshasa and 2009 for Matadi, enabled us to describe in some detail a number of other remarkable edifices which are directly related to the colonial taskscape triggered by the railway line: we can think, for instance, of the prefabricated metal Hôtel ABC in Kinshasa, erected in the 1910s, and its later counterpart in Matadi, the Art Deco *Hôtel Métropole* built in 1930 as the first multistorey building in the Belgian Congo; but also of the OTRACO-headquarters, a Stalinist-looking edifice constructed along Kinshasa's main urban boulevard between 1952 and 1955; or the offices of the *Agence Maritime Internationale* in Kinshasa and Matadi, authored in the immediate post-war years by the prominent Belgian architect-urbanist Georges Ricquier. By now, these edifices have been recognized as landmark architectural projects in Kinshasa and Matadi, and are widely considered a valuable part of Congo's architectural heritage.[86]

Yet, apart from these signature buildings we should also turn our

86. These buildings, as well as many others mentioned in this chapter, have been included in digital databases which were produced in the context of inventory projects of urban architectural heritage, and financed through foreign support: see http://www.wikinshasa.org and http://www.urbacongo.info/.

attention to more mundane infrastructures related to OTRACO's taskscape. The workers' camps, accommodating railway workers and laborers employed in the ports of Kinshasa and Matadi, are crucial elements of the urban landscapes of these cities and have much to tell us about urban policies of labour and racial segregation [Fig. 9].

Fig. 9. Aerial photograph of part of the "native town" in Kinshasa, showing the pentagonal footprint of the Camp Kauka, the workers' camp of the OTRACO, built in the 1950s. Source: aerial photograph, 1957, collection of the author.

Similar, but often more mundane infrastructures of workers' camps popped up all along the Matadi-Léopoldville railway line, as one fascinating document found in the OTRACO-archives in Kinshasa reveals. Entitled *Guide schématique de la ligne* and probably dating from around 1957, this accordion booklet, measuring eleven by twenty-six centimetres, but which can be unfolded into a lengthy plan of twenty-six centimetres by twenty metres, contains the footprint of every piece of infrastructure built by OTRACO along the railroad.[87] On the basis of this document and a wide array of ar-

87. We discovered this document during a fieldwork trip in September 2017. For some images and a nuanced analysis of this document as a 'living' archival source, see Robby Fivez, "The *Guide schématique de la ligne [1957]*. Tracing the infrastructure landscape along the Matadi-Kinshasa railway line (DR Congo) through a living archive", *ABE Journal*, n° 14-15, 2019 (https://journals.openedition.org/abe/3063).

chitectural plans found in OTRACO's archival collections, a comprehensive mapping exercise of the built environment of OTRACO's taskscape in the Lower Congo region could be conducted.[88] It revealed the existence of a catalogue of type-designs for each kind of building needed, from railway stations (of which there are six categories, different in size and architectural detail), various types of villas to accommodate the white employees and houses for African labourers assembled according to a generic layout to form workers' camps, including small sized collective sanitary facilities with toilets and showers. Redrawing carefully each node along the Matadi-Kinshasa railway line demonstrated the way in which this catalogue and a limited set of building and planning guidelines served in the post-war period as a template for shaping OTRACO's taskscape in the Lower Congo region. The overall layout of each node along the line followed a generic scheme which was adapted to the conditions set by the existing landscape, from topography to natural elements like rivers and streams [Fig. 10].[89]

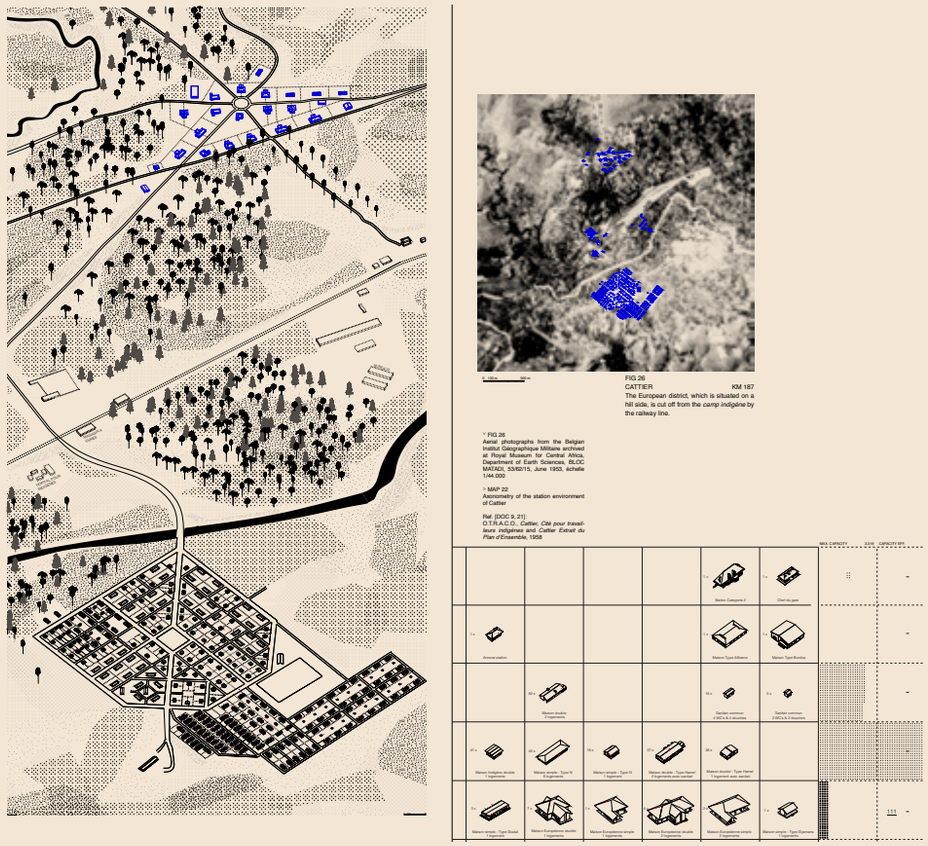


FIG 26
CATTIER KM 187
The European district, which is situated on a hill side, is cut off from the *camp indigène* by the railway line.

* FIG 26
Aerial photographs from the Belgian Institut Géographique Militaire archived at Royal Museum for Central Africa, Department of Earth Sciences, BLOC MARADI, 53/6D/15, June 1955, echelle 1:44.000

* MAP 22
Axonometry of the station environment of Cattier

Ref. [DOC 9.21]
O.T.R.A.C.O., *Cattier, Cité pour travailleurs indigènes and Cattier Extrait du Plan d'Ensemble*, 1958

Fig. 10. Mapping of the OTRACO infrastructure in Cattier, situated on kilometre 187 along the new Matadi-Kinshasa railway line. Source: Deruyter & Vandepoele, Mapping a transforming colonial landscape, unpublished master's dissertation, 2018, pp. 110-111.

88. Deruyter and Vandepoele, *Mapping*, op. cit., pp. 72-113 (Part 2 – Infrascape).
89. For assessing this form of translation from a generic scheme to local conditions, use was made of the extensive coverage in 1953 of the Lower Congo region through aerial photography on a scale of 1/44.000. This collection is held in the Africa Museum of Tervuren.

Today, these infrastructural nodes with their characteristic regular compositions of type buildings remain highly visible in the landscape along the Matadi-Kinshasa railway line [Fig. 11].

Fig. 11. The OTRACO workers' camp in Kisantu. Source: photograph Johan Lagae, 2015.

This practice of building according to type designs is, of course, very common among colonial builders and it has a long pedigree. In the Belgian Congo, it came to full fruition during the era of the first Ten Year Plan for the Economic and Social Development of the Belgian Congo (1949-1959). Very similar strategies were used, for instance, to implement the fine-grained infrastructural network of hospitals and health care facilities across the whole territory that was a key element of this policy plan.[90] Yet, housing the African workers occupied a particular place in this context. Post-1945, Belgian colonial authorities were confronted with a booming demographic growth in most of the urban centres, described in one contemporary source as a "marée humaine [qui] monte [...] à un rythme vraiment impressionnant".[91] The colonial government understood all too well that this phenomenon required immediate action as it led to overpopulation in the native towns of colonial cities and even to the popping up of slum areas, creating challenging conditions that might trigger social unrest. The development of decent housing thus became a spearhead of the policy of several colonial actors, from the Ministry of Colonies and the various branches of the Public Work Departments in Brussels and in the colony, to colonial companies and parastatal

90. Simon De Nys-Ketels, Laurence Heindryckx, Johan Lagae & Luce Beeckmans, "Planning Belgian Congo's network of medical infrastructure: type-plans as tools to construct a medical model-colony, 1949–1959", *Planning Perspectives*, vol. 34, n° 5, 2019, pp. 757-778.
91. M. Bruyère, *Contribution à l'Etude des Habitations pour Indigènes au Congo*, Brussels: Institut Royal Colonial belge, 1952, p. 5.

organizations such as the *Office des Cités Africaines*, founded in 1951 with the specific goal to plan, design and build new and decent residential neighbourhoods for Africans. The "maison pour indigène" or "house for natives" also became the object of a number of scientific investigations, some of which were presented in meetings of the *Institut Royal colonial belge* in Brussels, including M. Bruyère's *Contribution à l'Etude des Habitations pour Indigènes au Congo* (1952) and Frans Deroep's *Rationele Bouw in Belgisch Kongo* (1952). In a similar vein, the *Centre d'Etude des Problèmes sociaux indigènes* in Lubumbashi, or CEPSI, had already published in 1949 a catalogue of type houses to be used in the workers' camps of the local railway company and in the city's "native towns".[92] The workers' camps erected in several nodes along the Matadi-Kinshasa railway line, like Kimpese and Cattier, just like the camp Thys in Matadi and the camp Nicolas Cito in Kinshasa, both erected by OTRACO in the immediate post-war years, thus served as instruments of social engineering, intended to bring labour policies in line with the developmentalist and welfare agenda of post-1945 colonial rule in the Belgian Congo. But there was still a clear economic agenda underlying this enterprise, which testifies to a continued focus on a "mise en valeur" agenda during the late colonial period. If no measures were urgently taken to provide the African population with decent housing, "the whole exploitation programme of the colony came under threat", as Père Van Wing, a catholic missionary father and a prominent figure in Kinshasa, tellingly observed in the late 1940s.[93]

Browsing through the bibliography and references in such post-war studies of the "native house" in the Belgian Congo reveals that also in this domain Belgian colonial policies were informed by a practice of "selective borrowing" from experiences in other colonial territories.[94] Bruyère's 1952 study *Contribution à l'Etude des Habitations pour Indigènes au Congo* is particularly interesting in this respect, as it indicates that he closely monitored what was happening in both francophone and anglophone colonies. The bibliography includes Maxwell Fry and Jane Drew's *Village Housing in the Tropics with special reference to West Africa* of 1947, as well as a 1949 report on housing in Rhodesia of the Central African Council and Douglas H.K. Lee's work on housing for the humid tropics.[95] Reference is also made to *l'Architecture d'Aujourd'hui*. One of the plates included presents the principle of a so-called "maison type-ballon (selon le principe des maisons construites à Dakar)", a particular form of concrete construction originally invented by the American engineer Wallace Neff during the Second World War which was widely used around the world post-1945.[96] More work needs to be done to trace and

92. A. Débra and J. Quets (eds.), *Maisons indigènes au Congo. Fascicule 1. B.C.K. et C.E.C. Elisabethville*, Elisabethville: CEPSI, 1949.
93. This statement of Van Wing opens the introduction of Deroep's *Rationele Bouw*, op. cit.
94. I have developed this argument on the practice of "selective borrowing", a notion drawn from planning historian Stephen Ward, for the domain of architecture and building in Congo elsewhere in some detail. See Alex Bremner, Johan Lagae & Mercedes Volait, "Intersecting Interests: Developments in Networks and Flows of Information and Expertise in Architectural History", *Fabrications*, vol. 26, no. 2 (2016), pp. 227-245.
95. Bruyère, *Contribution*, op. cit., p. 146.
96. Ibid., p. 174, Plate 23. See Jeffrey Head, *No Nails, No Lumber. The Bubble Houses of Wallace Neff*, New York: Princeton architectural press, 2011. Bernard Toulier has investigated the extensive use of this type of house in French colonial Dakar.

investigate in detail the "shared built culture" that seems to undergird housing design and related building practices in sub-Saharan African colonies in those post-war years. By now the transimperial conversation and exchange of knowledge taking place in the context of conferences on building in the tropics held in Lisbon in 1952 and at the Architectural Association School in London in 1953 have been acknowledged.[97] Lesser known is the work of some scholars who have started to investigate how international connections as well as geographic proximity stimulated such exchange and learning from other experiences, both in the domain of housing policy at large as in terms of construction materials and methods.[98]

SMALL INFRASTRUCTURES AND LIVED EXPERIENCES ALONG A COLONIAL RAILWAY LINE

Even if Deroep argued in his 1952 study *Rationele Bouw in Belgisch Kongo* that the problem of the "native house" needed to be considered in scientific as well as moral and psychological terms,[99] in most sources of the time the policy of social engineering through the provision of decent housing infrastructure was most often defined in quantitative terms. Guidelines issued within the technical services of OTRACO in 1949 and 1950, for instance, indicate that the following modifications to earlier type-designs were to be implemented:[100] "(1) Superficie du logement par habitant: 4m² au lieu de 3m²; (2) Dimension des portes: minimum 1,80m x 0,90m; (3) Surface d'éclairage (fenêtres) au moins 1/20 de la superficie de l'habitation", adding that no more than four persons were to be accommodated in the same room, and only three if they were bachelors, while provision was to be made for separate rooms for boys and girls above the age of six. The question, of course, remains to what extent such modifications made a real and significant difference to the austere housing schemes of the interwar period. A 1953 project for type houses intended for railway personnel of the B.C.K. in Manganèse and designed by architect Jean De Rom provides a useful entry point in this respect [Fig. 12].[101]

97. See *Housing in Tropical Climates / L'Habitation dans les pays tropicaux*, Proceedings of the XXI International Congress for Housing and Planning, Lisbon 1952; *Conference on Tropical Architecture 1953*, London: George Allen & Unwin Ltd, 1953.
98. See a.o. Nikolas Brandes, "'A Society in which it is worth having a place'. Modernisation through cooperativism in Lourenço Marques' late colonial Bairro Da COOP", in *Atas do congress internacional saber tropical em Moçambique: história, memória e ciência. Lisboa 24-26 October 2012*; Carl-Philipp Bodenstein, "'Congo Housing is for Well-To-Do'. Debates About the Application of the Elisabethville Housing Scheme in Northern Rhodesia as a Symptom of Colonial Uncertainty", paper presented at the European Association for Urban History Conference, Rome, 29 August – 1 September 2018.
99. Deroep, *Rationele bouw*, p. 3.
100. "Ordonnance 21/134 of 19/4/1949 & 21/31 du 27/1/1950", Internal Note on the accommodation of African Laborers of OTRACO sent by the general Director J. Devisscher and the director responsible for the Main d'œuvre Indigène (or "native workers"), E. Verhegge to the technical service. ONATRA Archives, Kinshasa. I'm indebted to Robby Fivez for having indicated this primary source to me.
101. The architectural drawings of this project are part of the collection of CIVA/AAM, Brussels.

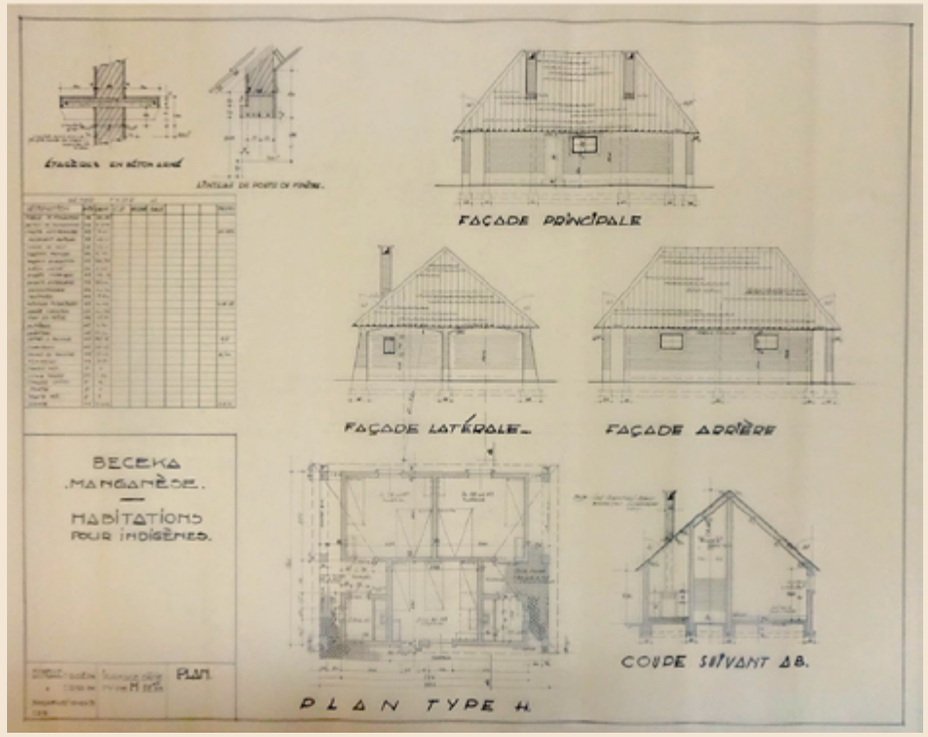


Fig. 12. Project for a house for railway workers of the B.C.K. in Manganèse, architect Jean De Rom, 1953. Note the detail of the étagère in the top left corner. Source: Original drawing. Collection CIVA/AAM Brussels, © CIVA.

The drawings indicate that each of these houses consisted of only three bedrooms, measuring 3-3 by 4 metres, and each intended to accommodate three persons (in one double and one single bed), with some types having small kitchens attached, but no toilet facilities. A small detail included in one of the drawings is telling. It depicts the section of what in the plan is indicated as an *étagère*. It consists of a small concrete tablet of 80 by 30 centimetres with three metal hooks underneath which serve to hang clothes. No doubt serving to store one's personal items, probably shoes and clothes, this *étagère* forms the unique *équipment* in these rooms of what looks, seen from the outside, as a decent brick house with hipped, tiled roof. This detail reminds us of the fact that despite the welfare discourse of colonial policy, in many cases post-war housing for Africans in the Belgian Congo, and of labourers especially, still very much was a question of an extreme *Existenzminimum*. But colonial Congo was not an exception here, as the striking examples of the workers' hostels built in apartheid South African in the late 1960s and 70s, for instance, demonstrate.[102]

The contrast with the accommodation for the white staff in the workers' camps of the OTRACO is telling: various types of large-sized villas were designed, their size depending on the rank and family status of the employee. Houses stood apart to allow for green gardens surrounding them. And in the large OTRACO-sites, facilities for leisure were included, as was the case in

102. Architect Clive Chipkin tellingly described the inhumane living environments of the Alexandra Hostels as "unité blocks of a sort designed by deranged disciples of Le Corbusier", Clive Chipkin, *Johannesburg Transition. Architecture & Society from 1950*, Johannesburg: STE Publishers, 2008, pp. 240-241.

other "company towns". One small-scale yet remarkable piece of such leisure infrastructure is the bowling alley that forms part of the huge infrastructural complex of the immense *Sucrerie de Moerbeke Kwilu*, which comprised accommodation for the 40 members of its white staff, 12 large workers' camps to accommodate 2000 laborers, an extensive network of irrigation canals, and an internal railway line circuit of 40 kilometres [Fig. 13].[103]

Fig. 13. Bowling alley at the Sucrerie de Moerbeke Kwilu. Source: photograph Luce Beeckmans, 2007. Courtesy of Luce Beeckmans.

While this infrastructural element, of course, speaks of a condition of inequality that governs the colonial encounter at the plantation, I would nevertheless like to suggest not taking it purely at face value, for does this bowling alley not also speak of a condition of boredom which, as we know from intimate sources such as diaries and oral testimonies in other contexts, was a key component of colonial life, especially in such remote sites as the *Sucrerie de Moerbeke Kwilu*?[104]

Such tiny infrastructural elements, we argue, can provide us with a glimpse of lived realities and help us to better grasp what the French Africanist Georges Balandier coined as living under *la situation coloniale*.[105] Our in-depth investigation of the urban history of the port city of Matadi, for instance, revealed that much is to be learned in terms of the everyday experience of colonial segregationist planning practices when investigating not only the development of its urban form at large, but also by focusing on

103. Deruyter and Vandepoele, *Mapping*, op. cit., pp. 138-139 & p. 143.
104. Little work has been done on imperial boredom, even if it pops up regularly in oral accounts and intimate sources such as diaries of formal colonials. For a rare discussion, see Jeffrey Auberbach, *Imperial Boredom: Monotony and the British Empire*, Oxford: Oxford University Press, 2018.
105. For an critical discussion of this notion, see Isabelle Merle, "'La situation coloniale' chez Georges Balandier. Relecture historienne", *Monde(s)*, vol. 2, n° 4, 2013, pp. 211-232.

the scale of small infrastructures such as public toilets.[106] Introduced from the late 1920s onwards, these tiny collective sanitary facilities – each one containing six toilets – proved much too limited throughout the colonial period to service in any satisfactory way the booming African population of the port city. That the "native towns" and workers' camps were located in the hilly landscape of rock formations overlooking the existing urban centre and port installations, complicated matters significantly, leading to impossible sanitary conditions that stood in sharp contrast to the official discourse that presented colonization as a *mission civilisatrice*. If, as architectural historians, we tend to investigate – and imagine – colonial cities to large extent via visual sources such plans and photographs, it remains useful to keep in mind other sensorial regimes such as the olfactory and the acoustic, which substantially shaped lived realities in these urban environments.[107]

Infrastructures, large and small, then are "integral and intimate parts of daily social life", as many scholars have argued in the past years, and can hold "promise, albeit in multivalent ways". This is especially true for colonial contexts, in which "differentiated access to infrastructure" exists which "refracts" class, gender and, above all, race.[108] Frantz Fanon already wrote as much in 1961 when famously describing the generic colonial city as being composed of two irreconcilable parts, each with its own, different infrastructural provision.[109] In his uninvited speech held on the occasion of the declaration of Congo's independence on June 30, 1960, Patrice Lumumba also evoked in telling ways the suffering of the Congolese people under colonial rule, pointing, inter alia, to the different accommodation of blacks and whites, stating that "nous avons connu qu'il y avait dans les villes des maisons magnifiques pour les Blancs et des paillotes croulantes pour les Noirs".[110] Yet, we should be careful not to read the colonial urban environments, nor the living conditions in the segregated colonial city exclusively through the binary framework suggested by Fanon and Lumumba. Urban landscapes and morphologies were more complex.

Through our research on urban history in various cities in colonial Congo, we became aware of how tracing mobility patterns of different actors living under *la situation coloniale*, both at the scale of the (urban) territory, of a specific site (a square, a camp, a workplace), and up to the individual building, is a

106. For an in-depth discussion of the challenges of urban sanitation in Matadi, including the toilet facilities, see Lagae, Sabakinu Kivilu & Beeckmans, "'Pour Matadi la question [de la ségrégation] est encore plus grave qu'ailleurs'", art. cit.
107. Till this day, the sound of a siren calling employees of the port to work several times a day, significantly defines the rhythm of everyday city life in Matadi. The importance of several sensorial regimes counts, of course, for cities in general. See Zardini, M. (ed.). 2005. *Sense of the City. An Alternative Approach to Urbanism*. Baden/Montréal: Lars Müller Publishers/CCA.
108. "Introduction: Temporality, Politics and the Promise of Infrastructure" in Anand, Gupta & Appel (eds.), *The Promise of Infrastructure*, Durham: Duke University Press, 2018 (p. 6).
109. Frantz Fanon, Les Damnés de la terre, Paris: François Maspero, 1961, pp. 47-48.
110. See "Les discours prononcés par le Roi Baudouin Ier, le Président Joseph Kasa-Vubu et le Premier Ministre Patrice-Emery Lumumba lors de la cérémonie de l'indépendance du Congo (30 juin 1960) à Léopoldville (actuellement Kinshasa). Discours du Premier Ministre Patrice Emery Lumumba". 1960, available at: http://www.kongo-kinshasa.de/dokumente/lekture/disc_indep.pdf.

powerful tool to detect cracks in the colonial order.[111] When investigating such mobility patterns in the port city of Matadi, we paid particular attention to the way *cheminots* and *dockeurs* went to work: leaving their houses high up in the hills of *la ville haute* of Matadi, most of them needed to cross a centrally located bridge over a natural cliff, leading them through the main square of the city before reaching the railway yard and port installations. Following this route on a map and confronting it with historical source material and oral accounts collected among former labourers not only made us aware of very different regimes of accessibility in the colonial city, but also of inconsistencies of such mobility patterns with the very idea of a segregated city.[112] It also permitted us to understand that the key infrastructure of colonial Matadi was precisely this centrally located bridge across the natural cliff, which acted from the late 1920s as the buffer zone between the white and black city. Intended by the authorities as a strategic and easy to police point of entrance into the white city, the bridge actually turned out to be the city's Achilles heel when dockworkers went on strike in 1945. Blocking this passage allowed them to make the port city come to a complete standstill for several days, hitting the extractive economy of the colony in its heart. If most of today's passers-by only think of this still existing bridge in terms of the traffic congestion it generates on a daily basis, or view it as an ideal spot to drop off their garbage in the stream flowing underneath it – in local parlance the stream's name Kipoto translates not coincidentally, as "open sewer" – this rather mundane piece of infrastructure could, I would argue, constitute a powerful *lieu de mémoire* speaking of colonial resistance and the agency of all *Matadiens* living under colonial rule [Fig. 14].

Fig. 14. The Kiamfu bridge in Matadi. Source: photograph Johan Lagae, 2009.

111. For the case of Lubumbashi, see Johan Lagae, Sofie Boonen & Maarten Liefooghe, "Fissures dans le 'cordon sanitaire'. Architecture hospitalière et ségrégation urbaine à Lubumbashi, 1920-1960", in Maurice Amuri Mpala-Lutebele (ed.), *Lubumbashi. Cent d'ans d'histoire*, Paris: L'Harmattan, 2013, pp. 247-261. Hospital sites provide a very relevant lens to research such frictions. See Simon De Nys-Ketels, Johan Lagae, Kristien Geenen, Luce Beeckmans & Trésor Lumfuankenda Bungiena, "Spatial governmentality and everyday hospital life in colonial and postcolonial DR Congo", in Daniel Cosslet (ed.), *Neocolonialism and Built Heritage. Echoes of Empire in Africa, Asia and Europe*, Routledge, London, 2019, pp. 147-167 .
112. Lagae, Sabakinu Kivilu & Beeckmans, "'Pour Matadi la question [de la ségrégation] est encore plus grave qu'ailleurs'", art. cit. We are currently preparing an atlas presenting a chronological spatial analysis of this port city under the title *Atlas Matadi. Radioscopie d'une ville portuaire au Congo belge*.

What those few examples of small infrastructures suggest is that we need more careful investigations of how colonial infrastructures operated and were used, as well as of how they were appropriated but also imagined over time by those they were supposed to serve.

THINKING COLONIAL INFRASTRUCTURE THROUGH TIME, PAST AND PRESENT

Infrastructure, as anthropologists have shown, becomes visible at that particular moment when it fails. In postcolonial contexts, failure is, however, often the default regime of infrastructure. Railways in Congo are no exception, as hardly any trains are currently running. My first visit in 2009 to the "railway graveyard" of the large-scale maintenance workshop at Mbanza Ngungu (formerly Thysville), once a site of pride along the first Matadi-Léopoldville railway line, inevitably instilled in me a profound sense of loss and absence [Fig. 15].

Fig. 15. The "railway graveyard" in Mbanza Ngungu. Source: photograph Johan Lagae, 2009.

It was a more than memorable experience, then, when I was able to take the train along the Matadi-Kinshasa railway line with some colleagues after a fieldwork trip to the port city of Matadi in September 2015, only a couple of weeks after the service had resumed, albeit offering only one trip a week.[113] That the train left punctually as planned, at 7:15 am in the morning, and arrived almost on schedule around 3 pm in the capital city, made the trip

113. The service on the Matadi-Kinshasa resumed on the 25th of August, 2015 after 15 years of interruption. See https://www.radiookapi.net/2015/08/24/actualite/economie/la-reprise-du-train-kinshasa-matadi--augure-des-perspectives. However, because of financial difficulties of the Société commerciale des transports et des ports, or SCTP, as the former ONATRA is called today, the service has been irregular ever since.

somewhat surreal, as did the fact that the train included one coach, emptied of its seats, that acted, despite the early hour of the day, as a Kinshasa-like nightclub, providing food, drinks and opportunities for dancing. Yet, most railway lines and stations in today's DRC are, like many public institutions, characterized by a seemingly eternal condition of waiting, as depicted by filmmaker Kristof Bilsen in his 2014 award-winning documentary *Elephant's Dream*, which some critics have described as a "surprisingly poetic and empathic look at a State in decline".[114] Such absence of material infrastructure that typifies cities in the Global South is what led Abdoumaliq Simone to develop his by now famous concept of "people as infrastructure" and triggered anthropologist Filip de Boeck to write his acclaimed book *Kinshasa. Tales of the invisible city*.[115]

Yet, how can we think the material remains of colonial infrastructure differently, that is, in their materiality rather than primarily through their imaginary? Ann Laura Stoler has provided us with a promising line of thought, calling on us to think in terms not of ruins but of the ongoing processes of ruination, as well as of the "rot that remains" and of "active imperial debris".[116] Following her line of thought, it makes sense to investigate not just was is "left", but rather what people are "left with", and how, "what remains", for instance, "blocks livelihoods and health". From that perspective, Stoler invites us to focus not on monumental "leftovers" or relics, but rather on "the corroded hollows of landscapes", or on "the gutted infrastructures of segregated cityscapes."[117] For architectural historians interested in things colonial, Stoler's work on "imperial debris" and "duress" can serve as a stimulating invitation to broaden the gaze from signature buildings and remarkable urban planning projects to more mundane infrastructural and urban landscapes and to grey architecture, in order to rethink the contentious notion of "shared built heritage" which has dominated official heritage discourse on former colonial territories for more than two decades now.[118] More recently, artist and scholar Ruth Sacks developed a situated analysis of the Hotels ABC in Mbanza Ngungu and Kinshasa, both early 20th-century prefabricated iron structures, whose histories are intricately bound to the construction of the Matadi-Kinshasa railway line.[119] Her text, articulated around the notion of "lived remainders", offers another promising venue to think of infrastructural relics differently by investigating not only the historical origin of these edifices, but, first and foremost, their current "corporeal conditions". In this

114. See website http://www.elephantsdream-film.com/
115. AbdouMaliq Simone, "People as Infrastructure: Intersecting Fragments in Johannesburg", *Public Culture*, 16(3), pp. 407-429; Filip De Boeck & Marie-Françoise Plissart, Kinshasa. *Tales of the invisible city*, Ghent: Ludion, 2004.
116. Ann Laura Stoler (ed.), *Imperial Debris. On Ruins and Ruination*, Durham: Duke University Press, 2013; Ann Laura Stoler, *Duress. Imperial Durabilities in our Times*, Durham: Duke University Press, 2016. Recently, anthropologist Christine Schwenkel has drawn on notions like "ruination" and "obsolescence" to analyse in novel and stimulating ways the material and affective dimensions of GDR-designed buildings and urban landscapes in northern Vietnam. Christina Schwenkel, *Building Socialism. The Afterlife of East German Architecture in Urban Vietnam*, Durham: Duke University Press, 2020.
117. Stoler, *Duress*, p. 348.
118. For my own critical take on this concept, see Johan Lagae, 'From "Patrimoine partagé" to "Whose Heritage"? Critical reflections on colonial built heritage in the city of Lubumbashi, Democratic Republic of the Congo', *Afrika Focus*, vol. 21, nr. 1, 2008, pp. 11-30.
119. Ruth Sacks, "Lived Remainders: The Contemporary Lives of Iron Hotels in the Congo", *Architectural Theory Review*, vol. 22, n°1, 2018, pp. 64-82.

respect, she unconditionally acknowledges the importance of the accumulation over time of dust and the emergence of rust, of cracked and buckling surfaces, of damp stains and all kinds of later additions, up to washing lines attached today to their verandahs, as a way of looking "through" rather than merely "at" these edifices.[120] In doing so, Sacks provides a model of how to approach buildings as "active agents which are part of complex sites that change over time".[121]

However stimulating it was for me to read Sacks' revisiting of these two buildings which I knew quite well from my own research, I still feel we approach these structures from fundamentally different perspectives on the colonial past. While I, to some extent, agree with Sacks that "our knowledge of history is 'fundamentally relational' and only able to be grasped through the lens of the present context",[122] my take on colonial infrastructural landscapes, of which I provided a broad sketch in this chapter, is, first and foremost, about the way we understand and write the colonial past, rather than about the way we view the postcolonial present. I have argued here that we should assess the Matadi-Kinshasa railway line as a layered infrastructural element that requires a multi-scalar analysis, from S to XL, in order to understand how it reshaped existing landscapes and how it produced a colonial taskscape with complex levels of interconnectedness, both local and global. As such, this chapter has at its core a double historiographical agenda. Ultimately I want, first, to make a plea for shifting our attention as architectural historians from signature edifices and urban sites to mundane urban landscapes and grey architecture when researching colonial territories, and, second, to present a claim that in doing so from a transimperial/transcolonial perspective we might actually make a significant contribution to a more nuanced rewriting of colonial – and global – history itself.[123]

ACKNOWLEDGMENTS

The analysis presented here draws on almost two decades of research on architecture, planning and urbanization in colonial and postcolonial DR Congo, conducted at Ghent University, together with a series of PhD and postdoc researchers, as well as master's students in Ghent and often in close collaboration with a number of Congolese historians and artists. This research is informed by extensive archival research in a large number of collections, as well as a by a significant number of fieldwork trips to DR Congo since 2000. This work was conducted in the context of a series of projects funded by FWO, in particular FWO-projects n° G.0786.09N, n° G045015N and n° G053215N. An overview of part of this work is presented in Johan Lagae & Jacob Sabakinu Kivilu, "Producing new Spatial(ized) (Hi)stories on Congolese cities: Reflections on Ten Years of Collaboration between UGent and UNIKIN", *Afrika Focus*, vol. 31, n° 2, (2018), pp. 87-106 [available online]. For the writing of this particular chapter, I benefitted in particular from the ongoing PhD research entitled *A Concrete State. Building ambitions in the (Belgian) Congo, 1908-1964*, conducted by Robby Fivez, as well as from a master's dissertation entitled *Mapping a transforming colonial landscape. An Atlas of the Bas-Congo region along the Matadi-Leopoldville railway line* submitted by Fien Deruyter and Jana Vandepoele in the academic year 2017-2018.

120. In her text, Ruth Sacks explicitly takes another position on these buildings as does, for instance, architect and heritage expert Yves Robert in "De la villégiature à Thysville au tourisme patrimonial à Mbanza-Ngungu: Des héritages culturels cosmopolites comme levier de développement urbain", art. cit.
121. Ibid., p. 65. There are some parallels here with how a group of scholars (anthropologists and historians mainly) have investigated the remains of medical research institutes in Africa, see Paul Wenzel Geissler, Guillaume Lachenal, John Manton, and Noémi Tousignant (eds.), *Traces of the future: an archaeology of medical science in Africa*, Bristol: Intellect, 2016.
122. Ibid., p. 66.
123. In this respect, this chapter is in tune with some arguments forwarded in Peter H. Christensen, *Germany and the Ottoman Railways: Art, Empire, and Infrastructure*, New Haven, CT; London: Yale University Press, 2017.

COLONIAL AND POST-COLONIAL CONTINUITIES AND DISCONTINUITIES IN URBAN INFRASTRUCTURE IN AFRICA: A CASE STUDY IN MAPUTO

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INTRODUCTION[1]

This chapter examines continuities and discontinuities across the colonial and post-colonial periods in the urban infrastructure of Maputo,[2] the capital of Mozambique, as a case study of Sub-Saharan African cities. It starts with a critical review of the most recent large-scale urban infrastructure — the bridge to Katembe, south of the city's bay, and the Maputo Ring Road — and then takes a wider look at how we understand urban "infrastructure", and how this needs to include management as well as investment.

RECENT LARGE-SCALE URBAN INFRASTRUCTURE IN MAPUTO

Fig. 1. The new Katembe bridge — view from northwest — with the central city in the upper left background. Source: Wiki Commons.

The image above (Fig. 1) shows the new Maputo - Katembe bridge, which crosses Maputo Bay from the western edge of the old part of Maputo city centre ("Baixa"), near the commercial port, to the higher ground south of the bay in Katembe district. Finished in November 2018, after four years of construction, the bridge is Africa's largest suspension bridge and Mozambique's most expensive infrastructure since Independence. The bridge connects the north and south shores of Maputo Bay, opening up a very under-developed part of the city's administrative area in Katembe. However, the bridge contract also included 180 kilometres of new road from Maputo to the beach resort Ponta do Ouro near the southern border between Mozambique and South Africa (with another link between the southern Maputo Province towns of Boane and Bela-Vista — the latter having limestone deposits and an adjacent cement factory).

At a cost of US$785 million, the bridge was funded by a loan from the EXIM Bank of the People's Republic of China, with the design and construction work being carried out by the China Road Bridge and Corporation

1. The chapter is based on the author's keynote address at the 1st International Congress on "Colonial and Post-Colonial Landscapes: Architecture, Cities, Infrastructures", in Lisbon, January 2019. It thus draws primarily on the author's own previous publications and some recent reports in the *media*.
2. In the colonial period the city was called Lourenço Marques.

(CRBC). It was implemented through a Mozambican partnership called the Maputo South Development Company (*Empresa de Desenvolvimento de Maputo Sul*), set up in 2010. The bridge length, including the smaller bridge structures to the north and south leading to the main bridge, is three kilometres, with the main roadway manufactured in 12 m lengths in China and lifted into position from ships. At the highest point it is 40 m above the waterline, allowing large oil tankers and other mineral carrier ships to pass underneath to reach the industrial port at Matola city upstream — hence its claim to be the longest and highest suspension bridge on the continent.

The Katembe urban district has always been relatively isolated from the rest of the city, despite being a short distance south of the city centre — mainly due to the poor ferry boat service that has been in operation since before Independence in 1975. The alternative round road trip was 100 km long — used by commercial vehicles (not permitted on the ferry), and also light vehicles when there were frequent ferry breakdowns, and ferry safety has always been an issue. While seemingly an (international) infrastructural triumph, and a social advancement, there was almost a one-year delay in the bridge becoming ready, much of this due to lengthy compensation negotiations with the vendors in the Nwakakana Market on the north side, located where the bridge access road was designed to meet the existing urban road system. Other urban residents who had unofficially occupied land in the area were also compensated in the construction process — albeit with land in the town of Moamba some 60 km away. The government's intention for the bridge has always been to recover costs through tolls, and a toll gate is located on the Katembe side, operating since the bridge opened — tolls being relatively expensive, ranging from 160 to 1200 meticais (US$2.7 to $20 approximately at the time of opening). Criticism of the bridge has focused on the resettlement schemes, road costs and the high level of investment concentrated in Maputo, the capital, when many parts of the country lack paved roads and bridges. In reality, the bridge primarily serves the interests of property speculation, industrial capital and tourism, much more so than the majority of existing urban residents.

Another new large-scale urban infrastructure — and one with a greater impact for the majority of urban residents — is the Greater Maputo Ring Road ("Circular de Grande Maputo"), also part of the Chinese lend/build arrangement. The Ring Road consists of six sections, having a total length of 74 km. The first 6.3 km section departs from where the main road from the central city (*Cidade Cimento*) leads down to the coast and runs along the beachfront to Costa do Sol neighbourhood. The second section runs from Costa do Sol to a small town north of Maputo, Marracuene, in Maputo Province - a stretch of 19.8 km. The third (10.5 km) section is part of the ring road proper, running along the city's northern administrative boundary, starting from between the first section at Chiango and going to Zimpeto, where it connects to the main north-south road in the country, the EN1. The fourth is again a "spur" running north from Zimpeto to Marracuene (15.5 km); and the fifth section of the Ring Road is 16.2 km long and connects Zimpeto to Tchumene, through the northern part of Matola municipality, with a link on to the national road EN4 from the city to the South African border at Ressano

Garcia. The last section is again a spur, going from Machava junction on the national road EN4 to 16 de Junho Square where the new Katembe bridge approach roads begin (5.5 km). The Ring Road cost US$315 million, US$300m of which was funded by the EXIM Bank of China, with CRBC again carrying out the work. Four toll gates were eventually installed and now operate.

Fig. 2. The Maputo Ring Road in sections. Source: Deutsche Welle, Mozambique.

While the ring road (Fig. 2) improves access for the growing middle class, as the Katembe Bridge primarily likewise does, it also serves economic sectors such as industry and tourism, and various sections also open up new territory for general urban development and access by the wider urban population — most of these being in the north of Matola, Maputo's adjoining urban municipality. As evidenced in recent research (Melo and Jenkins, 2021), Matola municipality has earmarked the land surrounding the ring road for primarily middle-class occupation. Nevertheless, the road has also led to extensive expansion of the 'typical' unplanned residential land occupation, as can be seen below, which is accessed by a majority in the city.

The Google Earth images below (Figs. 3, 4 and 5) show the rapid occupation of land near the Zimpeto junction of the ring road with the main North road EN1 — the latter visible in the bottom right of the image. The darker area is the Infulene valley which separates the Maputo and Matola municipalities and contains some small farms, and the large initial occupation visible in the first image is the police training school. As can be seen, in 2009 the area was characterised by 'proto-urban' occupation — i.e. occupation with predominantly rural characteristics in terms of density and access, but housing urban residents. Five years later, in 2014, the ring road was under construction, with the bridge over the valley, and the urban density of occupation was already increasing due to better access. In another 4 years (2018)

urban occupation already existed across the whole area — of which by far the majority is "unplanned", or "unofficially planned".

Fig. 3. Source: Google Earth 2009.

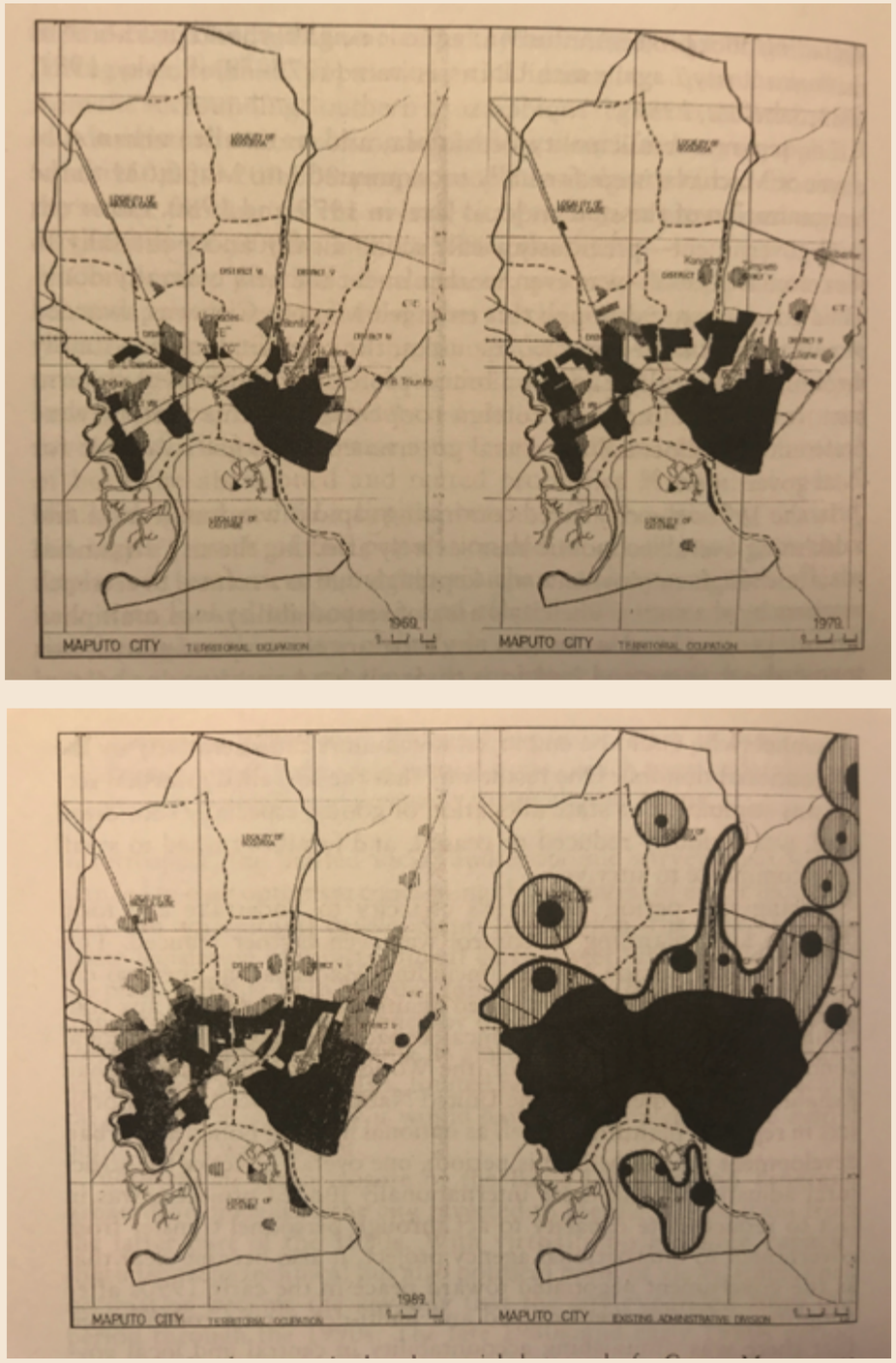
Fig. 4. Source: Google Earth 2014.

Fig. 5. Source: Google Earth 2018.

