

REPORTS FROM SAHARA. TRANSITIONS AND CONTRADICTIONS IN AFRO-EUROPEAN MODERNITIES: THE CASE OF CANSADO-ZOUERATE, MAURITANIA

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MINING TOWNS AND MODERN PLANNING: TOWARD AN AFRO-EUROPEAN URBANISM

In 1957, an article by Michel Weill opened the seventieth issue of *L'Architecture d'Aujourd'hui*, which was almost entirely dedicated to building and planning practices in French West Africa (Weill, 1957). Michel Weill was an architect and a planner. He had started working in Africa ten years before, in 1948, when he came back to Europe from the United States. One of the most outstanding images illustrating Weill's article was "le schéma d'une sidérurgie atlantique", (fig. 1) a sketch where he drafted the transatlantic flows of iron and steel products through Africa, Europe and the Americas, with the related sites of manufacturing and extraction sites located throughout the three continents. The sketch was further detailed by a map of West Africa displaying a number of infrastructural corridors that linked the Atlantic Ocean to the inland (fig. 2). The corridors resulted from the combination of several different elements such as ports, mining cities, roads and railways. As affirmed by Roland Pre, the governor of Guinea who introduced Michel Weill's article, Africa was playing its own future mainly in the virgin lands of the inland, where large industrial complexes, dwellings and services were being planned. Both Africans and Europeans had to evenly contribute, therefore, to the awakening process that would involve the whole continent in a global perspective and would have allowed the rise of an Afro-European society, envisaged by the planners of decolonization (Pre, 1957).

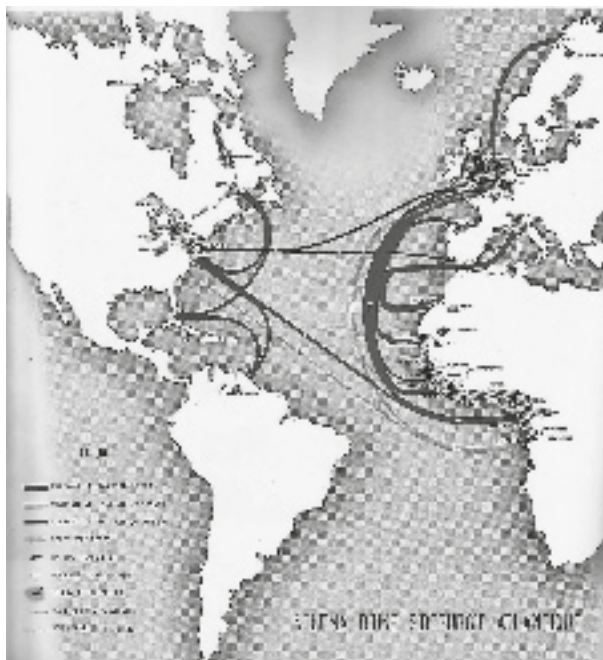


FIG. 1. SCHÉMA D'UNE SIDÉRURGIE ATLANTIQUE. SOURCE: WEILL, 1957.

From 1952 onwards, Weill formed the *Atelier LWD* together with his colleagues Lagneau and Dimitrijevic. As part of a global network of experts that would develop tools and instruments to support postcolonial ambitions, they were called to shape a new human, multicultural and postcolonial landscape, coping with extreme environmental constraints. Driven by ambiguous but explicit aims, modern architecture and planning were the operational branches of a new and extreme form of development which served as testing-ground to stress some ideas and concepts circulating in the post-war discourses on reconstruction and resettlement, and concerning, among others, building technologies, environmental and anthropological studies and incremental habitat. In 1957 *Atelier LWD* (later renamed *Atelier ATEA-SETAP*), planned both the mining port of Boké in Guinea and the residential complex in the island of Edea in Cameroon from the regional to the housing unit scale. In the same year, the *Atelier* worked on the neighborhood and housing design of Écochard's plan for Fria-Sabende, the mining city founded in Guinea by Pechiney, one of the major aluminum companies throughout the world ("Ensemble industriel...", 1957; see also: Beinart *et al.*, 1966). At the end of the 1950s, as witnessed by the work of *Atelier LWD*, Africa's mining cities represented a unique testing ground for developing a new form of urban modernity that had never been experimented with beforehand. Far from being isolated and motherland-oriented stopovers, these new towns would have taken an active part in a broader infrastructural network, eventually allowing a strong connection between the coastal and the inland environment aligned to Weill's continental layout. Moreover, the industrial policies guiding