What can we learn from these case studies of urban infrastructure in Maputo, with regard to continuities and discontinuities in colonial and post-colonial landscapes?

Firstly, there is no escaping the impact of rapid population growth — now more from natural causes than due to in-migration. In 1989, the author

of this text (who was the urban planner for Maputo from 1980-85) projected the *de facto* city expansion for greater Maputo up to 1999 (i.e. for what is now the Maputo and Matola urban administrative areas), based on aerial photography from 1969, 1979 and 1989 - as can be seen below (Figs. 6 and 7). This, however, did not take into account the full nature of the (then) still increasing urban influx as a result of the civil war, which only ended in 1992.



Figs. 6 and 7. Urban occupation maps drawn by the author in 1989 based on available aerial photography.

Now of course, we have much the much more effective Google Earth coverage. The following images show the evolution of urban occupation (light coloured areas) over the 38-year period from 1988.

Fig. 8. 1988 — Maputo city expanding to the north. Source: Google Earth.

Fig. 9. 1992 — Maputo city still expanding northwards, Matola city also to the north, but also towards the southwest. Source: Google Earth.

Fig. 10. 1996 — Maputo expanding northwards beyond the city boundary, Matola also expanding now towards the northwest with the construction of the new EN4 road to South Africa. Source: Google Earth.

Fig. 11. 2000 — Maputo's northwards expansion reaching Marracuene, significant expansion along main north road EN1, Matola expansion consolidating to the north along EN4. Source: Google Earth.

Fig. 12. 2004 — Maputo northwards expansion consolidating, Matola northwards expansion accompanying it. Source: Google Earth.

Fig. 13. 2008 — most of north Maputo now occupied, Matola stretching further to the northwest. Source: Google Earth.

Fig. 14. 2012 — new ring road under construction opening up northern interior of Matola. Source: Google Earth.

Fig. 15. 2016 — Matola northwards expansion equal to that of Maputo, significant expansion from Matola towards southwest into provincial areas. Source: Google Earth.

Now in 2021, the land occupied with urban density and land use now completely takes up Maputo north of the central "Cement City" right up to the neighbouring town of Marracuene — and indeed, well past that. All of the administrative area of Matola is also now occupied, particularly facilitated to the north by the ring road, and urban occupation also spreads outside the Matola boundaries to the neighbouring town of Boane in the southwest. This conurbation is a *de facto* metropolitan area, although that local government status does not exist in law — or in terms of the actual practical liaisons between the municipalities and the surrounding province.

Based on the 2017 census data, the population of this greater Maputo metropolitan area is estimated at probably some three million inhabitants — up from two million in the previous census in 2007. The significant change in that period, however, occurred in Matola (which increased from around 600 000 to 1.6 million inhabitants), as well as the surrounding areas of Boane and Marracuene which both doubled in size. Accordingly, by 2017 only one third of the population in the metropolitan area was in Maputo municipality, where the number of inhabitants actually decreased by a small amount (mostly in the "Cement City", which accounted for

less than 7.5% of the city total, and indeed only represents 2.5% of the metropolitan area).[3]

Hence, as with all Sub-Saharan African urban areas, Maputo (and particularly the adjoining conurbation) has expanded extremely rapidly in the past 20 years. Urban planning unfortunately has always lagged behind the reality of urban growth — including in the colonial period, but even more so today. This is partly due to inadequate institutional capacity but is equally due to the nature of urban planning focussing on promoting utopian visions instead of working with empirical realities. This was clearly the case in the colonial period and has continued on in the post-colonial period.[4]

The first major post-Independence urban plans for Greater Maputo were in fact structure plans, not master plans — and were meant to be strategic and not necessarily detailed vis-à-vis future land use. The first was produced in the middle of the proto-socialist period[5] by the National Housing Directorate in 1984 and suggested two main strategies for guiding urban growth. One of these was based on new large-scale urban investment in infrastructure etc., dependent on inward funding at the time, as proposed by the Southern African Development Coordination Conference, SADCC (later Southern African Development Community, SADC). This was seen as possibly permitting an orderly development of the peri-urban areas of both Maputo and Matola (at the time these were one urban administrative area) — as shown in the diagram on the left below (Fig. 16). The alternative strategy was one based on much more limited urban investment and focused on more

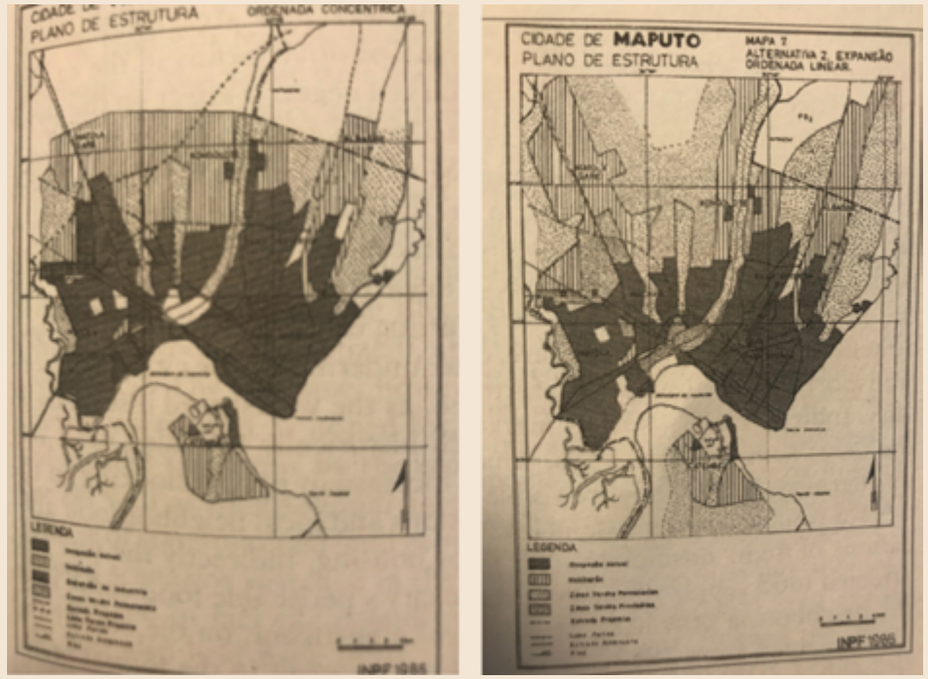


Fig. 16. Maputo Structure Plan 1984: proposed strategic options. Source: author's collection.

3. See Jenkins and Mottelsen, 2020 for a more detailed analysis on the city/metropolitan area population censuses.
4. See Jenkins (2013) for an analysis of pre-Independence urban plans and Melo and Jenkins (2019) for a review of urban planning.
5. The proto-socialist period lasted from 1975 to1990 approximately.

linear planned development along the existing road network, emphasising a high level of food self-sufficiency in parallel "green zones", recognising the fact that the city's future would not be based primarily on industry, as shown in the diagram below on the right.

The Structure Plan document also included a third "option": that of *laissez faire*, which meant unplanned development and was thus to be avoided. But this is what in fact took place, as no large scale industrial and urban infrastructure investment was forthcoming, and the "green zones" were in fact much more limited in terms of employment or food security provision than the planners estimated (which was only demonstrated in an empirical study in 1986 after the plan was drawn up). In general, this lack of political interest in urban issues at a central government level already had long roots and found expression in various ways (Jenkins, 2006), but mostly in neglect.

The existing colonial period urban infrastructure thus began to suffer increasing problems over time, which were accentuated by the impact of the civil war and massive inward influx into the city (and general urban areas nationwide, as mentioned above). Even the basic state-led land use planning which focused on planned residential occupation (i.e. the Maputo Basic Urban Development Programme 1981-87) was dismantled as land began to gain in commercial value, despite remaining nationalised after the 1992 Constitutional changes. This implicit conflict of interests became more acute when the new political settlement moved the central state towards a liberal economic/social democratic orientation, and housing became privatised again (previously, rental housing had been nationalised, as had land in the immediate post-Independence period). In this context, and with the "hollowing out" of the state due to structural adjustment, government land use planning became extremely limited and fragmented, and was associated primarily with emergency situations such as resettlement programmes, rather than any overall planned structure (Jenkins, 2001).

In 1988/89 the World Bank sponsored a new Structure Plan for the metropolitan area — despite the fact that neither the territorial area nor the planning process was defined legally or institutionally, and that the technical capacity for implementation was extremely limited. This was soon after the issuance of the new local government provisions, when Maputo and Matola were created as separate urban municipalities. The plan was, once again, extremely utopian in nature — albeit based on better data foundations, with significant empirical studies of the status quo and tendencies in land use and housing, environmental conditions and socio-economic structures. It was still utopian, however, in terms of its proposals, potential adoption and implementation, albeit less so in its vision for economic underpinning (as the 1984 structure had been for all of these aspects).

In addition to the constraints noted immediately above, by the late 1980s the illegal land market was in full operation — including municipal involvement (explicit and implicit); and the two (new) municipalities were not interested in collaborating with each other, even less so in engaging with a wider population vis-à-vis approval of urban plans. As a result, the 1998/9 metropolitan plan — like the 1984 one — was never approved. The image

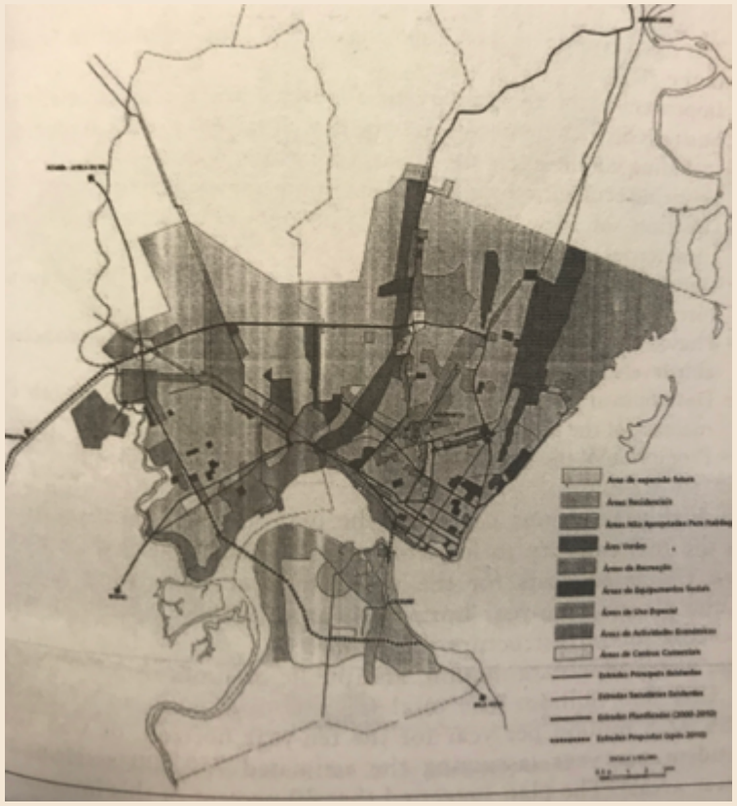


Fig. 17. Maputo Metropolitan Structure Plan proposal 1989: land use projection, also showing major new infrastructure (e.g. a bridge to Katembe). Author's collection.

above (Fig. 17) shows the plan's proposed land use — rather similar, albeit more detailed, to that proposed in 1984, with a ring road opening up the northern part of Matola territory. Also, after considerable political pressure and despite negative cost-benefit calculations, it also projected two options for a bridge to Katembe —one that was much more expensive and closer to central Maputo and an alternative upstream of the industrial port at Matola.

A further attempt at overall urban planning for the wider urban area was subsequently developed in 2008-9, this time by the Faculty of Architecture and Physical Planning at the state-funded Eduardo Mondlane University in Maputo. These were two master plans, one each for the municipalities of Maputo and Matola. Whilst they were called structure plans, they were in fact master plans which mainly projected a physical vision for future land use with some infrastructure proposals, and (for Maputo) also some social housing and proposals for sub-central areas. The image below shows the Maputo land use proposal, which terminated at the northern administrative boundary with the Marracuene district (where a major new ring road was proposed) — even though urban occupation had already surpassed that territorial boundary (as discussed above). A similar situation existed along the Matola boundaries, including the boundary with Maputo. The plans included limited coordination of land use proposals for the two municipalities but ignored the already growing metropolitan region (which had been the focus of the previous 1998 plan). In addition, there was little empirical analysis of social and economic conditions and quite unrealistic proposals vis-à-vis possible urban investment. Indeed, although there was some incremental state investment in

terms of a few upgraded roads, water supply and emergency drainage works, the main infrastructure investment forthcoming was not from the state, but came from the Chinese loans referred to above, as well as some private sector funding — the latter nearly always on a small-scale incremental basis.

Hence, once again, the city's urban plans were dominated by utopian visions of the future, and generally focused on proposed land use, albeit with some major infrastructure projections — although in the case of the 2008 Maputo plan (Fig. 18) there were some other social investment ideals, none of which have been realised to date. These latter plans are now well out of date, but the political economic stasis with regard to who should do the planning for what territories has as yet led to a stalemate in terms of revision and/or renewal. As a result, urban infrastructure investment is usually badly planned vis-à-vis strategic urban development and is often incremental and limited in scope.

Fig. 18. Maputo Structure Plan 2008 — land use proposal. Author's collection.

Apart from the continued weak empirical analytical base, unclear political and economic foundations, vague institutional, technical and administrative objectives — and despite there being (finally) a legislative base in place by the end of the first decade of the new millennium — none of these urban plans have realistically dealt with the vast population growth, the slow economic growth of the cities (especially the fiscal base for local government) and the widening social divides. They have set out utopian visions and ideals rather than working proposals based on actual empirical socio-economic and physical trends, and also ignored urban land *realpolitik*. Accordingly, they have had little influence in praxis — even when approved, as was ultimately the case with the last two plans.

The next section of the paper discusses the elements of continuity and discontinuity in urban infrastructure planning in relation to the colonial period.

CONTINUITY AND DISCONTINUITY

In terms of **continuity**, both a ring road and a bridge across Maputo Bay had already been discussed, and plans had even been in existence, since the late colonial period, when urban planning began to be undertaken with increased attention to urban realities — i.e. in the Master Plan ("Plano Director") published just before Independence. This was one of the last two urban plans for the city in the colonial period — which were the only ones developed with local input (although the 1970s plan was primarily the result of a private Portuguese consultancy). However, the nature of these two planned large-scale urban infrastructure investments (i.e. ring road and bridge) changed significantly in the post-colonial period — after a considerable passage of time. This included new locations, as well as increased costs and a much wider urban impact, as the city grew massively in the interim. Planning in the colonial period was not only carried out mostly in Portugal practically up until Independence, but also mainly for the benefit of the colonial population who represented a minority elite that was increasingly middle class. Accordingly, not only did these two new large-scale urban infrastructures represent continuities in terms of planning, but also in terms of their principal targeted benefit for the middle class.

As for **discontinuity**, while the political economic rationale and available funding for these large-scale urban infrastructure projects may not have been present previously, in both the late colonial and initial post-colonial period, the extremely rapid urban population growth in the past four decades did become a major driver for them — and they in turn now drive further physical urban expansion. There was thus some discontinuity in terms of realisation, but also major new 'players' in their final funding and implementation - including, in particular, investors from the global South. Whereas it was the state that (was) expected to fund major infrastructure in the colonial period (but lacked the capacity), in the more recent post-Independence period, China eventually took the lead in terms of large-scale urban infrastructure, via soft-loan financing for the state. However, other nation-states are now also making investments in Maputo, albeit mostly in individual, smaller-scale projects rather than city-wide. Another important continuity

factor, however, and the main message of this chapter, is the continued focus on 'hard' infrastructure at the expense of 'soft' infrastructure.

Herein the term 'hard infrastructure' is used to refer to the construction of urban roads, drainage and sanitation, water and power supply, whether 'bulk' or networked — and also public transport and the dominant built form. This is the 'normal' use of the term urban infrastructure, with the works all usually requiring considerably high initial financial investment; and such infrastructure also has multiple impacts, both economic and social. On the other hand, the term 'soft infrastructure' is used herein to refer to the necessary associated investment in maintenance capacity — but more importantly, the investment in institutional management. This term also refers to the wider social engagement and benefits from hard infrastructure — either in terms of planned impact or via engagement with management (including potential payment for benefit and thus re-investment). Here it is argued that, both in the colonial and whole post-colonial period, there has been continued severe under-investment in soft infrastructure as well as hard infrastructure.

Unpacking this argument, if we consider **urban architecture, housing and land development** in the *colonial period* as an example of hard infrastructure, Maputo underwent significant architectural investment and housing in the late 1960s as a result of changes in the political regime in Portugal. Prior to this, most formally approved architectural projects were designed in Portugal, but from the 1950s onwards, locally based architects (mostly of Portuguese origin) developed the Tropical Modernism style, and an active housing finance system was also developed. With reference to the development of urban land in the colonial period, as an example of soft infrastructure, most land use planning was also undertaken in Portugal, until the creation in the late 1960s of a local Office for Urbanisation and Housing for the City Region. Also, it was not until the late 1960s that the provision of urban land for lower income groups became a focus for the state, albeit more systematically in the municipality of Matola than in Maputo (then Lourenço Marques). Prior to this, the state predominantly supported residential provision for the colonial population — as did the financial sector, focusing on the middle classes. It was thus only in the late colonial period that significant urban investment in architecture, urban housing and land began to be realised — predominantly led by the private sector and focused on the middle class, albeit with some limited state investment in land use planning of residential areas and basic urban infrastructure of benefit to the wider urban population.

Looking comparatively at *the immediate post-colonial period*, vis-à-vis **urban architecture, housing and land development**, with a proto-socialist government nationalising land and a significant part of the urban housing stock, as well as widespread abandonment of the existing construction industry as the colonial population fled, there was limited investment in urban physical development. However, there was some state investment in completing unfinished buildings as well as a few new keynote buildings (generally implemented with external assistance). There was also some influence from foreign socialist regimes in new state building programmes for education and health — though much less so in housing. As far as urban land in the immediate post-colonial period is concerned, although innovative

land use planning activities were experimented with mainly in Maputo (Melo and Jenkins, 2019), in general at the national level the state had little interest in urban management. However, in Maputo the executive city council began an urban land development programme in the early 1980s, and after 1984 some support for self-managed housing construction also became part of the central government political agenda, although the resources made available were much too limited in the face of the fast-rising demand. Accordingly, in the immediate post-colonial period there was a certain amount of discontinuity with the colonial period, with wider commitment to social objectives in urban infrastructure, including some soft infrastructure activity, however, this was severely curtailed by limited political interest and state investment (Jenkins, 1990).

Going on to look again comparatively at **urban architecture, housing and land development** in the *more recent post-colonial period,* after the 1992 constitutional changes, new private sector investment in the built form began to emerge in the new millennium. This now also came from the global South, including many medium/large-scale investments in offices in the central city, as well as extensive middle-class housing. This essentially led to the re-commencement of the late 1960s property *boom*, with many speculative buildings, but also significant new state investment in government buildings. There was also a widespread surge of individual investment in housing provision/improvement for many, other than the relatively small middle class. With regard to urban land in the more recent post-colonial period, thanks to decentralisation, municipalities now have the responsibility for urban land planning and development — and recent research shows this has come to focus on providing for the emerging middle class (Melo and Jenkins, 2021). The main issue, however, is the very rapid expansion of urban land use beyond city boundaries as shown above — with extremely limited capacity in the municipalities (and especially neighbouring municipalities/district authorities) for land management. The result is continued rapid expansion of self-managed housing construction in many unplanned areas — especially where there is some form of road access. Indeed, in the more recent post-colonial period, the state seems to have reduced its initial post-colonial commitment to wider social objectives in urban soft infrastructure for the majority and has reverted to a role of supporting a privileged elite and new middle class (Melo and Jenkins, op. cit.).

The core argument here is that the continued lack of investment in institutional capacity, and projected continued rapid urban growth, means there is an ever more urgent need to invest in soft infrastructure, and also to better understand and work with social engagement as a key factor in this, including interaction/coordination with future hard infrastructure investment. Hard infrastructure is still, of course, needed in the city — but what type of infrastructure and how this is to be paid for, are important questions that do not seem to be considered. The difference between the Maputo Ring Road (benefitting many but difficult to apply the proposed tolls due to multiple access points) and the Katembe Bridge (benefitting a relative minority, but easy to apply tolls) are clear examples of this conundrum.

Why is investment in soft infrastructure important? In reality, much

of the planned and implemented hard infrastructure is not backed up with adequate on-going management capacity. A key example is the 1980s Maputo main surface rainwater drainage and sewage systems (funded, designed and built by the Dutch). Most urban infrastructure will be expensive to maintain (as is the case of the urban drainage system, which has fallen into serious neglect). Meanwhile, with limited social engagement in these projects, the construction of secondary infrastructure in the fast-growing peri-urban neighbourhoods lags far behind the rising demand — as predominantly large-scale projects get preferential funding by the central government, given that municipalities have limited self-financing options.

Widening the look at hard infrastructure, a very brief assessment of contemporary supply shows the following:

- Main connector roads: some locally paved roads have been provided in Maputo, but only a few in Matola — even less elsewhere in the metropolitan area;
- Major rainwater drainage: this is mostly non-existent, giving rise to severe erosion/health issues;
- Sanitation: this is generally still on-site (and challenged by limited water supply) across the dominant "peri-urban" area — and is still deficient in the city centre;
- Bulk water supply: this has faced competition with large industrial/agricultural needs in the city region, and has led to more expensive solutions (with a new main supply line now being built from Corumana Dam near the South African border, some 120 km away);
- Bulk electricity/gas supply: new large-scale provision is also underway — and pre-paid electricity and bottled gas are now ubiquitous in the wider urban area;
- Public lighting: this is quite limited in scope and vulnerable to theft and poor maintenance;
- Public transport: this is widespread, where carried out by private bus/minibus, with some limited (highly subsidised) train travel, and plans for a new Bus Rapid Transport system are currently on hold;
- Cell phone coverage and satellite TV: these are also now ubiquitous. However, fibre optic cable is still limited in scope.

Looking at future supply options, and the role of soft infrastructure:

- It is the private sector (firms and individuals) that are the most successful providers of hard infrastructure, with the exception of some bulk supply; but this situation exacerbates social differentiation through pricing, does not provide for wider public utility (especially roads, drainage and public lighting), and also does not deal with 'downstream' issues — e.g. erosion/flooding problems;
- Water, drainage, sanitation supply — this is still often individual, including some wider area provision (e.g. small private water supply systems from boreholes in the peri-urban areas). But it can be provided through managed local networks, following such

experiences in the approach to public transport provision;
- There are limited links between central state-supported/private sector providers and city management — or between these entities and the wider population (e.g. on defining priority of needs, pricing options, etc). An example of this disjuncture is that pre-paid electricity includes a refuse charge city-wide but most peri-urban areas (where in fact the majority live, as shown above) have limited, if any, waste collection;
- Arguably, refining the state's role in hard infrastructure management is the key issue — to one of strategic direction and guidance, but also in understanding social needs and effective demand.

Here it is posited that the legacy of the colonial period, and more recent post-colonial periods, is a tendency not to investigate social needs, effective demand and social roles in guiding the management objectives of state and private sector supply, but to focus on top-down large-scale solutions, with extremely limited investment in on-going management/maintenance capacity. In other words, the tendency is to invest in "hard infrastructure" with no comparable investment in "soft infrastructure", and hence poor targeting and limited cost recovery (not to mention maintenance). The key challenge in urban infrastructure provision is to supply supportive hard infrastructure for the majority of urban residents — and for Maputo this means especially those >90% who live in the rapidly expanding metropolitan peri-urban areas. This lack of management results in inefficiencies: duplicated individual supply, inefficiencies such as road and parking congestion, communal problems such as erosion etc. — even for those areas where there is a strong speculative dynamic driven by the private sector in well-located areas (e.g. central city Maputo, along the coastline, near main access roads and so on). Apart from these areas, there is also a strong spatial expansionary dynamic driven by the growing middle class — in well-located peri-urban areas — again driven by (individual) demand, but also supported to some extent by state action (e.g. land supply). With regard to soft infrastructure, municipalities (especially the new smaller ones) have extremely limited land use planning capacity — and the larger ones are also challenged in terms of capacity; environmental issues are rarely fully considered in urban planning (for land, infrastructure and/or built form); and the vast majority of urban residents thus continue to provide their own architecture and urban form.

The basic thrust of the argument here is that the opportunity exists for the state — especially at the municipal level — to engage more with citizens and communities, so as to better understand effective demand and thus guide the supply (and eventually maintenance) of much needed hard infrastructure, based on investment in soft infrastructure systems. Some examples of this approach, where local state engagement with citizens and communities were experimented with in the proto-socialist period, and even more recently (but at a smaller scale), are examined in Melo and Jenkins (2019). However, although the need for this type of approach remains, the dynamics have changed from the immediate post-colonial period. What is key is the identification of primary social needs, investigation of effective demand and the

subsequent prioritisation of urban infrastructure investment in state budgets — and alignment of this with private sector interests — which should be a key municipal role (including engaging in effective public private partnerships). However, to date, the municipalities have had limited political power, even in the capital city Maputo (as noted above). It is clear that — given the vast and increasingly rapid urban expansion discussed at the beginning of the chapter — the state (at central, provincial and/or local levels) will be unable to keep up with *de facto* urban land use planning and control, or popular housing provision for the foreseeable future, so the government needs to accept that it cannot control the wider urban dynamic, but it can invest in ways to guide this dynamism.

IN CONCLUSION

While some discontinuity is manifested between colonial and post-colonial investment in hard infrastructure — as described above for architecture, urban land and housing — there has in fact been considerable continuity, particularly in more recent years, and this is now once again exacerbating socio-economic differentiation. The discontinuities of the immediate post-colonial period — especially in relation to soft infrastructure and related gains in social urban objectives (such as widespread residential land provision for the poor majority) — now stand to be forgotten about in the current situation, instead of forming the basis for a more participatory form of urban management to the benefit of the majority.

Essentially therefore, this text would argue that what is often seen as an urban problem — i.e. 'uncontrolled' urban expansion and densification — could in fact be the basis for the solution to the vast urban growth that will continue for decades. Indeed, the rapid expansion and densification process is based on socio-cultural values and effective demand, as well as the intersection of these with local level realpolitik interests — none of which, however, are typically considered relevant for contemporary urban planning (Jenkins, 2013). By engaging with these dominant forces, and guiding them, the limitations of state capacity could be mitigated to mutual benefit. However, for this to happen, urban investment needs to focus not only on the state and private sector interests, but on 'win-win' goals and engagement between the state and the wider population in urban areas such as the Maputo metropolitan area. This would require a paradigm shift in professional approaches, as well as a change in the political stance towards more decentralisation, i.e. a deflection from planning an 'ideal' urban environment to working to improve the 'real' urban environment.

Finally — and to revisit the recent large-scale urban infrastructure investments of Katembe Bridge and Maputo Ring Road — what is currently happening? Over a year ago it was announced that the bridge maintenance would cost some US$1.2 million per year — and that this would not necessarily be covered by tolls. This problem was highlighted when soon after the bridge opening thieves stole essential lighting cables and plunged it into darkness (December 2018). Road and bridge tolls were subsequently quietly increased between 25 and 400% and the Maputo South Development Company also then announced it had no power to grant toll rebates to existing

Katembe residents, many of whom continue to use the inefficient ferry boat. Construction of toll gates on the ring road only commenced in March 2021 and were not complete be end January 2022 — despite promises in February 2019 that the work was to begin the following month. In fact, in early 2021 the government was still awaiting finalisation of a public tender for management and toll collection launched in October 2018, just before the bridge was to open. The toll gates were expected to operate from February 2022, and started soon after, but there was immediate resistance as alternative non-toll routes are not available or upgraded.

The Maputo-Sul Development company was subsequently closed in February 2019, with a state-guaranteed debt of US$630 million.[6] Following the closure, in March 2019 the Minister of Public Works, Housing and Water Resources announced that management of the ring road became the responsibility of the National Road Administration (ANE) and the Roads Fund. The new managers of the Maputo Ring Road were instructed to quickly solve maintenance issues, but little, if anything, was done, however. Then in November 2019 the Minister announced that the coastal protection on the first sections of the ring road (see above) — which was significantly damaged in October that year by rain and high tides — was to be repaired by the company that was to win the concession to charge tolls on the Mozambican capital's ring road. The final part of the ring road — its junction with the EN4 to South Africa — was only completed by CRBC at the start of 2022 , despite promises in May 2019 that this would be finished within six months.

Only in mid-December 2019 was the winning concession announced for maintenance and tolls collection for the Maputo-Katembe Bridge and the ring road (and also the EN6, from Beira to Machipanda in the Zimbabwe corridor).[7] The Council of Ministers awarded the contract to a new company called REVIMO (Rede Viária de Moçambique), which was set up in September 2018 and registered with the Ministry of Economy and Finance. As a new company, however, it has no known record of construction or management of any infrastructure, and its owners are not known — as a corporation, they are 'protected' by the Commercial Code. All that is known is that the company assets of MT 660 000 000.00 (around US$11 million), is made up of 66 000 shares, with a face value of some US$165 each. The contract includes managing the Katembe bridge, the Maputo Ring Road and the Beira-Machipanda EN6 road.

Whether this private sector operation of state investment in large-scale infrastructure will be successful remains to be seen, but it follows the trend started by the building of the EN4 road from Maputo to the Witwatersrand in South Africa. In the end, these large-scale centrally approved investments in hard infrastructure will significantly change the structure of the urban areas they serve — but how successfully remains to be seen. Some may well

6. This was the highest state-guaranteed debt revealed in the government's budget published in March 2020 – higher than that of the state electricity company and state water company (state-guaranteed debts of $474 m and $275 m respectively) — and much of the road & bridge debt might never be repaid according to government sources.
7. This road was also recently rehabilitated at a cost of US$410 million, again funded by EXIM Bank with some input from the Government of Mozambique. The works were carried out by a Chinese company, Anhui Foreign Economic Construction (Group) Co., Ltd.

be widely socially and economically beneficial, and others not — however the expense involved at the investment level inevitably reduces the capacity to invest in other much-needed secondary infrastructure, the priority for which could have been highlighted if the wider socioeconomic interests of the population were assessed. As such, and as argued herein, the trend towards top-down planning of large-scale infrastructure projects reveals a strong continuity of the trend established before Independence and ignores the more socially oriented approaches of the immediate postcolonial period. This all reflects the continued utopian vision of the government with regard to what form of urban development is to be supported — and evidently this is not that which the majority of the population are actually busy producing.

To be (dis)continued……

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COLONIAL PUBLIC WORKS ARCHIVES: SOURCES OF QUESTIONING AND CREATIVITY

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[ABSTRACT]
Keeping colonial Public Works archives is something that concerns all countries and communities affected, in different ways, by the pre-Independence planning of infrastructures. They can be important not only for Portugal or other European colonisers as, when duly questioned, they provide information that generally goes beyond the architectural and engineering projects and building, looking at the local population's ways of living and, often, changes enforced from above.
To better understand and use them, no matter what the purpose, much archival work had to be carried out in advance. Understanding how the Portuguese colonial administration in terms of Public Works, which were conceived in Lisbon, was set up, changed and then continued, namely in the 19th and 20th century, constituted a mandatory tool for this work.
The identification of the archives created by this administration and of the corresponding various groups of records is presented herein, as well as the methodologies followed during the archival processing of those records not yet available to researchers and the general public.
An overview of their information content is also provided, allowing for diverse appropriations.

KEYWORDS: Archives; Colonial Administration; Public Works; Portugal

I. WHY KEEP COLONIAL PUBLIC WORKS ARCHIVES?

Our daily life is widely shaped by the buildings we live and work in, the means of transport and communications, school and health facilities, and the leisure areas to which we may, or may not, have access. Revisiting past experiences in a critical way, colonial experiences included, may benefit the design and the realisation of contemporary architectural and urban interventions in different territories. Thus, the architectural archives of the Portuguese overseas administration and its public works, may reveal potential instruments for the technical and scientific knowledge production and for the support of decision-making today. Whilst, on the one hand, they may reflect the harsh discriminatory realities experienced by the native populations, in their diverse forms in time and space, on the other hand, they reflect the work, or even art and professional mastery, of mainly engineers and architects, but also designers, locksmiths, masons or plasterers. At the same time, by recording information on communitarian traditions and habits, and on buildings, such archives can contribute, in accordance with the peoples' free will, to the shaping and plasticity of their collective identities. They are also an educational and cultural resource that can be used in many different ways, as was the case in 2019 for the *Arquivo Histórico Ultramarino* (AHU) when the exhibition "Colonising Africa: Reports on Colonial Public Works in Angola and Mozambique (1875-1975)", the parallel talk sessions and the children's workshop were organised within the framework of the "Coast to Coast" project funded by the FCT.

II. OVERVIEW OF THE PORTUGUESE OVERSEAS ADMINISTRATION OF PUBLIC WORKS

Before the Portuguese colonies in Africa gained independence, focusing in particular only on the period from the 1930s to 1974–75, Public Works were coordinated by several, more specialised overseas administration departments (chiefly those under central, but also provincial and municipal administration) (Godinho, 2011).[1]

The administrative specialisation had begun in the second half of the 19th century and had to do with the development of infrastructures in the African Portuguese colonies focused on the railways, namely in Angola and Mozambique (Navarro, 2018; Pereira, 2018). The context of the new European multipolar system in Africa, which became particularly evident in the 80's and 90's of that century, together with various internal factors, led Portugal to carry out a technical and scientific project of reconnaissance and occupation of the colonial territories,[2] supported by the military (Alexandre, 1998), that continued on into the second decade of the 20th century (Teix-

1. Godinho is essential for understanding the Portuguese colonial administration of Public Works from ca. 1930 to 1974–1975. See also the archival database of the AHU, *Obras Públicas* [Public Works], History and Publication Notes at https://digitarq.ahu.arquivos.pt/details?id=1119732
2. See the finding aid for the records of the *Comissão de Cartografia* [Map-making Commission] (1883–1936) held by the AHU, at the ACTD digital repository https://actd.iict.pt/eserv/actd:AHUMUd001/AHU_MU_ComissaoCartografia_1883-1936.pdf

eira, 1998).[3] Successive legislation issued from 1859 to 1936, organizing the central administration of colonial Public Works (Navarro, 2018: 34–67),[4] as well as the records created by the corresponding services throughout this period, can now serve as sources for crossed indicators of this diverse specialisation.

Previously, i.e. between the mid-17th century and 1833–1834, Public Works in the colonies (relating to, for instance, the building of fortress, churches, customhouses, ports or roads) were administered together with a variety of other matters by the *Conselho Ultramarino* [Overseas Council] and, from the mid-18th century onwards, also by the *Secretaria de Estado dos Negócios da Marinha e do Utramar* [Secretariat of State for Navy and Overseas Affairs].[5]

Already within the *Ministério das Colónias* [Ministry for the Colonies] in Lisbon, there existed departments such as the *Direção Geral de Fomento Colonial* [Directorate-General for Colonial Development], which was set up in 1936. In this multi-departmental State Agency, the *Gabinete de Urbanização Colonial* [Colonial Planning Office or GUC] carried out significant work on the urban development of settlement nuclei, between 1944 and 1957, having started in Africa and quickly spreading to the Portuguese State of India (for a brief period, due to the incorporation of these territories into India in December 1961), Macao and Timor. Parallel to this work, and even for some time afterwards, specific temporary missions and technical brigades (specialising in hydroelectric power, hydrographical research, settlements, amongst other things), carried on their technical functions of studying, projecting and building (for instance, roads, railways, fluvial and maritime communication facilities). Supervision of military buildings was under its remit, as part of the *Direção Geral Militar das Colónias* [Military Directorate-General for the Colonies], and then carried over to the Ministério da Guerra [Ministry of War] in 1949.

In 1957/1958, the *Direção Geral das Obras Públicas e Comunicações* (Directorate-General of Public Works and Communications or DGOPC) took over the orientation and executive functions on public works, transports and communications, through a number of agencies, such as the *Direção de Serviços de Urbanismo e Habitação* [Directorate for Urbanism and Housing Services], *Direção de Serviços de Pontes e Estruturas* [Directorate for Bridge and Structure Services], *Direção de Serviços Hidraulicos* [Directorate for Hydraulic Services], and the *Direção de Serviços de Transportes Terrestres* [Directorate for Land Transport Services], departments such as the *Repartição de Serviços Elétricos* [Electrical Services Department] and the *Repartição dos Correios, Telégrafos e Telefones* [Post, Telegraphs and Telegrams Department], and a Technical Documentation Services, in addition to a Supervisory Board. Up until 1974, the DGOPC essentially kept its internal organisation and assignments, despite a few changes carried out in 1967 in relation to the organic structure of the *Ministério do Ultramar* [Ministry for Overseas Affairs]. The *Direção Geral de Economia [Directorate-General for Economics]*, also founded in 1957, which took over other assignments from the Directorate-General for Colonial Development and served in areas of activity that were closely linked to public works, such as geology and mines; the latter area became autonomous in 1970 when the *Inspeção Geral de Minas* [Inspectorate-General for Mines] was set up.

Other advisory and supervisory departments of this Ministry produced statements and information on overseas public works, such as the *Conselho Técnico do Fomento Ultramarino* [Technical Council for Overseas Development] and the *Inspeção Superior da Administração Ultramarina* [Higher Inspectorate for Overseas Administration], the latter producing reports on buildings and other works observed and photographed, some of which were carried out by local initiative. Given the supervisory goal and the confidential nature of the reports, the adopted solutions, with regard to materials, installation, costs and even dimensions, were sometimes analysed in-depth. These reports ushered in a different approach to territories, cities and rural areas, along with the ways people inhabited them, something that was also influenced by the government policies, both in terms of placement and settlement and even "resettlement/rearrangement" of the local populations, which were confined to controlled spaces during the Colonial War, in Angola (Wheeler, 1969: 433), Guinea and Mozambique (Curto; Cruz, 2015).

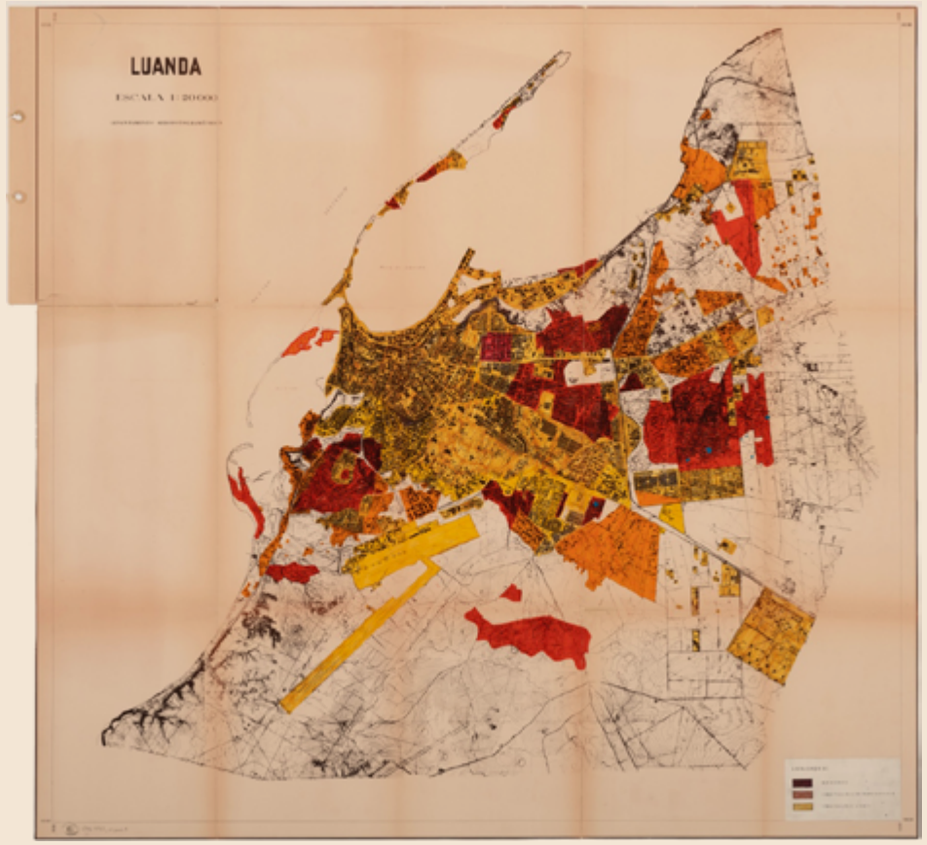

Fig. 1. Plan of Luanda, 1972. Red: musseques (slums); orange: illegal constructions; yellow, legal constructions. Source: PT/AHU/MU/DGOPC/DSUH–IPAD4962.

3. See also, for instance, the finding aids for the archives of the Portuguese military expeditions to Angola and Mozambique during the Great War of 1914-198 held by the AHU, at the ACTD digital repository https://actd.iict.pt/eserv/actd:AHUMUd002/AHU_MU_DGM_ExpedicoesMilitaresIGuerra.pdf
4. Navarro is key to understanding the Portuguese colonial administration of Public Works during this period. See also the archival database of the AHU, *Obras Públicas* [Public Works], History and Publication Notes at https://digitarq.ahu.arquivos.pt/details?id=1119732
5. See the finding aid *Conselho Ultramarino* [Overseas Council] in the archival database of the AHU at https://digitarq.ahu.arquivos.pt/details?id=1119329

Moreover, certain grand achievements made possible the creation of specific units, thus resulting in a reorganisation and intensification of previous activities. For example, in Angola, the *Gabinete do Plano do Cunene* [The Cunene Plan Office] which was set up in 1969, with branch office in Sá da Bandeira/Lubango, for the management of water resources in the Cunene and the Cuvelai river basins; or in Mozambique, the *Gabinete do Plano do Zambeze* [The Zambezi Plan Office], set up in 1970, with a branch office in Lourenço Marques/Maputo and in Tete, for the building of the Cahora Bassa dam.

In the 1930s in the colonies, which were later referred to in Portugal as overseas provinces, mainly Angola and Mozambique, there were already public works services being carried out by central departments, which later became *direções de serviço* [Service Directorates] and later still, in the 1950s, *direções de serviço provinciais* [Provincial Service Directorates]. The municipalities also played a changing role in this area, depending on the connections with the central overseas administration. The municipalities of Luanda and Lourenço Marques/Maputo, for instance, had their own urban development offices.

In both these cities, in addition to the central services of the Ministry for Overseas Affairs, general government departments also operated. These were aimed at safeguarding, what was considered to historic, archaeological and artistic heritage, something they achieved to varying degrees: in Angola, from 1922 onwards, the *Comissão dos Monumentos Provinciais* [Provincial Monuments Commission], which was replaced in 1942 by the *Comissão dos Monumentos Nacionais* [National Monuments Commission]; and in Mozambique, in 1943, the *Comissão dos Monumentos e Relíquias Históricas* [Historic Monuments and Relics Commission], which, curiously enough, functioned as part of the *Repartição Técnica de Estatística – Arquivo Histórico de Moçambique* [Technical Statistics Department – Mozambican Historical Archives].

Much of the public works activity and some of the heritage recording and preservation were documented photographically, not only by these departments' own teams, but also by the *Agência Geral do Ultramar* [General Agency for Overseas], as well as by their *Centros de Informação e Turismo* [Information and Tourism Centres] in the various colonies, also as a way of justifying Portuguese sovereignty.[6] Furthermore, aerial photography was a resource used in the preparation of public works by the services of the Ministry for Overseas Affairs.

III. PROCESSING FOR ACCESS AND RESEARCH

All these departments and services continued to produce documents and archives of varying complexity, both in Lisbon and in the so-called Overseas Territories or colonies. Today, the *Arquivo Histórico Ultramarino* [Overseas Historical Archives] contains most of the archives of the aforementioned Ministry for Overseas Affairs departments in charge of Public Works, which was based in Lisbon.

6. See *Agência Geral do Ultramar* [General Agency for Overseas] at https://digitarq.ahu.arquivos.pt/details?id=1119350

In 2013 and 2014 the Overseas Historical Archives or AHU received 507 linear metres of documents from that ministry which had been kept in the Archive of the *Instituto Português de Apoio ao Desenvolvimento* [Portuguese Institute of Development Support], nowadays Camões, ICL. The finding aid for almost all this documentation, which covers a part of the records of the DGOPC, was provided in the context of the project Archives Inventory of the Ministry for Overseas Affairs, funded by the Calouste Gulbenkian Foundation, and it is available online.[7] There is another finding aid on these records of the same Directorate-General but specifically related to Timor.[8] There is also a separate finding aid for the records of the *Zambezi Plan Office*, relating to the dam at Cahora Bassa in Mozambique.[9]

The other part of the records of the DGOPC and its services (c. 1930–1975), as well as the bulk of the Public Works records (mid-19th century to the 1930s), has been systematically described in projects funded by the Foundation for Science and Technology. As research projects, they required prior archival processing and also benefited from knowledge exchange. That was the case for an earlier project, "Colonial Planning Offices: Architectural Culture and Practice",[10] and, with some peculiarities, also the most recent one: "Coast to Coast — Late Portuguese Infrastructural Development in Continental Africa (Angola and Mozambique): Critical and Historical Analysis and Postcolonial Assessment".[11]

In the former project, the archival option of processing Public Works and Communications documentation and the central department archives of the *Ministry for Overseas Affairs in general*, and not exclusively related to Architecture or restricted to the Colonial/Overseas Planning Office, was, first and foremost, due to the lack of knowledge on the history of said archives: on the consecutive rearrangements of the records, the succession, integration, separation, complementarity and sharing of archives from those departments more directly connected with public works, which were insufficiently studied, even in terms of their legal framework. The preliminary recognition of the documentation, having started before the project and deepened later, confirmed the idea that a global description was necessary, since there were records from different Public Works departments gathered in the same container. Therefore its intellectual aggregation was only possible at the end. Besides, the files held by the Colonial/Overseas Planning Office (and later on by the Directorate for Urbanism and Housing Services) were

7. See http://arquivos.ministerioultramar.holos.pt/source/presentation/conteudo.php?id=MU/DGOPC&tipo=2
8. Inventário de Timor / coordenação de Júlia Costa. Lisboa: Instituto Português de Apoio ao Desenvolvimento, Centro de Documentação e Informação, 2003, mainly pp. 18-97. It is previewed that it will be online at the site of the AHU, till the end of 2020
9. Inventário de Cahora Bassa / coord. Júlia Costa; elabor. [de] Luísa Borges Medeiros, [et al.]. Lisboa: Instituto Português de Apoio ao Desenvolvimento, Centro de Documentação e Informação, 2005. It is previewed that it will be online at the site of the AHU, in the beginning of 2021.
10. Added to the AHU parallel smaller partnership in the Project "EWV – Crossed viewpoints of the Worlds: modern architecture in Portuguese speaking Africa (1943-1974)", led by the Instituto Superior Técnico.
11. Both were proposed by the DINÂMIA'CET/ISCTE-IUL, Ana Vaz Milheiro, Head Researcher, with the AHU strong participation (belonging then to the Institute for Tropical Scientific Research (IICT) and, from august 2015 onward, to the National Archives of Portugal (DGLAB)). The partnership with the Sistema de Informação do Património Arquitetónico of the Instituto de Habitação e Reabilitação Urbana (IHRU) was significant in the first project.

originally organised in the archives by subject and ordered by number of file, with no respect for the colony to which they related (Godinho, 2011: 31–35). To some extent, this archival arrangement is indicative of attempt at the global governance of these overseas colonies from Lisbon, for which the fact that specialised human resources were few and far between was also a conditioning factor.

During a period of 22 months, 250 meters of documents were cleaned, placed in boxes, stored and described in spreadsheets by four archivists,[12] who were supervised by the coordinators.[13] The description part was undertaken at various levels, taking into account the needs for research of the project and the kind of requests of the users at the AHU/Overseas Historical Archives, as well as the management demands required by the collection: more often for aggregation of records files or parts of files, and less for a record or item.

As for the selection of elements for the description that were compatible with the General International Standard Archival Description, those taken into account were chosen in a general way, e.g. title, contents and dates. Alongside a brief evaluation of their state of conservation, other information was also included, such as the collective and individual authors of the projects, the studies and the reports, a systematic geographical indexation (mostly in accordance with the colony/country), and the counting of the drawings (47 800) and photographs (14 700). A specific description was selectively carried out, mainly for the original architectural drawings, resulting in 4 409 records. The textual records gave rise to 14 565 descriptions, making a total number of 18 974 descriptions.

The archival methodology followed in the "Coast to Coast" project for 24 months, by one archivist,[14] was similar. However, the Public Works records from the mid-19th century to ca. 1930 were often placed together with documents on other subject matters. This most likely happened because the colonial Public Works were governed, mainly in this period, along with other matters by the same service, which led to their being kept in the same archive and frequently in the same container. The criteria for the selection of the documents to be described were based, on the one hand, on the incomplete and sometimes inaccurate information on the archival contents provided by out-of-date repository guides. They were also based on the initial scarce knowledge on the institutional history of the departments, its functions and responsibilities in relation to colonial Public Works and about the history of their archives during the mentioned period. All this rendered more difficult the archival record selection, but the AHU had to take the risk.

Accordingly, it seemed more cautious to adopt as a systematic procedure the maintenance of the document order, so as not to harm any future data processing, including of records on matters other than architectural or engineering. The archival description was carried out in accordance with the current international standards and Portuguese guidelines, though

12. Catarina Cândido, Catarina Serafim, Lígia Ferreira e Patrícia Cordeiro, FCT research fellowships.
13. Ana Canas D. M. and Maria Manuela Portugal, AHU.
14. Sónia Henrique, FCT research fellowship, coordinated by Ana Canas D. M. and Manuela Portugal, AHU.

considering new search behaviours is currently being debated. Around 4 060 descriptions were made, and 5 320 drawings and 838 photographs counted.

It is worthwhile pointing out the geographic spread in the documentation processed throughout both projects, which all dated from the mid19th century to 1975: Mozambique, 23.6%; Angola, 21.35%; Cape Verde, 13.35%; Sao Tomé and Príncipe, 7.8%; India, 7.6%; Guinea (currently Guinea-Bissau), 6.5%; Macao, 5.35%; and Timor, 3.65%. The remaining 10.8% have to do either with various colonies/countries at once, originally marked as "Ultramar" (Overseas), with other countries, such as South Africa, or, for a small number, no other indexation was carried out. When one compares the records dated before the 1930s to those from the mid-1930s to 1975, Mozambique, Angola and the former Portuguese Guinea grew in importance, suggesting stronger investment there in the area of Public Works.[15]

IV. INSIDE THE COLONIAL PUBLIC WORKS RECORDS

A significant variety of documents was created in the context of the colonial Public Woks administration: field notebooks, demographic surveys, soil samples, architectural and engineering projects, technical specifications, drawings, measurements, estimates, studies, reports, technical advice, correspondence (letters, official letters, telegrams), photo reports, press clippings, some manuscripts and printed cartography, personal files, budgets, tender files for architectural and engineering projects and equipment supplies, item catalogues, minutes, statistic data, bookkeeping documents, and others. They deal with preliminary and final design projects, including type designs of buildings and infrastructures, which were either built or to be built or even no longer existed, as the interdisciplinary research was able to confirm. But today, they still are sources of knowledge for working with. As for those infrastructures that served as means of communication and transport, or hydrographical infrastructures, several documents contain information involving neighbouring spaces of the former Portuguese colonies.

The subjects are diverse. In different proportions, some references are identified, e.g. authors of designs, principles and intervention strategies, housing architecture, mainly for public servants and the "indigenous" population, and including neighbourhoods and villages, banks, trade associations, prisons, school buildings (nurseries, primary, technical and rural schools, high schools, colleges and campuses), as well as sporting facilities, post offices, town and city halls, governmental palaces, administration premises, military and religious buildings (churches, residences, schools), radio stations, hotels, monuments, health and cultural facilities, such as cinemas, theatres and museums, livestock premises, captaincy buildings, lighthouses, railways, roads, bridges and waterfronts, airports, harbours, customs, dams, labour, materials and construction costs. There are also references to studies on the effects of waves, erosion, soils and subsoil, on relocation, electrification systems, groundwater abstraction, water supplying and sanitation.

15. Mozambique increased from 19.20% to 28%; Angola from 17.70% to 25% and Guinea from 3% to 10%.

V. MAKING THE HERITAGE ALIVE

This common archival heritage to several countries and regions, with varying degrees of belonging to Portuguese culture and where the African colonies/countries (72.6%) are the majority, is complemented with the records of the public services in the colonies, the majority of which remained in the independent territories. There, as in Portugal, though in different circumstances, efforts to preserve and make use of this heritage keep on going. The current re-appropriations of this heritage and the knowledge obtained thereafter are now much more closely related. In order to enlarge and renew use of the archival records, other projects, partnerships and funding programmes are welcome.

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A KEY TO PORTUGUESE COLONIAL PUBLIC WORKS RECORDS: THE CORRESPONDENCE COPYBOOKS OF THE DIRECTORATE-GENERAL FOR OVERSEAS AFFAIRS, 1880-1910

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[ABSTRACT]

This paper aims to contribute to the existing research on historical information systems. The institutional history of the Directorate-General for Overseas Affairs, that was traced during the course in Historical Archival Science at Lisbon's NOVA University (*Universidade Nova de Lisboa*), along with the archival management undertaken in the research project 'Coast to Coast' at the Overseas Historical Archives (*Arquivo Histórico Ultramarino*), formed the necessary link to study the Portuguese Colonial Public Works archival records. Through the characterisation of the Public Works Department by the Directorate-General for Overseas Affairs and its role and significance in the colonial administration dating back to 1835, it was possible to study the circumstances of architectural and engineering output and the use of the archival documents, thus enabling to explore several components of documental standardisation and possible classifications between 1880 and 1910.

KEYWORDS: archival management; colonial archive; classification

1. INTRODUCING THE RESEARCH OBJECT

This paper explores the information system of the *Directorate-General for Overseas Affairs* (DGU)[1] with regard to Public Works. Responsible for the Portuguese overseas administration, this Directorate-General was a governmental organisation that was active between 1835 and 1910, and which, along with the Office of the Minister of Navy and Overseas Affairs and the Directorate-General for the Navy,[2] made up the Secretariat of State for the Navy and Overseas Affairs.[3] According to Armando Malheiro da Silva and his research colleagues, an information system is something that does not comprise only technical procedures applicable to the collection, such as classification, sorting or dissemination of general and scientific information. An information system goes beyond that, involving the organic-functional structure and the agents responsible for the information (Silva et al., 1999: 39). Through our investigation, we may corroborate what Malheiro da Silva states in his study: to question an information system is to scrutinize a vast network of elements. First, we traced the institutional history of the DGU and gathered elements from its information systems. Later, during the 'Coast to Coast' investigation project, it triggered a particular interest in the Portuguese Colonial Public Works information workflow.

To address the information system of DGU the starting question for that research had to do with the impact of copybooks on this chain.[4] Copybooks are defined by the dictionary of archival terminology as: "the registry constituted by the collection of copies, be they partial or integral, of correspondence, most of the times dispatched correspondence, and chronologically organised". The same dictionary defines correspondence as: "any form of written communication exchanged between individual or collective entities, both received and dispatched, for example, personal and professional letters and telegrams" (Alves, 1993: 27; 28). Bearing these definitions in mind, the research verified if an analysis of the official correspondence from the *Directorate-General for Overseas Affairs* could be a resourceful mean to accessing its information system.

The reason for following this hypothesis is explained by the fact that copybooks can be finding aids for accessing archives. Architectural archives are no exception here. In total in the DGU archives there are 9 000 containers, with 4 108 identified as books. A third of these books are copybooks (Henrique, 2019: 3-5). Cooperation in the 'Coast to Coast' project in the form of an archival fellowship (2017-2019) provided the necessary contact with the Portuguese Colonial Public Works records produced during the 19th century.[5]

An information system assembles a set of elements, one of which is context. Garcia Marco states that an archive's context provides Archivists

1. In this text, historical organisational designations have been updated, in line with the current Portuguese spelling agreement. The name "Direcção-Geral do Ultramar" was updated to [Directorate-General for Overseas Affairs].
2. "Direção-Geral de Marinha".
3. "Secretaria de Estado dos Negócios da Marinha e do Ultramar".
4. The archival description of the DGU copybooks is published and available at the "*Arquivística Histórica*" database. PORTUGAL. Faculdade de Ciências Sociais e Humanas, NOVA - Arquivística Histórica [online] [Consulted 2020-08-15] Accessible at: http://www.arquivisticahistorica.fcsh.unl.pt/index.php/secretaria-de-estado-dos-negocios-da-marinha-e-do-ultramar-2.
5. Archival descriptions are given in: PORTUGAL. Arquivo Histórico Ultramarino - «Obras Públicas» [online] [Consulted 2020-08-15] Available at: https://digitarq.ahu.arquivos.pt/details?id=1119652.

with the functionality and operative standards for their work (Garcia Marco, 1995: 119). Based on this idea, the organic-functional study of the *Directorate-General for Overseas Affairs* took into consideration the directorate's attributions and sphere of influence. In short, this organism was responsible for the Portuguese colonial affairs. Structurally it was divided into six divisions, each responsible for a different administrative sector: Division 1 for general and local policy administration; Division 2 for revenue administration; the 3rd Division was responsible for Public Works, Commerce and Industry; Division 4 for military administration; Division 5 for Public Health; the 6th Division, known as the "central" division, was responsible for the document workflow and the archives (Henrique, 2019: 45-149).

In order to conduct the research, it was necessary first to do a historical source selection. To present the organic-functional study of the *Directorate-General for Overseas Affairs* (1835-1910) it was necessary to consult several legislative sources, particularly its internal regulations.[6] With regard to the custodial and archival history of this archive, apart from the legislation documentary support as well as bibliographic resources were also required. For gathering information from the Portuguese colonial information system it was important to understand these archives.[7] Nevertheless, a number of cautions are also advisable to study colonial archives. In reference to imperial archives and their (counter) narratives, Antoinette Burton pointed out the fact that archives affect people differently, "though not necessarily predictably". Also, when working with archival documents, researchers face several difficulties. This should empower them to develop a "strategic antagonism towards sources", which, in the opinion of Antoinette Burton, should be a hallmark for historians interested in critical engagement with the past (Burton, 2011: 94; 103-4).

To pursue this research, and to avoid 'being swallowed' by the archive, it was necessary to develop a strategy. The DGU had considerable longevity - from 1835, when the DGU was set up, to 1910 and the end of the Constitutional Monarchy and the institution's closure. In that time period, the DGU produced a significant volume of documents. In terms of the time frame selected for this paper, the period 1880-1910 is a good example of organisation's administrative maturity. The archival management developed during the research 'Coast to Coast' project, which ran from 2017 until the end of 2019, provided contact with documentation from several producers subordinated to the Public Works division. From a documentary authorship perspective, Public Works include not only architects and architectural technicians but also engineers, hydrographers, geographers, military corps, navigation officers and accounting specialists. Indeed, these other professions were often present in the complex chains of actions and experts involved in an architectural project.

A number of distinctive sources of information documents in the Public Works information system can be identified. The DGU united those

6. It included several decrees: Decree of April 25th, 1835; Decree of February 15th, 1843; Decree of September 6th, 1859; Decree of December 1st, 1869; Decree of September 19th, 1878, Decree of December 19th, 1892; and the Decree of August 13th, 1902.
7. In 2017 the information system created within and with the DGU with regard to exile was studied (Henrique 2017).

documentary producers into a common purpose: the development and maintenance of structures and infra-sctructures overseas. Building a bridge in Angola, for instance, required in advance a technical study of the project's liability regarding physical and local conditions,[8] as well technical advice.[9] Following this phase, several proposals containing specifications, technical drawings and budgets would be produced.[10] Projects designed by local departments would also need authorisation by the Central Administration in Lisbon. In accordance with the administrative sequence as described, a final proposal would then be made and all documents providing updates on the project were to be delivered. These includes the project progress and financial management reports. All these instances had also to be supported by the correspondence.

2. MATERIAL AND METHODS

Historical archival research studies go well beyond the history of the archives, as Maria de Lurdes Rosa has demonstrated with her research proposal (Rosa, 2017: 574-5). This paper explores the correspondence copybook as a research unit. From the study of correspondence copybooks, which were the registration units for the DGU information system, it was possible to problematise significant matters regarding the organisation's archives, such as classification. What does a researcher obtain by studying archival classification? Why is classification so important, not only for Archival Science but for the sciences in general? And why is it so difficult to perform this operation, creating an accessible language that can serve its purpose over time?

Colonial archives are not privileged places to study this topic because it is a subject matter common to Archival Science. However, there is a significant advantage to viewing the question of classification through copybooks as research units. Colonial Public Works records were chosen for two main reasons: on account of the organisational complexity that they display, and the possible perception of how classification during the 19th century was problematic. Archivists and documentalists, in general, are aware that classification is not a simple matter (Ribeiro, 1998). At the level of the colonial archives, if there is a document that seems to escape, with a certain amount of recursion, classification as historical, it is normally those produced within the scope of Public Works. Secondly, this inevitably causes an arrangement problem.

This paper is part of a book that discusses architectural knowledge. Briefly, "Architectural knowledge is concerned with buildings, the ways they are made and the people who inhabit them" (Duffy; Hutton, 1998: xiv). Architectural archives face similar concerns inciting archivists to answer the same questions. Furthermore, archives can be considered monuments but not all monuments can symbolize archival documents, as Eric Ketelaar has demonstrated (Ketelaar, 2008). To have a better comprehension of this

8. For example: PT/AHU/ID-OP/OP15.138. "*Obras Públicas. Estrada da Trindade. Estudo de uma variante entre a vila e a entrada para a roça «Favorita»*".
9. For example: PT/AHU/ID-OP/OP16.640. "*Estudo crítico da base do concurso para as obras da 3ª Secção do Porto de Lourenço Marques e conclusões deste estudo*".
10. For example: PT/AHU/ID-OP/OP14.183. "*Projeto de construção da estrada real da vila de S. Filipe à Praia Ladrão. Lanço Nº 1 Vila de S. Filipe à Ribeira de João Pinto na extensão de 2190,93*".

component that seems to bring the Public Works into the archive, maybe it is best to "let us not begin at the beginning, nor even at the archive. But rather at the word 'archive'" (Derrida, 1995: 1) as Derrida stated.[11]

The International Council on Archives (ICA) is the authority that regulates archival activities. Located in Paris, France the ICA was set up on 9th June 1948, which is now celebrated as *International Archives Day*. Charles Samaran, the Director-General of the *Archives de France* was the first chairman. The Council cooperates with sister organisations dedicated to cultural heritage: libraries, museums, and monuments and sites. These organisations have mutual interests and share activities with other bodies: such as, the IFLA (the International Federation of Library Associations and Institutions), ICOM (International Council of Museums) and ICOMOS (International Council on Monuments and Sites).[12]

The ICA website explores three central questions to archival management: "what are archives?", "who is an archivist?" and "why archiving?" The answer to the first question can be reduced to: "Archives are the documentary by-product of human activity retained for their long-term value. They are contemporary records created by individuals and organisations as they go about their business and therefore provide a direct window on past events".[13] According to the ICA, an archivist is "a custodian of society's memory"[14] because "archives enable society to undertake a wide range of roles that facilitate civilised communities [...] facilitating education and research, providing entertainment and leisure, protecting human rights and confirming identity".[15]

Regardless of the number of tasks that archivists carry out, finding aids are their most visible contribution to accessing records. The archival description is critical to building finding aids. In 1993 the first draft of ISAD(G) (the General International Standard for Archival Description) was approved. Its aim was to be a standard for those elements that archival finding aids must feature, regardless of their producers: organisations (public or private), persons, or families.[16] Said standard can be downloaded from the ICA website and is available in fifteen languages, including Portuguese. The second edition of ISAD(G) was launched in 2000 (ISAD, 2000: 7).[17]

Probably one of the first questions lay readers have about archival theory is: what does the expression "*archival fonds*" mean? The first Archival Science theoretical manual was issued in 1898. A group of archivists from the Netherlands National Archives, Muller, Feith and Fruin, wrote the *Manual for the arrangement and description of archives* (Ketelaar, 1996) (Cook, 1997: 20-22) presenting the principles and rules to organize an archive. It served for years as one of the bases for the organization of archives along the modern lines of positivist history. After this manual, there were many theoretical contributions on this topic until the emergence of the ISAD standard. In the ISAD(G) glossary, fonds is defined as "the whole of the records, regardless of form or medium, organically created and/or accumulated and used by a particular person, family, or corporate body in the course of that creator's activities and functions." (ISAD, 2000: 10). It is a dense definition. Terry Cook explored this concept while addressing other topics of archival theory and descriptive practice that raise difficulties for archivists. Referring to the custodial era, Cook mentions archivists as keepers (Cook, 1997: 23), back then a professional category with no power or need to appraise documents. Our records date back to that particular era.

Professionals are aware of the problems surrounding the top description level (fonds), working daily to present solutions to it[18]. Researchers are aware of the biggest problem regarding the archival endeavour: the lack of accessibility of documents. And that is the reason why classification is so relevant; but we will get there later. In 1993 Cook asked: "If the concept of the archival fonds is so difficult and presents such problems, then why bother?". However, the author himself answered the question: "first, the fonds is an essential reflection of the essence of archival work, of what makes archival records valuable, of what defines our profession. Secondly, moreover, every suggested alternative is worse and more misleading" (Cook, 1993: 26).

Archival Science can be debated according to two archival paradigms: one is the custodial era and the other is the post-custodial era. Having a profuse bibliography on it, the custodial era was a conservative state that continued well into the 20th century (Ketelaar, 1996). Whereas the post-custodial era is the current age that began with the dawn of the Information Age.[19] For those who are not archivists, what does this mean? In the 19th century, Archival Science developed a base theory, the "custodial era", that argued in favour of several definitions of archival management, one of them based on the discussion on "archival fonds". The documents used to support this paper's argument are inheritors of the custodial era and provide a respectable example of the administrative concerns of that period: regarding management but mostly preservation.

The relevance of this paper relates to an idea that Fernanda Ribeiro discussed in a paper that explored the necessary balance amongst paradigms. Ribeiro alerted to the fact that the concept of Nation and the concern with

11. Derrida's *Archive Fever* discusses the nature and function of the archive in Freudian terms.
12. "Our history" [online] Paris: ICA. [Consulted 2020-08-14] Accessible at: https://www.ica.org/en/international-council-archives-0/ica-70-years-of-international-influence-timeline.
13. "What are archives?" [online] Paris: ICA. [Consulted 2020-08-14] Available at WWW:<URL: https://www.ica.org/en/what-archive>
14. "Who is an archivist?" [online] Paris: ICA. [Consulted 2020-08-14] Available at WWW:<URL: https://www.ica.org/en/discover-archives-and-our-profession>
15. "Why archiving?" [online] Paris: ICA. [Consulted 2020-08-14] Available at WWW:<URL: https://www.ica.org/en/why-archiving>
16. In 2019 Rita Almeida de Carvalho presented a portrait of the Portuguese archives. In her work, the researcher answers the three questions posed by the ICA and a fourth, which is rather relevant to Archival Science: "What is a finding aid for?" (Carvalho, 2019: 11-20)
17. ISAD (G) English version. The standard also presents a glossary of terms (ISAD, 2000: 10-11).
18. Regarding archival records there are several description levels: fonds, sub-fonds, series, sub-series, file and item. The purpose of having several levels is "to identify the level of arrangement of the unit of description" (ISAD: 2000, 16).
19. Without claiming to be exhaustive, a couple of references addressing this scientific topic are presented: In 1994 Jean-Yves Rousseau and Carol Couture in their book *Les fondements de la discipline Archivistique* present a sub-chapter devoted to the evolution of Archival Science: "The archival discipline" (Rousseau; Couture, 1994: 48-60). In 1999 a research group from Oporto University (Professors Armando Malheiro da Silva, Fernanda Ribeiro, Júlio Ramos and Manuel Luís Real) made a noteworthy contribution to this science. Their book includes a chapter entitled: "For an epistemology of Archival Science: a diachronic perspective", covering archival management from the Pre-classical Civilisations to the 20th century (Silva et al., 1999: 45-201). Later, Fernanda Ribeiro presented a chapter named "Brief evolution of Archival Science" (Ribeiro, 2003: 25-44).

preserving and nationalising the archives produced during the *Ancién Regime* were rooted in the custodial paradigm (Ribeiro, 2005: 3-4). An example thereof is the research of Donna Holmes, which investigated the influences of custodial phases on the archival records from two archival groups of East India Company records[20] (during the latter half of the 19th century). In relation to the dispersion of the archives, Holmes discussed how custodial contexts affected records (Holmes, 2006: 280-296).

The aim of this text is not to discuss archival paradigms; nevertheless, it does acknowledge their relevance to classification. Cook exhorted archivists to liberate themselves from the "custodial era" constraints (Cook, 1993: 26) and to enter what Archival Science has designated as "records management" (NP 4438-2). All in all, custodial or post-custodial archival positions are grounded in classification. The available knowledge from a craft or a science may result in a system of classification. And the references providing information on their internal structure may also lead to the development of standards and performances.

In the custodial era, no document produced in the Public Offices was eliminated, in terms of archival management. Archives grew naturally. Today, that standard seems a frantic attempt to control memory.[21] But was it? When one considers colonial archives, this does not seem plausible. Rather it resembles an inability to respond to impending challenges. Turning our attention to the colonial documentary production from 1870 to 1890, the DGU records quadrupled in this period (Boletim Militar do Ultramar, 1904: 131-2). Today, historians, anthropologists, physicists, sociologists, architects, professors, clerics, magistrates, and other professionals can answer why. The sciences experienced incredible development, but was the archive ready to comprehend that development at the time? What is the strategy in a plan when one has no elements to fully assemble? To take one step at a time. This was what happened in the Portuguese archives of the DGU (Henrique, 2019: 152-9). And it can be understood from the attempts to classify the Public Works records.

During the custodial era, institutions used to keep their entire documentary production. Nowadays, archivists are aware that it is not reasonable to collect the whole documentary production. Archives should preserve what sums up administrative outcome, not all the testimonies of activity. Archivists are conscious that it is not possible or reasonable to store the whole documentary output of an organisation in archives. But this knowledge reflects experience inherited from the custodial era. The research methodology followed what Cook advised:

> *Archival research in this mode, by archivists, explores the history, evolving functions, ever-changing structures, legal frameworks, devolved or regional character, and organizational cultures of institutions that create records, or similarly the biographical and psychological details of private individuals creating personal records, from letters to diaries to photographs to websites. (Cook, 2011: 619)*

20. The VOC (Verenigde Oost-Indische Compagnie) and EIC (East India Company) Archives.
21. In 2008 Fernanda Ribeiro published a study of the custodial paradigm in Portugal (Ribeiro, 2008).

The history of the Directorate-General for Overseas Affairs has been explored and, with it its evolving functions and evolution of its organisational structure based on a legal framework. All these stages aimed at collecting information elements to access the organisational culture, including the taxonomy and the bureaucratic practices at the department. The Portuguese overseas archive, from a systemic perspective with respect to its dimensions and dynamics, can be studied according to three layers: the records produced by the institution while it was active and of which there exists legislative reference since 1843 (Henrique, 2019: 45-149); the Colonial Historical Archives set up in 1931, which is today known as the Overseas Historical Archives, heir of the Portuguese colonial administration archival fonds (Ribeiro, 2008: 119-21; 190-4); and, finally, the total archives representing the documentation that survived the first two layers.

In the 'Coast to Coast' research project the archival arrangement covered the organisation, description, packaging, and reinstallation of records produced by the Portuguese colonial Public Works services from 1870 to 1930. This paper will address the records produced during the Portuguese Constitutional Monarchy from 1880 to 1910. In terms of the authority records, one has the 3rd division of the Directorate-General for Overseas Affairs, the Overseas Advisory Board or *Junta Consultiva do Ultramar* and the Higher Technical Council on Public Works or the *Conselho Superior Técnico de Obras Públicas* (Henrique, 2019: lix-lx; 112). After 1900 the board responsible for the Portuguese colonial railways was set up, the Directorate for Overseas Railways or *Direção dos Caminhos-de-Ferro Ultramarinos* (Henrique, 2019: lxxi-lxxii). Also working overseas, in addition to the local Public Works departments of the Colonial Governments, were several brigades that executed the necessary Public Works.

3. EXPLORING COLONIAL PUBLIC WORKS ARCHIVAL RECORDS

The knowledge of what the functions of the services responsible for the colonial Public Works were, facilitates the documentary arrangement for archivists today. To classify a document is to associate it to a class, allowing for the establishment of a logical connection in the archive (Lourenço, 2013: 6). Although functions related to colonial Public Works was one of the responsibilities of the DGU, it was only after 1859 that a specific division was set up within its organic structure for this area.[22] At the time Public Works became a responsibility of the 3rd division of the DGU. In 1868, due to the lack of funds of the Portuguese Central Administration, the Secretary of State that handled Colonial Affairs lost a part of its budget. Consequently, the Secretary of State for the colonial matters constricted the organic structure of the DGU. An arrangement that led to the loss of that exclusive division devoted to Public Works, allocating its functions into the 2nd division.

However, in the following year, the Minister of the Navy and Overseas Affairs, Rebelo da Silva, reorganised the overseas Public Work services. The decree of 3 December of that year set up two departments

22. Decree of 6 September 1859.

in these services: the first of which was responsible for Public Works in Verde, São Tome and Príncipe and Angola; while the second department took responsibility for Public Works in the remaining Portuguese overseas provinces or colonies.[23]

In 1876, the Minister of the Navy and Overseas Affairs, Andrade Corvo, implemented a set of measures on the Public Works service, as can be read in the report for that year (DGU, 1879). In 1878 Public Works was an important governmental area to the Portuguese Administration, with the DGU again featuring in its structure an exclusive division for this area[24]. The 3rd division was responsible for the colonial Public Works and it performed several functions: studies, construction and maintenance of public buildings, roads, bridges, hydraulic works, including wetland draining and irrigation; colonisation; telegraphs and lighthouses; mines and geological studies; overseas mail, correspondence and the accounts with foreign office mails; manufacturing industry; weights and measures; colonial statistics; commerce; scientific explorations and colonial exhibits.[25]

The performance of the Public Works services contributed to the development of cities. Before colonial occupation, African territories had their own organisation. Isabel Henriques and Miguel Vieira point to the fact that those sites were characterised primarily by the links between religious and political interests. But the services were forced to organise economic issues, especially subsistence, by establishing networks of political and commercial alliances to maintain its regional supremacy. This was the matrix from which European powers operated to erase African autonomy (Henriques; Vieira, 2013: 10). Simultaneously this development brought with it significant advancement in terms of structures and infrastructures. In 1901 Henrique Barahona e Costa, Director of Public Works in Guinea, Angola and Mozambique, stated that whoever visited the Portuguese colonies would not have to forego the latest elements of progress, referring specifically to: roads, railways, telegraphs, wharves and bridges (Costa, 1902: 5)[26].

In line with the diversity of functions associated with Public Works, several types of documents have been found. Ann Laura Stoler states that colonial archives are "accumulations of paper and edifices of stone were both monuments to the asserted know-how of rule, artifacts of bureaucratic labor duty performed, artifices of a colonial state declared to be in efficient operation" (Stoler, 2009: 2). There is no disagreeing with this. Architectural archives can contain textual documents, technical drawings, cartography and photography. The textual documents may include correspondence (letters and telegrams); accounting information maps (for example expense and revenue maps); catalogues; construction projects; insurance policies and others. Whilst in the archives one has been managing documents on all kinds of Public Works from buildings to infrastructures, generally speaking, the documentation on railways is predominant.

23. Decree of 3 December 1869.
24. Decree of 19 September 1878.
25. Art. 105, Decree of 13 August 1902.
26. Nuno Domingos and Elsa Peralta present an exhaustive survey of the historiographic recovery of African cities in a pre-colonial and colonial context (Domingos; Peralta, 2013: xii-iii).

This paper does not discuss technical documents, but rather the classification thereof. Copybooks provide researchers with a solid notion of an organisation's information system, be it historical or contemporary. The Portuguese documents that were going overseas required a postal service. Management of that particular service, during the Portuguese Constitutional Monarchy, was the responsibility of the Public Works Ministry[27]. In 2003, Chun Wei Choo proposed an information management model which, following a cycle of six activities, could make organisations more effective. Those activities are the identification of the organisation's informational needs; the acquisition of information; the management and storage of the relevant data; the distribution of information; and use of that information (Choo, 2003: 57-92). Organisational information needs can reflect an organisation's functions. Also, are dynamic, as could be observed in the DGU, with its responsibilities for colonial Public Works.

During the Constitutional Monarchy period, the information management model of the services in charge of the Portuguese colonial Public Works was not only dynamic but recursive. There is the acceptance that records proof events that respect a timeline: starting one day, evolving during some period, and being closed some moment after the previous ones. But not all archives are demonstrations of closed cases. Public works archives are an example that cannot fully consider closed cases. The bridge itself would be completed but not the archival files on it. Documents that are part of Public Works services are somehow resistant to being part of a historical archive, existing in a continuous process of renewal. Eric Ketelaar explored this process providing several examples, some of them from the field of architecture. He argued that by cultivating archives through successive activations, persons and communities define their identities. A recursion that enables archives to redefine their meanings (Ketelaar, 2012). This theory links to another topic that the author discussed previously: the record as a repository of meanings (Ketelaar, 2001).

The Australian Records Continuum Model declares that archives are defined as such if records are appraised and continue to have value (McKemmish et al. *apud* AS 4390, 1999: 5). This is not easy to predetermine. 19th-century colonial Public Works records were not yet appraised at the time, but those records retained an ongoing value. In terms of the DGU Public Works records, that recursion took place because of the informational needs that overseas services had. There is a scientific explanation for this, as Chun Choo has explored. Information management develops processes, structures and systems in order to distribute information through organisations, making them more suitable for their duties (Choo, 2003: 326). This is something that was observed in the DGU copybooks, as will be shown later.

Thanks to the research carried out into the DGU correspondence, not only was it possible to recover several sources of information but also the

27. The service was structured by the Law of 7 July 1880 and reformed by the Decree of 22 September 1886. Nevertheless, no communication could be established with any of the Portuguese colonies regarding this service, that did not have the approval and knowledge of the DGU. It was this service that determined postage and courier fees, stamps and other conveniences. (Please see: Decree of 28 July 1886). In 1898 the Portuguese Public Works Ministry underwent an organic-functional restructuring. With it, the postal service changed division. (Please see: Decree of 30 June 1898).

rules, authorities and protocols followed in producing the documents. With this prior knowledge, and thanks to the participation in the 'Coast to Coast' project, at the *Arquivo Histórico Ultramarino* data regarding possible original classifications used at the Portuguese colonial Public Works services has been gathered. Whilst it has not yet been possible to arrange all the division documents, the partial result allows, however, for some exploration.

In the Overseas Historical Archive one can find archival records from several sources, which, cooperation with the *Directorate-General for Overseas Affairs,* were responsible for the Portuguese colonial affairs. An analysis of the DGU Public Works copybooks from the period between the years 1879 to 1910, shows that after 1883 the copybooks started to feature indexes. These indexes also contained a sequence of numerical codes representing the Public Works' subject matters. Also, subject matters that were codified were displayed in alphabetical order.

At the start of the documentary management, we noticed that archival records posterior to 1880 featured numerical codes in their folders. Nevertheless, without any further information, said numbers could represent anything from entry numbers to service classifications. Also, the codes themselves were not coherent enough to enable one to have a concrete idea of what a record could be about. From the beginning of the archival management there always existed the hypothesis that the codes could be a classification system. But without an internal document to confirm this, it was hard to prove. Later on, it became clear what the codes in question were.

Copybooks generally contained indexes: subject and onomastic indexes. In the DGU Public Works copybooks after 1883, the indexes displayed codes. The examples and the images displayed illustrate the procedure from 1883 to 1898. The presented chronology refers to 1883 because it was the first year that the Public Works Services at the DGU attempted to provide its processes with a classification. In 1898 the Public Works classification did stabilise. After the year 1898, folders containing administrative documents maintained the previous codes. In 1883 there were 30 classification codes available in the Public Works Services. While some codes refer to functions such as "accounts with foreign postal services", others refer to ongoing Public Works that Portugal was responsible for overseas.

The following paragraph displays the classification chart of 1883: 1 - Submarine cable between Macau and Hong Kong; 2 - Submarine cable for Mozambique; 3 - Submarine cable between S. Vicente and Dakar; 4 - The Ambaca Railway; 5 - The Lourenço Marques Railway; 6 - The Mormugão Railway; 7 - Port captaincies; 8 - Consuls; 9 - Accounts with foreign postal services; 10 - Foreign postal services (accounts excluded); 11 - Buildings in Guinea; 12 - Zaire Stations; 13 - Amsterdam exhibit; 14 - Luanda Hospital; 15 - Colonial Museum; 16 - Navigation to West Africa; 17 - Steam navigation to Mozambique; 18 - Kwanza Navigation; 19 - Public Works Human Resources, Angola; 20 - Public Works Human Resources, Cape Verde; 21 - Public Works Human Resources, Guinea; 22 - Public Works Human Resources, India; 23 - Public Works Human Resources, Macau; 24 - Public Works Human Resources, Mozambique; 25 - Public Works Human Resources, S. Tomé and Príncipe; 26 - Berne International Bureau; 27 - Various subject matters; 27A - Macau Navigation; 28 - *Sociedade de Geografia de Lisboa*[28]; 29 - British India Navigation Company.

In 1885 the classification did not present many differences in comparison to 1883, but by that year it had gained eight more codes. Here, one probably came up against the first limitations of the methodology, as in those new codes it was not possible to follow an alphabetical orientation. Up until 1898, the indexes, as one can observe in the images, were changeable. In 1892 there were 64 codes available, but the classification chart was only stabilised in 1898, with 61 categories. To present subject matters in alphabetical order was no longer a practice. Up until 1898, one can imagine the struggle to keep these codes alphabetically aligned. Additionally, it proved to be inadequate for the archives.

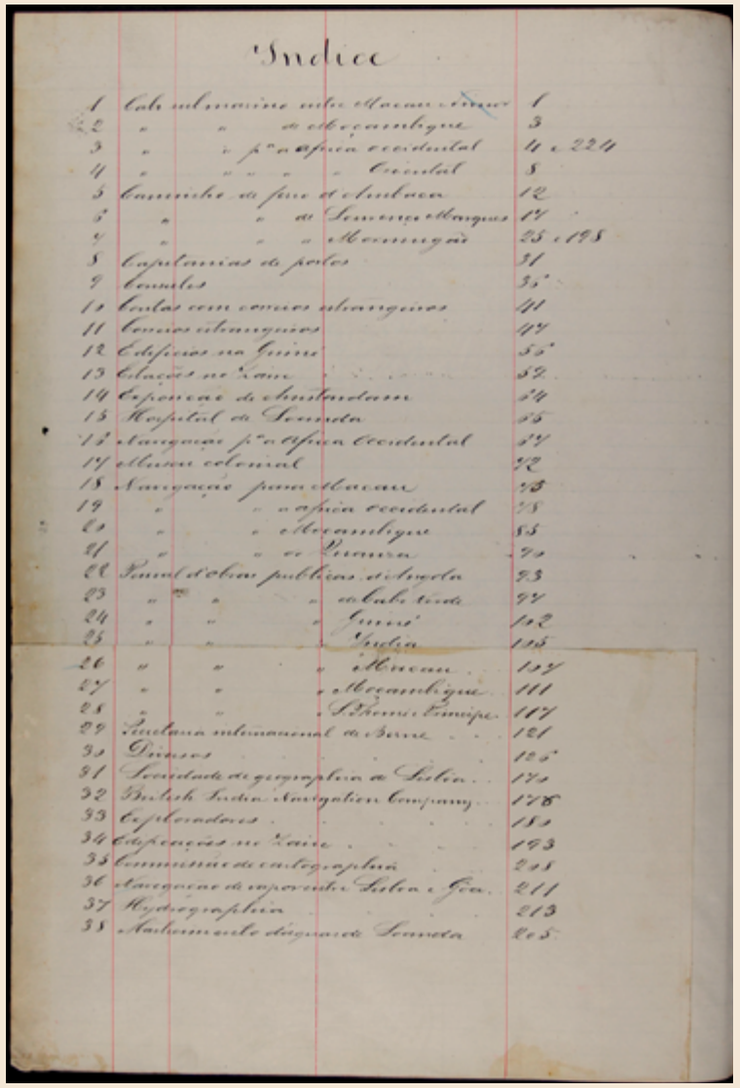


Fig. 1. Copybook number 155, indexes, 1885.

28. The Lisbon Geographic Society is a Portuguese scientific society created in Lisbon in the year of 1875, with the aim of "promoting and assisting the study and progress of geography and related sciences in Portugal." PORTUGAL. Sociedade de Geografia de Lisboa [online] [Consult. 2020-08-15] Available at: http://www.socgeografialisboa.pt/en/.

The classification codes were important because they determined an archival organisation for the folders. In 1885 the classification chart had a total of 38 codes. Maintaining the criteria adopted in 1883, some designated administrative functions and others ongoing Public Works. 1 - Submarine cable between Macau and Timor; 2 - Submarine cable for Mozambique; 3 - Submarine Cable for West Africa; 4 - Submarine Cable for East Africa; 5 - The Ambaca Railway; 6 - The Lourenço Marques Railway; 7 - The Mormugão Railway; 8 - Port captaincies; 9 - Consuls; 10 - Accounts with foreign postal services; 11 - Foreign postal services (accounts excluded); 12 - Buildings in Guinea; 13 - Zaire Stations; 14 - Amsterdam exhibit; 15 - Luanda Hospital; 16 - Navigation to West Africa; 17 - Colonial Museum; 18 - Macau Navigation; 19 - Navigation to East Africa; 20 - Navigation to Mozambique; 21- Kwanza Navigation; 22 - Public Works Human Resources, Angola; 23 - Public Works Human Resources, Cape Verde; 24 - Public Works Human Resources, Guinea; 25 - Public Works Human Resources, India; 26 - Public Works Human Resources, Macau; 27- Public Works Human Resources, Mozambique; 28 - Public Works Human Resources, S. Tomé and Príncipe; 29 - Berne International Bureau; 30 - Various subject matters; 31- *Sociedade de Geografia de Lisboa*; 32 - British India Navigation Company; 33 - Explorers; 34 - Buildings in Zaire; 35 - *Comissão de Cartografia;*[29] 36 - Steam navigation between Lisbon and Goa; 37 - Hydrography; 38 - Luanda Water Supply.

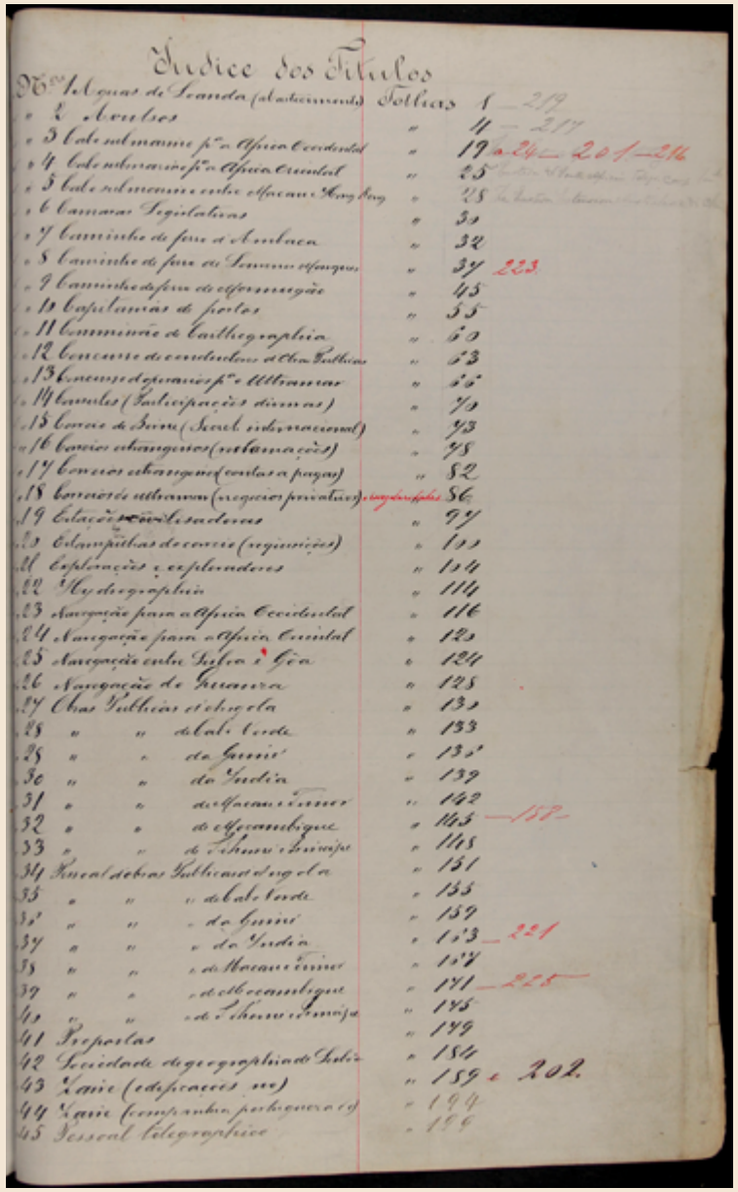
By 1886, there were 45 classifications instead of 38 available codes. Number 38 in 1885 was the first code in 1886. And it never ceased to grow. There has been an effort to adjust codes from one year to the next still that alphabetical/numerical pressure was not easy to settle. As is noticeable in the first image, the classification was amended. In 1889, with 51 codes available, numbers continued to grow until 1898. In 1898 the classification was stabilised. Nevertheless, despite there being more than 60 available codes, only an average of 40 was required to classify the Public Works folders forwarded with the correspondence. When one looks at the indexes, it is clear that even when a code was not applied during a year, the classification chart remained stable. In the copybooks, only current categories appeared written in the indexes.

In 1898 the classification presented 61 available codes. From 1 - Luanda Water Supply, 2 - Various subjects and requirements; to 61 - Commercial Information Services. As in previous years, the "Process index" contained codes to classify ongoing works; railways (works and personnel); mines; commerce; companies; colonisation; explorers and communications.

Let us look at code number 28. This code has always been applied to documents related and named "Public Works" in the indexes as we can observe in the images nevertheless, we have mapped that according to the year it referred to a different province from the Portuguese colonial empire. For example, in 1885 and 1886 it covered the Public Works projects in Cape

29. The Cartography Committee was a body that was set up in 1883 to assist the Portuguese Secretary of State for the Navy and Overseas Affairs. It was responsible for drawing up and publishing maps from the overseas possessions, and for geographic studies. "Comissão de Cartografia" [online] Faculdade de Ciências Sociais e Humanas, NOVA: Arquivística Histórica [Consult. 2020-08-16] Accessible at: http://www.arquivisticahistorica.fcsh.unl.pt/index.php/comissao-de-cartografia.

Fig. 2. Copybook number 156, indexes, 1886.



Verde (as shown in the images herein), and from 1886 to 1895 it was dedicated to São Tomé and Principe; 1896 was, however, dedicated to Angola and 1897 to Mozambique, before a return in 1898 to São Tomé and Principe. This simple example demonstrates how hard it must have been to classify these folders. When one accesses the Overseas Historic Archives archival database, the record descriptions bear this out. The document with the formal title "*Processo nº 28. Documento nº 25*" is from 1894 and contains several documents on Public Works in São Tomé and Principe[30]. The document with the formal title "1891. Nº 28. Obras Públicas de S. Tomé e Príncipe" is also from

30. PT/AHU/ID-OP/OP15236 (1894, S. Tomé and Principe). Archival description accessible at: https://digitarq.ahu.arquivos.pt/details?id=1362517.

that colony but dates from the year 1891[31]. While the document "*1885. Nº 28. Obras Públicas de Cabo Verde*" contains documentation of Public Works in Cape Verde[32].