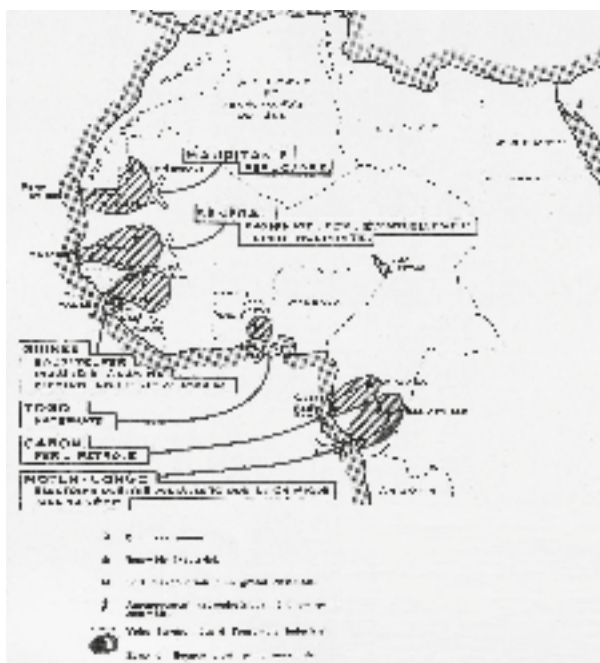


FIG. 2. MINING SITES AND INDUSTRIAL CORRIDORS IN FRENCH WEST AFRICA. SOURCE: WEILL, 1957.

the new settlements would require a new spatial order to accommodate the same number of African and European workers and thus overcome the strong imbalance characterizing former colonial settlements. Africans and the Europeans, both intentionally displaced from their place of origin, would share the same urban spaces side by side, especially conceived for their coexistence.

INDUSTRIAL CONSTRAINTS AND URBAN AMBITIONS AT THE MAURITANIAN CROSSROAD

When Jean Dimitrijevic came back from the United States in 1959 after obtaining a Master in urbanism from MIT, Jean Audibert had already made contact with Michel Weill. As the first president of the National Mining Company of Mauritania (MIFERMA) Audibert asked Weill to draft the plan for a 5 000-inhabitant settlement along the Atlantic coast, where the desert meets the ocean (Audibert, 1991). The coastal settlement was part of a broader plan to exploit three great mining sites located 700 kilometers away from the coast in the middle of the Sahara Desert where a second new town was being planned by a Franco-Algerian architectural firm. A 700-kilometer railroad linked the novel seashore city of Cansado with the new town of Zouerate close to the mining sites and both were conceived to host 5 000 inhabitants. The first mining equipments were launched in 1960, while cargo trains from Cansado to Zouerate started riding in April 1963. The well of Boulanouar, located along the railway, ensured the water supply for both new towns (fig. 3).

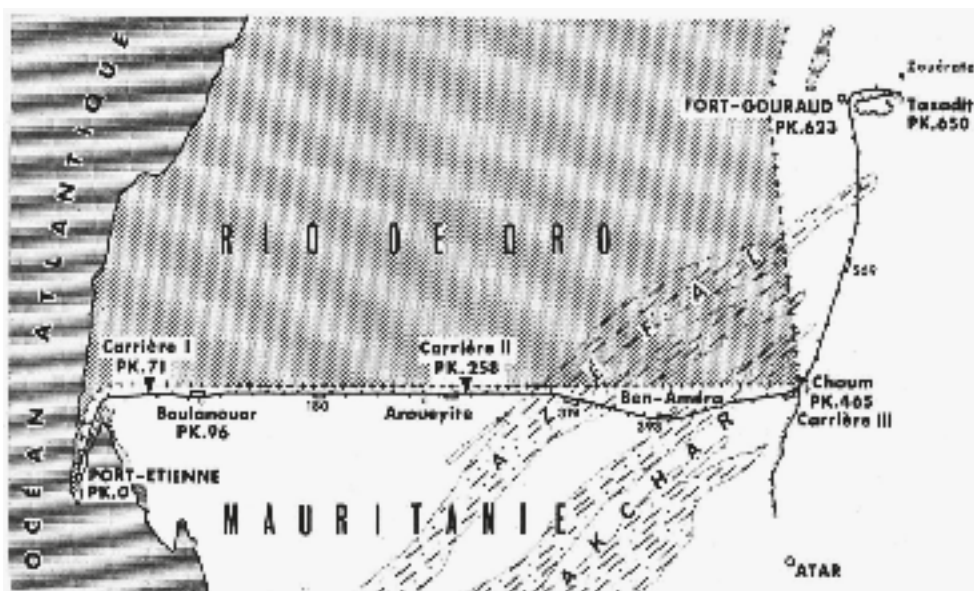


FIG. 3. THE RAILROAD CONNECTING PORT-ÉTIENNE TO FORT GOURAUD. SOURCE: MARBEAU, 1965.