4. CONCLUSIONS

More than providing mere answers, this paper contributes with a number of facts to a recurrent argument. We humans classify on a regular and natural basis most aspects of our daily life. But we tend to ignore this, because it is so common. The constitution of a possible classification system applicable to the documentation produced by a Public Works Service requires an indicator so as to understand the composition thereof, the successive adjustments, and failures. These services were centrally based in terms of the National Administration, but were replicated locally, within the scope of the Colonial Administration. Regulated by the colonial metropole, services had to perform in specific contexts. And that also was expressed in terms of classification.

Archival documents are not isolated objects; rather, they exist in and are part of a context. In the case of historical archives, archival records preserve several layers and narratives that reveal categorisation processes. To codify documents is to give the items an intrinsic value. The categorisation process applied in the *Directorate-General for Overseas Affairs* was a good example thereof, and it was also a testimony of how difficult it is for organisations to standardise administrative procedures. Having in place a classification system, and being familiar with it, confident that regardless of the categories introduced, meanings will be stable and accessible, is vital to any archive. Standardisation provides value, safety and tranquillity to services and documents. This was the major conclusion reached in exploring the Portuguese Colonial Public Works records.

31. PT/AHU/ID-OP/OP14133 (1891, S. Tomé and Principe). Archival description accessible at: https://digitarq.ahu.arquivos.pt/details?id=1157783.
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CAHORA BASSA DAM: THE WHITE ELEPHANT

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[ABSTRACT]

Focusing on one of the most iconic infrastructures, if not the most iconic, in Mozambique, this text tells a part of the history of the Cahora Bassa dam in parallel with the history of the country itself. This history is told through distinct milestones – from the realisation of the potential of the Zambezi River, to its construction in the colonial period; from its use as a tool in the struggle for independence to its transformation into a symbol of liberation and economic progress; and finally to the transfer of control of the dam from Portugal to Mozambique in 2006, and the realisation that "Cahora Bassa is now ours!"*. This reflection endeavours not only to describe the periods in question but also to understand the implications of their benefits and their possible impacts on ecosystems, health and society.

KEYWORDS: Mozambique; Hydroelectric; Cahora Bassa

* Proclamation by the President of the Republic of Mozambique, Armando Guebuza, to his people after the Protocol between the Republic of Mozambique and the Portuguese Republic regarding the reversal and transfer of control over the Cahora Bassa Dam was signed.

THE IDEA AND THE CONTEXT

The exploitation of the Zambezi River for electric power began in March 1956, when specialists from the Portuguese Hydroelectric Power Group visited the rapids of the Zambezi. These men were seeking to take advantage of the river's potential, after the construction of the Kariba dam on the border between Zambia and Zimbabwe.

The weakness of the Portuguese economy in the 1950s was a hindrance to investment in the colonies. With a view to overcoming this situation, the government set up an economic development model based on shared responsibility for the promotion of new infrastructures: the State would be responsible for stimulating the construction through a legal framework and other appropriate actions, while promoting private initiative, thus opening the doors to foreign capital.

It was in the context of this greater openness to foreign capital and structural economic weakness that the Portuguese State carried out studies on the Zambezi basin, with the establishment of the "Mission for the Promotion and Population of the Zambezi Valley" (MFPZ). For five years, the mission carried out exhaustive epidemiological, demographic, ethnographic, geological, meteorological and hydraulic studies in the field.

The studies indicated that the only income source likely to make the investments profitable in the long term would be through the construction of a dam that would supply power to South Africa. Initially, South Africa showed no interest in the project, but following the condemnation of the international community over apartheid and the first armed actions carried out by the African National Congress, in 1965, the country became more isolated and the dam began to be seen as an ideal choice.

With the beginning of the National Liberation Struggle in Mozambique in 1964, the common interests of Portugal, RSA and Rhodesia (now Zimbabwe) in the development of the General Plan for the Development and Occupation of the Zambezi Valley became even clearer and more decisive, not only from the economic perspective of exploring the soil, subsoil and selling/purchasing electricity at low cost, but essentially from the viewpoint of consolidation of geostrategic interests, with the main objective of creating the conditions to encourage occupation of the territory. One million European settlers were to be attracted to the Zambezi Valley, reinforcing the white presence in Mozambique: "a human dam of white settlers in the face of the liberation movement".

THE CONSTRUCTION OF THE MONSTER

The Cahora Bassa dam marked the starting point for the construction of large-scale infrastructure in Mozambique. Construction of the dam began in 1969. It was made with conventional concrete with granite aggregates, which came from the rock taken from the excavations for the foundations and the tunnels, cement produced at the Dondo Beira cement plant and, to a lesser degree, cement imported from Zimbabwe. Around 600 000 cubic metres of concrete were used in the project, 450 000 cubic metres of which were for the construction of the dam and the rest for the construction of the underground work structures. The overall volume of used material amounted

to approximately1 500 000 cubic metres, of which around 200 000 cubic metres were for the dam's foundations and 1 300 000 cubic metres were for the opening to the power plant, chimneys, transformer room, access tunnels and driving galleries.

The reservoir began to be filled on 5 December 1974 and was completed up to the normal storage level (326 m) in September 1976. The HVDC power transmission lines to South Africa, extending to 1 400 km, were completed in January 1974.

WAR AND PROPAGANDA

> *Cahora Bassa is a crime. It is a crime, not only against the Mozambican people, but also against all the people of Southern Africa and Africa as a whole. (SM Khan, FRELIMO representative, in a statement to a UN committee, October 26, 1970)*

The first armed acts of insurrection began in March 1971, with the explosion of a few landmines laid by Frelimo on the road between Tete and Songo. It was subsequently admitted by the Portuguese army that Cahora Bassa had become a target in FRELIMO's struggle for the country's independence. As a consequence of this attack, the Portuguese Army increased its activities, with violence against and repression of supporters of FRELIMO, and the populations beginning to be reorganised into villages specifically created and monitored by the military.

The war was not only fought on the battlefield. Propaganda was also a resource well used by the opposition forces. FRELIMO, like all other national liberation movements, began by seeking recognition from the United Nations and the Organisation of African Unity (OAU). The Cahora Bassa dam turned out to be the preferred target of a propaganda campaign aimed at combating Portugal and its colonial policy. FRELIMO advocated that the dam would halt the Independence process, as it benefited only the white settlers and South African apartheid, not the Mozambicans.

The dam project soon became a confrontation of will and propaganda: while FRELIMO tried to prevent, both diplomatically and militarily, the construction of the dam, Portugal argued that it was the main guarantee for its colonial permanence in Africa. There was a major campaign to put an end to the dam's construction, thus enhancing the international character of the struggle. As the armed struggle for Independence continued, Eduardo Mondlane defended the frequent, continuous attacks against the work on the dam aimed at preventing its construction. More than just an infrastructure, the dam was a physical and human barrier, the aim of which was to stop the advance of guerrilla forces south of the Zambezi.

INDEPENDENCE... THE DAM IS OURS!

With the signing of the Lusaka agreement in 1974, FRELIMO declared that it was "willing to accept responsibility for financial commitments made by the Portuguese state on behalf of Mozambique provided that they were made in the effective interest of the territory". The Mozambican government granted the operation of the dam to a concessionary company set up on 14 April 1974,

HCB S.A.R.L., which was financed by the Portuguese state, the Mozambican State and a few credit institutions with a majority of public capital.

In the first session of work by the joint committees it became clear that the Mozambican government did not agree with the Cahora Bassa resolution, as Portugal demanded payment from Mozambique for the work already completed under the colonial regime. The dam was temporarily managed by Portugal in order to repay Portuguese investment debts. Perhaps for this reason, negotiations and agreements were made in the following months on the dam, which concerned the attachment and obligations of the Portuguese state to HCB – so that there could be no doubt that Mozambique would not be forced to contribute financially, under any circumstances whatsoever, to a venture that had been built by another sovereign state, and on which the national government had never been consulted.

However, the benefits of the dam for the development of the young independent country of Mozambique were already clear when Samora Machel, in an enlarged session of the Council of Ministers, in 1979, stated that "we [Mozambicans] have to tame the 'white elephant' that is Cahora Bassa. This 'elephant' has to give to our agriculture and industry the ivory that is the electric power and irrigation, which will produce even more electric power and irrigation in turn". Machel was changing Mozambique's initial position in relation to the dam, making it a symbol of liberation that would lead the Mozambican people to the conquest of economic progress and transformation of the strategic region of the Zambezi Valley.

THE "ELEPHANT" IS OURS; NOW WHAT?

The "Protocol between the Republic of Mozambique and the Portuguese Republic concerning the reversion and transfer of control over the Cahora Bassa Hydroelectric Power Plant" was signed in Maputo in October 2006. The handover was completed at the end of 2007: Portugal then held 15% of the share capital and Mozambique 85%. Currently Cahora Bassa Hydroelectric Power Station supplies 300 MW to Mozambique, 1 050 MW to South Africa and 150 MW to Zimbabwe.

Theoretically, dams can bring many benefits: in addition to the economic and developmental advantages, there are multiple impacts in terms of ecosystems, health and society. From the point of view of global climate change, hydroelectricity is seen as a low-polluting alternative that contributes to the reduction of greenhouse gas emissions and, consequently, to the environmental sustainability of the planet. However, the reality is somewhat different. Over the last 40 years, the communities and natural ecosystems of the Lower Zambezi have been devastated by the existence of large dams. If this waterway system is to be redeveloped for the benefit of the people and wildlife of Mozambique, the collaboration of the various sciences and academies, decision-makers, resource managers and all stakeholders will be necessary in order to put in place ecologically sustainable methods to manage the discharges of the Zambezi River, with the aim of improving the standard of living in the Lower Zambezi Basin.

Cahora Bassa has caused great hardship to thousands of Mozambican peasants whose survival depends on the flow and the annual flooding of the

Zambezi River. The natural flooding in the rainy season has been markedly reduced, and the flow in the dry season in the Lower Zambezi has increased, so that the natural processes are now out of step. Subsistence activities such as fishing, agriculture and livestock farming have declined dramatically with the loss of the annual flooding. Productivity in the shrimp industry fell by more than $10 million per year. Changes in the hydrological system have also affected the availability and supply of water, wood fuel, building materials and medicinal plants. Public health and the cultural relevance of the sites and the Zambezi River have also been affected. Before construction of Cahora Bassa Dam, technicians predicted that the hydrological changes could result in reduced sediment deposition and nutrient availability. They also predicted the occurrence of saline intrusion, the replacement of typical wetland vegetation by highland and dryland vegetation, a decrease in the regeneration capacity of vegetation after grazing, and the rupture or desynchronisation of the reproductive pattern of wild species in the delta.

In Mozambique alone, approximately 2 300 000 inhabitants live near the Zambezi basin. Through the Office for the Promotion of the Zambezi Valley (GPZ), currently the Zambezi Valley Development Agency (ADVZ), the national government established in 1995 five strategic axes for development of the Zambezi Valley: (i) the valorisation of water, taking into account that the average annual discharge at the mouth of the Zambezi River is 4 134 cubic metres/s or about 130 cubic kilometres/year, in a region with water shortages; (ii) energy generation, increasing the capacity for hydrogeneration; (iii) agricultural and livestock production; (iv) exploitation of mineral resources; and (v) community development.

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MOZAMBICAN AIRPORTS IN THE COLONIAL ERA: A CRITICAL AND HISTORICAL ANALYSIS

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[ABSTRACT]
The first air flight from Lisbon to Lourenço Marques (the present-day Maputo), calling at Guinea-Bissau, São Tomé and Príncipe and Angola, took place from 5 September to 26 October 1928. The flight was commanded by Captain Celestino Pais Ramos, who was assisted by Captain António de Oliveira Viegas, Lieutenant João Maria Alves Esteves and Sergeant/Mechanic Manuel António.
In 1932 the Portuguese Minister of Colonies, Dr. Armindo Monteiro, who had travelled by sea from Lisbon to Luanda, took the train and crossed Africa from Angola to Mozambique. He travelled in carriage number 108 of Benguela Railways, the 1st coast-to-coast train crossing of southern Africa by a Portuguese railway carriage.
A research line focused on air terminal buildings at Mozambican airports should take into account the history of regional aviation and articulate it with the development process of other rail, road and maritime transport infrastructures. It is also necessary to deepen the existing knowledge on the coordinating role played by the former colonial institutions responsible for the transportation sector, in particular the Mozambique Ports, Railways and Transport Services Directorate (*Direção dos Serviços dos Portos, Caminhos de Ferro e Transportes de Moçambique or, in short, CFM, Caminhos de Ferro de Moçambique* [Mozambican Railways]). This paper seeks to analyse the CFM's public transport network in 1970, the year before the publication of the "History of the Mozambique Railways", by the historian Alfredo Pereira de Lima, and of the bulletin "Ports and Transport of Mozambique", published in June 1971.

KEYWORDS: Mozambique; airport terminal; architecture; colonial

MOZAMBIQUE PORTS, RAILWAYS AND TRANSPORT SERVICES DIRECTORATE

The state-owned Mozambique Ports, Railways and Transport Services Directorate was set up on July 6, 1929 and began operations in August 1931, on the initiative of the Governor-General, Lieutenant-Colonel José Cabral, and of its first director, the military engineer Major Francisco Pinto Teixeira. Its immediate mission was to unify, in a single provincial body, a number of services that were previously autonomous, relating to the operation, construction and administration of the ports and railways of the former Portuguese colony or overseas province: the administrations of the ports and railways of Lourenço Marques, Inhambane, Moçambique and Quelimane. The objective expressed in the legal diploma of its regulation was to serve the Mozambican economy by putting together *"a vast and complex organisation that includes, in its diverse and multiple ways of serving the community interests, transportation by rail, road and air and the unified administration of the ports, the spearheads of natural penetration into the hinterland, with the aim of serving the development of the province and the economy of the neighbouring countries"*.[1] Under the supervision of CFM, the road motor transport was organised in early 1930 and the Department of Air Transport of Mozambique (DETA, *Departamento de Exploração dos Transportes Aéreos*) was set up in August 1936, and began operations in December 22, 1937. From the end of 1960s onwards DETA was authorised to use its present-day name LAM, *Linhas Aéreas de Moçambique* (Mozambique Airlines). For about forty years, until the end of the colonial era, the transportation network in Mozambique was coordinated and administrated by the Mozambique Ports, Railways and Transport Services Directorate, organised on the basis of a structure of complementary networks: Ports – Railways – Road Motor Services – Airlines (Fig. 1).

Fig. 1. CFM's transportation network circa 1970.

PORTS

Although maritime transport was handled by private Portuguese and Mozambican companies, the main ports of the territory were operated by CFM. Other smaller ports were managed by local councils such as Vilanculos (Vilankulo), Pebane, Chinde, Mozambique, António Enes (present-day Angoche), Moma, etc.

Ports in Mozambique served as hubs between maritime transport and the railway penetration system within the province and in neighbouring countries of southern and central Africa: South Africa, Swaziland, Rhodesia (now Zimbabwe) and Nyasaland (later Malawi).

1. Decree No. 315 of August 22, 1931.

This general network was subdivided into international ports – Lourenço Marques, Beira and Nacala; and cabotage ports – Inhambane, Quelimane, Porto Amélia (now Pemba) and Mocímboa da Praia (Fig. 2).

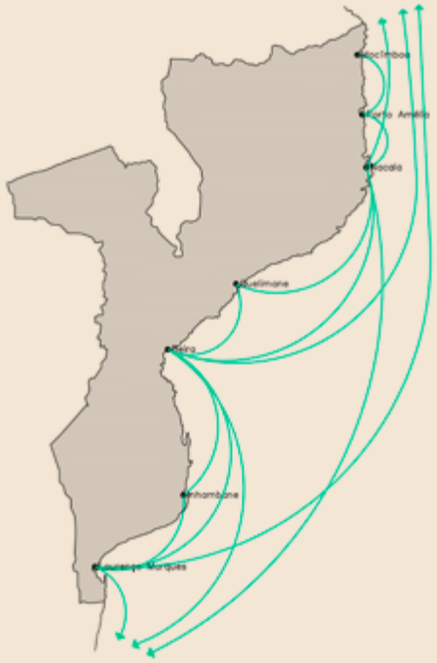

Fig. 2. CFM's ports network circa 1970.

RAILWAYS

The railways in Mozambique was made up of a discontinuous network of three autonomous systems, more or less perpendicular to the coast of the Indian Ocean, and communicating through neighbouring countries:

- Northern system: the Mozambique Line, from the port of Nacala to Vila Cabral (now Lichinga), including the Lumbo branch line, and the line from Nova Freixo (present-day Cuamba) to Entre-Lagos, where it connected with the Malawi railway network;

- Centre system: the Beira Railway, from the port of Beira to Machipanda, where it connected with the Rhodesia railway network; the Trans-Zambezia Railway, from Dondo to Sena, where it connected with the Malawi railway network, and including the Inhamitanga branch line; the Tete Railway, from Dona Ana bridge to Moatize; and the stand-alone Quelimane Line, from the port of Quelimane to Mocuba;

- Southern system: the Ressano Garcia Line, from the port of Lourenço Marques to Ressano Garcia, where it connected with the South Africa railway network; the Goba Line, from Machava to Swaziland, including the Salamanga and Xinavane branch lines; the Limpopo Line, from Lourenço Marques to Malvérnia (now Chicualacuala), where it connected with the Rhodesia railway network; the Gaza Line, from João Belo (now Xai-Xai) to Marão and Chicomo; and the Inhambane Line, from the port of Inhambane to Inharrime.

It was an objective of CFM to bring these systems together through the progressive expansion of the existing railroads; whilst this was never achieved during the colonial era, it remains a goal of present-day Mozambique (Fig. 3).

Fig. 3. CFM's railways network circa 1970.

ROAD SERVICES

Road services for passenger and goods complemented the railroad system, linking small towns with the nearest railway stations and making it possible for their products to be shipped through the coastal ports. This discontinuous network was made up of regular and occasional routes, the latter being the case at harvest times, so that the various agricultural products could be shipped out. This network was complemented by private companies, which served the locations that road services didn't reach. The general road transport system was in turn subdivided into four autonomous regular route networks, two of which met at Blantyre, in neighbouring Malawi: the Mozambique network, Quelimane network, Tete network and the Inhambane and Gaza networks (Fig. 4).

Fig. 4. CFM's road motor network circa 1970.

AIRLINES

The airlines ensured the rapid transportation of people and goods along the regular domestic and international DETA routes. The air routes covered the main provincial locations — Lourenço Marques, Inhambane, Vilanculos, Beira, Quelimane, Tete, Vila Coutinho (the present-day Ulongué), Vila Cabral, Nova Freixo, Nampula, Nacala, António Enes, Porto Amélia and Mocímboa da Praia, as well as the major cities in the neighbouring countries — Johannesburg and Durban in South Africa, Manzini in Swaziland, Salisbury (now Harare) in Rhodesia and Blantyre in Malawi. The remaining locations in the province were served by about ten private air taxi companies. Flights between Lisbon and Lourenço Marques or Beira were a monopoly of TAP, Portuguese Airlines (Fig. 5).

Fig. 5. CFM's air network circa 1970.

CIVIL AVIATION

Answering to CFM's Planning and Construction Division (DEC, *Divisão de Estudos e Construção*) the Airfield Service (SE, *Serviço de Aeródromos*) was responsible for the construction

of new aviation infrastructures, such as Lourenço Marques, Beira or Quelimane airports. The setting up, in 1954, of the Civil Aviation Service (SAC, *Serviço da Aeronáutica Civil*), both in Angola and Mozambique, transferred this responsibility to the direct authority of the Governor General of each former overseas province, but remaining technically dependent on the Civil Aviation Authority in Lisbon.

According to a report on telecommunication, civil aviation, railways, ports and maritime transport of the Government of Mozambique, of circa 1973, civil aviation in the former overseas province was organised as follows:

- International Airports: Beira and Lourenço Marques;
- Regional Airfields: António Enes, Inhambane, João Belo, Lumbo, Nampula, Mocímboa da Praia, Nacala, Porto Amélia, Quelimane, Songo, Tete, Vila Cabral, Vila Coutinho, Vilanculos and Vila Pery;
- Landing fields for tourism: Bazaruto, Chitengo, Inhaca, Inhassoro, Manhiça, Ponta do Ouro, Vila Fontes (now Caia) and Zivane;
- Airstrips: between 150 and 200 smaller airstrips, over 700 meters in length, distributed all across the former overseas province.

MILITARY AVIATION

In 1956 Portuguese military aviation was restructured into three Air Regions, which covered the following geographic regions: region one - the European territory of Portugal, Madeira, Azores, Cape Verde and Guinea Bissau; region two - Angola and São Tomé and Príncipe; and region three - Mozambique, the Portuguese State of India, Macao and East Timor. For each of these aviation regions the building of aeronautical infrastructures was planned, so as to ensure full aviation coverage of the Portuguese Empire.

The construction of military airfields in Mozambique, in anticipation of the onset of the colonial or liberation war (1964-1974), began in 1962. The construction formed a network of civil and military infrastructures that covered the main war fronts in the north, in the Niassa and Cabo Delgado districts, and in the northwest, in the Tete district, as was organised in accordance with the following hierarchy:

- Air Bases: Air Base no. 10, Beira, in central Mozambique, was the main military aviation infrastructure;
- Airfield Bases: no. 5, Nacala; no. 6, Nova Freixo; no. 7, Tete; and no. 8, Lourenço Marques, where the regional headquarters was installed;
- Sub-dependent Airfields: dependent on Airfield no. 5, Mueda and Nampula; dependent on no. 6, Vila Cabral and Marrupa; and dependent on no. 7 Furancungo, Chicoa and Mutarara.
- There was a total of fifteen major civil and military aviation infrastructures, including Quelimane, Porto Amélia and Tenente Valadim.

AIRPORT TERMINALS

The terminal buildings of Mozambican airports, in addition to meeting the most recent international requirements for the design of air terminals, namely the IATA (International Air Transport Association) standards, also

performed functions of a social and political nature that distinguished them from their counterparts in Portugal. Thus, the large influx of crowds that came to welcome or say goodbye to passengers, especially on flights between Europe and the old overseas province, made it necessary to have generous reception spaces for the general public, such as lounges, restaurants, bars and outdoor terraces overlooking the airport's apron. On the other hand, as infrastructural buildings, their architecture and construction systems, which closely followed the principles and forms of the Modern Movement, symbolised the modernity and progress of the colonial policy of the *Estado Novo* regime.

LOURENÇO MARQUES/MAPUTO

The first air terminal for Lourenço Marques airfield, located in Mavalane, on the outskirts of the capital, was built by CFM for DETA to the plans and under the supervision of engineer Tito Esteves, of the DEC; it had *Art Déco* facades designed by the architect Carlos César dos Santos. The construction of this building, together with a new hangar and the lighting of the runaways, was incorporated into the *Estado Novo's* Bicentennial celebrations. Inauguration took place on December 17, 1940 (Fig. 6).

Between 1967 and 1969, after the original functions had been transferred to a new air terminal, the building underwent extensive refurbishment and expansion work to house the DETA headquarters. Designed at the DEC between 1966 and 1968 by the architect Pinho da Cruz, with calculations by the engineer Sá Fernandes, the new construction work commenced in mid-1969 and was concluded in February 1970 (Fig. 7). The new design maintained the Art Déco look and spatial layout of the central part of the previous building, while the exterior of the new side aisles featured an architectural language in line with the Modern Movement. It remains the LAM headquarters (Fig. 8).

Fig. 6. Mavalane air terminal, undated.

Fig. 7. DETA Headquarters, circa December 1969.

Fig. 8. LAM Headquarters, April 3, 2018.

The construction of the second air terminal for Lourenço Marques airport was part of the second phase of the General Plan for Lourenço Marques Airport, approved in 1948 and funded by the First Development Plan (1953–1958). The first phase of the General Plan envisaged a set of improvements to the infrastructure, including the construction of a new control tower. The Lourenço Marques Aviation Communications Centre was inaugurated in the control tower on May 28, 1959, as part of the celebrations for the 33rd anniversary of the National Revolution (as the fascist coup d'état in Portugal was known at the time). The air terminal was designed in Lisbon between 1955 and 1960 by the architect Cândido Palma de Melo (1922–2003) at the Directorate-General for Civil Aviation (DGAC, *Direção Geral de Aeronáutica Civil*). Construction began in the first quarter of 1961

Fig. 9. Lourenço Marques air terminal, circa May 1963.

Fig. 10. Lourenço Marques air terminal, before July 1964.

and it was inaugurated, together with the control tower, on June 17, 1963, commemorating the first air crossing of the southern Atlantic (Figs. 09 – 10). On March 28, 1964 the airport was officially named Gago Coutinho Airport. Modernised and expanded between 1970 and 1972, the terminal was demolished in 2011, leaving only the control tower.

The building was a symbol of modern contemporaneity at the main entrance to the former overseas province, thanks to its affiliation with the principles, forms and methods of Modern Movement architecture: asymmetric layout, horizontal windows, optimisation of the functional arrangement, flexibility of spatial divisions, structural and construction system standardisation, use of climate protection systems and mechanisms and incorporation of works of art.

The expansion and modernisation process of Maputo International Airport, which began in 2006, included, in addition to the new control tower and the new cargo terminal, the construction of a new international passenger terminal, opened in 2010, and a new domestic terminal, which began operating in October 2012. Both buildings, externally identical, feature an anonymous design based on an international high-tech architectural and

construction idiom that is hardly sustainable in the subtropical climate of Maputo (Fig. 11).

Fig. 11. Maputo air terminal, April 2, 2018.

INHAMBANE

The Aero Club of Inhambane was founded on June 27, 1948, with its statutes being published on May 28, 1949. Its airfield facilities were designed in 1953 by the Central Government's Inhambane Department of Public Works. An extension to the premises was built in the late 1960s by SAC to accommodate the increasing flow of tourists from neighbouring countries.

The air terminal is divided into two small sectors: the original building, consisting of a hangar flanked by two towers containing a bar, traffic control and the headquarters of the Aero Club; and the extension, a single-storey

Fig. 12. Inhambane air terminal, March 23, 2018.

volume that houses the remaining functions of an airport terminal: entrance, check-in, departure and arrival lounges, offices, etc. Both buildings display an anonymous but evocative *Art Déco* architectural language and a strictly functional arrangement of the internal spaces (Fig. 12).

NAMPULA

Nampula Airfield was inaugurated on December 8, 1951. The contract for the construction of a building to replace the existing air terminal , which was no more than a hut, (Fig. 13) was awarded in November 1958. The new terminal began to operate on August 30, 1960, having been built to a design for SAC by Lourenço Marques architects João José Tinoco (1924–1983), Maria Carlota Quintanilha (1923–2015) and Alberto Soeiro (b. 1917).

Fig. 13. Nampula air terminal, May 21, 1958.

The exterior images of this then new building, which is no longer there today, reveal a close similarity to the headquarters of the Civil Aviation Service, in Lourenço Marques, which was designed by the same group of architects circa 1958 and inaugurated on May 28, 1959. Both consist of two autonomous volumes and both are influenced by contemporaneous modern Brazilian architecture, reflected in the plastic exploration of brise-soleil, oblique gables and butterfly roofs (Fig. 14).

A large investment programme in public works and communications on the former province, announced in 1969, included the improvement of the main runway and the expansion of Nampula airfield's airbase facilities to accommodate DETA Boeing 737 jets. Work on the air terminal began in January 1970, and was scheduled for completion by the end 1973, to a design by the Nampula-based architect José Joaquim Dias (b. 1932) for SAC.

This long two-storey building of a constant volume and structural rhythm most likely was built on top of the pre-existing facilities (Fig. 15). The public area is structured around a double-height space, in a similar scheme to the spatial composition and functional distribution of its Lourenço Marques and Beira counterparts.

Fig. 14. Nampula air terminal, circa November 1960

Fig. 15. Nampula air terminal, March 7, 2009

PORTO AMÉLIA/PEMBA

Construction work on the building that replaced the air terminal hut at Pemba airport (Fig. 16) commenced in December 1959, led by the builder Andrea Sassateli, to a design for SAC by the married couple, the architects João José Tinoco and Maria Carlota Quintanilha (Fig. 17). In early 1961 the construction was completed, with exception of the access road. Two years later it was still closed to the public.

The building was made of two formally autonomous volumes connected by a porch: the one-floor body of technical services and control tower, and the two-story body of public area organized around a double height ceiling. It shares with its contemporaneous Nampula terminal the same influences from Brazilian modern architecture.

Fig. 16. Porto Amélia air terminal, May 21, 1958

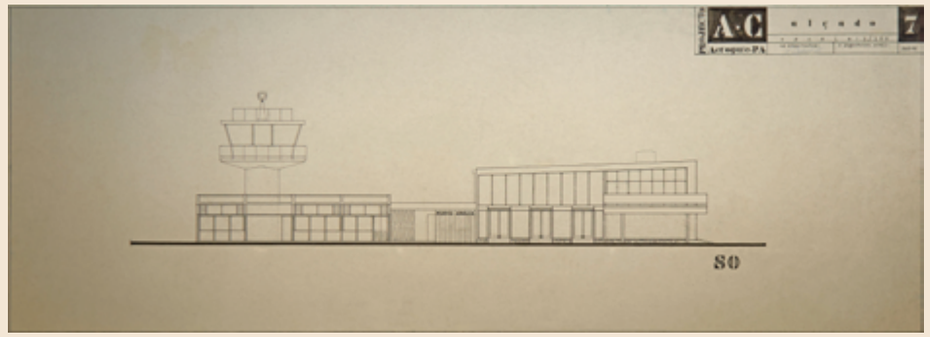

Fig. 17. Porto Amélia air terminal, elevation, circa 1959

The air terminal underwent several remodelling and expansion over time, due to new functional requirements, which significantly altered its physiognomy. The main changes identified were the creation of a new block to house a departure lounge and VIP room, among other functions, according to a 1995 design (Fig. 18), and comprehensive rehabilitation and extension works, namely for the creation of a longitudinal block parallel to the existing construction on the square front, inaugurated on March 25, 2014 by the President of the Republic Armando Guebuza (Fig. 19).

Fig. 18. Pemba air terminal, June 30, 2010

Fig. 19. Pemba air terminal, March 5, 2014

VILANCULOS/VILANKULO

A public tender for the construction of the air terminal and emergency centre at Vilanculos airfield to a design project whose authorship has yet to be determined, was opened by SAC in October 1959. The terminal, which was demolished to make way for the current one, consisted of a long, one-storey volume interrupted by a taller block containing control tower, meteorological services and a restaurant (Fig. 20).

The current air terminal was inaugurated on April 13, 2011 by the then President of the Republic, Armando Guebuza. Its design, also of unknown authorship, sets a scale and functional organisation that are appropriate for the amount of air traffic; it also opted fora high-tech architectural and construction system language similar to that of Maputo International Airport (Fig. 21).

Fig. 20. Vilankulo air terminal, undated, after 1980

Fig. 21. Vilankulo air terminal, March 24, 2018

BEIRA

The issue of a new aerodrome to replace Pais Ramos Airfield, located in the centre of the city of Beira, without available area for expansion, was first addressed in 1947. The construction of three new dirt strips in Alto da Manga, carried out by CFM through AS, was concluded in 1953. The strategic geographical position of the city of Beira was the basis for the CFM programme that, among other improvements, provided for the construction of a new air terminal. The project for the terminal, also designed in 1964 at DGAC, incorporated the existing control tower. In the same year, the airfield was officially renamed Sacadura Cabral Airport, currently known as Beira International Airport. At the time, the largest air terminal in all of Portugal and the colonial territories, its construction began in mid-1965 and it was inaugurated on June 27, 1968.

The formal and conceptual characteristics of the building show the same affiliation in the Modern Movement as its Lourenço Marques counterpart. The main support structure, consisting of concrete pillars, slabs and prefabricated roof vaults, which also found expression in exterior elevations and interior spaces, was governed by a base modulation that allowed for flexible partitioning of all interior spaces and adaptability to ever-changing aeronautical programmes (Figs. 22–23).

Fig. 22. Beira air terminal, March 26, 2018

Fig. 23. Beira air terminal, March 27, 2018

VILA CABRAL/LICHINGA

The tender for the construction of the air terminal at Vila Cabral Airfield to replace the existing one (Fig. 24), was opened in late 1961. Built by Paixão & Irmãos, L.^{da}, to a design for SAC by architect João José Tinoco (Fig. 25), the terminal was inaugurated on August 3, 1964, by the President of the Portuguese Republic, Américo Tomás.

The building consisted of two one-floor prismatic volumes separated by a lower third volume providing covering for the external porch, main entrance and offices of the airlines. The public areas were situated in the west block , and in the east the technical services and the elegant control tower, which rose from the flat roof. The pared-back design of this building found

Fig. 24. Vila Cabral air terminal, July 28, 1956

its expression in the play of volumes and in the contrast between transparent and opaque planes and between plaster and stone claddings. Over the years this building has been successively altered by several refurbishments and extensions. At present, only the control tower and fragments of the eastern block facades maintain their original physiognomy (Fig. 26).

Fig. 25. Vila Cabral air terminal, Main Façade

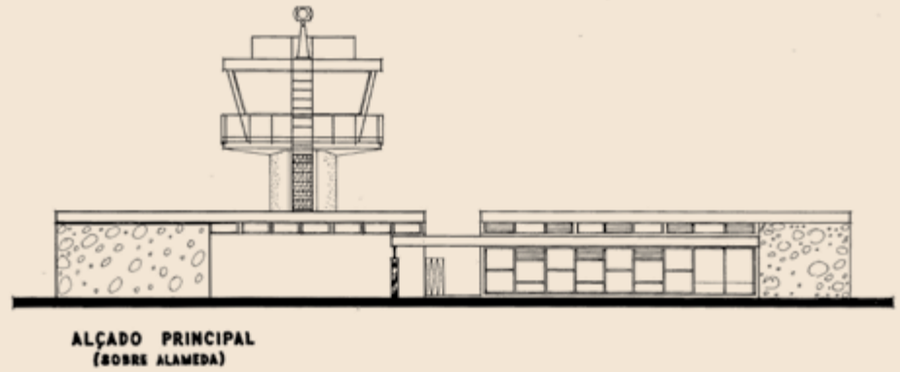

Fig. 26. Lichinga air terminal, March 5, 2009

QUELIMANE

The city of Quelimane has been used as a stop by Mozambican Aero Club airline planes since 1929, Aero Colonial since 1933, British Imperial since 1935 and DETA since 1938. Its airfield opened to public in 1940 as part of the commemorations for the Bicentennial of Mozambique as a Portuguese colony. The inadequacy of the existing facilities (Fig. 27) for traffic growth and aviation developments led to the decision, officially published in May 1966, to build a new airport on land to be expropriated for public utility. The preparatory work for the construction of the infrastructure began in mid-1967. The main runway was inaugurated on January 23, 1971, together with DETA's Boeing 737 flight routes to Quelimane. The construction of the

air terminal and attached facilities, designed by the Lourenço Marques-based and established architect, Octávio Rego da Costa, for SAC (Fig. 28), was awarded to Sociedade de Construções, Lda. on December 23, 1970. The inauguration of the new infrastructure, at the time named Engenheiro Pinto Teixeira Airport, took place on October 13, 1973.

The formal unity of the independent buildings that make up the current Quelimane International Airport facilities – air terminal, VIP lounge, fire station, cargo terminal and staff housing – is guaranteed by the use of the same architectural language that originated from various sources (Fig. 29): from the vernacular architecture of Portugal came the human scale, the domestic spaces, the sloping roofs, the textured plastering and the varnished wood surfaces on windows and finishes; the expressiveness of the volumes, gutters and structural walls, came from Barragán, Louis Kahn, Venturi or Aldo Rossi's architecture; and the signage, decorative panels and door handles was inspired by pop culture aesthetics.

Fig. 27. Quelimane air terminal, December 20, 1956

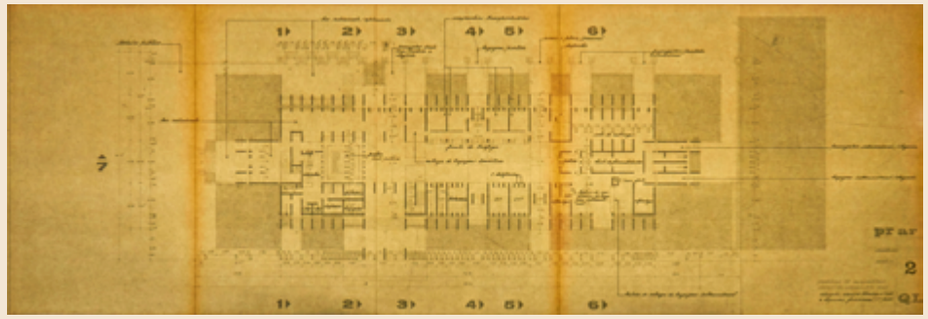

Fig. 28. Quelimane air terminal, ground floor plan, circa 1970

Fig. 29. Quelimane air terminal, June 28, 2010

SONGO

Lusitânia Airfield, now known as Songo Airfield, was built to serve Cahora Bassa Dam with regular flights arriving from Tete Airfield. The construction was awarded to Sociedade Técnica de Construções, Lda. in early 1971, and it was inaugurated on October 29, 1972, as part of the celebrations of the 50th anniversary of the first air crossing of the South Atlantic.

Although no document has been found that would confirm its authorship, the obvious formal proximity between the Songo air terminal and its Quelimane counterpart and between the technical drawings for both designs leads one to attribute the Songo design to architect Octávio Rego da Costa (Fig. 30). The facilities consist of two separate main blocks, a long, one-storey, gable-roofed air terminal and a square control tower topped by an oblique glass ring; and a small building at the southern end, different from the original design (Fig. 31). The buildings have kept their original physical aspect, even though the airfield is no longer used as a stop by regular flights.

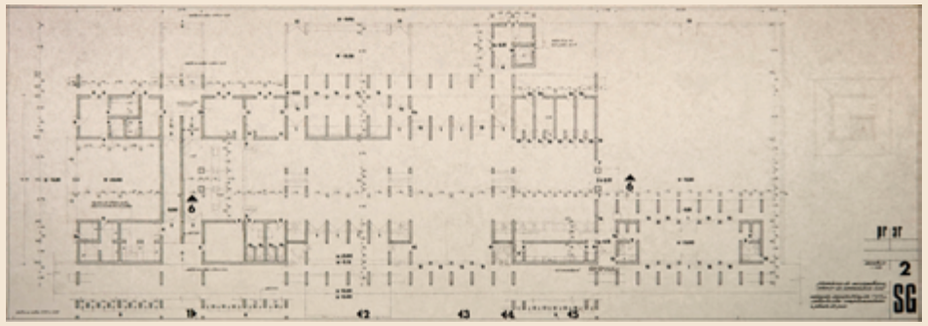

Fig. 30. Songo air terminal, ground floor plan, circa 1971

Fig. 31. Songo air terminal, March 29, 2018

TETE

The first flight route to Tete was inaugurated in 1940 as part of the Bicentennial celebrations. In May 1958, the temporary air terminal was no more than a small shack (Fig. 32). In April 1973, the metal structure of a provisional terminal was erected, currently used as a fire station. The Tete Chingodzi International Airport air terminal design for SAC by the Lourenço Marques-based, architects João José Tinoco and António Matos Veloso (1923-2014), was sent to Tete in July 1973 (Fig. 33). In December 1976, the construction of the terminal, awarded to SOCOL, Sociedade de Construções, Lda., was well underway, except for the control tower, which was to be executed as a metal structure by the subcontractor EMETAL, Empresa Metalúrgica, L.da. Finishing plans and detailing were the responsibility of E. E. de Projectos de Arquitectura in the mid-1980s. The building entered into full operation in September 1981.

Tete's air terminal design takes advantage of the terrain morphology to open the four fronts of a rectangular block to four different exterior spaces, set at two different levels. The main functions are distributed on the three floors of this volume around a decentralized lighting and ventilation patio, in a fluid sequence of autonomous spaces. The geometry and structural expressiveness of the terminal and control tower remind one of the architecture of Louis Kahn and Robert Venturi; the design of signage evokes contemporary advertising aesthetics (Fig. 34).

Fig. 32. Tete air terminal on May 27, 1958

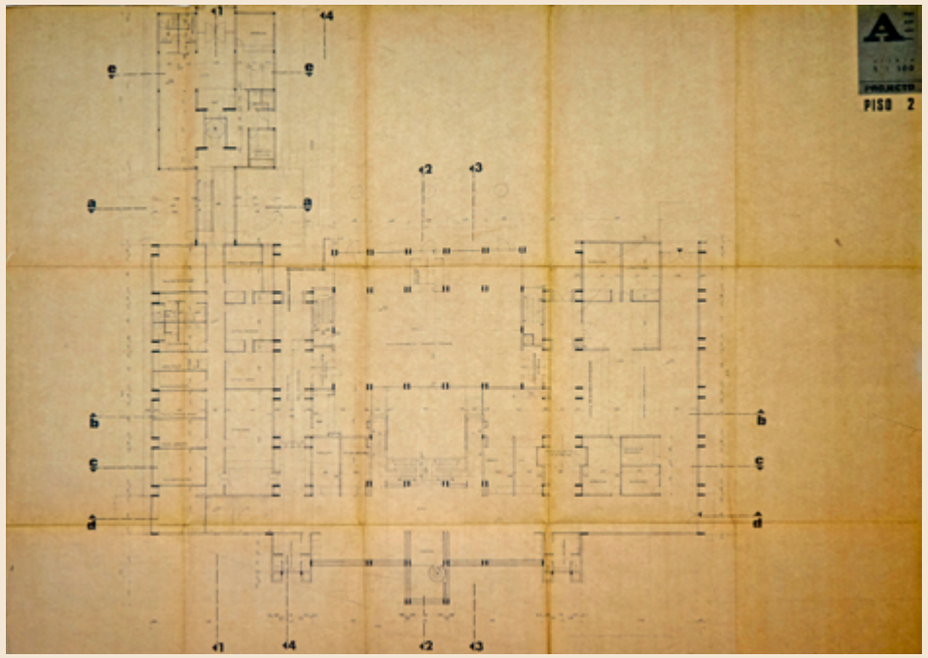

Fig. 33. Tete air terminal, second floor plan, c.1973

Fig. 34. Tete air terminal on March 28, 2018

EPILOGUE

The construction of airport infrastructure in Mozambique during the colonial period was, as with commercial aviation, a precursor for what took place within Portugal itself. From the first terminal buildings purpose-built in 1940, in the airfields of Lumbo and Lourenço Marques, serving the old and new capitals in the colony, to the Tete terminal, which opened after the independence of the overseas province, the design of the projects followed the most up-to-date functional layouts, construction systems and architectural concepts. Because, as Cândido Palma de Melo, the architect/designer of the Lourenço Marques terminal and co-designer of that in Beira, mentions in the *Descriptive and Justificatory Report* for the former:In an airport general plan, the terminal building stands out as a prominent element of the operations [...].

> ***[...] is [...] subject to the rapid aging of the conception itself in the face of the rapid evolution of the pace and characteristics of this mode of transport.***
> ***However, experience shows that whilst the progressive adaptation of the runways, platforms and paths to the ever-evolving needs of aircraft may be difficult, with regard to terminal buildings these developments lead to their inexorable condemnation in the short term. (Palma de Melo, 1959)***[2]

2. Cândido Palma de Melo, *Lourenço Marques Airport, Air Terminal, Descriptive and Justificatory Report*, December 31, 1959.