The infrastructure corridor and the dwelling layout set by the National Mining Company of Mauritania was, at that time, the most impressive and the strongest attempt to penetrate inland and to balance the coastal urban development that had deeply characterized former French dominions in West Africa. Straddling the Arab and the Black African world, Mauritania was the crossroad for several different ethnic groups whose sedentary settlements were limited to scattered oases in the Adrar and Tagant regions. In this context, the MIFERMA project reached the heart of the Mauritanian environment, breaking through the frontier of colonial opposition led by the nomadic people of the desert. In the same years – while Jean Audibert established his industrial layout that should have been able to support a global scale iron production – the forthcoming independent nation turned to the construction of a new capital city as the founding act of its new political discourse. As an odd compromise, Nouakchott was located halfway between the former Port-Étienne and Rosso. Neither city, in fact, was adequate to become the capital city of the newly born country: the former was much too close to the Arab world, while the latter was not far enough from the Sahelian border. However, Hirsch, Cerutti and Lainville kept supporting colonial models by revising segregationist principles even though the city was intended to be the capital of an independent nation whose population was, at that time, eighty per cent nomadic. Compared to the experience of Nouakchott, the large-scale project set up by the National Mining Company of Mauritania made the attempt to balance coastal and inland development and to transcend racial segregation principles. As such it should be considered as a unique form of urbanization that, when extended to the macro-regional scale, could not only cope with the forthcoming sedentarization process but also with (neo) colonial networks.

Following Roland Pre's ambitions, Audibert considered the already existing colonial settlements of Port-Étienne – on the seashore – and Fort Gouraud – in the barren mainland - unapt to support the new process of industrial development. Audibert's dream was to produce an appropriate form of urbanization moving beyond separate neighborhoods that characterized the colonial model: the African and European people should share the same housing typologies. These would be molded on the industrial structure rather than on racial distinction, establishing a comprehensive dwelling system that would reflect a well-defined corporate hierarchy (Bonte, 2001). Modern ambitions, merged with Western interests and needs of integration with traditional structures, led to new forms of planning which, partially overlapping with the pre-existing human and environmental milieu, would support an innovative spatial order. Architects and planners called to shape the new urban environment were forced to revise modernist design principles, adapting standardized typological and functional tools to the new planning challenges proposed by Audibert to dismantle colonial structures at both the geographical and dwelling scale. Both Cansado and Zouerate were considered as cornerstones of the same large-scale industrial and territorial system. Although they shared the same premises, the adaptation of modernist tenets was pursued along radically different paths. Even if part of the same project, the modern settlements were rooted in two opposite ideas, although both starting points reflected the ambition to create an appropriate urban environment able to develop a connection between the coast and the hinterland in a place where cities were totally underdeveloped. If, in Cansado, the adaptation of modernist rules to the new constraints imposed by industrial development produced a flexible, but paradoxically monolithic "theory" able to absorb further post-occupancy transformations, in Zouerate transformations occurred, producing an opposite paradox. While not absorbed within the modernist model, these modifications produced an extremely complex urban environment in the middle of a barren, desert region.

FROM CANSADO TO ZOUERATE: 1960-1965

The plan of Cansado (fig. 4) was the first to be conceived, mainly thanks to the efforts of Jean Dimitrijevic. Following Jean Audibert, Cansado should have represented the new epicenter for fishermen, army, administration and nomads who gravitated so far around the colonial settlement of Port-Étienne, founded in 1907 on the Cap Blanc peninsula. The location of the city, its relation with the mining port where raw materials were loaded, was, therefore, the first problem to cope with: the early reports contain a detailed survey of the area and great attention was paid to regional environmental and anthropological data. Qualitative and quantitative data, often classified following well-defined categories, were combined by the architects and other consultants to generate a first «theory of sub-Saharan



FIG. 4. CANSADO: MODEL OF THE CITY. SOURCE: S.E.T.A.P.; TECHNIQUES & ARCHITECTURE, 1965.



FIG. 5. AERIAL VIEW OF CANSADO AFTER THE COMPLETION OF THE FIRST PHASE. SOURCE: POPOT, 2000.

urbanism and architecture» that would allow Cansado and the surrounding areas to host up to 35 000 inhabitants in the next forty years. The first urban plan, as it was published, was intended as the stepping stone towards a larger settlement whose generative principles would spread to the entire peninsula up to the existing colonial center.

The rules established by the planners to formulate the new “theory” in question took the transition (or the evolution) from nomadic to sedentary life into account through the analysis of the first urbanization processes even if these belonged to the colonial period (Popot, 2000). Along with historic towns therefore, the report included housing surveys of Saint-Louis, Senegal, and Port-Étienne, Mauritania, in order to understand the shift from traditional forms of settlement to early modern urbanism. Such large-scale approach led to a deep understanding of the Mauritanian built environment, expressed through the design of a wide span of typological variations, ranging from high density-low cost housing to urban villas.

By combining seven different housing typologies and following the hierarchy fixed by five clusters of services, Dimitrijevic conceived an interesting multi-scalar structure (fig. 5) where the design of dwellings, services and circulation systems defined an adaptable city characterized by the continuous variation of density. The high degree of detail in housing design as well as the meticulous definition of the architectural devices played a crucial role: dealing with typological articulations, they contributed to mold a large number of spaces varying in form and size. Even though the housing typologies were specifically sized for each working category, they were expected to smoothen inequalities induced by industrial constraints. The general urban layout was based, in fact, on a main east-west axis, which defined two different parts: the northern for the managers and the southern for the workers. In order to conceal segregationist hierarchies as much as possible, similar housing layouts were shared by contiguous categories of employees. The result was a strict typological sequence that mitigated any morphological breakdown and realized an articulated continuum of clustered elements converging in the public structures of the city (Nadau, 1995). All parcels that followed an introverted layout had to be aggregated according to the simplest spatial organization: the slight and progressive variation of density represented the quantitative principle capable of avoiding any further differentiation. Such an incremental process was at the basis of a homogeneous urban landscape in which a series of spaces – urban voids characterized by a high degree of sameness – shaped the configuration and the clustering of different dwelling units as well as the gradual transition among them. While marked by different degrees of sharing and use, the massive integrity of the urban landscape was, nonetheless, the sign of the paradox Cansado embodied: its morphological structure, though featuring the extraordinary flexibility of housing typologies, was intended to remain frozen over the years.

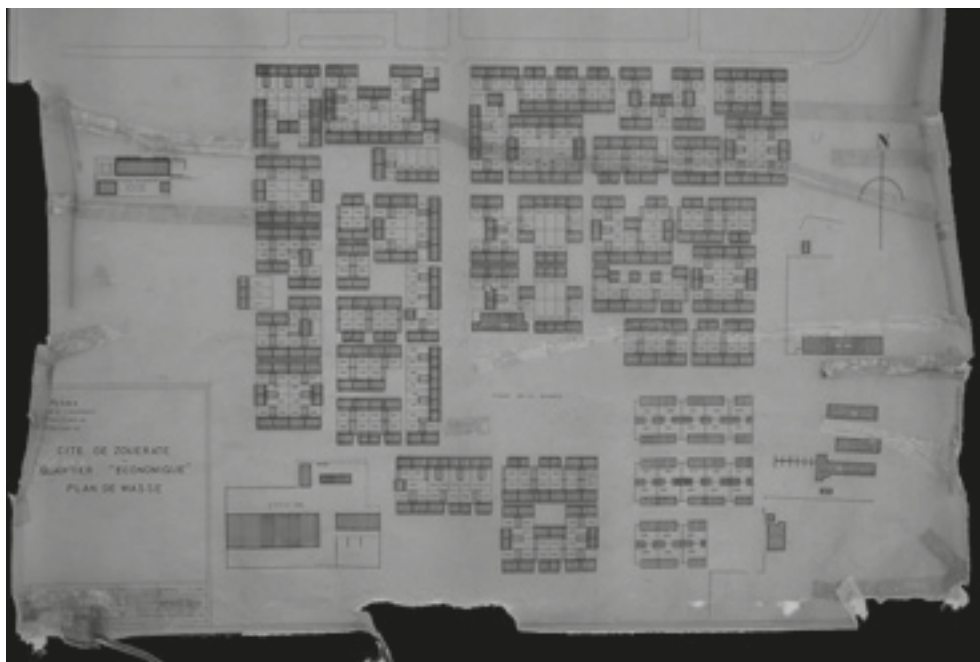


FIG. 7. ZOUERATE: PLAN OF THE LOW-COST DWELLINGS NEIGHBOURHOOD. © SOURCE: ARCHIVES S.N.I.M., ZOUERATE, MAURITANIA.