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Fig. 08. Elisiário Miranda.
Fig. 09. *Boletim dos Portos, Caminhos de Ferro e Transportes de Moçambique*, Lourenço Marques, May 1963, p. 19.
Fig.10. Carlos Alberto, circa 1964, in *Aeroporto Gago Coutinho*, Lourenço Marques, Serviço da Aeronáutica Civil.
Figs. 11 – 12. Elisiário Miranda.
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Fig. 28. Aeroportos de Moçambique, Maputo
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Fig. 30. Aeroportos de Moçambique, Maputo.
Fig. 31. Elisiário Miranda.
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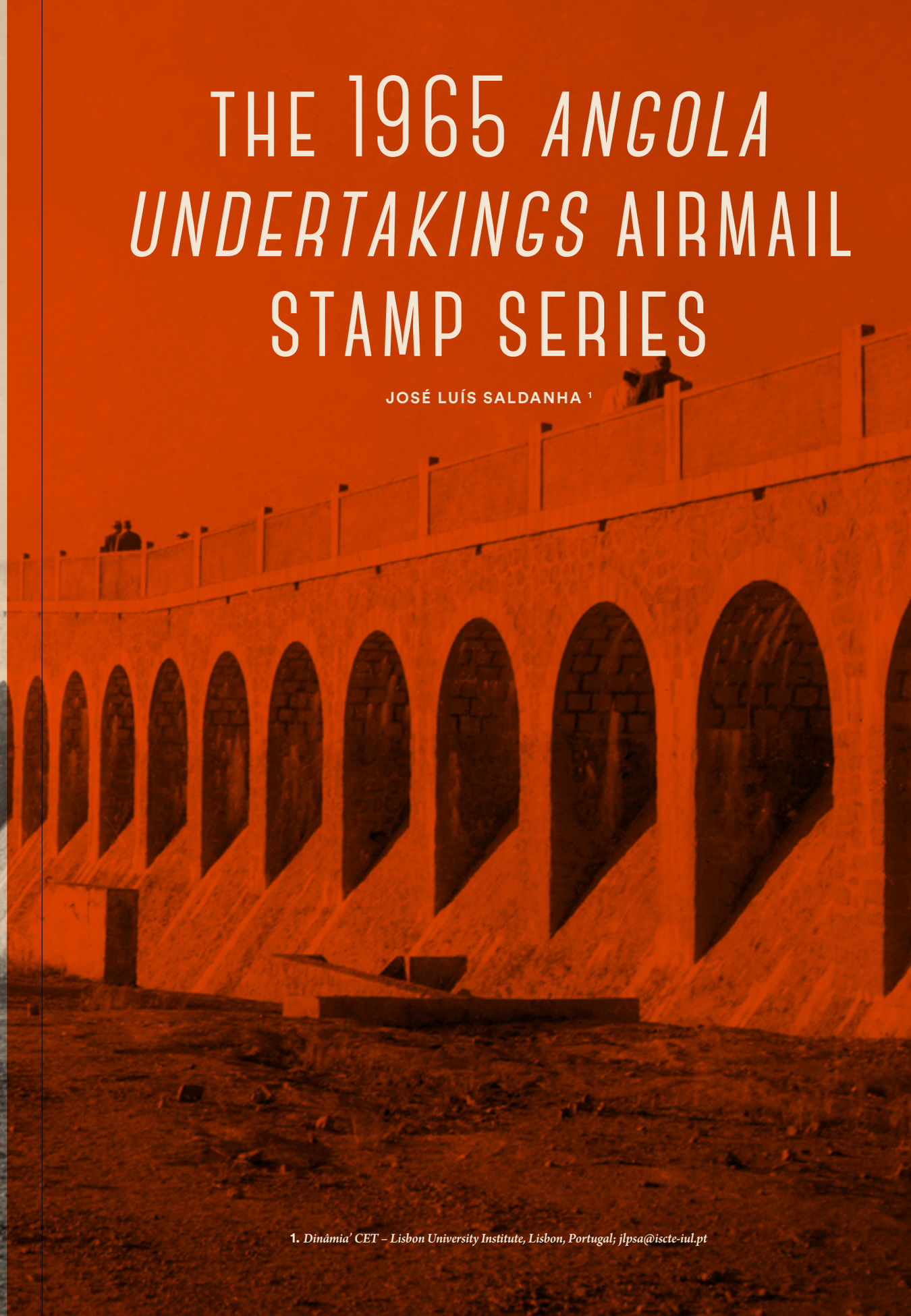
THE 1965 *ANGOLA UNDERTAKINGS* AIRMAIL STAMP SERIES

JOSÉ LUÍS SALDANHA [1]



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[ABSTRACT]

This article focuses on a group of engineering undertakings in Angola, which are dealt with in an inverted order, as the iconographic sources the article looks at established the case-studies, and not the other way around. An airmail stamp set issued in 1965, and in use in the Portuguese Province of Angola, was the basis for the research, and also validated the territorial, technological and economic strategic worth of the objects included in it.

One of the major difficulties with infrastructure in Angola has to do with the distance between its larger cities. Apart from Huambo, which is strategically close to the country's territorial centre, all its main towns are located along the coast, at distances that were travelled by boat. This explains why the major railroads that penetrated the Angolan inland, from Luanda, Lobito and Moçâmedes (plus the shorter, narrow-gauged, Amboim railway), do not meet at any point. This urban settlement dispersion is a drawback also in terms of the electricity supply, an issue the hydroelectric plants included in the group of engineering feats were meant to solve.

Almost all the facilities featured on the ten stamps were built during the third quarter of the 20th century, which was a period of technological development and the exploration of Angolan natural resources and transportation networks. All have survived, even if some have undergone considerable change and reconstruction.

Paradoxically, the Colonial War years were also times of economic growth in the Portuguese-speaking territories in Africa, and particularly so in Angola, through investment by the Portuguese State in infrastructure, the immigration of Portuguese colonisers seeking out this land of opportunity, and the so-called 'war effort'. This was the case of the oil and natural gas sectors, which grew in importance in the Angolan economy, so that by 2005 and 2008 they accounted for 56% and 58% of the country's Gross Domestic Product (Esperança, 2011: 184). This has certainly not changed much over the last decade.

The facilities in the article are in part dealt with in accordance with the schedule for the 1963 presidential visit to Angola by Américo Tomás, during which this President of the Portuguese Republic visited — and in some cases inaugurated — said infrastructures.

The visit was accompanied by the issue of new banknotes from the Bank of Angola, which had some reissues during the following years, and were also dealt with in the research, as they also showcased infrastructural endeavours in Angola, and twice repeated the same subjects as in the postage stamps.

KEYWORDS: 20th Century Engineering in Angola; Hydroelectricity in Angola; Bridges in Angola; Portuguese Civil Engineering

THE *ANGOLA UNDERTAKINGS* POSTAGE STAMP ISSUE

The Portuguese Ministry for Overseas Affairs had great autonomy of powers and policies over the country's vast and widespread colonies in continental Africa; the archipelagos of Cape Verde and São Tomé & Príncipe (in the Atlantic Ocean, off the west coast of Africa); the Macau territories; East Timor; and the territories of Goa, Daman and Diu, on India's West Coast (until 1961). It accordingly had the power to order and issue postage stamps, independently of the main Postal Service in 'European' Portugal (officially known as 'the Metropole').

The Angola Undertakings Airmail Stamp Series resulted from the Ministry for Overseas Affairs decision to issue ten stamps showcasing the most significant infrastructures built in Angola after World War II. The Ministry resolution, through its Postal Values Service, was duly published as Ministerial Order 21 377 in issue 149 in the 1st Series of the Government Legal Gazette (*Diário do Governo*) of 7 July 1965. The stamps were ordered from Lisbon's National Mint and Printing Office (*Casa da Moeda*), where the imprints are still stored, under a process dating from the end of 1963: much earlier, therefore, than publication of the related Ministerial Order in the Government Gazette.

The Ministerial Order called for stamps worth 1$50 (an issue size of 5 million), 2$50 (7 million), 3$, 4$ and 4$50 (1 million each), 5$, 6$, 8$50 and 12$50 escudos (500 000 each). The issue was not given a name, so that it has been variably known under several names in stamp collecting circles and catalogues, such as Angola Undertakings (*Empreendimentos Angola)*, but also Oil Refinery, Dams and Bridges (*Refinaria de Petróleo, Barragens e Pontes*) or *Development Issue* (*Edição Fomento*) — since most of the engineering facilities depicted were subsidised by the Overseas Investments Fund. *National Mint/Printing Office* papers also refer to it as "Dams and other undertakings in the Province of Angola" (*Barragens e outros empreendimentos da Província de Angola*), or "Angola Airmail – Bridges, Dams and Other Undertakings" (*Correio Aéreo de Angola — Pontes, Barragens e Outros Empreendimentos*).[1]

All stamps were in a horizontal (landscape) position, except for the 1$50 upright (portrait) one. In accordance with the information in stamp catalogues, the illustrations for the 3$00, 4$50, 5$00 and 8$50 stamps were drawn by António Silva da Cunha Rocha, an artist born in Figueira da Foz in 1932, known for landscape paintings and watercolours who died on 26th July 2016 — one week before the research identified him as the artist.

The 1$50 stamp (Fig. 1) was illustrated by Ibolya Salkovits. This artist, born in Hungary on 5 May 1928, had emigrated to Brazil in 1949, together with her husband Zoltan Ostffy Salkovits, also a graphic artist of Hungarian descent. Their move was approved through the South American country's programme of Selection of Displaced People in Europe, via its Turin Consulate, according to papers kept at the National Archives in Rio de Janeiro, where the Salkovits entered the country (Fig. 2).

1. Portuguese Mint process 6210/60 "Pontes e Barragens" — ANGOLA, shelf 13, box 103.

Fig. 1a. Oil Refinery. 1$50 Angola Postal Service airmail stamp. Printed at the Portuguese National Mint/Printing Office, Lisbon, 1965. Drawing: Ibolya Salkovits

Fig. 1b. Luanda Oil Refinery. Portuguese Communications Foundation. Picture Archives, Archive no. B000355, ref. FT-621.D SVPU

Ibolya Salkovits' family disclosed to the research team that she moved to Porto (Portugal) in 1956, where she founded an advertising agency named *Época,* which engaged Cunha Rocha. Both would move to Lisbon in 1962, taking *Época* with them. Salkovits' illustration of the Luanda oil refinery was not her only commission for the Portuguese Ministry for Overseas Affairs, as in 1963 she had designed a beautiful set of stamps depicting snakes of Guinea-Bissau, for use in that Overseas Province, as the colonies were then known. The same family sources suggest, however, that all drawings attributed to Salkovits in stamp-collecting circles may have been by Cunha Rocha, probably ordered through *Época*, and that the sharing of authorship credits was a marketing decision by both of them. Ibolya Salkovits was to move to France in 1964 and later settled in Sweden, where she died in Skövde in 1985.

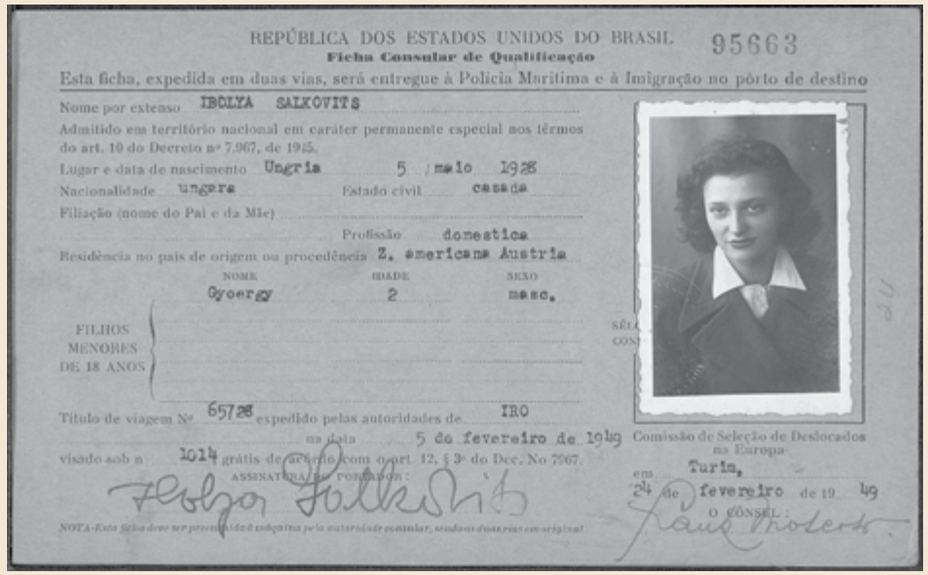
REPÚBLICA DOS ESTADOS UNIDOS DO BRASIL 95663
Ficha Consular de Qualificação
Esta ficha, expedida em duas vias, será entregue à Polícia Marítima e à Imigração no pôrto de destino
Nome por extenso IBOLYA SALKOVITS
Admitido em território nacional em caráter permanente especial nos têrmos do art. 10 do Decreto nº 7.967, de 1945.
Lugar e data de nascimento Ungria 5 / maio 1928
Nacionalidade ungara Estado civil casada
Filiação (nome do Pai e da Mãe)
Profissão domestica
Residência no país de origem ou procedência Z. americana Austria
NOME IDADE SEXO
FILHOS MENORES DE 18 ANOS
Gyoergy 2 masc.
Título de viagem Nº 6572S expedido pelas autoridades de IRO
na data 5 de fevereiro de 1949 Comissão de Seleção de Deslocados na Europa
visado sob n 1014 grátis de acôrdo com o art. 12, § 3º do Dec. No 7967.
em Turin,
24 de fevereiro de 19 49
ASSINATURA DO PORTADOR:
O CÔNSUL:
NOTA-Esta ficha deve ser preenchida a máquina pela autoridade consular, sendo as duas vias em original

Fig. 2. Ibolya Salkovits' Consular Qualification Card no. 95663, filled out in February 1949 at the Brazilian Consulate in Turin, Italy

The chief engineer for the National Mint/Printing Office's Production Department, Abel Tavares Fernandes, was responsible for the submission for the stamps' blueprints on 20 January 1964. The Portuguese Mint charged 42 300 escudos for manufacturing all stamps, and 20 batches of an initial one million units were shipped to Angola on the *Vera Cruz* ship in July 1965, when payment by the Ministry for Overseas Affairs was also confirmed by the head of the Directorate-General of Public Works and Communications. Extra issues of the stamps were ordered in 1966 and 1967.

Research at Lisbon's Communications Museum (*Museu das Comunicações)* has provided an extra piece of information, in the form of the original photographs — some of which bore jotted down instructions — sent to the artists (who most certainly did not travel to Africa!) for their renders. Some of these match copies at Lisbon's *Arquivo Histórico Ultramarino* (Overseas Historical Archives), and we have paired them with the stamps issued.

THE LUANDA OIL REFINERY

The stamp by Ibolya Salkovits, printed in yellow, light-blue, ultramarine blue (an appropriate colour for the set), red, black, brown, green and violet, shows the Luanda oil refinery, the importance of which became central to Angola's recent history.

According to *Breve história da pesquisa do petróleo em Angola* (A brief history of the search for oil in Angola) published in *Electricidade* no. 111, the first licence to explore petroleum and its derivatives in Angola was conceded to the company Canha & Formigal in 1910, for an area 114 000 sq. km. The management of the search for petroleum in Angola was then to be granted to Companhia de Pesquisas Mineiras de Angola–PEMA, until 1920. Prospection was carried out in the River Dande area, in N'Gondo and in Porto Amboim.

Meanwhile, the *Companhia de Petróleo de Angola* (CPA) was established in 1916, with its head offices in Rua dos Fanqueiros in Lisbon. Its major shareholder was *Banco Nacional Ultramarino* (the Bank which controlled all issues of currency in the Portuguese colonies), and it joined forces three years later with the American *Sinclair Consolidated Oil Corporation* based in Nassau Street, New York, which became responsible for the technical management (Gazeta, 1925: 32). CPA then signed a contract with the Angolan General Government in 1922, to carry out prospection across an extensive concession area in Northwest Angola, where it was granted exclusive rights to explore any petroleum, mineral oil, bituminous substances, and hydrocarbon gas fields, as long as those areas were demarcated, until 15 August 1936. Despite important evidence of oil and gas being revealed at almost every drilling, no commercial field was opened (Salgado b), 1975: 640 – 641).

Exploration was resumed after 24 March 1953, when a contract was signed between the Portuguese State and Companhia de Combustíveis do Lobito (Purfina) for a concession on the Cuanza and Congo sedimentary basins. The firm, which was a subsidiary of the Belgian *Petrofina*, sold petroleum products across Europe and Africa under the brand *Fina* — and, up until 1960, also as Purfina — and had established its Angolan operation for the distribution of oil derivatives in 1926.

The areas granted to the Belgian company were to be expanded in 1955: the year when the first oil field was discovered in Benfica, 40 km south of the Angolan capital and 4 or 5 km from the seacoast. According to records published in 1961 by General Horácio de Sá Viana Rebelo (1910 – 1995) for his term as Governor-General of Angola, news of the discovery ran wild back in Portugal (Rebelo, 1961: 123). Rumour had it that the Portuguese dictator, Oliveira Salazar, grumbled "this is really the last straw!" when the news reached him.

On 22 October 1957 — the year a new oil field was discovered in Luanda — the rights awarded to Companhia de Petróleos do Lobito – Purfina were transferred to the newly founded Companhia de Petróleos de Angola – Petrangol. One third of its shares were offered to the Overseas Province of Angola (Salgado b), 1975: 649), while Petrofina,[2] which provided technical, commercial, and financial support, was given an equal stake. The remaining shares were distributed amongst smaller shareholders (Herrick, 1967: 310).

The 1952 *Purfina* contract included and allowed for the installation in Angola of an oil refinery for the processing of crude oil resulting from local drilling, as well as imported crude. Said rights were to be passed-on to *Petrangol*. Refining operations at the facility began in 1958, with a processing capacity of 100 000 tonnes/year, in the same year oil was struck in Cacuaco, 15 km north of Luanda. The Galinda field produced a new well in 1959, and 1960 saw the refinery capacity grow to 220 000 tonnes/year. The strategic importance of the Luanda refinery was heightened by it being the first infrastructure of the kind established on the west coast of Sub-Saharan Africa (Boletim da Associação, 1963: 149).

Another well was opened in 1961 at Tobias, while the refinery's output grew to 600 000 tonnes per year in 1962. The refinery, of course, wasn't so much a fixed engineering construction as a mechanical assemblage adapting to organic change and improvement. For this reason, the contractors are harder to identify, and collective teamwork of variable constellation prevails over traceable individual authorship.

THE 1963 PRESIDENTIAL VISIT TO ANGOLA

The Luanda oil refinery was one of the final stops on the 1963 visit to Angola by the Portuguese President, Admiral Américo Tomás. According to the Angola Industrial Association Bulletin no. 57, which recorded his trip, the catalytic upgrade of the refinery, which allowed for a further increase of the plant's oil processing capacity, was inaugurated during his visit on 4 October, as commemorated by an engraved stone plate on site (Boletim da Associação, 1963: 271 - 272).

The presidential visit, with the entourage arriving in Luanda by ship on 16 September, is minutely described in the supplement to number 458/459/460 of *Boletim Geral do Ultramar*. In line with the practice for previous presidential visits to the colony, new batches of Bank of Angola banknotes — printed at *Thomas de La Rue & Co. Ltd. of London* — bearing

2. Petrofina eventually merged with the French giant Total S.A. in December 1998, producing TotalFina, the third biggest oil company in Europe, and sixth largest in the world.

Tomás' likeness came into circulation on the same day as his arrival; the new notes were for 50$00, 100$00, 500$00 and 1000$00. All of them happen to depict infrastructures in Angola.

The 100$00 note shows the bridge over the River Cuanza at Porto Condo (Fig. 3), while the 1000$00 note shows the Mabubas hydroelectric dam on the River Dande (Fig. 4). Both were also to be included in the stamp set dealt with herein (Figs. 5 and 6). The former serves the road running from Malanje down to Kuíto (the former Silva Porto), and was built to a project coordinated by engineer António Pais, who at the time was the interim head of the Malanje Province Public Works Department.

Fig. 3. Salazar Bridge over the River Cuanza. 100$00 Bank of Angola note. Printed at Thomas de La Rue & Co. Ltd. London. Issue date: 10 June 1962

Fig. 4. Mabubas Dam. 1000$00 Bank of Angola note. Printed at Thomas de La Rue & Co. Ltd. London. Issue date: 10 June 1970

Fig. 5a. Oliveira Salazar Bridge. 8$50 Angola Postal Service airmail stamp. Printed at the Portuguese National Mint/Printing Office, Lisbon, 1965. Drawing: Cunha Rocha

Fig. 5b. Oliveira Salazar Bridge over the River Quanza — Malange 30/7/63'. Photograph: Foto-Algarve/Silva Porto. Portuguese Communications Foundation. Picture Archives, Archive no. B000355, ref. FT-622.J SVPU. Note handwritten remark: "To be made using both photos together"

Fig. 6a. Capitão Teófilo Duarte Dam [Mabubas]. 4$00 Angola Postal Service airmail stamp. Printed at Portuguese National Mint/Printing Office, Lisbon, 1965. Drawing: artist unknown

Fig. 6b. Partial aspect of the Mabubas Dam. Photographer: D.S.E — S. Publicidade de Angola. Overseas Historical Archives, Archive no. AGU/PG 757 ref. ID: 17883

The Mabubas dam, named after Capitão Teófilo Duarte (the Portuguese Minister of the Colonies between 1947 and 1950), was designed by engineer António Vecchi Pinto Coelho as the first modern investment of its kind in Angola, and was located some 60 km northeast of Luanda. This infrastructure was built between the official date for the start of the construction work, 18 February 1948, and June 1954, when it was inaugurated by the Portuguese President, Air Force General Francisco Higino Craveiro Lopes (Lisbon, 1894 – 1964). It provided the Angolan Capital with an important new source of energy through its twin turbines, which in 1957 were added with an extra pair of power turbines. The name of Craveiro Lopes, who held the presidential office before Américo Tomás (from 1951 to 1958), was likewise given to the Luanda airport shown on the 50$00 note (Fig. 7). The capital was also home to the country's major seaport, shown on the 500$00 banknote (Fig. 8).

Fig. 7. Craveiro Lopes Airport in Luanda. 50$00 Bank of Angola note. Printed at Thomas de La Rue & Co. Ltd. London. Issue date: 10 June 1962

Fig. 8. Port of Luanda. 500$00 Bank of Angola note. Printed at Thomas de La Rue & Co. Ltd. London. Issue date: 10 June 1970

The refinery Tomás visited corresponded to the drawing by Ibolya Salkovits for the 1965 postage stamp, although that same year the infrastructure increased its processing capacity to 700 000 tonnes/year. Meanwhile, a new oil field was discovered in Puaça in 1964, followed by others in Mulenvos (1966), and North Quenguela (1967). In 1971, a new well was drilled at Cabeça da Cobra, the same year the Petrangol facility was expanded again, creating a new processing capacity of one million tonnes per year. New oil fields were to be discovered in 1972, at Quinguila and Légua, while the refinery applied for authorisation for a further capacity increase of up to three million tonnes per year (Salgado b), 1975: 645).

The presidential visit originated a postage stamp as well, also printed at the National Mint/Printing Office, for the Angolan Postal Services,[3] according to an Ministerial Order published by the Ministry for Overseas Affairs which defined that the stamp should be for a price of 2$50 and be a 500 000 unit issue, displaying "the likeness of His Excellency, the President of the Republic, Rear-Admiral Américo Deus Rodrigues Tomás, in the colours blue, magenta, yellow, red, black, ochre and sepia" (Fig. 9).[4]

Fig. 9. Presidential Trip 1963. Rear Admiral Américo Thomaz. 2$50 Angola Postal Service stamp. Printed at Portuguese National Mint/Printing Office, Lisbon, 1965. Drawing: artist unknown

3. National Mint/Printing Office process 6210/59 'Viagem Presidencial – 1963', shelf 13, box 103.
4. Ministerial Order no. 20 067 published in the Government Legal Gazette 1st Series, issue number 214, on 11 September 1963.

An undated handwritten note on the reverse side of a letter from the Directorate-General of Public Works and Communications of the Ministry for Overseas Affairs to the National Mint/Printing Office (ref. 6429/32, dated 25 July 1963), proposes a shipment of 475 400 stamps to Angola; 20 000 were to be sent to an 'Agency' (probably, the *General Overseas Agency*); 2 600 were meant for "collections"; and 2 000 were to be dispatched to "Berna" (by which some civil service office located in Lisbon's Avenida de Berna could be meant).

A letter sent by the National Mint/Printing Office to the Minister of Finance on 15 October 1963 asked for clearance that Mr. Gustavo de Almeida Araújo, 'a specialised artist who has duly undertaken work for this Board of Administration',[5] be commissioned with the execution of the stamps' exemplary model, at a price of 2000$00. In addition to minor expenses, the National Mint/Printing Office costed the full batch of stamps at 21 600$00, according to invoice number 23 dated 27 January 1964.

The President's trip included a visit to Nova Lisboa, the youngest city in any part of the Portuguese Empire. It had been founded in 1912 in the heart of the Angolan interior, when it was named Huambo. The city regained this name in 1975, when Angola achieved independence, as it had been renamed after the Portuguese capital in 1928 by António Vicente Ferreira, the High-Commissioner of Angola. The first hydroelectric infrastructure in Angola had been built close to the city, the small Cuando Dam, which exploited the diminutive River Cuando/Cunene, a mere 20 km downstream from its source. It is featured on the 5$00 airmail stamp (Fig. 10), albeit in an erroneous way, as the dam — and river — were mistakenly identified as "Cuango".

Fig. 10a. Cuango Dam [a typo for "Cuando"]. 5$00 Angola Postal Service airmail stamp. Printed at Portuguese National Mint/Printing Office, Lisbon, 1965. Drawing: Cunha Rocha

Fig. 10b. Cuando Dam (undated). Photograph: Angola Information and Tourist Centre. Source: AHU/PI 725

The Cuando dam was built by the Companhia de Caminho de Ferro de Benguela (CFB or Benguela Railway) — whose factory Américo Tomás also visited (probably on 26 September). It was opened in February 1911, when it was also called "Varian Dyke", after the name of the engineer H.G. Varian, who had been engaged by CFB in 1907 as its chief resident engineer. The drawing for the stamp is by the artist Cunha Rocha, while the small dam it represented in the drawing and the correspondingly small reservoir were meant to:

5. Letter from the National Mint/Printing Office to the Minister for Overseas Affairs, dated 15 October 1963. National Mint/Printing Office process no. 6210/59.

> *Cover the requirements of its generation machinery; the basis for that generation [being] a powerplant at the Rio Cuando (a tributary of the Cunene, not to be confused with the great river in the southeast of the province), the capacity of which was recently increased. However, the dam's possibilities are dependent on a small retention basin, making it highly vulnerable to a lack of precipitation as was the case last year, when important restrictions had to be imposed during power supply periods, and the quantities placed at the disposal of customers had to be defined. (Colen, 1955: 14)*

INFRASTRUCTURE IN SOUTHWEST ANGOLA AND THE CAMBAMBE DAM ON THE RIVER CUANZA

The city of Lobito was Angola's second industrial hub and its most important seaport after Luanda. It featured on the 20$00 banknotes issued by the Bank of Angola (Fig. 11), also bearing a likeness of Américo Tomás, although there was no issue for the corresponding value on the occasion of his 1963 visit, unlike for the 50, 100, 500 and 1000 escudo notes. Lobito and Benguela were included in the presidential schedule, during which the airport in the latter city was inaugurated. The importance of this pair of cities justified that a modern hydroelectric dam be built close by: at Biópio, some 25 km inland from Lobito, on the important River Catumbela (the estuary of which is located halfway between the two cities).

Fig. 11. Silo in the Port of Lobito. 20$00 Bank of Angola note. Printed at Thomas de La Rue & Co. Ltd. London. Issue date: 10 June 1962

The Biópio dam, which was also named after Craveiro Lopes, was designed by the engineer António Barrancos Vieira, from the firm APAGEL (Aproveitamentos Hidro-agrícolas e Hidroeléctricos), and was built between 1952 and 6 September 1956 (when it was inaugurated). The works were supervised by engineer António Trigo de Morais, a seminal figure in Portuguese hydraulic engineering studies, who was then the Inspector-General of the Overseas Investment Fund. The dam is shown on the 4$50 stamp, based on a drawing by Cunha Rocha (Fig. 12).

Fig. 12a. Craveiro Lopes Dam [Biópio]. 4$50 Angola Postal Service airmail stamp. Printed at Portuguese National Mint/Printing Office, Lisbon, 1965. Drawing: Cunha Rocha

Fig. 12b. Craveiro Lopes Dam. Photograph: Angola Information and Tourist Centre (Film/photography Office). Portuguese Communications Foundation. Picture Archives, Archive no. B000354 ref. FT-627.E SVPU. Note handwritten remark: "To be used with the other two together"

Fig. 12c. Lobito: Biópio: Presidente Craveiro Lopes Dam. Photograph: CIT Angola. Source: AHU, AGU/PI 646. ID number 18103

On 1 October, the presidential party paid a visit to the Matala Agricultural Colony, which used waters from the Cunene River, which were channelled south from the Matala Dam for some 30 km, to water farmland along an irrigation ditch. The established settlement plan included the foundation of the town of Folgares, where Américo Tomás's aeroplane landed, and the four villages of Freixiel, Algés-a-Nova, Alcácer (the present-day village of Camulemba) and Castanheira de Pera (some 6 500 km away from its namesake, situated at the centre of Portugal!). A visit to the Matala Dam — depicted on the 3$00 postage stamp drawn by Cunha Rocha (Fig. 13) — followed. The Head of State inaugurated a cylindrical granite block there, which bore the name of Prime Minister Salazar —the same name had also been given to the bridge at Porto Condo. Tomás was received at Matala by the same engineer António Trigo de Morais who had supervised the building of the Biópio Dam and was now the chairman of the *Overseas Investment Fund Higher Council*.

The presidential tour moved on to Moçâmedes, the capital of the Namibe province. The town was of great strategic importance in Angola, as its largest southwestern settlement, after which only the city of Tômbua (previously Porto Alexandre) existed along the coast stretching down to Namibia. Moçâmedes was also the starting point of the railway of the same name, which travelled for 756 km inland and crossed many pontoons and bridges, a number of which were designed by the famous professor and engineer Edgar Cardoso (Resende, 1913 – Lisbon, 2000), such as the concrete beam bridge for road traffic and the cantilevered concrete railway bridge across the Matala dam (Landerset, 1968: 56-58). The railway ended at Menongue (formerly known as Serpa Pinto).

Fig. 13a. Salazar Dam [Matala]. 3$00 Angola Postal Service airmail stamp. Printed at Portuguese National Mint/Printing Office, Lisbon, 1965. Drawing: Cunha Rocha

Fig. 13b. Salazar Dam at Matala. Photograph: Angola Information and Tourist Centre (Film/photography Office). Portuguese Communications Foundation. Picture Archives, Archive no. B000354, ref. FT-625.F SVPU

President Tomás probably arrived at Moçâmedes on 2 October, from where he took a special seven-carriage train "filled with local people and children from the schools" (Boletim Geral, 1963: 141) to visit a fish cannery at a place called Saco, where a great port and wharf were to be built for the shipping of ores that arrived from the hinterland using the Moçâmedes Railway, such as the Cassinga Mines (which were reached by a special branch line). The mining port's jetty was also built to a design by Cardoso. Quite close to Saco, the railway cut across the River Giraúl, crossing the Capitão Silva Carvalho bridge shown on the 12$50 post stamp (Fig. 14). The structure was named after José Agapito Montalvão da Silva Carvalho, Governor-General of Angola between 1947 and 1955.

Fig. 14a. Capitão Silva Carvalho Bridge [River Giraúl]. 12$50 Angola Postal Service airmail stamp. Printed at Portuguese National Mint/Printing Office, Lisbon, 1965. Drawing: artist unknown

Fig. 14b. General View of the Bridge over the River Béro. Print 29 in: Angola, Pequena Monografia, General Agency for Overseas, Angola Information and Tourist Centre, sheet 164a. The print is wrongly titled in the book, as the bridge shown is that on the River Giraúl

Américo Tomás returned to Moçâmedes by car, arriving in the outskirts of the city at the Capitão Teófilo Duarte bridge spanning the River Béro (also subject to torrential rainfall), which he duly inaugurated by personally raising its double gates (Boletim Geral, id.). Teófilo Duarte was therefore twice a dedicatee in the stamp series, like Salazar, and the bridge carrying his name, designed for mixed use (railway and automobile), like that over the River Giraúl, is represented on the 7$00 stamp (Fig. 15), likewise based on a drawing of unknown authorship. Both bridges were initially designed by the chief engineer of Angola's Road and Railway Brigade, Gonçalves Malhado, assisted by Jorge Cândido Osório; they were later corrected by Manuel Brazão Farinha; and took on their final form according to designs by António José de Miranda Guedes, the chief engineer of the Supervision Brigade of the Béro and Giraúl Variant.

The climax of the presidential visit was Tomás's visit to the *Cambambe* hydroelectric power plant (Fig. 16) for its official inauguration, which took

Fig. 15a. Capitão Teófilo Duarte Bridge [River Béro]. 7$00 Angola Postal Service airmail stamp. Printed at Portuguese National Mint/Printing Office, Lisbon, 1965. Drawing: artist unknown

Fig. 15b. Capitão Teófilo Duarte Bridge over the River Béro at Moçâmedes. Photograph: Foto-Algarve/Silva Porto. Portuguese Communications Foundation. Picture Archives, Archive no. B000354, ref. FT-622.G SVPU. Note handwritten remark: "Drawing to be done using the 2 photos together"

Fig. 15c. Aspect of the Capitão Teófilo Duarte Bridge over the River Béro. Photograph: Foto-Algarve/Silva Porto. Portuguese Communications Foundation. Picture Archives, Archive no. B000355, ref. FT-622.D SVPU

place on 6 October 1963 — the day after he opened the Luanda Industry Fair, an event which included stands for the Hydroelectric Company of the Upper Catumbela (which operated Biópio Dam) and for Sonefe, which was the investor in *Cambambe*. This dam's power plant had already begun operating in November 1962, with power supply reaching the Luanda electrical public network on 8 December of that year, doubling the supply to Luanda and its neighbouring cities, while also providing the necessary energy for the burgeoning industrial developments in the Luanda metropolitan area. Its inauguration was therefore merely a formal celebration for propaganda purposes – which inaugurations are normally for anyway. Building it was a risky investment, and research into its construction provided much evidence of the difficulties it faced.

Fig. 16a. Cambambe Dam. 2$50 Angola Postal Service airmail stamp. Printed at Portuguese National Mint/Printing Office, Lisbon, 1965. Drawing: artist unknown

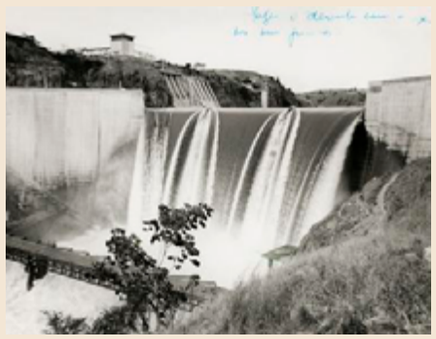

Fig. 16b. Sluice Gate at Cambambe Dam – 1st Phase. Photograph: SONEFE Photography Office and Angola Information and Tourist Centre (Film/Photography Office). Portuguese Communications Foundation. Picture Archives, Archive no. B000354. ref. FT-624.N SVPU. Note handwritten remark: "Drawing to be done using the two together". Probably for composition reasons, the designer chose to invert the photo

A bridge spanning the Cuanza, close to the city of Dondo, had been planned for quite some time, and ultimately a location was found at Quiamafulo — a sandy strip on the river's right bank, 3.5 km upstream

from *Cambambe*. It was again the work of Edgar Cardoso, but was labelled "provisional", as the Route 120 it served (known in colonial times as National Road 5), which heads south to Huambo, was expected to cross the crest of the dam, once the latter was finished. However, tectonic problems revealed in 1960 during work on the foundations for the dam interrupted the construction thereof for some time, leading to significant adaptations in the whole project, requiring, amongst other things, a lower level for both the reservoir and the dam wall, which was no longer to have a road crossing over it. The "provisional" bridge by Cardoso (Fig. 17) actually remained in use until 2017, when the dam was finally raised to the originally planned height, and its reservoir was much enlarged. As a result, the bridge still exists today, but is now submerged.

The inauguration of *Cambambe* was the final stop in the presidential visit. Tomás and his entourage arrived at the site by helicopter from Luanda, and the ceremony included speeches by the head of state, and by the Chairman of Sonefe, General David dos Santos. Decorations were awarded to a number of engineers (including the chief resident engineer, Fernando Braz de Oliveira), and also to lower-ranked workers. The next day, Américo Tomás' presidential visit came to an end in Luanda, from where he returned to Portugal, on the same liner, the *Infante Dom Henrique,* that had brought him from Lisbon.

Fig. 17a. Bridge over the Cuanza. 6$00 Angola Postal Service airmail stamp. Printed at Portuguese National Mint/Printing Office, Lisbon, 1965. Drawing author unknown

Fig. 17b. A bridge over the River Quanza. Print 28 in: Angola, Pequena Monografia, General Agency for Overseas, Angola Information and Tourist Centre, sheet 156b

THE BOEING 707 AEROPLANE

All stamps in the series researched feature a Boeing 707 daringly flying over each infrastructure featured. The aeroplane certainly emphasised the modernity of the investments, and of the country making them. The 707 happened to be the first commercially successful jet airliner, and the first of its kind developed by the Seattle manufacturer, which built it from 1958 — the year Pan American inaugurated the plane's transatlantic flights from New York to Paris — to 1979.

The Portuguese airline company, Transportes Aéreos Portugueses (TAP), had begun operations in 1946, with two DC-3 Dakotas bought the previous year, one of which was used in TAP's maiden Lisbon-Madrid flight, on 19 September. Soon afterwards, the company started using the DC-3 on its *Linha Aérea Imperial* or Imperial Airline services to Portuguese Africa, with a 12-stop, 15-day, return flight to Maputo (then called Lourenço Marques), Mozambique, on 31 December 1946. With a total two-way dis-

tance of 24 540 km, it was the world's longest commercial route in aviation at the time (Jesus, 2005: 39).

The reason the aircraft is featured in every airmail stamp issued by Portugal for overseas use is self-explanatory, as regular flights to Portuguese Africa by the Portuguese flag carrier shortened time in terms of mail exchange. TAP started operating its four DC-4 Skymaster four-engine aircraft (which it had been using since 1947) to Africa in October 1954, with its first Lisbon-Luanda trip taking 17 hours (Jesus, 2005: 49). In August 1955, the company received the first of its five, long-haul, four-engine, Lockheed L-1049G "Super Constellation" aircraft, which it began flying to cities in Africa in November that year.

The tenth anniversary, in 1953, of the incorporation of TAP as a public limited company, in which the Portuguese State was the major shareholder (the company had previously been run as a state public service), was celebrated in a 1963 stamp for the São Tomé & Príncipe (for 1$50), Cape-Verde, Guinea-Bissau, Mozambique (all of which cost 2$50) and Angola (for 1$00) regular mail services (Fig. 18). The stamp, produced by Litografia Maia, in Porto, features a Lockheed "Super Constellation" and a Boeing B-707 flying over a map of Africa.

Fig. 18. 10th Birthday of TAP. 1$00 Angolan Postal Service stamp. Printed at Portuguese National Mint/Printing Office, Lisbon, 1963. Drawing: José de Moura

Fig. 19. Chairman of TAP, Alfredo Vaz Pinto, signs the contract with Boeing represents for the acquisition of new planes (B-707s). 1964. Source: 'Vôa Portugal' (p. 58, fig. 54)

According to a TAP website that records the company in commercial aviation's history, seven B-707-320Bs were bought in 1964 (Fig. 19). These were immediately used in flights to Angola, Mozambique and South Africa in 1965, which explains why this aircraft was added as a 'late call' to the stamps issued that same year, albeit with an awkward consequence: while the Luanda refinery lies a few kilometres from the city airport — the upright orientation of the stamp also providing a more improbable angle for the Boeing flying overhead — no four-engine jet aeroplane ever flew over the other undertakings in the set, and the clumsy position in which the aircraft were placed would have made this dangerous in the extreme.

In the 1960s, airborne mail between Portugal and its former overseas possessions had become an absolutely vital service, since that was the decade when the Colonial War between the country and its colonies began, resulting

in the transport of shiploads of soldiers to the warfront. Airmail and its stamps were available to all, but the stamps in the set dealt with herein would have been mostly used by the white Portuguese writing to the homeland, even if that was more expensive than mail sent by ship. The ubiquitous B-707 also provides a unifying element in the stamps, where it is featured flying left to right. One could look for hidden meanings in this, such as having all aircraft flying to/from Portugal or unearthing political reasons for their moving left to right. The truth is, once placed in context with the infrastructure they are flying over, they all seem to be heading anywhere *but* Portugal.

Fig. 20. TAP airline routes to Sub-Saharan Africa in the late 1960s. Source: 'Vôa Portugal' (p. 18, fig. 53)

The company was to buy an additional five B-707s (of the 300C type), and this aircraft would remain the only four-engine jet aeroplane in TAP's fleet, until the company bought its first 747 Boeings, in 1972. The phasing out of the TAP B-707s began in 1982 (Jesus, 2005: 83). I myself have flown, for sure, on such an aircraft, to and from Africa, as an infant.

CONCLUSIONS

The (price) ranking of the infrastructures in the stamp series examined herein appears to have been outright arbitrary. Amongst the dams, the 5$00 stamp was awarded to that on the River Cuando, which is the only infrastructure featured in the set that was built before World War II. This exception was most definitely a consequence of the ground-breaking role said infrastructure played in terms of Angolan hydroelectricity. Built on a foundation of huge rock boulders, the cross-section of this gravity dam built in stone masonry isn't triangular, but is reinforced by a row of arches on the downstream side instead. Even though it was equipped only with two small turbines, it still played a fundamental role in Angola's modern history, as it supplied electricity to the workshops of the Benguela Railway, which guaranteed the only connection between the country and the global African rail system, through the Democratic Republic of Congo.

The Mabubas, Biópio and Matala infrastructures built during the 1950s are straightforward concrete gravity dams. Unsurprisingly, the first modern river dam (Mabubas), featured on the 4$00 stamp, was built to supply energy

to the Angolan capital. By today's standards, Mabubas provides a rather low output, but its importance for Luanda was still central, particularly before the *Cambambe* dam was built. The Biópio Dam's four turbines were to supply electricity to the neighbouring Benguela and Lobito, which were strategic cities in the development of the central Angolan coast, while the latter — as we have seen — is also where the Benguela railway begins.

The Matala Dam, depicted on the 3$00 stamp, which went into operation in 1959, played a prominent role in the Cunene River Plan, which included a number of other hydroelectric facilities. Bettencourt Fernandes Moreno, who had served as the chief resident engineer in the construction of Mabubas Dam, was in charge of the Cunene Plan Office. The construction of Matala was supervised by Eurico Rodrigues Corvo, who had performed the same role at Biópio. It is unique amongst the dams featured in the set, as it serves both hydroelectric and hydro-agricultural purposes, and because it is linked with the Moçâmedes Railway, which actually uses the dam to cross the river.

The original main purpose of Matala, i.e. that of irrigating a vast agricultural plain, explains why it only had two turbines, which were to supply electricity locally, but also to the capital of Huíla province, the city of Lubango (formerly known as Sá da Bandeira). The dam was developed by the same team, working under its major driving force, António Trigo de Morais, that drew up the Limpopo River Plan and designed the Limpopo Dam in Mozambique, an undertaking that shared most features with Matala, including the parcelling of agricultural land to distribute to the colonising farmers (of both black and white races) and the direct connection to a major railway line.

The Limpopo Dam was built at Macarretane in 1954-1956, while construction of its Angolan doppelgänger, which began in 1953, took six years. Incidentally, the Macarretane Dam is featured on a 5$00 Mozambican airmail stamp, from the 1963 set *Avião sobrevoando empreendimentos locais* ("aeroplane flying over local undertakings"), also issued by Lisbon's National Mint/Printing Office. The infrastructure is featured as the "Engineer Trigo de Morais Reservoir Bridge", which is the name it went by between 1961 and the independence of Mozambique in 1975 (Fig. 21). The Mozambican six-stamp set also includes two dams on the River Revué and the Sonarep oil refinery at Matola, Maputo (which at the time was called Lourenço Marques).

Fig. 21. Engenheiro Trigo de Morais Reservoir Bridge [Macarretane/Limpopo]. 5$00 Mozambique Postal Service airmail stamp. Printed at Portuguese National Mint/Printing Office, Lisbon, 1963. Drawing: Adolfo Rabanal

The construction of Cambambe helped its supervisor Fernando Braz de Oliveira establish himself as a Portuguese engineering star, and an international consultant in the field. It was also the largest dam built by the Portuguese in Africa, until a dozen years later it was surpassed by the largest concrete dam ever built in Africa, at Cahora Bassa, Mozambique, for which Braz de Oliveira was also the Chief Resident Engineer. The dam on the Cuanza was equipped with four power turbines, and its design, by engineer Henrique Granger Pinto (from the Hidroeléctrica do Zêzere company), is the only arch dam included in the set. The planning for the dam had anticipated that, in time, a second, or even a third, power plant could be added later; a second four-turbine hydroelectric plant was indeed inaugurated in 2017.

The stamps of higher value in the set correspond to bridges, which can be treated in pairs, as two of them span the Cuanza, while the others were designed and built simultaneously across two rivers close to the city of Moçâmedes, in southwest Angola.

The Porto Condo Bridge, featured on the 8$50 stamp, actually looks quite conventional, as it relies on fifteen solid reinforced concrete 'Monier' arches resting on solid piers, a solution that may be seen in narrower bridges elsewhere in Angola, such as that on the River Zambeze on Angola's National Road 190 just outside the village of Cazombo, or those built in 1961 across the River Onzo on the road from Ambriz to N'Zeto, and across the River Ueto on the road from Ambriz to Yembe (Landerset, 1968: 21).

The main distinctive feature of the Porto Condo bridge — which, according to information from the Directorate of Public Works dated 5 September 1951, was inaugurated on 15 August of 1951 — was a single arch closer to the river's right bank, almost double the length of the span of the other arches. It was, most certainly, designed to enable the passing of larger ships beneath it. Its strategic importance must be seen, however, in the context of the mighty river it crosses, which drains a surface of 152 570 sq. km (an area that exceeds the size of Portugal by 65%). The Cuanza historically served as the main path into the country's interior, up to the river port of Dondo, some kilometres below the *Cambambe* falls, which ruled out navigation further upstream (where the dam came to be built). The width of the Cuanza explains why it could only to be crossed on barges, either on the lower stretch of the river, between its estuary on the Atlantic coast and the *Cambambe* falls; in its middle stretch, reaching from *Cambambe* up to Porto Condo; or further upstream. The road bridge at Porto Condo was the second to span this river, while it was also the longest bridge built in Angola at the time (Dicionário, 1959: 32).

The third road bridge built across the Cuanza, at Quiamafulo, which featured on the 6$00 stamp, is very different from the one at Porto Condo, as was to be expected from Edgar Cardoso, arguably the leading engineer in Portugal of all time, particularly in terms of the design of bridges. All elements of the truss arch bridge were made of reinforced concrete, from its rib arches to its spandrel columns, deck, railings, etc. According to the December 1958 Overseas General Bulletin (*Boletim Geral do Ultramar*), the construction thereof also shortened the Angolan National Road 5 route to Huambo from Luanda, passing through Dondo, by some 170 kilometres.

The fourth road bridge across the Cuanza, which was built later close to its river mouth, is also the work of Edgar Cardoso. In this particular case, he designed a cable-stay metal-beam structure hanging from trussed concrete pylons. It obviously doesn't feature in the stamp set, as the design project was only begun in 1966; it was not completed until 1975, reflecting the harsh times Angola was living through at the time, in the run up to the Civil War. Given its location, some 60 km south of Luanda, it is by far the bridge with the most traffic crossing the Cuanza.