Zouerate is located 700 kilometres away from Cansado. The project of the new *Cité d'Idjil* was conferred to the Franco-Algerian office of Georges Dumont. The working site was established in 1961 with the purpose to accommodate approximately 5 000 workers around the three mining sites of F'derik, Rouessa and Tazadit. The main principle that informs the urban design of Zouerate is the neighborhood unit¹: high-density dwellings for the workers (874 units), medium-density housing for the supervisors (156 units), low-density villas for the managers (36 units) were gathered together around local services and facilities (fig. 6). The three units, clearly recognizable thanks to different patterns, are not definitely separated from each other. Urban villas, aggregated patios and two-story row-houses are connected to the urban voids by an articulated system of architectural and urban devices that, by allowing the inclusion of the immediate outer space as a kind of dwelling extension, frame the public space where services and facilities are located (fig. 7). Clubs, markets, schools as well as the mosque, the church, the cinema and the hospital are located following the needs and the specificities of each neighborhood unit. Urban issues and values are here displayed following topological rather than typological criteria: the mosque is in the middle of the lower-class neighborhood, the narrow spaces of which are reminiscent of the traditional articulation of historic towns with a commercial vocation. The small Christian church on the other hand, is located at the opposite side, close to the urban villas.

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All drawings and plans for Zouerate here described come from the SNIM Archives, Zouerate, Mauritania. The author would also like to acknowledge Ms. Sophie Popot for having provided some of the materials needed to this study.

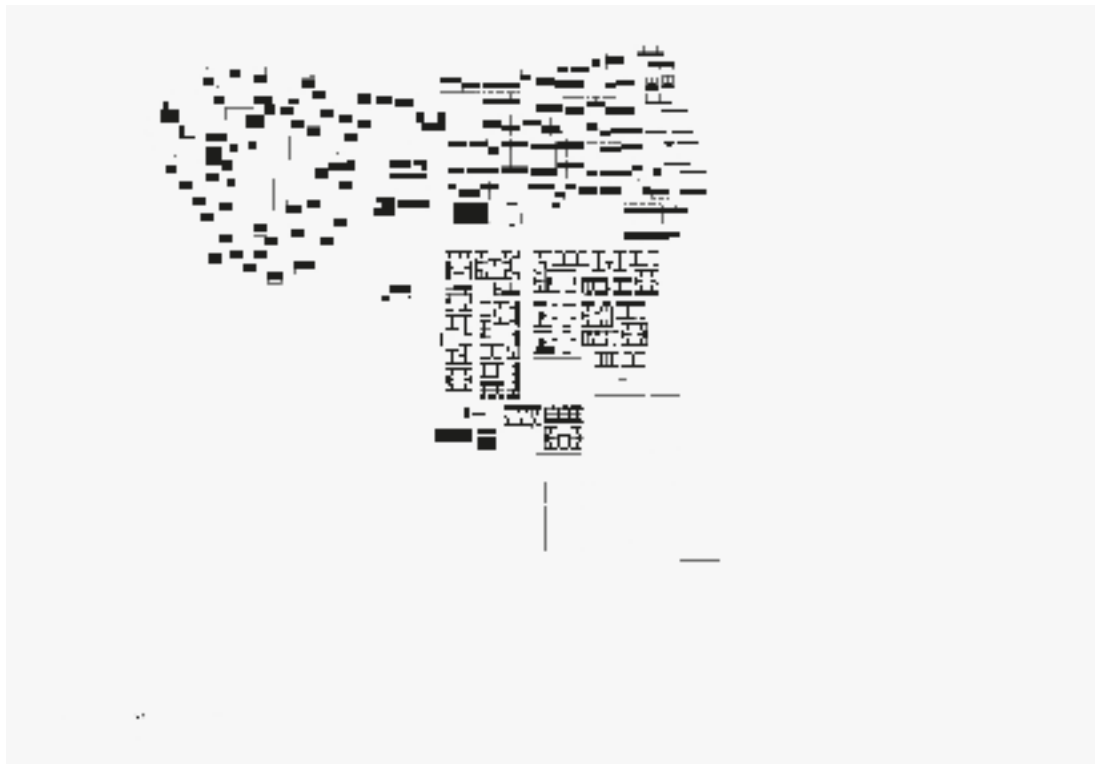


FIG. 6. ZOUERATE: THE FINAL MASTER-PLAN. © FILIPPO DE DOMINICIS, 2016.



FIG. 8. ZOUERATE: THE URBAN FABRIC AFTER THE COMPLETION OF THE MAIN SITEWORK. © FILIPPO DE DOMINICIS, 2016.



FIG. 9. ZOUERATE: THE URBAN FABRIC IN 1965. © FILIPPO DE DOMINICIS, 2016.

As a tool to shape transitions between habitat, public spaces and services, the open structure drafted by the planners clashed with the discourse of strong urban – and industrial – differentiation imposed by the company. In other words, the strongly corporate character of the urban environment did not match with the topological criteria proposed by the planners. Through the design of a spatial frame that provided various degrees of spatial appropriation, planners realized an appropriate, open structure where all unsettled people and nomadic groups crossing the northwestern Sahara would start to converge. On the other hand, the private status of the city imposed an ultimate distinction of what was inside and what was outside the urban compound. Zouerate was, in fact, entirely built within the compound owned and managed by MIFERMA. The 1961 brochure welcoming the new employees showed services and duties for the workers' life: urban rules were thus re-written according to the new industrial requirements. New inhabitants, coming from Europe and Africa and displaced from their place of origin, were set in a compound whose rules were not originally decided by the community itself, but imposed from above by corporate policy. No set of rules was instead considered for regulating what would happen beyond the compound.

The urban program foresaw a layout for 5 000 inhabitants. In 1965, two years after the construction site was closed, the proposed layout had not yet been achieved. The dwellings available to house the subordinates were 317 instead of 874; moreover, the temporary city built during the construction phase to host local manpower was already in use, along with some factories that had been re-used as dwellings (fig. 8). To cope with such a difficult condition, Audibert asked the National Society of Mauritanian Equipments (SEM, *Société d'Équipements de Mauritanie*) to draft a comprehensive master plan proposal, preceded by a multi-scalar analysis from national to urban scale. This should outline the general response to understand and solve the problems affecting Zouerate and its surrounding region. The official city included within the concession's perimeter, was in fact surrounded by a large belt of temporary dwellings both on the northern and on the eastern sides (fig. 9). According to the analysis led by SEM, the 8 000 migrants who lived in what the report defined *bidonville* [shanty town, ndlr] were: seasonal workers, who had no right to live in the official city and no means to pay the fees asked by the company, local traders coming from Nouakchott, Spanish merchants coming from Rio de Oro and nomads looking for work. Everyone was attracted by the chances offered by such a concentration of people, in hope of taking advantage of the free water supply that the company guaranteed to all inhabitants. Although the *bidonville* reflected the lack of control regarding the effects induced by a new city in the middle of the desert, the report asserted its relevance as a living and productive urban space and highlighted the ingenious system adopted by inhabitants to realize temporary dwellings, often built reusing great oil cans.

The new master plan, drafted in 1967 by the venture SEM-SETAP² developed the hypothesis of a new civic and administrative center as a first act of urban renewal. Compared to the existing nucleus, the new core was to be built eastward, as the head of a housing axis mainly occupied by low-cost dwellings. Dwellings were planned close to the original settlement while the new administrative core was shifted on the opposite side and would serve both the first nucleus and the new axis, along with further extension areas. Deepening the research on low-cost/medium-density dwellings types, planners also provided different examples for housing aggregation along the axis, following the principle of mutual integration of urban voids and private spaces. The master plan represented an interesting compendium of solutions spanning from the urban to the dwelling scale, but it remained totally ineffective (fig. 10).

2

The 1967 Master-plan is part of a broader study entitled "Fort-Gouraud – Zouerate. Étude d'Aménagement, Juillet 1967" and officially delivered by the Société d'Équipement de la Mauritanie. SNIM Archives, Zouerate, Mauritania.