As the driest part of Angola, Moçâmedes is scourged by drought. The city outskirts immediately to the north are crossed by the Béro riverbed, a sort of 'wadi' that usually carries little water, but which occasionally overflows its banks as a result of torrential rainfall. Some 10 kilometres to the north of the mouth of the Béro, the River Giraúl— which is likewise susceptible to episodic violent flooding — discharges into the ocean. The port of Saco is located between both rivers, from where access to Moçâmedes could be made by boat whenever the River Béro flooded.

Whenever flooding occurred in the Giraúl (or when both rivers flooded), road and rail connections would be disrupted even further away from the city, and the tracks and bridges would be badly damaged. The twin concrete beam bridges, featured on the 7$00 and 12$00 stamps, were meant to resolve this inconvenience, even though, half a century later, the great March 2011 flood of the Giraúl resulted in the destruction of the bridge named after *Captain Silva Carvalho* at its inauguration. They were designed by the same engineers, built simultaneously by the same company under to a single contract, and designed for mixed use, as they could be crossed by train and car. Silva Carvalho, by the way, was fortunate enough to have his name given to another bridge in Angola, this time spanning the River Queve.

1$50 - Refinaria de Luanda
2$50 - Barragem de Cambambe
3$00 - Barragem da Matala
4$00 - Barragem das Mabubas
4$50 - Barragem do Biópio
5$00 - Barragem do Cuando
6$00 - Ponte em Quiamafulo
7$00 - Ponte Rio Béro
8$50 - Ponte em Porto Condo
12$50 - Ponte Rio Giraúl

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LEGISLATION:

Ministerial Order (Portaria) *20 067*, Ministry for Overseas Affairs. Government Legal Gazette (Diário do Governo), Ist Series, no. 214, of 1109–1963.

Ministerial Order (Portaria). *21 377*, Ministry for Overseas Affairs, Direcção Geral de Obras Públicas e Comunicações. Valores Postais: determined and specified the issuance and placement into circulation, in the province of Angola, of air mail postage stamps. Government Legal Gazette (Diário do Governo), 1st Series, no. 149, of 07–07–1965.

ACKNOWLEDGMENT

Georg Ulvehoj (born Salkovits, deceased February 2024) and Isabel Mora must be thanked for their help in the painstaking publishing authorization of the work by his mother and her husband from Fundação das Comunicações.

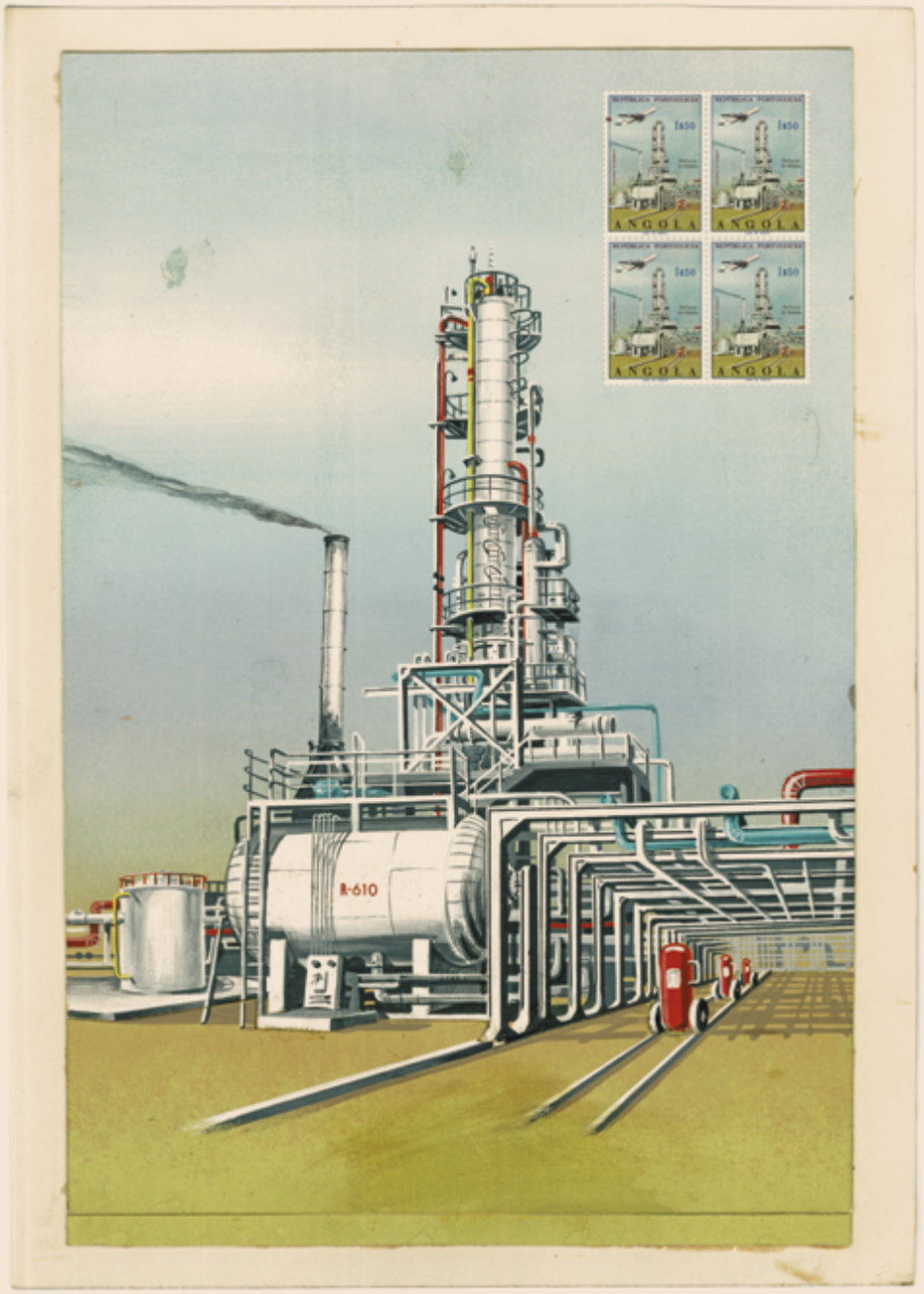

Fig. 22. Luanda Oil Refinery "gouache" on 34,8×24,7 cm cardboard for «Empreendimentos de Angola» 1965 airmail set, with four-stamp sample attached. N.d., anon. [attributed to Ibolya Salkovits, most likely by Cunha Rocha]. CTT Correios de Portugal Collection, by permission: Fundação Portuguesa das Comunicações.

THE *PERIPHERY* IN THE CITY CENTRE. THE RAILWAY CITIES IN THE ANGOLAN HINTERLAND THAT SHOWED LATERALITY AS AN EXPRESSION OF COLONIAL URBANISM — THE CASE OF HUAMBO

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[ABSTRACT]

In a set of terms on Urbanism, *periphery* took on its full meaning following the Transport Revolution, as the *outer limits or edge* of a city undergoing expansion, given its impact on the urban image and form, as well as on extension and density of the city.
With regard to the cities built along railway lines in the African hinterland, as a result of European colonisation, periphery took on new meanings, transcending the material dimension and social impact, and to which the railways contributed, in two ways: as a means of polarising the urban structure, defining the centre* (1); and as an infrastructure that divides the city in two (2).
This study dwells on the implications of railway construction for a city's image, the separation of the city into two (2), the impact of which still remains today as a spatial instrument segregation, limiting social mobility depending on the side of the railway line, where the formal city met the informal city, the periphery.

KEYWORDS: Railway; Urbanisation; Periphery; Angola

* In the case of cities that grew because of the railway lines, without any previous references to the existence of an urban area, the station defined the centre, the genesis of the urban structure, which is the case of the cities studied in the Angolan hinterland. The station also denoted, in the historical period that is the object of study, i.e., the transition from the 19th century to the 20th, the existence of other possible colonisation centres. As in the cases of the Christian Missions, which were aimed at "meeting" with African people. This topic is the subject of ongoing investigation for the PhD thesis by the author of this paper.

INTRODUCTION

The recent restoration of the railway lines in Angola, by China Railway Construction Corporation, and particularly of the CFB[1] — Caminho de Ferro de Benguela or Benguela Railway Line, the object of disclosure in specific documents[2] in which the line's rehabilitation is praised for making it possible, once again, to cross the continent, revived readings of the coast-to-coast crossing, which provided strong motivation for several colonial and imperial projects, giving rise to the construction thereof and boosting the colonisation of Africa.

The rehabilitation of the railway lines, and the full renewal of the rolling stock and more general equipment, reveals two major aspects relating to the physical space that find expression in Architecture and Urbanism: the building of new stations, with the demolition of the old ones, as an indicator of new national and foreign players influencing urban transformation; and the maintenance of the lines' layout, in terms of the pre-existing directions, with no significant alterations in terms of the main urban centres as an example of a city's continuity where, beforehand, colonial power had been asserted.

The formation of cities that are heavily dependent on railway line construction gives rise to a certain type of urbanism, a certain urban form and social structure, where the railway activity is the dominant factor, on the activities regarding the transport of goods. The railway line itself seems to organise the dominant activities, protecting a physical space, which is adopted, in the colonial context, as a way of limiting proximity between settlers and "natives", thus leading to spatial segregation.[3] This is expressed not only in the accommodation structures and types, but also in the infrastructures built on each side of the line, a dual approach which favoured the colonial society to the detriment of Africans.

In this sense, the concept of *abyssal thinking* (Santos, 2007) is evoked in this case, as it translates to the materiality expressed by the railway line, not merely as a mental construction, revealing the impossibility of adopting the position of the Other. The line route or layout shows the definition of a place ready to be occupied, subject to planning, at least with its organisation determined by projected roads, on one of the railway line sides, which is duly equipped, in opposition to the other side, which is devalued as a space for settler occupation, except for settlement in connection with the railway activities, including the accommodation for the different categories of employees. Thus, one can observe the establishment of a *laterality*, of spaces envisaged for one of the two sides almost exclusively, thus establishing an alignment with *abyssal thinking*.

1. The construction of the Benguela Railway Line was the result of the concession granted to Robert Williams, who incorporated, together with other partners, among them Cecil Rhodes, the Tanganyca Company. The 1st article of the *Concession Agreement* identifies the contracting parties and the main object: "The Government grants to Robert Williams and the company he shall incorporate [...] the right to construct and exploit a railway, which, departing from Lobito Bay, in the district of Benguela, shall continue towards the eastern border of the province of Angola [...]." Concession Agreement, published by the Benguela Railway Line in 1902. Tanganyika?
2. See "O Corredor do Lobito", *Angola Brief*, April 2014, volume 4, no. 7, Bergen, Chr, Michelsen Institute.
3. On the terms "segregation" and "new cities" in Africa, see Freund, Bill (2007), The African City, A History. New Approaches to African History, p. 76.

In the urban development process, the type of construction originated by a railway line and leading to differentiated growth on the two sides of that line is not exclusive to the land colonisation of the African continent. It also exists in other geographical contexts that have already been studied,[4] above all where an intersection has been acknowledged between construction of the line, industrialisation and urbanisation, a development trio that was to become particularly visible in developing countries in the New World, such as Brazil.

In the case of Portugal, identical urban development factors have associated with the railways, either through their conquering of the uncultivated countryside, as was the case with the construction of the Douro Line, the object of a recent study,[5] or on account of the urban context. It is, however, in the relationship between the railway lines and the urban development, and in the establishment of peripheries, with the building of railway stations in key positions in said localities, for example in the cities of Coimbra (Coimbra B station) or Aveiro, where the railway line comes tangentially closer to the existing urban structure, that the line becomes as a place of reference, of the periphery that connects to the city.

Schematic representations of the two possible development models, each showing the location of the railway station.

Despite the similarities between the cases in which the railway functions as the main transport channel for the developing urban nucleus, up until the construction of the roads and the introduction of road transport, which followed the linear development favoured by the line, particularly when close to urban centres, there are no synthesis studies,[6] at the national level, where the construction of the railway lines is the object of analysis, in terms of its impact on urban development and of the social implications, for the urgency of accommodating workers, as well as the migrant population which continuously arrived in the urban areas, which formed the basis for the exponential growth, which was mostly unplanned, of the urban peripheries.

4. Cruz, Thais Fátima dos Santos (2007), "Paranapiacaba — A arquitetura e o urbanismo de uma Vila Ferroviária" , Master's Degree Thesis, São Carlos School of Engineering, University of São Paulo. http://www.teses.usp.br/teses/disponiveis/18/18142/tde-10122007-090438/
5. Macedo, Marta (2012), *Projetar e Construir a Nação. Engenheiros, ciência e território em Portugal no século xix*. Lisboa: ICS – Social Sciences Press.
6. On the demographic studies see Silveira et al. (2011) "Caminhos de Ferro, População e Desigualdades Territoriais em Portugal", *Ler História*, no. 61.

The same is true of urban development in Angola based on the construction of railway lines. The foundation of new cities took place mainly in the hinterland, where urban references are scarce, with the exception of the city that developed on the coast, which was linked to the development of the port of Lobito. In this case, the port city has a direct relationship with the railway city, with the railway station appearing in the middle of the "two" cities, as shown in Figure 1.

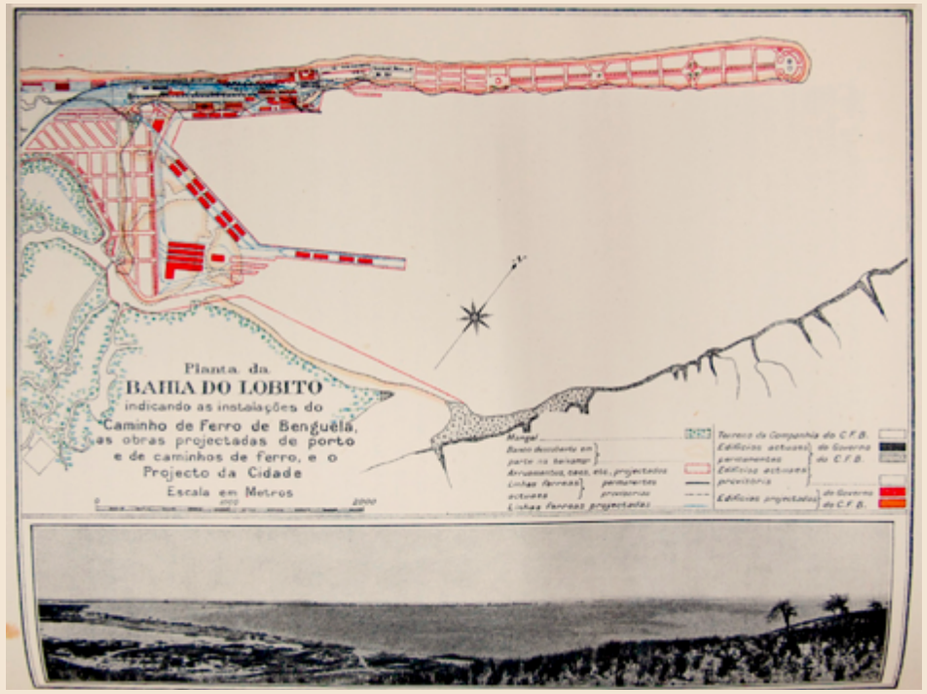

Fig. 1. Bahia do Lobito Plant– Benguela Railroad facilities and works designed for the port and urban design project.. CFB promotion prospectus.

THE LINES' LAYOUT AND THE TERRITORIAL PLANNING

The map of Angola's railway network, of the main lines, the layout of which was defined in the colonial period, reveals the interdependency between the main urban nuclei in the hinterland and the coastal cities or ports for where the lines depart. This is the case for Ndalatando and Malanje, on the connection line to the seaport of Luanda - the Luanda Railway Line; for Huambo and Kuito which are connected by rail to seaport of Lobito; and for Lubango, connected to the seaport of Namibe by the Namibe Railway Line. The layout of the lines, predominantly in a West-East direction, shows the "penetration" into the country's interior, which, in addition to the goal of territorial or colonial land conquest, sought to establish a *belt*, revealed the peripheral status in the hierarchy of "old" and "new cities",[7] which was common to each line and was to become fundamentally for the rise of the cities located on the coastal lines, the so-called "factory-cities".

7. Expression used by Bill Freund in his study "The African City — a History" to distinguish the cities built during European colonisation. These "new cities" were generally built in the interior.

Fig. 2. Current map of Angola. Location of the main cities of Malanje, Huambo and Lubango along the railway lines, from North to South. Source: Library of Congress — U.S.A. Base 801492 (546940)40.

The studies[8] on the urbanisation of Angola that were published in the mid-20th century, confirmed the prevalence of the railway as the main transport channel, furthering demographic concentration, serving mainly settlers or colonisers, but functioning, nevertheless, as a means of concentration of the general population. Besides the function of territorial planning and organisation of economic activities, the railway influences the design of the main urban centres, which grow from the lines, such as in the case of the above-mentioned cities, Malanje, Huambo and Lubango.

8. The study by the architect Fernando Batalha published in 1950 by the Museum of Angola, "A Urbanização de Angola", that published by the Overseas Research Council in 1960 of the geographer Ilidio do Amaral, "Aspetos do Povoamento Branco em Angola", the statistical data for which reports to the beginning of the previous decade, the 1950s, reveal the relationship between the foundation of cities and the construction of the railways.

Figs. 3. and 4. Extracts from the topographic survey plan of Ndalatando, on the left, and Malanje, on the right. The circle indicates the location of the station. Source: "A Urbanização de Angola", Fernando Batalha.

The tendency to organise urban structure in accordance with the railway lines' operation and with the railway traffic, as observed on the urban structures that were developed in the late 19th century before the foundation of Huambo, such as for Ndalatando or Malanje, the former created on the basis of the Ambaca Line[9] and the latter on its extension, the Malanje Line, lead to the urban development of one side, that where the settlers were housed and the administrative and commercial activities were carried out, on the right side as the railway line progressed, to the detriment of the other side, which was more informal, where activities related with the transport of goods prevailed, where the warehouses for the storage of goods were located and where, in a seemingly never-ending and boundless territory, the general population, which gradually encroached upon these settlements, was housed.

THE CITY OF HUAMBO AS AN ILLUSTRATION OF *LATERALITY*

The city of Huambo, which was founded in 1912 after the arrival of the Benguela Railway Line[10] to the Central Plateau, to the lands of Huambo, and following the establishment of the First Republic in Portugal (1910–1926), was, in the context of Angolan urban development, of those cities founded due to the construction of railway line, the first city subject to a "pre-design project", a design produced by the military engineer Carlos Roma Machado. The plan featured the division of the land into numbered plots, with indication of the dominant uses/functions, on one side of the line, as shown in Figure 5, i.e. the most favourable side which already had pre-existing buildings, such as the Catholic Mission of Huambo.[11]

9. For the history of the Ambaca Line, see Navarro, Bruno J. (2018), "A construção ferroviária em Angola e Moçambique", in *Um império projetado pelo silvo da locomotiva.*
10. The construction of the Benguela railway line from its beginning and to its arrival at the border, can be broken down into the following stages: 1902–1914 — From the signing of the contract to the works being halted because of the beginning of World War I. This is a period rich in historical facts, as this was when the route is defined, with the ruling out of the Caconda connection, which the Benguela traders wanted, and the line reaching the central plateau, the centre of the Angola's interior region, in Bié (km 530); 1914–1929 — Corresponds to the completion of the line's construction, with arrival in Luau, in 1928, and to the beginning of the transport of minerals, from the Katanga mines, in the 1930s, which was the main reason for the construction of the line.
11. For more on the location of the Catholic Mission of Huambo and the pre-existing buildings on the Huambo lands, see Figueiredo, Xavier de (2014), *Crónica da Fundação Huambo Nova Lisboa. Uma Cidade criada em condições inéditas, em tempos de mudança*, p. 58.

Fig. 5. "Plan of the City of Huambo. Pre-design project by the engineer Carlos Roma Machado." Source: "Crónica da Fundação de Huambo – Nova Lisboa", Xavier Figueiredo.

In terms of the distribution of the functions planned for the city, in which goods transport activities dominate, in addition to train maintenance, which resulted in the of the main workshops, one should highlight the separation into two development centres, with two possible stops: one designed for passengers, where the curve on the map is located, which connected to the planned city centre, which at the time was to consist of a roundabout and a future urban nucleus, and the other reserved for goods transport, which was dedicated to commercial activities and where the station was finally to be located.

The subsequent development of the city was a confirmation of the desire to separate the commercial and industrial activities, which were mostly carried out around the station and its loading/unloading platform, from the public administration services activities, which were installed in the surroundings or proximity of the roundabout, further emphasising the centrality aspect that was planned for this location.

The fact that a design was defined that revealed the functional organisation process for the city of Huambo, where two separate nuclei (future squares or plazas) were identified, if one adopts an western interpretation of the spatial organisation, one nucleus designed for the public administration that formed the basis for the control of the surrounding, the other designed for commercial activities that supported the expansion of the city, makes it possible to draw a comparison to the procedure observed in the establishment of other settlements, particularly cities that emerged due to a dependency on railway operations, both in the colonies and in the Portuguese metropole.

The plan featured in Figure 7, "Plan for Location of the New Neighbourhoods", which derived from the topographic surveys carried out after the setting up of the Colonial Planning Office (GUC)[12], shows the location

12. For more on the setting up of the Colonial Planning Office see Milheiro, Ana Vaz (2012), *Nos Trópicos sem Le Corbusier. Arquitetura luso-africana no Estado Novo*, p. 237, and Henriques, Isabel Castro; Vieira, Miguel Pais (2013), *Cidades em Angola: construções coloniais e reinvenções africanas*, p. 35.

of the "new neighbourhoods", highlighting the presence of informal housing for the African population that already lived there, as well as of those newly arriving, and also envisaging the need to house the socially ascendant class of "assimilated natives".[13]

The planned locations for the "new neighbourhoods" (as identified in Figure 7) also revealed the demarcation of other peripheral areas, where the African native population was housed informally, which, again adopting a western interpretation of the spatial organisation, may have existed before the arrival of the settlers, and which the railway made it possible to reveal/hide, with the successive plans that were carried out gradually absorbing these positions.

Also, in the legend for Figure 6, the "new neighbourhoods" were divided into "popular" and "transitional" neighbourhoods, which were represented in the plan in different colours, red and blue. The proximity between the two spaces, divided into lots for different areas, which were smaller for the "transitional" spaces, manifest the intention to bring the two population groups together, in an attempt at social engineering that the designation of the space to be occupied ("transitional") occupy would indeed clarify. The distribution of these spaces appears in the "new neighbourhoods plan" in peripheral areas, close to other residential areas that were planned for the different social classes of settlers.

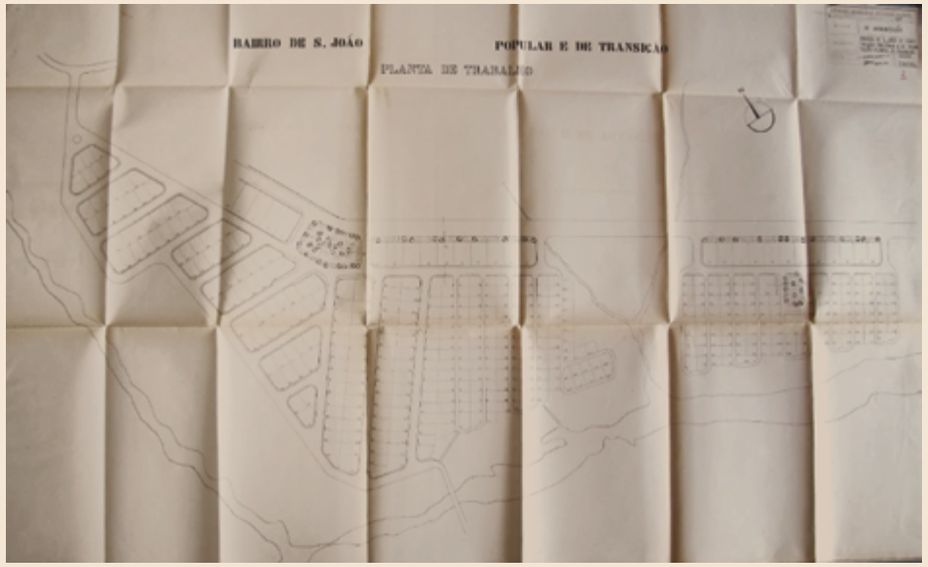

Fig. 6. "São João Neighbourhood – Popular and Transitional – Working Plan" (identified in the "Plan for Location of the New Neighbourhoods" by a red circle). The plan derived from a study, based on allotment, with the division of the land into plots for the building of houses, which are differentiated between "popular" and "transitional". The natural conditions of the land, such as the existence of water lines, are used to create a "natural" separation, as can be observed in the plan. Source: AHU.

The information contained in the "Plan for Location of the New Neighbourhoods" (Figure 7) shows, through a lack of any representation, the extension of the land related to the Benguela Railway Company (CFB), an area which apparently belonged to CFB, as it was not identified on the Plan, but remained blank (identified in the plan outlined in blue), an area which

13. In the "Memória Descritiva do Plano da Cidade – Nova Lisboa" (Descriptive Report on the Urban Plan for Nova Lisboa), the inhabitants of the city and the surrounding area were divided into three social class groups: "civilised, assimilated and natives", and acknowledged in these terms in the population census carried out in 1940. Overseas Historical Archives (AHU).

Fig. 7. "Plan for the Location of the New Neighbourhoods". The plan features a large void space, with nothing represented in it, corresponding to the land granted to the Benguela Railway Company or CFB. (Source: Overseas Historical Archives – AHU).

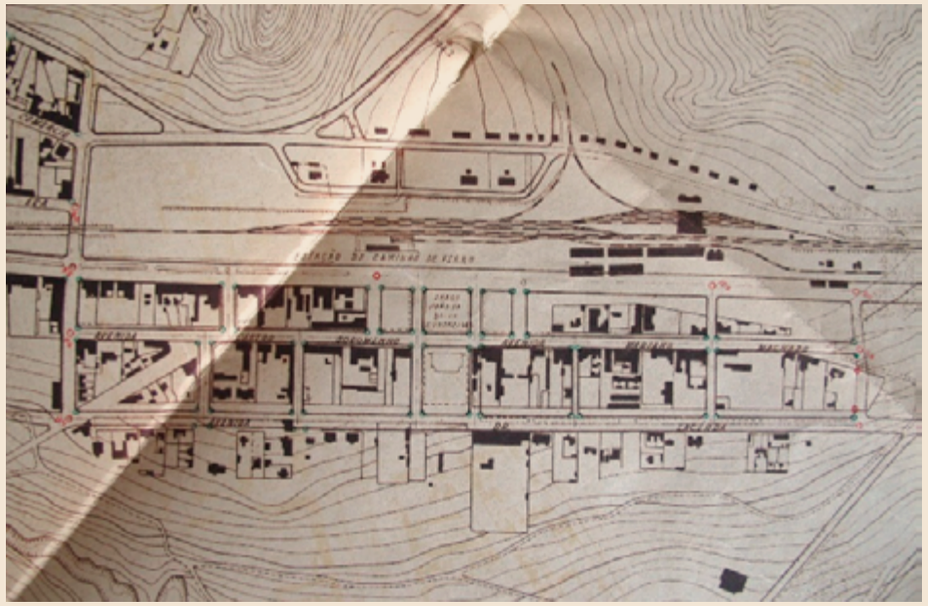

Fig. 8. The area reserved for commerce in the immediate surroundings of the railway station, a place with a formal spatial organisation based on roads and streets that ran parallel to the railway, with orthogonal intersections, highlighting the presence of a square or plaza (blue circle on the main plan).

was, accordingly, to be excluded from the control of the local government. Therefore, one can observe the presence of two powers: the local or city government, that is to say the power of the State; and the power of the Railway Company. Both these powers influenced the development of the city. The relationship with the railway line led to the production of peripheries, which all had different hierarchical relationships with the formal urban structure and were spread over various parts of the growing city. Their form and future organisation were distinguished by their proximity to the urban areas, including the areas in which urban infrastructures were located.

This is an emblematic case, and one that reveals the differing treatments by institutions such as the city government and the railway company, i.e. the different choices in terms of housing for the "native" workers, in the CFB reserved area, such as the "Worker Neighbourhood", which was located close to the company workshops. This constituted a future planning reference (Pictures 9 and 10), which was to become the object of curiosity (Picture 10), given the differences that existed for similar cases on other railway lines.

Fig. 9. and 10. Extract showing the "Worker Neighbourhood" for the "native" workers of CFB, which was located behind the company workshops. It currently has a football field and leisure areas. (Sources: General Plan for Nova Lisboa –, AHU, and current Google Earth image).

Fig. 11. Photograph of the "Worker Neighbourhood" (presumably from the mid-20th century). Source: Mário Soares Foundation, photographer not identified.

Fig. 12. Photograph of the houses for the working-class settlers who worked for the railway. The difference between the photographs, related to the distance of the observer. CFB Archives, Lisbon.

Fig. 13. Google Earth image of the city centre of Huambo - the railway line as the territorial limit of the urban form.

SUMMARY OF CONCLUSIONS

The differentiation observed between the formal spaces, where the city intended for the settlers was developed together with development of the railway line, and the informal spaces, in the immediate surroundings of the line and closer to the centre, becomes greater when one moves the [dividing] line to the other side, i.e. to a space/territory where the proliferation of the informal, namely housing for the constantly arriving native population can be observed, although the two sides are by no means exclusive. Therefore, the peculiar condition of proximity associated with the periphery can be confirmed, a distance that is itself confirmed by *laterality*, i.e. the favouring of one of the sides of the railway line. This fact finds its representation in the railway station which defines the city's central area.

The recovery of the line, synonymous with the recovery of the city itself, given that both go hand in hand, on the basis of full occupation of the space no longer determined by racial prejudices, reveals, however, given the maintenance of the line's route, the same physical condition that resulted in the isolation of a less privileged part of the city; it is a division which favours the presence of the same condition of periphery close to the centre. As a distinctive mark of the colonial era, it is important to question in what sense the urban physical structure makes it possible to overcome the division that governed in the past, makes it possible to avoid its substitution by another form of division, especially as the urban area remains the space chosen by the majority of the population to live (worldwide trend), as this is where the job opportunities are.

The spatial organisation based on the centrality of the railway line, a transport channel through which the urban centre was developed, also favoured the continuous growth of the periphery along the line. This meant that its relevance as a dividing line was enhanced, becoming an abyssal line. It was a condition that was difficult to change, as it was both a physical and symbolical mark, and one that brings the late colonial period closer to current times, not because of racial and segregation issues, but for the fact that the line continues to hinder social mobility and the experience of a full-city with no lateralities.

Fig. 14. Street alongside the railroad, a common sight in those cities where the railway originated the urban structure. On the right side, the main station. Photograph by the author, august 2014.

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NOTE

Study included in the Research Project "Coast–to–Coast — Late Portuguese Infrastructural Development in Continental Africa (Angola/Mozambique)" [Ref. PTDC/ATP-AQI/0742/2014], under the topic "Benguela Railway Line".

INTERNATIONAL HERITAGE CLASSIFICATION AND HERITAGE STRATEGIES IN ANGOLA. THE THEORY AND THE PRACTICE

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[ABSTRACT]

In its general definition, the Portuguese word património (heritage) means paternal inheritance; family property; natural or material property that is renowned because of its cultural importance. In the case of Africa, the European conception of cultural heritage was exported to the former colonies, together with the whole colonial administrative system. This system did not disappear with decolonisation, rather it was adopted by the new governments in a process that led Peter Pels to argue that anthropologists "run into a heritage of colonialism that the post-colonial world still keeps alive"; it remains present in the discourse of today's economic and political actors.

Looking specifically at the Angolan case, this paper aims to reflect on how the official bodies have approached cultural heritage issues in this territory, which is largely marked by its colonial past, by Portuguese rule. The first part of the study focuses on how international bodies for cultural heritage promotion are making changes to their selection criteria in order to accommodate the post-colonial, globalised reality. In the second part, the cultural heritage strategies that are being carried out in Angola will be analysed and put into context. To this end, an extensive list of the Angolan heritage classifications, from the 1920s until 2018, was drawn up and analysed in relation to the official discourse.

This paper asks some fundamental questions: what are the heritage strategies when dealing with a colonial legacy? Can recognition of a certain cultural importance be compatible with a legacy that is understandably seen in a negative light? For those European powers with a colonial past, the value of such heritage (especially buildings and monuments) seems to be an accepted fact. But for those nations that were (re)born when colonialism came to an end, is heritage seen in the same way? And, even if there is recognition, on the part of former colonisers and the colonised, of the cultural significance of a given property, does that significance follow the same principles and criteria, or is there a conflict? How has the heritage classification issue been approached by the Angolan official entities in the decades since independence, and in accordance with which interests?

KEYWORDS: UNESCO, Angola, colonial heritage/legacy.

INTRODUCTION

This paper originated in an endeavour to understand if colonial-origin cities such as Huambo, in Angola, can be classified as heritage, namely in the category "Historic Towns and Town Centres", and the sub-category "New Towns of the Twentieth Century". This classification is part of the "Operational Guidelines for the Implementation of the World Heritage Convention", which was written by the Intergovernmental Committee for the Protection of the World Cultural and Natural Heritage, a document that defines "precise criteria" for the inclusion of properties and sites in the World Heritage List. The references in that document to the "new towns of the twentieth century" are, however, quite ambiguous (UNESCO, 2017: 82-84). On the one hand, the original urban layout is praised, as it is "clearly recognizable and their authenticity is undeniable". On the other hand, it warns that "their future is unclear because their development is largely uncontrollable". Given the large number of new cities designed and built in that century, the committee assumes that history will determine which will remain as the best examples of contemporary town planning. It also emphasises that any attempt of inscription in the World Heritage List must have the support and the active participation of the local population, and that the inscription of such towns should be for exceptional cases only. These considerations were, however, formulated in 1984 and introduced for the first time in the selection criteria in 1987, and are reproduced, *ipsis verbis*, in the 19 revisions carried out until today. A revaluation of this and other concepts related with the heritage question is certainly needed, as the expansion of the World Heritage emblem to include the most diverse physical and intangible cultural manifestations means that the creation of this type of regulatory document is a herculean task, giving rise to specifications that are not sufficiently clear.

But perhaps it is precisely that ambiguity that enables one to frame the heritage issue in Africa, an issue loaded with doubts and factors which were not taken into consideration by the western "heritage"-related institutions. Indeed, heritage is primarily a western concept that has been exported worldwide, more or less successfully. With respect to the case of Angola, the aim herein is to reflect on the way the official authorities have been approaching heritage issues in that country, which is largely marked by its colonial past of Portuguese control. The first part of the study focuses on how international of cultural heritage promotion bodies are changing their selection criteria in order to accommodate the post-colonial, globalised reality. In the second part, the cultural heritage strategies that are being implemented in Angola will be analysed and put into context. To this end, an extensive list of the Angolan heritage classifications, from the 1920s until 2018, was produced and analysed in relation to the official discourse.

THE THEORY: RECENT EVOLUTION IN THE APPROACH TO HERITAGE CLASSIFICATION

In its general definition, the Portuguese word *património* (heritage) means paternal inheritance; family property; natural or material property that is renowned for its cultural importance. In the case of Africa, the European conception of cultural heritage was exported to the former colonised coun-

tries, together with the whole colonial administrative system. This system did not disappear with decolonisation, rather it was adopted by the new governments, in a process that led Peter Pels to affirm that anthropologists "run into a heritage of colonialism that the postcolonial world still keeps alive" (Pels cit.in L'Estoile, 2008: 273), and is present today in the discourse of the current economic and political actors.

In this context, some fundamental questions are in order: what are the heritage strategies when dealing with a colonial legacy? Can recognition of a certain cultural importance be compatible with a legacy that is understandably seen in a negative light? For those European powers with a colonial past, the value of such heritage (especially buildings and monuments) seems to be an accepted fact. But for those nations that were (re)born when colonialism came to an end, is heritage seen in the same way? And, even if there is recognition, on the part of former colonisers and the colonised, of the cultural significance of a given property, does that significance follow the same principles and criteria, or is there a conflict? How has the heritage classification issue been approached by the Angolan official entities in the decades since independence, and in accordance with which interests?

The notion of heritage is a European concept. In the 19th century, preservation and conservation were emerging ideas, serving primarily to safeguard a "past" that was disappearing (Bennett et al., 2005: 155). The heritage properties that were then recognised were of a monumental nature, and assisted in consolidating the nation-state idea that developed in the same period (Peixoto, 2017: 144). It was also in this century that the "Scramble for Africa" commenced, with the establishment of a modern European colonialism model, through the creation of physical infrastructure (transport, roads and rail, buildings, cities) and socio-political structures, highlighting the difference from the 'other', and this was an aspect that shaped the European condition of the last few centuries.

The current definition of heritage as a cultural or natural asset that is recognised for its exceptional qualities dates from the beginning of the 20th century. Throughout that century and the current one, the concept of heritage became increasingly comprehensive and its political dimension was reinforced. Presently, it would appear to be consensual that heritage is "a contemporary product shaped from history" (Tunbridge; Ashworth, 1996, cit. *in* Harvey, 2008: 20). Heritage serves the purposes of the present time, both in terms of political systems as well as groups of individuals, and is sufficiently flexible to adapt to the course of history, reflecting the various political, social and economic agendas, and always stressing its relationship with the past. Although its definition is ever more complex, heritage is still intimately linked with identity and power issues; it can be defined as "the process by which people use the past" (Harvey, 2008: 19). The UNESCO policy of classifying tangible heritage in danger of disappearing, not only because of war or neglect, but also due to "changing social and economic conditions", was pursued in the first years of its implementation, when peripheral and economically feeble countries were represented at the top of the heritage lists. One can find those guidelines in the 1972 "Convention Concerning the Protection of the World Cultural and Natural Heritage", which was signed

by 187 countries at the time. The purpose was "safeguarding this unique and irreplaceable property, to whatever people it may belong" and calling on "the international community as a whole to participate in the protection of the cultural and natural heritage of outstanding universal value, by the granting of collective assistance" (UNESCO, 1972).

However, since the 1990s heritage in economically feeble countries, i.e. that which really needs protection provided by UNESCO, has gradually been put aside, and those countries forfeited positions in the number of classified monuments and sites to western countries, subverting the solidarity purposes of the Convention. This dynamic, according to Santos and Peixoto (2012), has to do with the growing "touristification" and commercialisation of heritage. Today, having a UNESCO heritage monument or site is good for business. This new approach by the countries adds increased complexity to the classification processes, making them "shadier" and testing the strength of the foreign policy capabilities and relations between nations, instead of acknowledging the real pertinence of the tangible heritage to be classified.

Harvey (2008) has already raised the question as to the processes of economic and cultural commercialisation of heritage. The expected economic importance attached by public organisms to the internationally listed heritage sites has led to a certain "professionalisation" of the application process, even when said process is supported by the participation of the local inhabitants, a participation which is often merely formal, when it is not conditioned or even fabricated by the official bodies involved in the process (Peixoto, 2017: 138).

The complexification and "standardisation" of the application dossiers also contributes to making the quality criteria more undefined. Accordingly, there is the notion that, to a certain extent, "almost everything" can be included in the UNESCO lists. In response to this issue, UNESCO has developed strategies to prevent "heritage hysteria" (Santos; Peixoto, 2012: 53): it is assumed that its heritage lists are representative, not extensive.

Currently, and despite awareness of the existence of a "Western Authorised Heritage Discourse (AHD)" (Waterton; Smith, 2010: 12), the result of the increasing professionalisation and specialisation of the agents responsible for heritage procedures, who decide what should be considered heritage, a certain opposition is emerging from secondary groups that don't see themselves reflected in much of the listed heritage. To deal with this issue, and also with the low rankings of some countries (mainly Asian and African) in the tangible heritage lists, UNESCO created the category of "intangible cultural heritage" in the early 21st century. As far as both tangible and intangible heritage are concerned, there is a tendency in the UNESCO listings to favour cases that are in risk of disappearing, where the goals of preservation and sometimes even recovery are invoked as reasoning. This is a matter which, whilst not very questionable in relation to tangible or material heritage, raises several issues when dealing with intangible heritage or, in other words, the "traditions". In any case, the qualities of a given heritage (tangible or intangible) are artificially extolled when that heritage is at risk or because the lists are representative rather than extensive, thus revealing to some degree an absence of critical thinking with regard to its real value.

With respect to the built heritage left by European powers in the former colonial territories, the use of the expression "colonial heritage" can be harmful for the assessment and conservation thereof. The expression identifies a territory which is not a Western one, and a specific administrative system, without taking into account the diversity of situations, in terms of both the long time period of the colonisation and the variety of territories that were colonised (Roosmalen: 123). Now one can begin to try to answer the initial question: how to approach the heritage question when dealing with a colonial legacy? To whom does that heritage belong? One should bear in mind that talking about a colonial time from the present is almost always a source for conflict, both for the former colonisers and the former colonised. It would seem fair to say that former colonies have the right to make a critical evaluation of that legacy and decide what to protect. It is true that many countries have decided to inscribe many monuments, buildings, towns and cities of the colonial era, arguing for their importance in the official history of the new nations, which changes according to the political system, the social concerns, or the economic powers. Today, it is known that there is a certain degree of idealisation regarding the precolonial past, as some of the traditions that were thought to be authentic have since been found to have been "shaped" through interaction with the coloniser (L'Estoile, 2008: 271). In short, each country chooses what best serves the times, its purposes and constraints.

Conscious of this inherent conflict in the heritage processes in a post-colonial world, the anthropologist Benoît de L'Estoile suggests the expression "colonial legacy" instead of heritage, as a legacy can be left without a will or guidelines, providing more liberty in its critical assessment (L'Estoile, 2008: 270). According to L'Estoile, "legacies are not simply 'handed down'; they are often claimed and negotiated, but also repudiated, selectively accepted, falsified or challenged. [...] A legacy creates relationships (sometimes quite conflicting) between the various potential heirs: legacy at the same time divides and relates..." (L'Estoile, 2008: 270), arguing in favour of continuity in the already long-time relations between countries that share that same legacy. One issue that is already identified by the experts is the lack of criteria for evaluating the importance of this colonial legacy. Currently, several institutions are endeavouring to produce specific criteria to frame this kind of heritage in international lists. One example is the Getty Institute, which, together with the Conserving Modern Architecture Initiative (CMAI), is carrying out the *Twentieth-Century Heritage Thematic Framework* project, arguing that there are representative sites of the modern era that are absent or underrepresented in the majority of heritage surveys, both local and worldwide.

In the case of Africa the European conception of heritage was exported to the colonised countries together with the whole colonial administrative system that stemmed from the European practices. The system that was implemented by the Europeans in Africa did not disappear with decolonisation, rather it was assumed by the new governments, which maintain alive the legacy of colonialism, a legacy that is still very present in the discourse of the current economic and political actors (L'Estoile, 2008: 273).

Heritage policies already existed in the colonial age, where the listing of buildings had the intention of legitimising the European presence. As Rodney Harrison affirms:

> *"heritage is rarely deployed innocently, in the absence of some form of claim toward a self-evident truth that is often divisive or exclusionary, defining the forms of difference it specifies as a function of the past. In doing so, heritage functions to normalize and historicize inequalities of many kinds." (Harrison, 2015: 38)*

In the post-colonial period, not only have new nations arisen, but also these issues are seen in a more comprehensive way. An essential aspect comes into play: the vision of "the other", for lack of a better word. Here one should refer to the thinking of Stuart Hall, sometimes called the "godfather of multiculturalism", who argued that:

> *"the role of multicultural heritage in questioning English society as one which is imagined as culturally unified and homogenous in favour of ways of representing the palimpsest of the post-colonial world provides a positive challenge to 're-write the margins into the centre, the outside into the inside'". (Harrison, 2008: 183-184)*

In the heritage classification processes in the former colonies, this issue is reflected in a broadening of horizons, and the praising of monuments, sites and people from both the pre- and post-colonial ages, and an enhancing of the importance of natural values in the context of environmental protection. In short, into the process of entering the global contemporary agenda. In this context, has what we call "colonial heritage" been downgraded? And, if so, is said downgrading ideological or merely circumstantial?

THE PRACTICE: HERITAGE STRATEGIES IN ANGOLA AFTER INDEPENDENCE

Is the safeguarding and promotion of the (so–called) colonial heritage a priority for Angolan leaders? In a nation that is still coming to terms with itself, also as far as identity is concerned, those monuments and sites that are highlighted can be included in several broad categories, perhaps as a way of "diluting", so to speak, the impact of the Portuguese rule, particularly on the built landscape and the country's infrastructure. Understandably, an effort is thus made to evoke realities beyond the coloniser's sphere. In the discourse of former president José Eduardo dos Santos, and also in that of the current president, João Lourenço, *património* (heritage) is a recurring reference, albeit one with multiple meanings, also because it is directly related to the word *pátria* (fatherland), which is always invoked in nationalistic contexts. During his investiture ceremony as President of the Republic, on 27 September 2017, João Lourenço stressed the goal of "effecting a wide dissemination of the museums, monuments and sites which belong to the historic, cultural, architectural and natural heritage of Angola, which are to be enjoyed by the population and promote tourism" (Lourenço, 2017). The speech, following

other similar speeches given by the preceding president, is completely aligned with that of any other contemporary society. This is expectable, not only because of the European colonial legacy in terms of the state bodies and their actions, but also given Angola's intention of affirming itself as an independent nation, "looking to the future" and part of the ever more competitive global world (Lourenço, 2017).

Fig. 1. View from the right angle of the Mbanza Kongo Cathedral, 2015. Source: © INPC

An analysis of the monuments and sites that Angola chooses in showing itself in the international heritage circle is useful for assessing this issue in the present day. In the same speech, João Lourenço affirmed that "the recent classification by UNESCO of the Mbanza Kongo Historic Centre as a World Heritage Site" was an important diplomatic step, and an honour that "greatly dignifies our country, our history and our people, as well as universal history". The symbolism of the old capital of the Kingdom of Kongo is clear, and is assumed by the president almost as a foundational myth of Angola: "it was one of the most important kingdoms in Africa, from where Africans were forced to leave for all parts of the world, carrying with them their culture, in the form of religions, music, dance and bantu rituals, thus spreading our identity throughout the world" (Lourenço, 2017). The Portuguese colonial legacy is inevitably present in this listed site, not only through the expansion of the city and buildings like the cathedral, but essentially through the site's condition as a testament of "the profound changes caused by the introduction of Christianity and the arrival of the Portuguese into Central Africa" (UNESCO, 2017b).

The other world heritage submissions that are currently being prepared by Angola represent an expansion in terms of typologies, context and time periods, indicating that, apparently, there is no diffidence to or preference for any kind of monument or site. These proposals include, so far, the Archaeological Site of Tchitundu-Hulu (including its rock engravings), the Battle of Cuito Cuanavale Site and the Kwanza Corridor Cultural Landscape.

The first of the three is a granite hill in the Namibe province where rock engravings and paintings more than four thousand years old, depicting animals and other geometricised figures, were found, and the scientific study of which was led by the Junta de Investigações do Ultramar (Overseas Research Council) in the 1950s. The engravings, which have been acknowledged as Historic-Cultural Heritage by the Angolan State since 1996, are in danger because of the natural erosion of the rock, and so the application has a conservation urgency to it. This quest for protection is not only concerned with the physical dimension of the site, as it is still considered to be a sacred place by the local community. The official description highlights the exceptional character of the site: in addition to the more than 2,000 engravings and 250 paintings that exist, it is argued that this is "one of the few sites in Africa where one can see paintings and engravings in the same place" (Mateus, 2018). Questions of identity, endemism and local, national and international importance are once again conveyed here. The importance attached to this kind of natural and pre-historic site is very typical for a country that is still in the early stages of identity (re)formation and that lacks its own cultural legacy beyond the sphere of the coloniser (a legacy which was probably lost or diluted during the colonisation period), similar to what happened in Latin America after several countries gained independence in the 19th century (Santos; Peixoto, 2012:50).

Fig. 2. Ruin of S. Salvador do Congo [Mbanza Kongo] Cathedral, 1965 (AGU/PG 744, AHU, Lisbon)

The battle of Cuito Cuanavale, which took place in 1987-1988 during the Angolan Civil War, was considered a decisive moment, not only for the future of the country, but also for Namibia's independence and the end of apartheid in South Africa. A memorial monument was recently erected on the site and it also received a conference centre, library and museum. In a follow-up phase, there are plans to build "a tourist development, with 120

apartments, a swimming pool, two restaurants, social and shopping centres, among other facilities, to accommodate the visitors to the site [...] [and] 12 protocol-based residences for the various prominent figures that will travel to the municipality" (Angop, 2017a). In the proposal that was sent to the UNESCO tentative list (UNESCO, 2017a), the site is compared to the Auschwitz Birkenau Nazi concentration camp, because local evidence of the battle and war material are still to be found there.

This is clearly a classification proposal that seeks to intensify the memory of a decisive moment in the formation of the country, where the ruling party (MPLA — Movimento Popular de Libertação de Angola) places itself on the right side of history. It is also seen as a tourist upgrade for the region, aimed at attracting other kinds of tourists and reinforcing the regional connections to Namibia and South Africa. Said connections were indeed strengthened by a 2017 presidential decree that established a "Bilateral Agreement between the Government of the Republic of Angola and the Government of the Republic of Namibia on the Construction of Memorial Sites in Cassinga and Xetequela", in Angola, aimed at symbolising the common struggle and to "honouring and preserving the memories of the fallen heroes and heroines slaughtered by the Apartheid Defence Forces of South Africa, in May 1978" (Presidential Decree no. 150/17). In the case of Cuito Cuanavale, it is the dimension of the conflict itself — it was the largest battle on African soil since World War Two — and the importance of its consequences that are highlighted with a view to having the desired enlistment conferred upon the battle site.

The third Angolan proposal included in the UNESCO tentative lists is the Kwanza Corridor Cultural Landscape. According to Emanuel Caboco, an expert in Angolan heritage, "the Kwanza Corridor represents the evidence of two distinct periods in Angola's history, the before and after the arrival of the Portuguese". The region is also characterised by:

Fig. 3. Museum of the Kings of Kongo (Royal Palace), 2015. Joost De Raeymaeker (© INPC)

Fig. 4. The Kings of Kongo, 1935-39. Elmano Cunha e Costa (ECC/NC2409, AHU, Lisbon)

> *"great symbolism in the historic, cultural and commercial dynamic developed over time by the peoples who inhabited the banks of the River Kwanza and its tributaries up until the arrival of the Portuguese, who used this route for the introduction of Christianity and for the construction of the politico-military institutions of the colonial system". (Angop, 2017b)*

Caboco also stresses the need to preserve and disseminate the material, intangible and architectural heritage of the region, in addition to its natural uniqueness in terms of its rich biodiversity. With respect to the built heritage, one can find in this area, in addition to fortresses and churches, the urban settlement of Dondo, classified as a "historic zone" in 2013. The conservation of this humanised landscape is seen as a resource generator for the socio-economic and cultural development of Angola.

In the site description sent to UNESCO (UNESCO, 2017c), one can read some recurring themes: the identitary potential of the region, as well as its originality, regional dimension, well-preserved structures, and rarity in the Angolan and African context. The colonial commercial buildings and military structures are seen as a physical result of the "colonial project"; they demonstrate the resistance of the native African population and served as instruments of legitimisation of the Portuguese presence.

The heritage issue has become, particularly in recent years, a priority in the Angolan political discourse, as its function as a historical, identitary and unifying foundation of the country is understood – as was the case earlier with the Portuguese language, which was kept as the official language after independence. It is also significant that the new president, João Lourenço, has the intention of

> *"strengthening patriotic sentiment and national unity as essential factors in the affirmation of our culture, our identity and Angolanness", placing the "emphasis on the cultures that belong to everyone that makes up the Angolan human mosaic (…) [and defending] unity in diversity and the diversity that promotes unity". (Lourenço, 2017)*

The correlation between heritage and colonial action seems to be more or less overcome. For Emanuel Caboco, who has held several positions in Angolan official cultural agencies, other issues that are more urgent and important are a priority. Caboco refers, for instance, to the growth of Luanda as having not safeguarded the built heritage of the city in the best way possible, recognising that the country "woke up late" to this issue:

> *"heritage conservation was successively pushed into the background (…) and the city, consequently, lost its genuine attributes. I remember that, in the 1990s, Luanda still had attributes that could see it being granted classification (…) [as] World Heritage (UNESCO)". (Fernandes, 2014)*

Caboco also highlights a paradigm shift in the way Angola began to approach its heritage in the last decade: "the military architecture monuments that formed the defensive complex of the port city […], [as well as] religious monuments (churches) and civic monuments [buildings] […] [that] are linked to colonisation or the Portuguese" were classified earlier (sometimes even before the independence), but there are also "the historic places that […] have nothing to do with the colonial presence or context, but that identify with the imaginary, history and culture of the Angolan population" (Fernandes, 2014).

Indeed, one should point out the "wave" of submissions by the Angolan State to the UNESCO tentative lists in 1996, including many structures that were already classified as national monuments in the colonial period (between 1923 and 1932, in the aftermath of World War I, when there were certain changes to the situation of the European powers in Africa, and in the moment when the Angolan elite lodged their claims for administrative decentralisation). Specifically, ten monuments in the country are referred to here: three churches and seven fortresses. The latter are presented, in the descriptions sent to UNESCO, as proof of the native resistance against Portuguese conquest, as physical manifestations of the slave trade and as necessary for the protection against other colonial powers. The churches are also presented as essential elements in the slave trade chain, for it was there that the slaves were baptised before they were deported. In the context of the civil war, this list of submissions and its justifications can also be seen as an effort

to legitimise the ruling party as the "owner" of the past. MPLA presented itself as the party that united the Angolan people, unlike its opponents who, in their eyes, wanted to divide Angolan society.

Heritage classifications in Angola have, however, a long history, in a process that is closely linked with the socio-economic and political changes that the country went through over the last one hundred years, and which were accompanied by the corresponding legislative changes (especially after the independence). In this regard, it is essential to look at the totality of the nationally classified heritage in Angola between 1920 and 2018, which encompasses about 270 classified items, of which 41 were still classified during the colonial period.

For this study, the only pre-1920 reference that was found is the classification, by the Royal Decree of 2 March 1854, of the Commemorative

Figs. 5 and 6. Dondo village in the Kwanza Corridor, 2019/1908. Filipa Fiúza / unknown author. Source: FCT research project Coast to Coast / PRA/PG156, AHU, Lisbon.

Monument to Pedro Alexandrino da Cunha, a statue in the São Miguel Fortress in Luanda. Between 1922 and 1932, five churches, five fortresses and two civic building complexes (which consisted of 11 buildings, including hospitals, council buildings, graveyards, etc.) were classified. Many of these classifications were for ruined structures, mostly built between the 16th and 18th centuries and reflecting the conservation spirit of that time, which was rooted in the Romantic ideas that favoured the old charm of buildings and their state of decay.

This trend continued through the 1930s and 1940s, with the classification of six churches, four fortresses and two wells, now including some 19th century structures and without reference to the state of conservation. In the 1950s, however, one witness greater diversity in the typologies classified. In addition to the more common cases, only one military structure is classified, along with two churches and two civic buildings, other cases emerged, such as the Historic Zones of Benguela and Muxima (the one in Namibe was to be classified in 1974) and the Rua dos Mercadores, a street in Luanda. This broadening of the examples was reinforced on the eve of independence: in 1974 and early 1975, unprecedented classifications were listed, such as the Rock Paintings of Ndalambiri, two *sobrados* (urban mansions) and the so-called Palácio de Ferro (Iron Palace) in Luanda, a structure from the late 19th century attributed to Gustave Eiffel.

This trend remained after independence, with a significant variety of cases listed in the 1980s, from rock engravings to colonial fortresses. For the first time, buildings that were built well into the 20th century were included, such as the Uíge Hotel and other examples of everyday architecture. Structures related with transport, communications and industry were also classified, such as railway stations and the former headquarters of the Companhia de Açúcar de Angola (a sugar company). The classification of a substantial number of buildings in Luanda, in 1981, should also be highlighted. Encompassing a total of 35 buildings and two urban areas, including several building typologies, such as *sobrados* and what Caboco referred to as traditional houses; the classifications were based on the studies by the architect Fernando Batalha.

After this "wave" of listings in the country's capital, a hiatus of more than ten years followed, after which there was another rich period in terms of heritage classifications. Between 1992 and 2004, 42 examples of civil architecture, 17 governmental buildings, 11 places of religion (including Christian missions), three transport-related structures, an industrial structure, nine military structures and four battle sites were classified by the Angolan State. The interest in archaeology also increased exponentially: in this same period, 25 archaeological sites were also listed, in addition to three regions of natural remarkability. Other heritage classifications from this period can be included in the formulation of a new history of the country, one that attaches greater importance to the pre-colonial past, to the resistance during Portuguese rule and to the post-colonial era. In this regard, four sites associated with the slave trade, three monuments dedicated to anti-colonial activity, and five sites related with traditional African societies (*ombalas*, the tombs of kings, etc.) were listed during this period. Greater

importance was also attached to the historic areas of cities, of which five were listed, including in Luanda.

Maybe this "outbreak" of listings can be explained by the accelerated disappearance of the now older colonial heritage, particularly in the capital, a situation that was already quite serious before independence, as Batalha noted in the 1940s. A resolution of the National Assembly in 14 January 2000 alerted to some of the drastic changes that occurred in the preceding years, resulting in eleven buildings being struck off the classification lists that had either been altered (six buildings) or demolished (five buildings). The resolution also raised concerns "as to the growing disrespect for the fundamental and universal rules on conservation, improvement and perpetuation of the national memory". In order to safeguard the country's cultural heritage for the coming generations, the resolution also calls on the Government to take action, "namely through: a) the prohibition of alterations to and demolitions of any building listed as Cultural or Historic Heritage, without consultation and prior authorisation of the competent bodies; b) the promotion of educational actions and the adoption of large information programmes for society in general especially for the children and youth, on the history and individual importance of each Classified Monument, Site or Heritage". Within the scope

Fig. 7. Muxima fortress and church, by the river Kuanza, 1965 (AGU/PI 743, AHU, Lisbon)

of this conservation drive, 11 more buildings of everyday architecture were classified in Luanda approximately a year after this warning.

Nevertheless, this appeal seems to have not had the desired effect, and between 2004 and 2012 nothing was listed in the country; up until 2014 nothing at all was listed in Luanda. Between 2012 and 2014, the Regional Museum of Dundo building (1947) was listed, together with the Historic Zone of Dondo, as well as some other examples of natural and colonial heritage. The previous classification rate was only restored from 2014

onwards, and it has remained in place until the present day. Recent years were characterised by a certain priority given to classifying religious spaces (nine) and monuments or sites related with anti-colonial resistance and slavery (eight cases, including prisons and battle sites). The remaining building types have received few listings, with the exception of civil architecture, of which 14 examples were listed, including ten buildings of "Dutch architecture" in Cabinda. UNESCO–type descriptions began to appear, such as "cultural landscape", and it was also in this period that submissions to said international body received a decisive impulse.

Reflecting on the somewhat surprising hiatus that occurred between 2004 and 2014, it is important to point out some issues. The end of the long civil war and the transformation of the country since then — which included large foreign investments — were essential for the exponential growth of the Angolan economy, which was reflected in initiatives such as the Angolan Public Investments Program (PIP) which, between 2003 and 2012, injected 32.8 billion euros into the Angolan economy, thus boosting the country's construction industry like never before (Tvi24, 2012). This period was clearly marked by the transformation of the bay of Luanda, with the construction of a large number of new buildings which altered significantly the urban landscape of the city. The destruction of colonial heritage would thus seem to originate in rapid economic development and a desire to modernise the city in accordance with a completely different model. Another perspective says this may have been an ideological choice. After winning the civil war, the MPLA no longer had the need to disseminate its ideology to the population or to show its diplomatic strength to other countries.

The return of an interest in heritage classification, in recent years, seems to be a result of the economic crisis (since 2009) and the need to diversify the Angolan economy, a process which was already initiated by José Eduardo dos Santos and was continued by João Lourenço. In this context, the tourist industry figures as an essential choice, together with, of course, international heritage classifications. This course of action has been confirmed by recent news announcing the opening of Angola's borders to citizens of 61 African, Asian, American and European countries, easing entry and permanence requirements, with a view to fortifying the tourist industry (A Semana, 2018).

CONCLUSIONS

As we have seen, the Angolan authorities have followed diverse rationales when it comes to regarding heritage classification; they can be seen in the context of the globalised society and a desire for the country to affirm itself. The reasons can be strictly economic, but they can also serve to strengthen the feeling of national unity, or increase the power of the ruling party. In this sense, the physical value of a given heritage property is often relegated to the background, while its role in Angola's history — as a symbol of repression and resistance during the colonial time, or as a pre-colonial or post-colonial vehicle for the country's national identity — is highlighted. We can thus affirm that there are a number of differences in how European and Angolan bodies see their heritage. This happens, in some cases, because the history

that gave birth to the European examples goes, generally speaking, further back, or because national identity affirmation appeared to be relatively dormant (at least until more recent times). In any case, the colonial issue linked to heritage seems to have been overcome, albeit perhaps more on the Angolan side than on the European side. This aspect can be explained by the young age of many African nations and by the more rapid generation renewal in countries like Angola, where the average age of a citizen is 20 years.

In the colonial period, it was normal to have a clear separation between heritage from the pre-colonial past, which could be considered as "indigenous", or from very distant times (for example, rock paintings and engravings, or sacred natural monuments), and the European colonial heritage, a result of Portuguese rule over many centuries (churches, fortresses, etc.). The "indigenous" tangible and intangible heritage (from pre-colonial and colonial times) was clearly disregarded by the colonisers. The current heritage management policy in Angola seeks to include the colonised in the coloniser's legacy, with a view to ruling out the dissociation of the Angolan population from that legacy, thus promoting a consensus regarding heritage classifications. For example, the discourse relating to military structures has changed: they are no longer only tools for territorial control and the expansion of the colonial project, but also (and perhaps more importantly) defensive structures that were necessary to respond to African resistance. This change is clearly reflected in the Angolan heritage classification resolutions that were passed over time, placing their proponents on the right side of history.

Thanks to the success of the listing of Mbanza Kongo as a World Heritage site, it is only natural that Angolan society is now starting to see its cultural and natural heritage in a new light, even if for essentially economic arguments. At the national level, heritage serves as an identity-building factor, even when it comes with propagandistic overtones, for example in the direct associations between sites related with the slave trade or with colonial rule in general, and overtones of African resistance. One should note, in this regard, the cooperation between neighbouring African countries to make joint submissions to entities such as UNESCO, particularly in border areas, such as the above-mentioned memorials along the border with Namibia, or the slavery harbour of Loango, in the present-day Republic of the Congo, included in the UNESCO World Heritage Tentative Lists in 2008. More recently, the harbour was included in a new candidature that was prepared "as part of a movement driven by Angola to recover the African pre-colonial culture" (Lusa, 2017). Nevertheless, the old colonial ties have not been totally discarded, as can be seen by the participation of the University of Coimbra in archaeological work in Mbanza Kongo and in the formal support given to that site's World Heritage candidature (Universidade de Coimbra, 2014).

Likewise, the role played by Angolan heritage as a national identity factor seems to have come to an end at the end of the civil war, and the heritage is now primarily used to represent the country internationally. Globalisation also helps to somewhat dilute the question of nationality, bringing countries like Angola to an international stage, where the heritage question seems to play an essential role.

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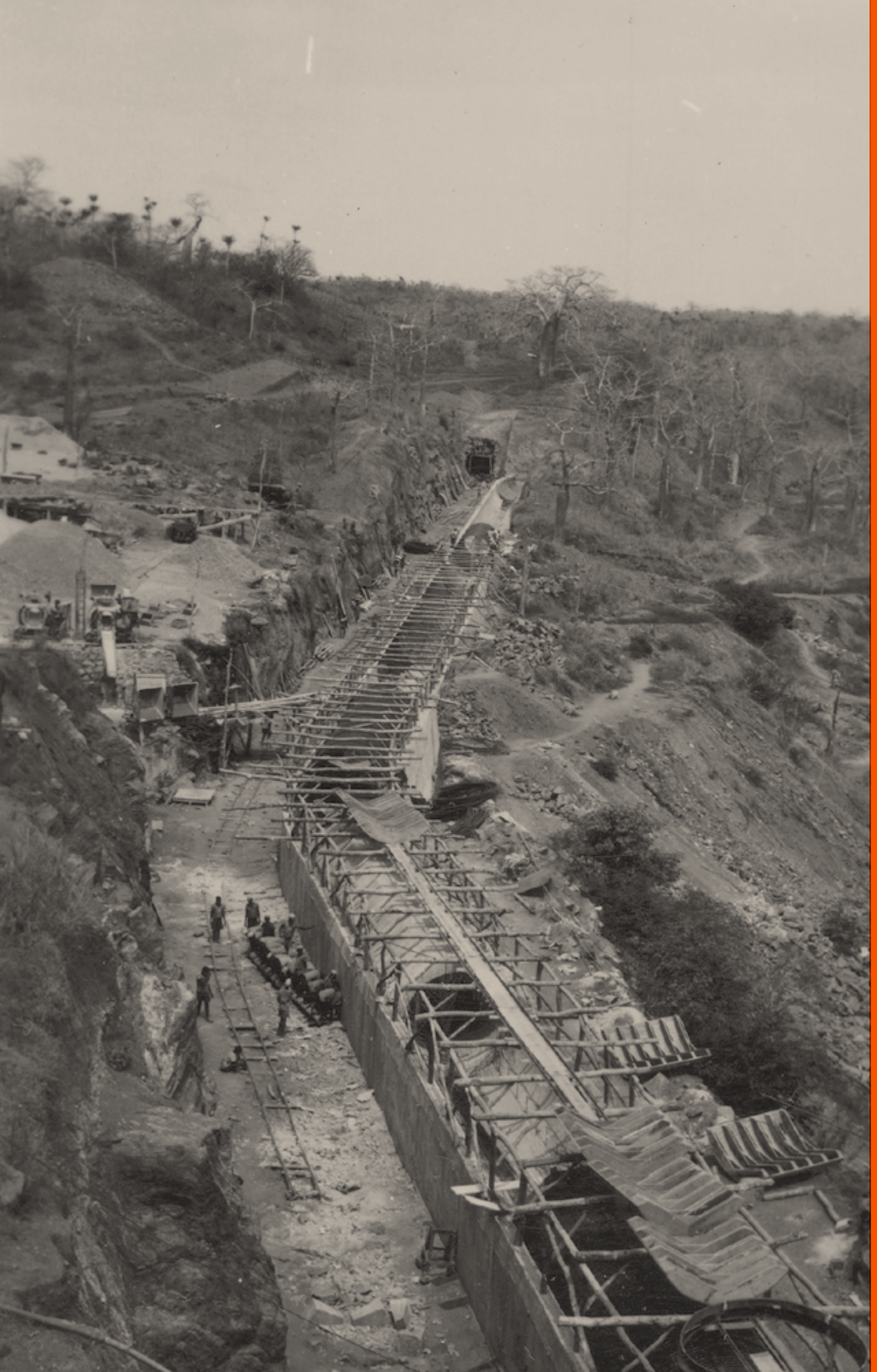

SPATIAL CONTROL IN COLONIAL LUNDA — BETWEEN STATE POLICY AND A PRIVATE COMPANY´S PLANS

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[ABSTRACT]

In the late 1960s, António Soares Carneiro, the recently appointed Governor of Lunda, drew up an "expedite development plan" that reorganised what was previously small villages into larger ones. The plan, which covered both rural populations and urban centres, aimed at combating the increasing subversive activities that were threatening that area in north-eastern Angola, already considered to be a "victim" of its 1147 km-long border. In this regard, the construction of infrastructures, such as schools and communication networks, was deemed to be the appropriate way forward to making "security and development compatible". Nevertheless, Carneiro's plans came with "a thorn in their side": the Diamond Company of Angola — Diamang, a private company based in Lunda since the early 20th century and said to be a "state within the state". Indeed, the enterprise was a "dominant industrial hub" in the region and, therefore, a key player in the transformation of the territory. By this time, it had gathered extensive know-how on social engineering through spatial organisation. As far as population control was concerned, the company did not hesitate to accuse the colonial government of being behind the times.

Given these circumstances, the purpose of this paper is twofold. Firstly, it seeks to explore the forms of countersubversive plans, both those promoted by the state apparatus and those developed by Diamang. Using urban planning as a key tool, several measures were implemented throughout Lunda to that effect, such as the creation of *enquadrantes* (former soldiers whose job was to "ensure the success of the new villages"), "propaganda villages" and an extensive network of social facilities (schools, health and care services, and recreational centres). Secondly, this paper also sets out to analyse the interplay between the various countersubversive plans referred to above, as Diamang's economic perspective was not always in lockstep with the political aims. In this sense, the research seeks to assess the role of private companies in the development of colonial architectures of counterinsurgency.

KEYWORDS: architecture of counterinsurgency, urban planning as warfare, strategic settlement, late colonial development

A "THRIVING REGION" IN ANGOLA

In 1972 the magazine *Terra e Gentes de Angola* published an extensive article about the country's north-eastern Lunda region. The region was presented as "one of the most thriving areas" of Angola and its capital, Henrique de Carvalho (the present-day Saurimo), was regarded as "the city that had developed the most in the entire country".[1] António Soares Carneiro, who was appointed governor of the region earlier in 1968, had drawn up an extensive "development plan" that same year, which sought to bring more public investment to the region.[2] Several roads, schools and healthcare facilities were planned throughout the, until then, "deserted" territory.

What the article *did not* touch on, however, was one of the main reasons behind these socio-political changes: Portuguese colonial rule was being militarily challenged in Angola since 1961 and the subversive conflict had arrived in Lunda in 1967 (Cann, 1996; Pimenta, 2010; Rosas, 2015). Echoing the colonial authorities' belief that "peace" could only be restored by "merging military action with social development"[3], i.e. by considering "settlement and social promotion" as "essential weapons to counter subversion" (Oliveira, 1970; Rebello, 1996), Soares Carneiro's "expedite" plans relied mainly on "transport and communication, advancement of the rural population and urban improvement".[4] The aim was to conquer "souls, hearts and minds" through "psychological, social and educational strategies",[5] respectively.

The plans designed for Lunda were part of a wider programme of "strategic resettlement" that was being applied in both Angola and Mozambique[6] in order to tackle the African guerrilla groups that aimed to put an end to Portuguese colonial rule. Until then, architecture and urban planning throughout the Portuguese overseas territories had been mainly the responsibility of the architects who worked for the Colonial Planning Office (GUC), a centralised public office based in Lisbon, but soon military demands were to override the intentions of the architects (Milheiro, 2012; Milheiro, 2017). The interplay between "security" and "development" became a keystone of colonial rule (Jerónimo, 2017) and major public works were now to concern

1. ANTT, António Soares Carneiro, box16, no. 1, doc.19. PT/TT/ASC/D/0002. "Lunda". *Terras e Gentes de Angola*, 7º caderno / Rigoroso exclusivo N Notícia (1972).
2. Until then, only 1.9 % of the public colonial investment went to Lunda, which was the lowest income of all regions of Angola.
3. ANTT, António Soares Carneiro, box16, no. 2. PT/TT/ASC/D/0003. "Lunda".
4. ANTT, António Soares Carneiro, box16, no. 4, doc. 1. PT/TT/ASC/D/0005. "Lunda — Elementos preparatórios para um esquema expedito de desenvolvimento".
5. ANTT, António Soares Carneiro, box18, no. 1, doc.1. PT/TT/ASC/D/0001. "Lunda. Acção psicológica".
6. On "strategic settlement" and "rural reorganisation" in Angola and Mozambique see Gerald Bender (1972). "The Limits of Counterinsurgency: An African Case". *Comparative Politics*, vol. 4, no. 3, pp. 331-360; Brendan Jundanian (1974). "Resettlement Programmes: Counterinsurgency in Mozambique". *Comparative Politics*, vol. 6, no. 4, pp. 519-540; João Borges Coelho (1993). *Protected Villages and Communal Villages in the Mozambican Province of Tete (1968-1982): A History of State Resettlement Policies, Development and War*. PhD thesis, Bradford University; Diogo Ramada Curto and Bernando Pinto Cruz (2017). "The Good and the Bad Concentration: *Regedorias* in Angola". *Portuguese Studies Review*, vol. 25, pp. 205-231; GEAEM, Gabinete de Estudos Arqueológicos da Engenharia Militar (2014). *A Engenharia Militar na Guiné. O Batalhão de Engenharia*. Lisbon: Direção de Infra-Estruturas do Exército; Luís Nuno Rodrigues (2012), "For a Better Guinea! Winning Hearts and Minds in Portuguese Guinea" in Philip Muehlenbec (ed.). *Race, Ethnicity, and the Cold War*. A Global Perspective (pp. 118-141). Tennessee: Vanderbilt University Press; Francesca Vita (2019). *"Uma Guiné Melhor": the psychological action and the spatialisation of population control in rural areas. The strategic villages in Guinea-Bissau between 1968 and 1973*. Congresso Internacional Colonial and Postcolonial Landscapes. Lisboa, Portugal.

themselves with covering water supply, the electrification of villages, road paving and urban plans.

To justify the construction of these infrastructures, which were to support said socio-economic advancement, villages were required to have "the appropriate size", of between 500 and 1500 people, a size that was not being met at the time due to the "demographic scattering" that the region seemed to suffer from.[7] Indeed, earlier in 1965 the territory had already been divided into 48 *regedorias* [an territorial administration term], comprising 1720 villages.[8] However, most of them were considered too small, without a proper *soba* [village chief] with whom colonial authorities could dialogue. Furthermore, Soares Carneiro reported that "unfortunately, the village regroupings repeatedly organised in Lunda were not provided with the necessary buildings and social facilities"; and it was "urgent to ensure development in this area".[9] Given these circumstances, a new "order" was necessary. Accordingly, 488 villages, each of them having around 600 people, were regrouped across the region in the early months of 1972. They were all placed near military barracks, administrative posts or commercial villages so that local communities would be "protected" and, in particular, "mentalised"[10] (see Figure 1). The war would not be won by those with the best army, but those who would first "control the spirits and minds of the population" (Pereira, 1961).

Fig. 1. A regrouped village in Lunda. These villages were located near roads and had an orthogonal layout to enhance control. Source: ANTT, António Soares Carneiro, box 16, no. 4, doc. 12, PT/TT/ASC/D/0005

7. ANTT, António Soares Carneiro, box16, no. 1, doc.19. PT/TT/ASC/D/0003. "Lunda".
8. ANTT, PT/TT/SCCIA/009/0004. "Regedorias e Autoridades Administrativas dos distritos de Lunda, Moxico e Cuando Cubango". On *regedorias* see Diogo Ramada Curto and Bernando Pinto Cruz (2017). "The Good and the Bad Concentration: *Regedorias* in Angola". *Portuguese Studies Review*, vol. 25, pp. 205-231; Diogo Ramada Curto and Bernando Pinto Cruz (2015). "Destribalização, regedorias e desenvolvimento comunitário: notas acerca do pensamento colonial português (1910-1965)". *Práticas da História*, vol. 1, pp.113-172.
9. ANTT, António Soares Carneiro, box16, no. 4, doc.1. PT/TT/ASC/D/0003. "Lunda".
10. DCV-UC, Diamang archives, box 205. "Defesa civil de Angola. Auto-defesa da Companhia. Grupo de Voluntários (1969-1971).

The 1972 Public Works report for Veríssimo Sarmento, one of the areas in the Lunda region, highlighted the priority given to schools, water deposits and electric power.[11] This threesome of social conveniences formed a kind of toolkit that was to be ensured for every village, as emphasised in the "first phase" of the Methods of Technical Assistance and Social Action programme carried out by the Rural Reorganisation Technical Committee the year before (Guerra et al., 1971). Local reorganisation committees were firstly to focus on "small improvements", such as supplying potable water, providing education and health services, and guaranteeing the construction of paths and roads that reached the villages.

Once these basic infrastructures were completed, the "second phase" of the *villagisation* process would call for a "coordinated action" that involved interdisciplinary teams of social assistants, nurses, teachers, topographers and draughtsmen (Guerra *et al*, 1971). However, a lack of experts for such a venture — a *chronic* issue in the Portuguese colonial project — lead the Special Countersubversion Council for the Northern Military Zone, which met in December of 1972, to agree on the "need to promote better cooperation between civil society and the -military",[12] so that population regrouping could take place. If a "waste of human resources" was avoided, the "tiny amount of money" dedicated to rural Public Works could then be used to build two schools instead of only one.[13] This was by no means a ground-breaking idea, as a "symbiosis between the population and the army" was long considered to be "the solution"[14] for ensuring both the control and development of sparsely populated areas like Lunda.

Soares Carneiro had already presented some ideas for a "new settlement system" based on the *enquadrante*" system. It placed former Portuguese army soldiers in the regrouped villages as "active agents of social promotion" amongst the local population.[15] A few studies had been carried out, pointing in that direction, although without any knowledge that it was indeed to be rolled out (Marques, 1964; Bessa, 1972). However, Carneiro, who was an experienced member of the Portuguese Army, had enough influence to make it happen. Besides being responsible for organising groups of militia members (civil citizens, both Portuguese and African, who fought alongside the army), these men were asked to "fight another war"[16]: cleaning and ordering villages, building schools, latrines and furniture, organising recreational activities and fostering social ties. *Enquadrantes,* as these former soldiers were known, would be given weapons and barbed wire but also bricks, cement, basic farming tools and a piece of land so that they could show the African population

11. ANTT, António Soares Carneiro, box 70, no. 1. PT/TT/ASC/E/0011. "Álbum discriminativo das obras de promoção social das populações, referente ao ano de 1972, executadas na área do concelho de Veríssimo Sarmento, segundo programa estabelecido pelo Governo do Distrito da Lunda, e concluídas até Agosto de 1973".
12. ANTT, António Soares Carneiro, box 70, no. 1, doc. 6. PT/TT/ASC/E/0008. "Informação sobre contra--subversão".
13. ANTT, António Soares Carneiro, box 70, no. 1, doc. 6. PT/TT/ASC/E/0008.
14. ANTT, António Soares Carneiro, box 44, no. 6. PT/TT/ASC/D/0012. "Recortes de imprensa sobre a Lunda". *Diário de Angola*, 16th September 1969.
15. ANTT, António Soares Carneiro, box 20, no.no. 2. PT/TT/ASC/004/0010. "A actualidade de Angola – Panorâmica estratégica e problemas de defesa", 1971.
16. ANTT, António Soares Carneiro, box16, no. 1, doc.19. PT/TT/ASC/D/0002. "Lunda". *Terras e Gentes de Angola*, 7º caderno / Rigoroso exclusivo N Notícia (1972).

the "benefits" of keeping "their houses and rice fields in order".[17] They were, therefore, regarded as the "assurance" that the rural reorganisation would be successful and that the *Junta Provincial de Povoamento de Angola*[18] (Angolan Provincial Settlement Council) could "actually implement" some of its settlement plans.[19]

Soares Carneiro's ideas appeared to be taken from the study *Contribuição para uma política de reordenamento rural no Ultramar* (Contribution to a Rural Reorganisation Policy in the Overseas Provinces) by Rosa Serrão Navarra, published by the *Junta de Investigações do Ultramar* (Overseas Research Council) in 1970. The work highlighted the important role of "specialised monitors" in providing structure for African people in regrouped villages, an approach justified by the legal changes that placed rural resettlement in the "wider context of social promotion, development and settlement", rather than just population settlement (Navarra, 1970).

A POWERFUL "ISLAND" IN A "REORGANISED" ARCHIPELAGO

In spite of the effort that went into the on-going regrouping process, the region was continuously described as a "group of islands that formed an archipelago only from a political perspective",[20] but not in real terms. A "deep fracture line" was identified between the south and the north, where Diamang, the "dominant industrial hub"[21] in the region, was carrying out its powerful mining operations that required a lot of the Lunda working population. Indeed, most of Lunda's villages were close to mines, and also near Angola's border area (see figure 2).

Diamang was a mining company set up in the Lunda region in 1917 that quickly became the most important financier of the Portuguese colonial project. Its extensive "infrastructural power" (Mann, 1984) lead to the widely spread notion of it being a "state within a state" or the "ninth colony of the empire" (Clarence-Smith, 1983).[22] Unsurprisingly, and despite the fact that it was a private enterprise, Diamang was considered a key player of in the rural reorganisation along with other public institutions such as the Armed Forces, Agricultural Services, *Junta Autónoma de Estradas de Angola* (JAEA) (Road Authority of Angola) and the Public Security Police (PSP).[23]

17. ANTT, António Soares Carneiro, box 70, no. 1. PT/TT/ASC/I/0068. "Campanha: estratégia".
18. *Juntas Provinciais de Povoamento* (JPP) were set up in Angola and Mozambique in 1961 and they were responsible for "*any issue related to settlement*" as well as "*the coordination of every public or private activity carried out to that end*". Diário do Governo no. 207/1961, Decree no. 43895.
19. ANTT, António Soares Carneiro, box16, no. 1, doc.19. PT/TT/ASC/D/0002. "Lunda". *Rumo ao Leste*, 1971.
20. ANTT, António Soares Carneiro, box 15, no. 5. PT/TT/ASC/D/0021.
21. ANTT, António Soares Carneiro. PT/TT/ASC/D/0003.
22. On the multidimensional "microcosm" created by, Diamang, see Mathias Alencastro (2004). "Diamond Politics in the Angolan Periphery: colonial and Postcolonial Lunda (1917-2012)". Doctoral thesis: Oxford University; Jorge Varanda (2007), "A bem da nação: Medical Science in a Diamond Company in the 20th century in Angola". Doctoral thesis: London, University College; Nuno Porto (2009), *Modos de objectificação da dominação colonial: o caso do Museu do Dundo, 1940-1970*. Lisboa: Fundação Calouste Gulbenkian; Todd Cleveland (2015), *Diamonds in the Rough: Corporate Paternalism and African Professionalism on the Mines of Colonial Angola, 1917-1975*. Athens: Ohio University Press; Jorge Varanda (2017). "Diamang: retrato visível e oculto da nona colónia". *Jornal de Notícias História*, no. 8, June.
23. DCV-UC, Diamang archives, box 205. "Defesa civil de Angola. Auto-defesa da Companhia. Grupo de Voluntários (1969-1971)".

Fig. 2. Lunda's district after being regroup, in 1971. Most villages are located in the north, near the Diamang mines, which left the south unprotected. Source: ANTT, António Soares Carneiro, box 16, no. 3, doc. 2, PT/TT/ASC/D/0004

In truth, Diamang *was* soon able to benefit from its own dominance, as it had what the other players were lacking — money, experts and workforce. The company received several requests to cover urban plans and also became responsible for funding most of the colonial state's social engineering plans. For instance, in May of 1970, João Bexiga, who was in charge of the Diamang facilities in Lunda, sent a telegram to the company's offices in Lisbon asking permission to help Soares Carneiro, who, "despite being committed to furthering settlement and countersubversion measures", did not have money to do so.[24] Even when money was not a problem, the lack of both experts and expertise was a drawback for the Public Works department. Diamang was asked to provide building contractors, carpenters and bricklayers as well as electrical work plans and topographical maps. Construction materials, such as trucks, bricks and furniture, were also requested of the company.

Moreover, in order to amass people at that "edge of the empire", like many other companies around colonial geographies, (Roberts, 2014), Diamang had been building extensive know-how on social engineering that was now proving to be extremely suitable for facing the threat of warfare. Despite the reported "busy" urban improvements that were emerging in Henrique de Carvalho (now Saurimo), the article in *Terras e Gentes de Angola* stated that "a lot was still missing and everyone expected Diamang to take care of it"[25].

24. DCV-UC, Diamang archives, box 205. "Defesa civil de Angola".
25. ANTT, António Soares Carneiro, box 16, no. 1, doc.19. PT/TT/ASC/D/0002. "Lunda". *Terras e Gentes de Angola*, 7º caderno / Rigoroso exclusivo N Notícia (1972).

Since its inception, Diamang had put a lot of effort into developing its social-spatial setting[26], so as to ensure the settlement of both European employees and African workers. The company's urban centres were considered faultless and its urban policies were regarded as a role model. Several social facilities were built by a private department of Urban Services. European workers had good housing and several leisure facilities at their disposal, such as recreational centres, swimming pools and gardens, that would make life in Africa more appealing to those who moved to the company's outlying areas (see figure 3).

Fig. 3. Diamang houses for European employees were deemed "unique". Source: DCV-UC/AD

Furthermore, Diamang had its own Indigenous Labour Propaganda and Assistance Service (SPAMOI), set up in 1937, the purposes of which were similar to those later given to Carneiro's *enquadrantes* system:

> *"to engage volunteer workers in the conservation and enhancement of their villages and farming fields; to show them the benefits of long-term work and their remaining in the one and same place; [...] to encourage the natives to settle near the mining camps, to build their houses of adobe or wattle and daub, with large dimensions and to provide them with the necessary material".*[27]

These efforts, which highlighted the important role of family, food, children, schools and professional education in the daily life and health of African workers, were part of a wider "stabilisation policy" that mining companies had developed not only to ensure an abundance of personnel

26. On account of their extensive territorial and technological dimensions, mining companies were considered "bastions of modernity" and therefore became central to the discussion on "welfare" in Africa during the 1950s. See Ferguson, 1999; Cooper, 2004; Makori, 2017.
27. DCV-UC, Diamang archives. *SPAMOI annual report*, 1937 [diamangdigital.net].

(Mottoule, 1946; Grévisse, 1951) but also to promote the inclusion of the local population in the new global urban society produced by the industrial environment (Ehsani, 2003). Since the 1940s, several so-called propaganda villages and indigenous markets had been built throughout the company's area of operation as one of the first measures resulting from the SPAMOI service. Also, near Dundo, where the company headquarters were, a "modern and hygienic model neighbourhood" was designed as "an example of the standard of living that indigenous people could achieve through education and work".[28] (see figure 4)

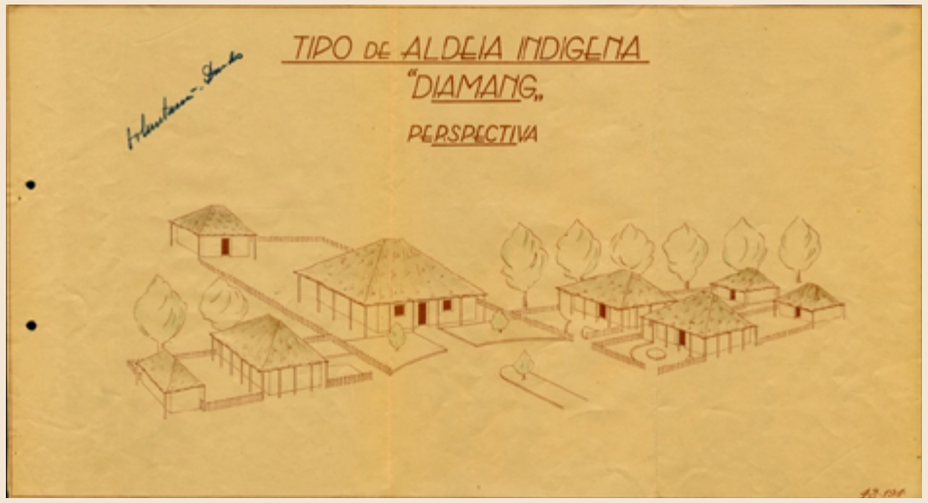

Fig. 4. Aspect of a "*Standard Diamang Indigenous Village*" (as a side note: the villages of *Voluntários* in Dundo were to be built according to this plan). Source: DCV-UC/AD

Indeed, Diamang's operation area was a perfect blend of the two "priority areas", where, according to colonial experts, "social promotion" was to be fostered: the borderland and the city.[29] In this regard, the company had always been very conscious of both its borderland and urban conditions and had learnt how to take advantage of these. As private companies in Portuguese colonial territories were required to protect their own staff and buildings, by the time the conflicts started, Dundo was the only village in the region with an active security plan. Due to its borderland position, a "defence plan of the Diamang territories and facilities"[30] was designed in 1950 and revealed how buildings were to be adapted to warfare scenarios, where women and children could take refugee during in conflict situations and what was to be told to African workers in case of an attack. This explained why even though the region's frontier condition made it a "victim" of a 1147 km-long border[31] — as it was very vulnerable to guerrilla groups like the UPA and UNITA, which had military outposts just across the artificial border to the

28. Diamang (1936). *Súmula da origem, desenvolvimento, actividade e acção colonizadora da Companhia de Diamantes de Angola* – Homenagem e recordação da visita de Sua Ex. o Governador Geral de Angola, Coronel António Lopes Mateus. Dundo: Companhia de Diamantes de Angola. ANTT, António Oliveira Salazar. UL-8A, box 712, capilha 1. PT/TT/AOS/D-N/2/2/1.
29. "*Acção social no trabalho em Angola*", José Rodrigues Baião. Magazine "*Reordenamento*", published by *Junta Provincial de Povoamento*, no. 13, 1969.
30. DCV-UC, Diamang archives, box 205.
31. ANTT, António Soares Carneiro, box16, no. 4, doc. 1. PT/TT/ASC/D/0005. "Lunda - Elementos preparatórios para um esquema expedito de desenvolvimento".

newly independent Democratic Republic of the Congo— serious insurgency problems ended up arriving from the underdeveloped and sparsely-populated south, where the MPLA was based[32] (see figure 5).

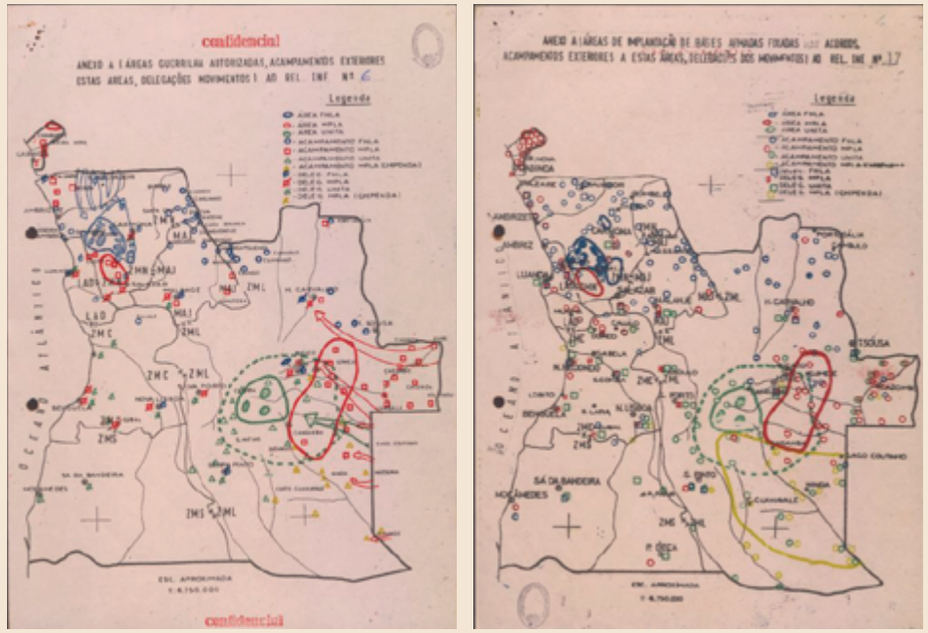

Fig. 5. Areas where FNLA, MPLA and UNITA were based in Angola, in early 1975, shortly before independence. Source: Arquivo Histórico Militar, Relatórios de Informação da 2ª Repartição do Quartel-General do Comando-Chefe das Forças Armadas de Angola, PT/AHM/FO/043/2/840/29.