1967: REVISING MODELS

In 1967, the Franco-Nigerien office of Kalt, Pouradier-Duteil and Vignal (KPDV), which had already collaborated with Écochard and Atelier LWD in the 1957 project of Fria, was solicited by SOMAÏR (*Société Minière de l'Air*). The office was asked to plan the new mining city of Arlit, in northern Niger, close to the site that would become the world's second largest uranium mine. To be fully aware of the problems posed by a city's construction in a hostile environment, SOMAÏR solicited the office to visit the new towns of Cansado and Zouerate, submit a report detailing the pros and cons of planning and implementation³, and suggest a list of themes to be developed and revised for the new town's design. The reflections issued by KPDV's report are a crucial tool to understand Cansado and Zouerate's opposite evolution of both cities that were considered a model of sub-Saharan corporate settlement of their time.

3

The KPDV report is entitled "SOMAÏR - Compte rendu de la mission effectuée par Hentschel, Kalt et Pouradier Duteil Architectes D.P.L.G., 1ère partie: Mauritanie du 11 au 15 Décembre 1967 à Port-Étienne et Zouerate", kept at the SNIM Archives, Zouerate, Mauritania.

According to KPDV's assessment, 3 500 people lived in Cansado in 1967 (fig. 11). At that time, no relationship had been established between Cansado and the colonial city of Port-Étienne, which hosted the working site during the city's construction phases. Planning intentions were totally subverted and in 1967 Port-Étienne had absorbed all migration flows generated by the new industrial activity leaving the colonial nucleus fully surrounded by a large belt of *bidonville*. The incremental development that according to Dimitrijevic's project would have spread over the Cap Blanc peninsula, was replaced by the auto-generative habitat of the *bidonville*. Moreover, the inhabitants of Cansado were not motivated to reach Port-Étienne since needs were responded to by the corporate policy and the outstretched milieu shaped by Dimitrijevic.

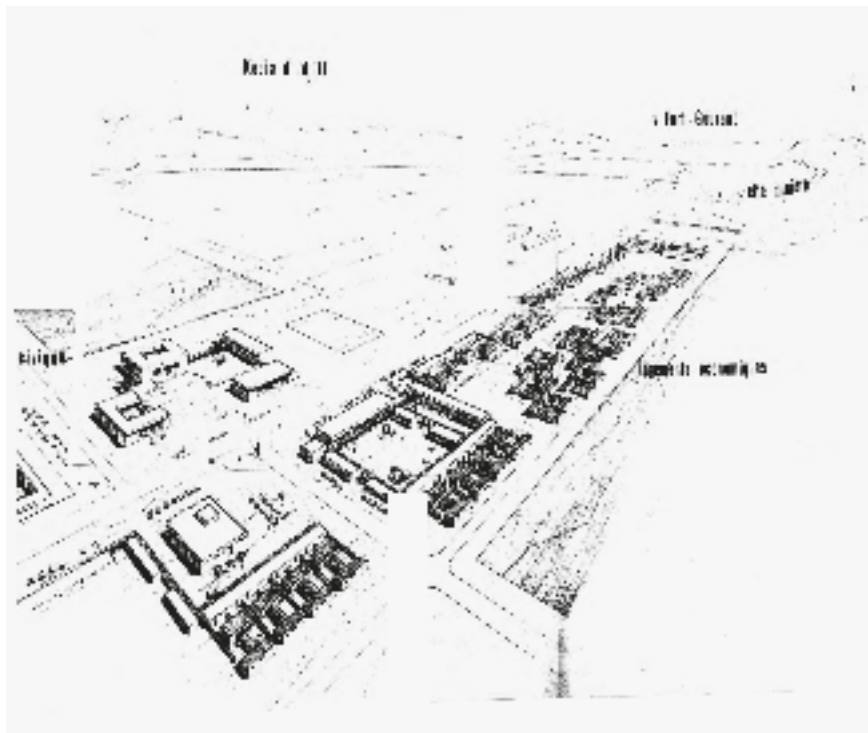


FIG. 10. ZOUERATE: PERSPECTIVE OF THE 1965 EXTENSION BY SEA-SETAP. © SOURCE: ARCHIVES S.N.I.M., ZOUERATE, MAURITANIA.



FIG. 11. CANSADO: THE URBAN FABRIC AFTER THE COMPLETION OF THE FIRST PHASE, IN 1967. © FILIPPO DE DOMINICIS, 2016.