ANOTHER WAR: FIGHTING THE STATE'S "PSYCHO-SOCIAL FURY"

With such a background, Diamang saw no need to change its socio-spatial policies to deal with insurgency issues as any modification was said to "destabilise the reliable system that was in place, resulting in harm to the Lunda population".[33] However, beneath this "hard outer shell", the company was in fact struggling with the changes brought about by the Rural Labour Code (CTR), enacted in 1962 after Ghana's complaint against Portugal at the ILO (Monteiro, 2017). Suddenly, the company had another enemy to fight beside the insurgent groups: the Portuguese State's "psycho-social fury"[34] regarding rural workers. To the Diamang board of directors, the new legal requirements, which were "solely imposed in order to align with the so-called recommendations of international organisations", would result in too much "red-tape" for "those who had real experience on the ground".[35]

In order to deal with the new demands, Diamang had to effect a "profound and radical change" to the company policies, which had an impact

32. Angola's War of Independence war was fought, on the liberation side, by three African liberation groups: UPA/FNLA (União das Populações Africanas), UNITA (União Nacional para a Independência Total de Angola), and MPLA (Movimento Popular de Libertação de Angola), between 1961 and 1975. See Miguel Cardina and Bruno Sena Martins (coord.) (2018). *As voltas do passado. A Guerra Colonial e as Lutas de Libertação*.
33. ANTT, António Oliveira Salazar, UL-8A8, box 723, capilha 1.PT/TT/AOS/D-N/2/13/1. *Relatório da Companhia de Diamantes de Angola*, 1966.
34. ANTT, António Oliveira Salazar, PT/TT/AOS/D-N/2/13/1, Relatório, 1966.
35. ANTT, António Oliveira Salazar, PT/TT/AOS/D-N/2/13/1, Relatório, 1966. This idea emphasised the "subaltern agency" of the Portuguese authorities regarding international circuits (Curto and Cruz, 2017).

on its urban set-up.[36] In 1966 "Domestic Training Centres" and "Recreational Centres", both of which addressed the need for the "advancement of the local population", were organised. SPAMOI recruited "monitors" to help teach women how to "manage the household".[37] "Traditional houses" were replaced by "definitive houses", which were made of brick and zinc, and by the time ILO agents visited Diamang villages in 1971, almost 90% of housing was "definitive", in comparison to the 18% in 1961.[38] Even though Diamang had earlier came out against the compound system used in South African mines, as it was a source of riots, poor living conditions and did not promote the commended "family life", the need to deliver such "expedite" housing led to the company starting to build "collective housing", known as *camaratas*, where both unmarried men and married couples could live (see Figure 6). Also, in order to guarantee that workers had housing from the beginning of the mining activities, as requested by the CTR, and as a means of dealing with the "temporary nature" of some mining sites that led to "huge expenses in terms of covering definitive housing", the company came up with demountable houses that would meet both "their social and our economic needs".[39]

Diamang was proving that it rapidly understood how to address legal obligations and, at the same time, incorporate some of the State's official discourse while ensuring its own needs[40]. At heart, it was a matter of "prestige": Diamang was keen on being an "example in the housing of workers in Angola" and the possibility of an "inversion of positions" was not welcome.[41] To Ernesto de Vilhena, the company director, it was even a "shame to have such a good board full of specialists and engineers and have to search outside the company for an ideal house; indeed, the company should design its own Diamang house type".[42] However, regardless of the company's efforts to remain a role model for spatial practices, it did have an economic agenda that left not much room for such imposed welfare. When the local administrator of Cafunfo lodged a complaint that workers in that area were living in villages with "appalling conditions", the company quickly made it clear that the men in question were "non-permanent workers", therefore not covered by legal requirements.[43] The situation was "simply a problem of rural reorganisation, which should be addressed by the competent authorities"; and while "the company was willing to assist in this task, it did not want to take any responsibility for such a fluctuating population group".[44] Everyone appeared to be carefully picking and choosing their own battles.

36. DCV-UC, Diamang archives, "Mão de obra indígena não especializada – Recrutamento, Salários, Alojamento. 1967-1971" 6º vol.
37. DCV-UC, Diamang archives. SPAMOI annual report, 1968.
38. Indeed, several workers were interviewed by ILO's agents and all of them stated to be living on houses provided by the Company. ILO Report (1971). Oficina Internacional del Trabajo. *Informe de Pierre Juvigny, representant del Director General de la Oficina Internacional del Trabajo, acerca de los contacto directos com el Gobierno de Portugal respecto de la aplicácion del Convenio sobre la abolición del trabajo forzoso*. Genéve.
39. DCV-UC, Diamang archives, "Mão de obra indígena não especializada 1967-1971".
40. On the relationship between Diamang and the Portuguese State authorities see Mathias Alencastro (2018). "Política dos diamantes em Angola durante a primeira era colonial: as relações entre o Estado e a Diamang".
41. Vilhena's letter to Diamang managers in Lunda, 16th June 1964. DCV-UC, Diamang archives, "Mão de obra nativa – Habitação" (pasta 16).
42. Vilhena's letter. DCV-UC, Diamang archives, "Mão de obra nativa – Habitação" (pasta 16).
43. DCV-UC, Diamang archives, "Mão de obra indígena não especializada – Recrutamento, Salários, Alojamento. 1967-1971" 6º vol.
44. DCV-UC, Diamang archives, "Mão de obra indígena não especializada 1967-1971".

Fig. 6. Diamang *camaratas*, built in the late 1960 to house workers. Source: DCV-UC/AD

"DISORDERED" LEGACIES

Even though independence wars were an extremely destructive force, both in terms of the territory and the population, they paved the way for an unprecedented late "developmental" momentum in Africa (Castelo, 2014), as shown by Soares Carneiro's plans for the Lunda region. Indeed, confidential information sent to the Governor General of Angola in earlier 1961 deemed that the "crisis" that was then beginning should be seen as an "opportunity" to improve living conditions in the Northern regions.[45] Defence requests explained why, for example, small cities like Henrique de Carvalho received major infrastructures like airports (Fonte, 2013). Likewise, due to warfare mobility demands, as "revolts started where roads ended", Angola was given a well-developed road system that was, by the time of the country's independence, unique in Africa (Bender, 1978). Moreover, the war gave the colonial authorities the scope to deploy "developmentalism" as an essential tool, not only to keep the colonial order within the borders but also to justify the maintenance of the Portuguese Empire in the face of international criticism (see figure 7).

In this regard, the active role of African people must also not be dismissed. Villagisation, whilst being an extremely dramatic measure, made it possible for the rural population to step up and play a role in the modernisation of the country (Feichtinger, 2017). Both state authorities and Diamang were of the fact aware that, despite all the "socio-spatial strategies" implemented, the African workforce that came to work on mining sites was "extremely fluctuating and uncontrollable".[46] By way of example, when these families became aware that the company had a legal obligation to house its workers, a lot of the local population moved close to the mines so that they

45. ANTT, António Soares Carneiro, box 20, no. 2. PT/TT/ASC/004/0010. "Angola: Contra-Subversão – Informação Confidencial no. 22/61".
46. DCV-UC, Diamang archives, box 205. "Defesa civil de Angola. Auto-defesa da Companhia. Grupo de Voluntários (1969-1971).

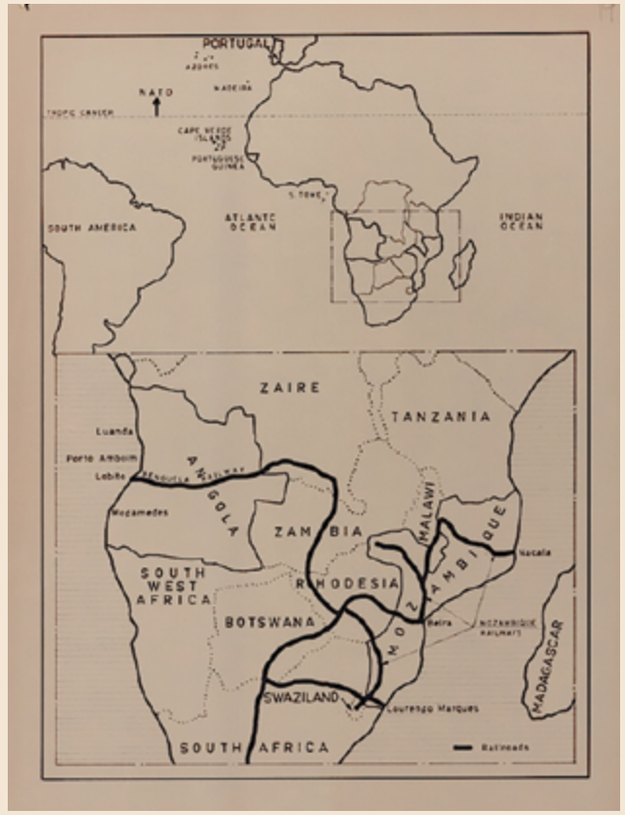

Fig. 7. The former Portuguese colonies of Angola and Mozambique were presented as being *"paramount to the defence of the Western World"*, as their railway lines and ports served mining activities in Central Africa. In *"La politique africaine du Portugal et la défense de l'Occident"*, Alexandre Ribeiro Cunha, 1971. Source: ANTT, António Soares Carneiro archives, box 16, no. 3, doc 80. PT/TT/ASC/D/0003.

would get a house. In this regard, the requirements of the Rural Labour Code benefited the company, which suddenly got more workers, but also disturbed the planned rural reorganisation. This became such a problem that, in 1969 the Governor of Lunda had to create a system of "residence" certificates to control the population and to prevent people from abandoning the already sparsely populated southern part of the region.[47]

In this context, the danger of maintaining the Lunda economy's dependency on the Diamang operations had already been acknowledged and the rural reorganisation was also expected to deal with this issue.[48] Regrouping the population was thus also perceived as a way of countering the company's hegemony. However, that goal was never achieved. When Angola became independent in 1975, mining activities continued in the Lunda region. Today the district remains heavily reliant on companies that continue as substitutes for the State apparatus, particularly with regard to urban planning and spatial practices (Rodrigues, 2017; Pearce, 2004). Also, while (post-)colonial cities have been deemed "global pivots of change" (King, 1985), the expectations of local populations regarding a future based on "urban modernity" remain a "myth" (Ferguson, 1999).

47. DCV-UC, Diamang archives, "Mão de obra indígena não especializada – Recrutamento, Salários, Alojamento. 1967-1971" 6º vol.
48. Photographs which illustrated the article on Lunda in the magazine "*Terra e Gentes de Angola*" featured a caption recalling that "*perhaps the suave and lovely Dundo urban scenery [was] dangerously overly reliant on the stability of the diamond industry. Diversification [was] a necessity*". ANTT, António Soares Carneiro, box 16, no. 1, doc.19. PT/TT/ASC/D/0002.

LAST REMARKS

In exploring both Soares Carneiro's and the Diamang policies and achievements in terms of population settlement and control, which entailed major changes in the urban environment in Lunda, a few other considerations must be raised. Firstly, it remains crucial to highlight the importance of assessing the role of colonial players other than the State on spatial planning (Roberts, 2014). As mentioned above, the main goal of late colonial countersubversive measures, "winning over the population, was similar, at the roots, to the "stabilisation policies" implemented years earlier by private companies in order to guarantee workforce supply (Coghe, 2017). It even appeared that the colonial authorities learnt some strategies from them. For instance, one of the Soares Carneiro's measures to ensure that the Lunda population would conform to his plans was to promote "best village" competitions in the region, just like Diamang had been doing since 1946.[49] In order to understand all of the tie-ins and implications, a comprehensive study of the different late colonial settlement policies implemented in the former Portuguese colonies would be needed (and has yet to be carried out).[50]

Secondly, it would appear that the above-illustrated process of rural reorganisation cannot be reduced to military and security *rationales* (Feichtinger, 2017; Jerónimo e Pinto, 2015). Even though the villagisation programmes were implemented mainly in rural areas, the effects thereof extended beyond the rural *milieu,* as the programmes were part of the wider discussion on urban-rural dynamics that paradoxically affected and were affected by "developmental processes"[51]. On the one hand, promoting rural populations was regarded as much more than a way to improve rural areas; it was also "the solution to protecting cities" from "less evolved" people (Bessa, 1972), and, therefore, reinforced racial and social discrimination. Moreover, the "power of attraction" of urban centres was perceived as a "danger" that led to "detribalisation" (Baião, 1969; Curto e Cruz, 2015). On the other hand, the "settlement policy" published in 1971 argued that reorganising rural villages was an essential tool for attracting new European settlers to sparsely populated regions.[52] It was, as James Scott has argued, a kind of "social gardening devised to make the countryside, its products, and its inhabitants more readily identifiable and accessible to the centre" (Scott, 1998). In both cases, wider layers of purpose were embedded into "strategic resettlement", which figured as a way to "save the whole empire".[53] In effect,

49. SPAMOI organised the "Best Village Contest" [Festa da Melhor Aldeia] contest in order to encourage the native workforce to modify their villages. Reports on the competition say it resulted in a change in the natives urban imaginary as they started to "recognise the benefits of having a clean and neat village, whitewashed houses, vegetation and fruit trees". ANTT, António Oliveira Salazar, UL-8A5, box 720, pt. 1. PT/TT/AOS/D--N/2/10/1. *Relatório dos Administradores por parte do Governo* na Companhia de Diamantes de Angola, 1950.
50. Complicated settlement issues were deemed a "national problem" and colonial experts knew that Angola was a deeply heterogeneous territory and, therefore, solutions had to take into account each region's specificities. See Gomes Bessa, "*Angola, a luta contra a subversão e a colaboração civil militar*".
51. Soares Carneiro gathered a lot of material on the growing "dual society". Tradition and modernity began to face off as opponents and a "clash of generations" was expected. This "phenomenon" was foreseen not as a local problem, but as a global one. ANTT, António Soares Carneiro, box 16, no. 1. PT/TT/ASC/D/0002.
52. "Política de povoamento, 1971". ANTT, António Soares Carneiro, box 16, no. 2. PT/TT/ASC/D/0003. "Lunda".
53. *Congresso de Povoamento e Promoção Social* (Congress on Settlement and Social Promotion), 4th-9th October 1970, Luanda. "Fixação de soldados desmobilizados", Araújo Rodrigues. ANTT, António Soares Carneiro, box 16, no.no. 1. PT/TT/ASC/D/0002.

practices of social engineering through spatial planning did not address one problem only, but many at once.

Lastly, strategic resettlement was not exclusive to the Portuguese colonies, but "a large-scale instrument of systematic population control in colonial warfare" since the beginning of the 20th century (Scheipers, 2015; Smith and Stucki, 2011). In this regard, the Portuguese case needs to be both synchronically and diachronically framed in terms of the international genealogies of social engineering through spatial planning (Feichtinger, 2017), which include not only the "*guerre moderne*" of the Algerian *centres de regroupment* (Henni, 2016), the British "New Villages" in Malaya (Scheipers, 2015) or the camps in Kenya (Castro, 1994), but also "older dreams" of ordering colonial territories (Coghe, 2017). In this context, it is also important to acknowledge that the end of the Portuguese empire puts it right in the middle of the Cold War dynamics[54] that brought other players to newly independent African territories (Stanek, 2012), whose role in urban planning is still under-researched. Indeed, when designing the *enquadrantes* system, Soares Carneiro imagined the reorganised villages to be somewhat like the Israelian *kibbutz*, a type of socio-spatial organisation that was receiving a lot of attention at the time (Navarra, 1970) and that still seems to govern some of the planning principles employed today in Angola. While colonial rule has come to an end, its impact on the space is still felt.

54. The "village" was a "category of development knowledge used by policymakers and experts to remake the 'Third World' during the Cold War". See Nicole Sackley (2011). "The village as Cold War site: experts, development, and the history of rural reconstruction". *Journal of Global History*, vol. 6, University of Richmond: History Faculty Publications, pp. 481-504.

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ARCHIVAL RESOURCES

ANTT — Torre do Tombo National Archives: António Oliveira Salazar archives (PT/TT/AOS) and António Soares Carneiro archives (PT/TT/ASC).

AHU — Overseas Historical Archives.

DCV-UC — Science Museum of the University of Coimbra. Diamang archives.

ACKNOWLEDGMENTS

The author wishes to acknowledge *FCT Fundação para a Ciência and Tecnologia* for supporting this research through the Ph.D. grant SFRH/BD/122658/2016 and Carla Coimbra Alves for kindly providing access to the Diamang archives at the Science Museum of the University of Coimbra.

ACCOMPLICES OR AGENTS OF CHANGE: THE ROLES OF COLONIAL PUBLIC WORKS AND TECHNICIANS INTO PROMOTING OR CONTESTING REPRESSIVE PRACTICES ON LOCAL POPULATIONS IN MOZAMBIQUE

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[ABSTRACT]
Colonial public works, while presenting ideals of development, modernization and improved quality of life, have been a powerful tool of power, often generating asymmetric impacts, namely by exacerbating social disparities between colonial and local populations. Understanding this framework, this communication aims to discuss the role(s) of the technical dimension of these actions, meaning the impact of architecture, urban projects and their technicians into actively promoting, or contesting, repressive or inequitable practices. It will thus analyze, on the one hand, how spaces, uses, design and typologies of specific projects have supported and legitimated practices of segregation and inequality. On the other hand, it will also discuss whether at times technical arguments and decisions might have stood as a tool of contestation of segregation and social disparities, thus contributing to questioning and overcoming institutionalized repressive practices. In order to discuss these dimensions, examples will be used from the last five decades of colonial administration in Mozambique, analyzing processes of public works consulted at Maputo's Town Council Archive and at Beira's Ports and Railways Archive. They will consist of cases such as expropriation processes undertaken within road implementations and the differentiated treatment of colonial and 'indigenous' property owners, spaces of segregation within public facilities and construction sites, or segregated neighborhoods for local populations. Complementarily, it will also analyze examples of technical pressures into the dilution of social barriers by defending equitable infrastructures or shared spaces in contexts of exclusion, confronting distinct internal positions within the colonial apparatus. Though adopting specific examples and contexts, these cases aim at feeding a broader debate into the political positioning and the social impacts of technical and spatial intervention, as well as the dependence/complicity of technicians or a possible space for their transformation of practices within contexts of colonial administration.

KEYWORDS: **Colonial Public Works, colonial apparatus, technicians, negotiation, Mozambique**

SETTING THE BACKGROUND: THE DANGER OF A DUAL STORY

Historical narratives on the colonial process often follow one of two extreme alignments: either through a description of a "colonial project" that highlights the achievements and innovations of colonization, or through the focus on the colonial repressive techniques and the active construction of unequal societies. Rarely do these perspectives coexist or are jointly discussed, each being instead addressed as a homogeneous all-encompassing narrative of the events.

As history is recurrently written by the most powerful, unquestionably and for many decades, the colonial perspective – with stronger power, visibility, tools and records for future reinterpretations – predictably became the dominant narrative to be exposed and disseminated.

Complementarily, the rise of the independence movements and the need for a decolonization of history and knowledge created the space and the necessity for an alternative point of view to be highlighted, with different perceptions and interpretations, namely highlighting the maneuvers of colonial repression, alienation and/or invisibility of local populations.

Nonetheless. these two perspectives on colonial administration and local populations – either addressed as civilizers & civilized, or dominators & dominated – have in common a dichotomy between two groups, each of them apparently understood as homogeneous and a single entity, thus ignoring their complexity, the diversity of roles and relations within and amongst them, as well as the ideological involvement and (in)compliance of each person within these structures.

The Nigerian writer Chimamanda Adichie alerted for the "danger of a single story", of producing a sole and stereotyped perspective on a certain context, in particular the slave trade; yet dual stories also produce similar dangers of creating generalizations and rough simplications where real and complex events may be read though more perspectives.

Thus, this paper is set within a wider research that seeks to overcome the recurrent dual approach to the processes of colonization, thus intending to contribute to overcoming discourses of duality and homogeneity of each side. This paper in particular intends to explore more perspectives within the colonial decision-making system, that reflect upon the complexity and diversity of the colonial apparatus, on its internal supports and contestations, on its discourse and the practices, as well as on examples of coherence or contradiction.

In order to undertake that approach, this paper will focus on examples of colonial public works undertaken in Mozambique, specially in Maputo but also pointing other cases. This reflection is based on the processes of public works consulted at Maputo's Town Council Archive and at Beira's Ports and Railways Archive and, even though these are registers from the colonial administration – thus with the possibility of being considered the narratives of the 'dominants' –, the processes will show differences between intentions and practices, internal frictions, alignments and internal contestations, thus contributing to discuss the complexity and diversity within a not-so-homogeneous colonial apparatus. This debate will be fed by examples from Mozambique, but will also represent an opportunity to widen the discussion to broader contexts.

COLONIAL PUBLIC WORKS AS TOOLS OF DEMOCRATIZATION AND/OR REPRESSION – AN OVERVIEW ON PORTUGUESE CONTEXTS

Public works constitute an important and very visible dimension of every State's strategies and political positioning. If this may be visible in any public administration, in authoritarian regimes with strong propaganda they gain an intensified role as instruments with very strong symbolic, ideological and political representation of power. Thus, from basic infrastructures – such as water supply, sewage and energy –, to transport infrastructures – through road, railway, airway and port systems –, as well as social facilities – including wealth and education –, public works cover for most of the dimensions of living of a society, thus gathering the power to transform it in multiple ways, either by promoting democratization and improved access, or through segregation and defense of interests (Graham, McFarlane, 2014).

Colonial regimes are a paradigmatic case of this use, not only due to the strong presence of authoritarian and all-encompassing States and their intense public intervention and mobilization of resources, but especially due to the action of *colonization* itself – of exerting power over territories and their populations – thus needing to justify and maintain occupation and control. And while, from the point of view of colonial administration the discourses often fed upon the ideas of modernization and population support, other perspectives highlight the processes and tools for *alienation* of local populations, especially in the African territories (Fanon, 1969).

From Portuguese colonies to overseas' provinces: the colonial propaganda on modernization

A pretense characterization of the Portuguese colonial approach – trying to find specificities or comparations with other processes – might be not only challenging and complex within an extensive diversity of territories and their dynamics throughout time, but it would for sure be also reductive and over-simplified. Nevertheless, as the independences of the former Portuguese colonies in Africa were some the most recent in the continent, the internal and external pressures on the autonomization of these territories were especially intense in the late colonial period, thus demanding for a colonial approach that would try to justify its maintenance in the African continent. Therefore, following the second world war, the creation of the Non-Aligned Movement and the independences of the African nations surrounding the Portuguese territories, the decades of 1950, 1960 and the beginning of the 1970s until their liberation in 1974, represented a period of intense public intervention for modernization, and especially of investment in the production of a colonial discourse that would present it has a synonym to democratization and improvement of living conditions for the local populations. By this time, the African territories started being addressed as "overseas provinces" instead of "colonies", through a change in colonial propaganda and discourse, in an attempt to dilute the process of domination and colonization, intending to produce the perception of an extended nation.

Within this background, the public works assumed the role of tools to undertake and materialize this intended modernization process, but also this

symbolic and ideological mission, thus meaning that the political dimension of these oeuvres were a crucial aspect that largely added to their technical dimension.

Modernization as an unintended promotion of emancipation?

The ways in which this process of modernization of the "provinces" was physically but also symbolically undertaken, their shown and hidden intentions, as well as their impact, probably remain largely undetermined. While the efforts for implementation of infrastructures, transport networks and social facilities undeniably represented major investments in these territories, they could both be read through the colonial discourse of democratization, and through the perception of these actions as mechanisms of power to control and pacify local populations. Yet unintentionally, the colonial strategies that were produced for the integration of local populations – trying to refrain or contain the autonomy intentions – have most likely also contributed to their emancipation, both through feeding arguments for acts of resistance and contestation, and through the consolidation of a more subtle and long-term movement, in which the generation of "*assimilados*" (the local population that integrated in the colonial apparatus in the 1930s and 1940s) have created the conditions for a following educated, ideologically-aware generation to be able to become autonomous, contest establish dominant practices and pave the way towards independence.

Both these movements, in different phases or in synchronic periods, have contributed to the autonomization and independence of the lusophone African Nations, and were largely influenced and molded by the physical and symbolic dimensions of the public works undertaken in the territories throughout the different generations, which have both been a reflection and a tool for social shaping.

The following parts will address some examples related to the implementation of public works, both by highlighting the active promotion of disparities beneath a colonial discourse on democratization and equity, and by presenting internal disagreements and the production of alternatives within the colonial administration, showing this apparatus as a complex and diversified system, rather than an homogeneous structure.

In both cases, it will be highlighted that the technical dimension of public works – and therefore also their technicians – unintentionally or intentionally – may have served, or otherwise contested, the purposes of higher levels of the colonial administration where they were set in.

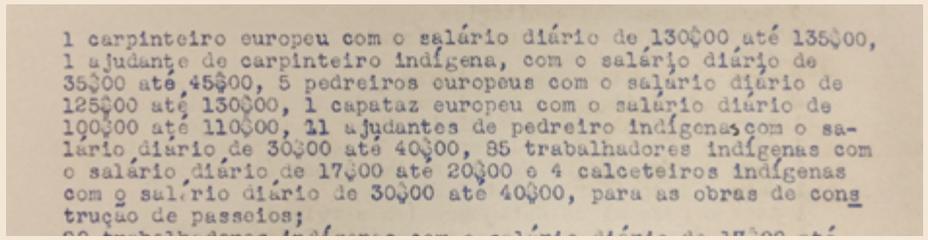
COLONIAL REPRESSION MASKED AS MODERNIZATION

Several aspects from the ways through which colonial public works were undertaken show that this process has often used repressive practices on local populations, be they direct or indirect, intentional or unintentional. To illustrate some of these practices, some examples will be used from Maputo (former Lourenço Marques) that cover some themes in different dates: the labor differentiation, the differentiated treatment of colonial and 'indigenous' property owners within expropriation processes undertaken

within road implementations, spaces of segregation within public facilities and construction sites, or segregated neighborhoods for local populations.

The differentiated labor recognition: indigenous and european workers

One visible aspect of social and economic differentiation lies in the unequal payments not only for skilled and unskilled labor, but especially relating to the races or origins of the populations (Fig.1). This distinction shows not only the distance between the recognition of value of their efforts, but also condemns certain population groups to economic limitations and dependence.



1 carpinteiro europeu com o salário diário de 130$00 até 135$00, 1 ajudante de carpinteiro indígena, com o salário diário de 35$00 até 45$00, 5 pedreiros europeus com o salário diário de 125$00 até 130$00, 1 capataz europeu com o salário diário de 100$00 até 110$00, 11 ajudantes de pedreiro indígenas com o salário diário de 30$00 até 40$00, 85 trabalhadores indígenas com o salário diário de 17$00 até 20$00 e 4 calceteiros indígenas com o salário diário de 30$00 até 40$00, para as obras de construção de passeios;

Fig. 1. Description that shows the striking differentiation of income between skilled and unskilled labor, as well as between european and indigenous workers in 1950. Source: Proceedings of the Municipal Assembly of Lourenço Marques, consulted at Maputo's Town Council's Archive

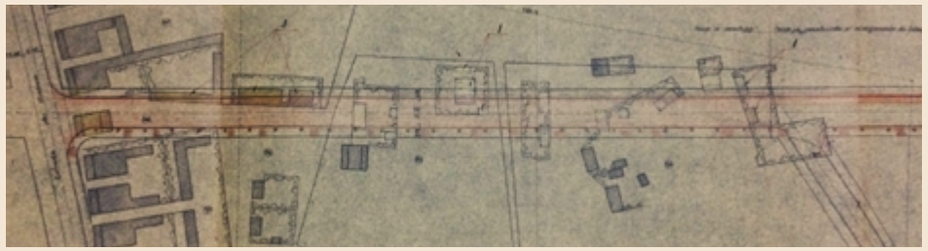
Unequal expropriations: the alienation of the individual towards a common good?

The process of intervention and improvement of urban areas often implies the transformation and the demolition of existing constructions. Nevertheless, the processes though which these are undertaken and the necessary compensation for individual losses vary largely, not only according to location and historical-political context, but also – as we can see from colonial records – according to the property owners and characteristics of the constructions. Thus, examples arose on the registers of striking disparities on compensations for the expropriations, showing the asymmetries in these process on the notion of value and retribution (Fig.2).

CONSTRUÇÃO DO PROLONGAMENTO DA AVENIDA ALVES CORREIA

Area a expropriar		7429 m2	a	7$80	58.726$20
Construções de alvenaria	Edificios	64 m2	a	450$00	28.800$00
	Dependencias	26 m2	a	270$00	7.020$00
Construções de M/Zinco	Edificios	60 m2	a	330$00	19.800$00
	Dependencias	70 m2	a	130$00	10.500$00
Barracas a deslocar		49	a	700$00	34.300$00
Arvores de fruto a transplantar					2.000$00
				Soma	161.146$20

Fig. 2. Two processes showing the works for road constructions, including the demolition of existing local houses – designated as *"zync and wood constructions"* -, as well as the *differentiated expropriation subsidies given to European and "indigenous"* populations, in 1933 and 1950. Source: Processes 17A/1933 and 188A/1950, consulted at Maputo's Town Council's Archive



Deslocação e reconstrução das barracas de madeira e zinco e canico de vedação	M.	6	16.000$00	12.000$00	6.000$00	18.000$00
Concordância dos trabalhos novos com os existentes, derrube de árvores e imprevistos	M.	1	1.800$00	500$00	1.300$00	1.800$00
				99.395$77	180.465$34	279.861$11

Spaces of segregation: a "soft" apartheid?

In Mozambique, the active promotion of segregation – though not reaching the strictness of its neighboring country of South Africa – can be noticed in different dimensions of the social life. Even though there have been different approaches and strategies concerning the local populations – in 1930 the "Acto Colonial" promoted the "civilization" of the "indigenous" population, while in 1954 the "*Estatuto dos Indígenas Portugueses das Províncias da Guiné, Angola e Moçambique*" promoted the "assimilation" of the local populations, and this was later reformulated in 1961 with more democratizing ideas of integration and comprehensive citizenship. Nevertheless, throughout this process, several mechanisms served and highlighted the intentions of separation, namely infrastructures, through examples of the construction of segregated spaces (Fig.3) and of specific facilities for the "indigenous" population (Fig.4).

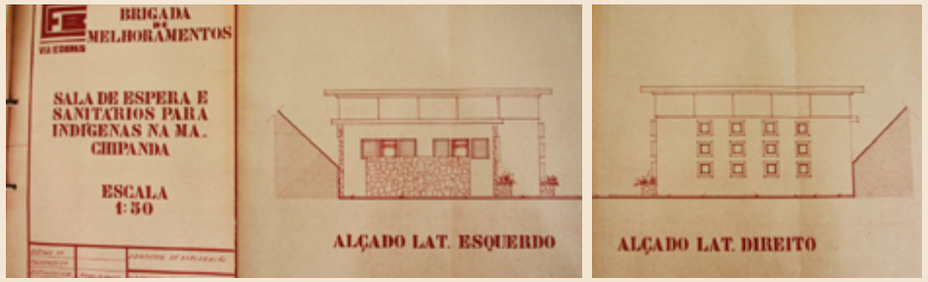


Fig. 3. Racial segregation in the railway facilities. Source: Process of the Machipanda Station, Technical Section N.º10, w/d, Beira's Ports and Railways Archive

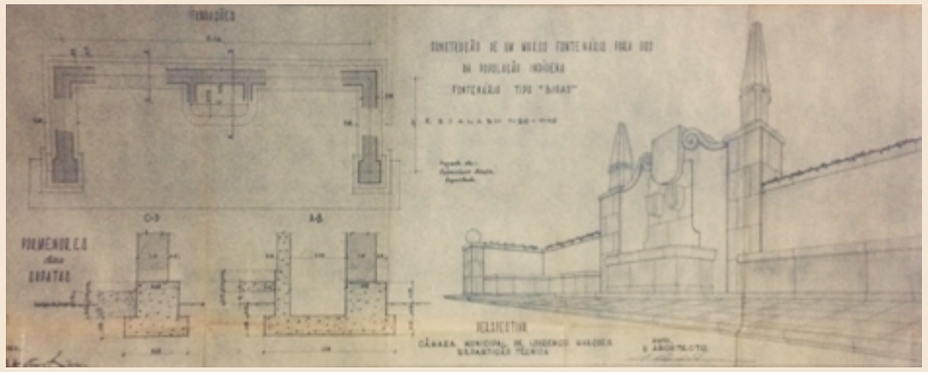


Fig. 4. Process of a "Fountain for Indigenous Population". Source: Process 37/8/1950, Maputo's Town Council's Archive

The typologies for indigenous populations: apartheid masked as housing improvements?

The settlements and housing typologies that were designed and built specifically for "indigenous" population seem to reflect ambivalent intentions of assimilation and segregation. Paradigmatic example of these characteristics is the Munhuana neighborhood (Fig.5) which, while creating improved housing conditions and the aspiration of approaching the colonial lifestyle, remained a cluster located in the peripheric areas (Fig.6).

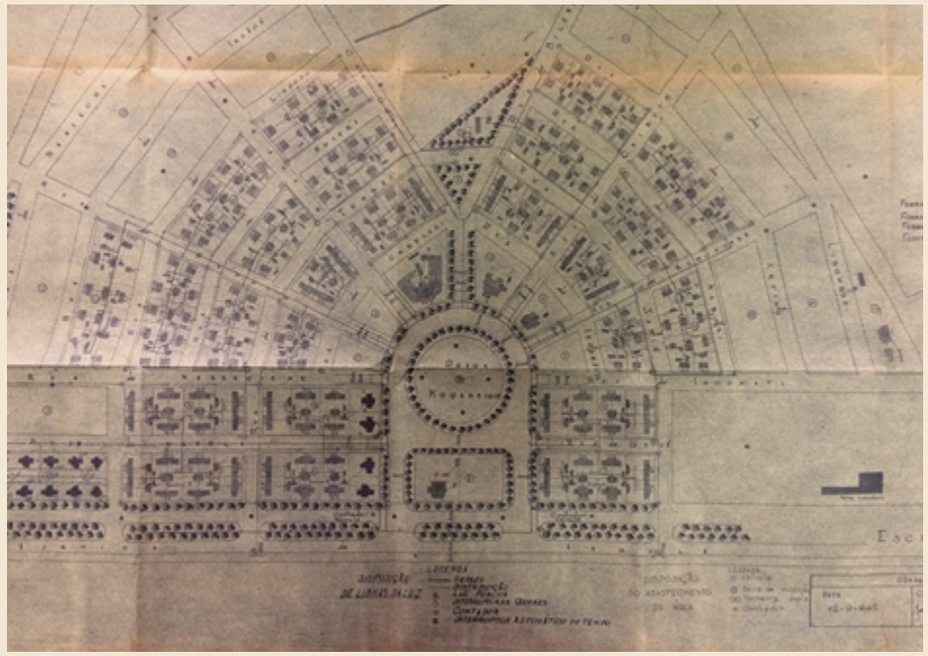


Fig. 5. The Munhuana neighborhood, a housing project planned and built in the periphery of Maputo (former Lourenço Marques) for indigenous population, 1940s-1950s. Sources: Processes 188A/1945 and 3/1953, Maputo's Town Council's Archive; Photography from Maputo's Historical Archive – Iconographic Section

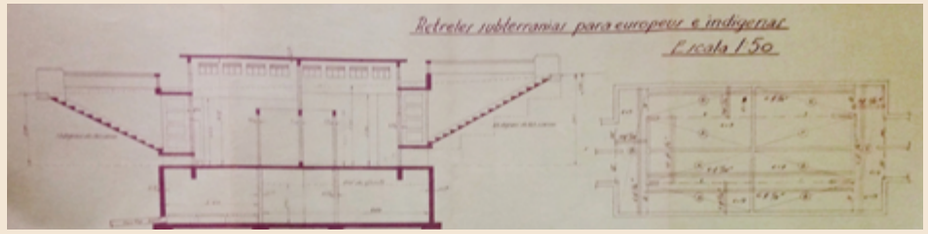
Fig. 6. Sample of the northwestern part of Maputo, being visible the difference between the planned area of the centre (in the bottom of the image), the self-produced sparse occupation of the African population (in its surroundings) and an example of a neighborhood, Munhuana, for indigenous population (in the upper centre of the image). Source: 'Planta do Concelho de Lourenço Marques', w/d, Maputo's Town Council's Archive

A SUBTLE CONTESTATION? THE USE OF TECHNICAL ARGUMENTS FOR IDEOLOGICAL POSITIONING

On an opposite perspective, the following examples will illustrate acts of contestation or alternative approaches, undertaken by technicians or decision makers within the colonial administration, that differed from the dominant practices at their time.

In defense of common public facilities in times of segregation

The use of technical arguments for promoting solutions that may differ from the predominant or usual ones – representing, or not, an intentional and ideological positioning – may contribute towards changing established – and often unjust and unchallenged – paradigms. An example from 1942 (Fig.7) shows the defense of mixed use for a public facility, trying not only to replace the previous segregated project, but also seeking to become replicated as an updated model.



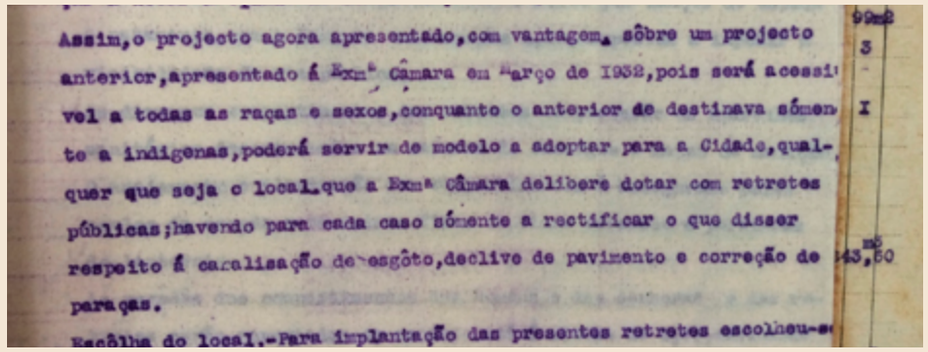
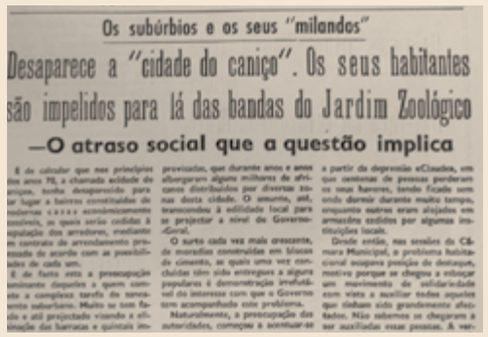

Assim,o projecto agora apresentado,com vantagem, sôbre um projecto anterior,apresentado á Exmª Câmara em Março de 1932,pois será acessivel a todas as raças e sexos,conquanto o anterior se destinava sòmente a indigenas,poderá servir de modelo a adoptar para a Cidade,qualquer que seja o local que a Exmª Câmara delibere dotar com retretes públicas;havendo para cada caso sòmente a rectificar o que disser respeito á canalisação de esgôto,declive de pavimento e correção de paraças.

Fig. 7. A project of "Public toilets for european and indigenous population", where the technical justification defends a mixed use in 1942. Source: Process 2/2/1942, Maputo's Town Council's Archive

The contestation of negligence on peripheries

The references to the settlement and housing situation of the local populations are other aspects where the strategies and interventions of the public administration were criticized and contested, both from outside professionals and – though in more subtle and diplomatic ways from within the colonial administration. Therefore, if the text on the "sick city" (Guedes, 1965) published on the *Binário* journal alerted for the precarity of the living conditions of local populations in Maputo, or the several news published in *O Brado Africano* newspaper (Fig.8) highlighted the negligence paid to the living conditions of local populations or the injustices in their relocation actions, these concerns also arose within the colonial administration and technical divisions. Thus, the external and the internal singular voices that contested the dominant ones, provided visibility to these themes and possibly contributed to their change.


Os subúrbios e os seus "milandos"

Desaparece a "cidade do caniço". Os seus habitantes são impelidos para lá das bandas do Jardim Zoológico

—O atraso social que a questão implica


Foi assim, durante as Festas nos subúrbios. Pequenas barracas repletas de roupas em qualquer esquina aguçavam as ambições de todos os transeuntes que paravam, admiravam e compravam

Fig. 8. News in *O Brado Africano, on the living conditions and resettlement processes of local populations, in 1967.* Source: Maputo's Historical Archive

THE IDEOLOGICAL POSITIONING OF COLONIAL TECHNICIANS

The illustrated examples aimed at feeding a broader debate into the political positioning and the social impacts of technical and spatial intervention, as well as the dependence/complicity of technicians into the implementation of repressive practices on local populations, or otherwise a possible space for their contribution to the transformation of paradigms within contexts of colonial administration. Though not undertaking an extensive and detailed overview of the general and particular processes of conception and implementation of colonial public works in Mozambique, these few examples rather intended to raise discussion on these different roles and intentions within the colonial apparatus which, instead of having been an homogeneous structure with stabilized practices, has mostly likely been a complex and diversified system, with its own internal frictions, disagreements, discussions and dynamics, which – besides the strong external pressures – might have contributed as well for its own change, and ultimately, its fall.

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AKNOWLEGEMENTS

This research is being undertaken with the support of a post-doctoral research scholarship from FCT - Fundação para a Ciência e Tecnologia, ref. SFRH/BPD/121632/2016.

The author would like to thank the supervisor Arch. Ana Vaz Milheiro for the support, without which this investigation would not be possible.

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CHAIRS: Jeremy Ball and Gerbert Verheij

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BEATRIZ SERRAZINA
Researcher in session
SESSION: *The spatialization of population control in late colonialism: contexts, modalities, dynamics*
CHAIR: Miguel Bandeira Jerónimo

Postdoctoral Researcher at Dinâmia'CET-Iscte. She holds a PhD. in Architecture and Urbanism from the University of Coimbra (2024). She is currently involved in the project "ArchLabour". Former researcher in the projects "ArchWar" and "WomArchStruggle". Her research interests span the history of colonial architecture, imperial companies, transnational connections, circulation of knowledge, and (post) colonial heritage. Her main contributions include the co-organization of the exhibition Colonizing Africa in Lisbon, in 2019, the participation in national and international meetings, and research publications on the interplay between private companies, the production of space, and population control during late Portuguese colonialism.

ANA SILVA FERNANDES
Researcher in session
SESSION: *The spatialization of population control in late colonialism: contexts, modalities, dynamics*
CHAIR: Miguel Bandeira Jerónimo

Architect and researcher, with postgraduate studies on architectural heritage, and a PhD on policies for improvement of self-produced areas, focusing on African territories. She has been undertaking applied research on urban policies, spatial justice, informality, self-produced settlements, participation and heritage. She is nowadays a postdoctoral researcher on the socio-spatial impacts of the infrastructural network in Mozambique, and on participatory policies for overcoming social asymmetries in its access, in a research hosted by ISCTE-IUL (Lisbon, PT) and FAPF-UEM (Maputo, MZ). She is also an Invited Lecturer at FAUP (Porto, PT), having multiple publications, supervisions and conference participations.

ANTÓNIO DEUS
Researcher in session
PANEL 6: *Peripheral Infrastructures in Late Colonial Cities*
MODERADOR: Tiago Castela

PhD student at CES-UC in the doctoral programme at «Heritages of Portuguese Influence». The research project focuses on the design of the urban network in Angola, in the main cities founded in the Highlands, along the railway lines, in a key period of its definition, and of its relationship with other centralities, such as the Catholic Missions. Research fellow (2017-2019) in the project "Coast to Coast - Late Infrastructure Development in Ancient Portuguese Africa" (ISCTE-UL), coordinated by Ana Vaz Milheiro.

Title: Colonial and Post-Colonial Landscapes I – Architectures, Cities, Infrastructures in Africa. Coast to Coast Researchers' book

Coordination: Ana Vaz Milheiro

Authors: Ana Vaz Milheiro; Helder Pereira; Johan Lagae; Paul Jenkins; Ana Canas D. Martins; Sónia Henrique; Luís Lage; Elisiário Miranda; José Luís Saldanha; Filipa Fiúza; Beatriz Serrazina; Ana Silva Fernandes; António Deus

Editorial team: Beatriz Serrazina; Filipa Fiúza; Leonor Matos Silva

Design: vivóeusébio

English Revision: Liam Burke; Dave Tucker

Edition: 1st Edition, 2025

ISBN: 978-989-781-752-6

This book is part of the research project Coast to Coast – Late Portuguese Infrastructural Development in Continental Africa (Angola and Mozambique): Critical and Historical Analysis and Post-Colonial Assessment (PTDC/ATP-AQI/0742/2014), resulted from a curatorial work of the research project Middle--Class Mass Housing in Europe, Africa and Asia (PTDC/ART-DAQ/30594/2017) was edited under the research projects ArchWar – Dominance and mass--violence through Housing and Architecture during colonial wars. The Portuguese case (Guinea-Bissau, Angola, Mozambique): colonial documentation and post-independence critical assessment (https://doi.org/10.54499/PTDC/ART-DAQ/0592/2020) and ArchLabour – Architecture, Colonialism and Labour. The role and legacy of mass labour in the design, planning and construction of Public Works in former African territories under Portuguese colonial rule (ERC, ArchLabour, 1101096606). Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Council. Neither the European Union nor the granting authority can be held responsible for them..

The editors would like to acknowledge the contributions of Fernando Pires, Inês Lima Rodrigues, João Cardim and Francesca Vita to the making of this book.

The tab photographs were collected by the team at the Arquivo Histórico Ultramarino (AHU), except for the image on page 168, courtesy of Elisiário Miranda.

This first volume of the book series Colonial and Post-Colonial Landscapes gathers articles from researchers and consultants of the research project *Coast to Coast Late Portuguese Infrastructural Development in Continental Africa (Angola and Mozambique): Critical and Historical Analysis and Postcolonial Assessment* (PTDC/ATP-AQI/0742/2014), presented at the *I International Congress Colonial and Post-Colonial Landscapes*, in Lisbon, in 2019. The contributions span the history of architecture, urban planning, colonialism, public works, infrastructure, and (post)colonial heritage.

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