FIG. 12. ZOUERATE: THE URBAN FABRIC IN 1967. © FILIPPO DE DOMINICIS, 2016.

However, compared to the segregated but living environment of Port-Étienne, Cansado was depicted as a dead city. In spite of the town's great architectural quality, typological articulations that did not trigger any development process. In order to assess the urban condition of Zouerate, KPDV primarily retraced an accurate timeline of low-cost housing construction, surveying, from 1963 to 1967, the number of dwellings as well as the people they hosted. They then crossed population data with different working categories and the total amount of available dwellings. According to KPDV's study, in 1967 Zouerate hosted more than 1 700 stable employees, accommodated in 753 dwellings. Among them, less than a half was a low-cost dwelling type: 367 low-cost dwellings housed more than 1 300 subordinates, while the 346 managers and supervisors were hosted in 37 urban villas and 326 one or two-level patio houses. A 42-bed hostel and a 6-bungalow camp completed the housing stock. In addition to official data, a great number of African seasonal workers should be included in the total population of Zouerate: more than 1 100 people, employed in mining activities, lived in the surrounding *bidonville* that, considering shop keepers, merchants, nomads, farmers and unemployed, sheltered more than 8 000 people. Despite these shocking numbers which reveal an unintentional – but real – spatial segregation, the report underlined the quality of the urban spaces, the well-balanced density of neighborhood units as well as the resulting « pleasant living environment » to be found throughout streets and places, even in the *bidonville* areas (fig. 12).



FIG. 13. CANSADO: THE FINAL MASTER-PLAN. © FILIPPO DE DOMINICIS, 2016.

TRANSITIONS AND TRANSFORMATIONS: THE OPPOSITE MODELS OF THE SAHARAN MODERNITY

If design adaptation to new industrial and pre-existing environmental constraints deeply influenced the planning process, the post-occupancy appropriation - affected by the nationalization and the complete globalization of the mining company - revealed contradictions, breakaways and paradoxes incorporated in the urban models proposed by MIFERMA. Against the main goal established by the company and its mentor, Audibert, the articulate environmental conditions suggested two opposite strategies in urban planning. Nevertheless, both the encounter of these strategies with the post-colonial industrial policy and the effects of appropriations demonstrated and confirmed the impossibility of a unique and comprehensive “theory” able to stitch together – in the same large-scale model extended from the coast to the inland – both urban and post-segregationist ambitions. In the case of Zouerate, the modernist layout did not suffer from deep transformations; nonetheless, it played a crucial role in the growth of the city: surrounded by a large belt of spontaneous dwellings that marked the contrast between the private city and the public outer space, the modernist nucleus was the first step toward spatial and racial segregations but, simultaneously, the driving force of a renewed urban landscape. By contrast, the modernist layout of Cansado welcomed massive transformation. However, the absorption of all appropriation acts absorbed by the flexible typological structure and always restricted to the domestic sphere, did not produce any relevant effects on the morphological order, as predicted by the planners.

Comparing the design plans with Cansado's early stages of development (1958-1962), the most remarkable difference lies in the lack of the temporary structures that should have been realized in the south-western corner of the city (fig. 13). The temporary town was eventually established in Port-Étienne, which became, in the meanwhile, the regional core for trade and transportation. Even the extension of the city, planned during the early 1980s when the French left the heading of the company, was conducted following the same typological rules established by S.E.T.A.P. and was eventually absorbed in the existing urban landscape. The partial lack of public facilities, whose realization was not fully achieved, limited the growth of Cansado as a center of attraction for tradesmen, fishermen and nomads gravitating towards, as it was in the dreams of its founder, Jean Audibert. On the other hand, it prevented any form of auto-generative and segregated habitat like the one characterizing the fifty-year development of Nouadhibou, the former Port-Étienne. Hence, if the ambition to go beyond the colonial model was finally achieved – in Cansado no evident form of segregation took place – the form of urbanization set up by the Franco-Mauritanian company was a hybrid overlapping between a new town and a no-town, since the structure of Cansado has remained untouched for more than fifty years.

Tracing the development of the city from its foundation until today, densification is the sole process of modification now visible, given that no alteration or private intrusion in public space has been allowed over the years (fig. 14). The extremely flexible and adaptable typological rule established by the planners, deeply marked the history of the urban landscape of Cansado. Likewise, a strict industrial policy insisted on urban space as a company's private asset. The availability of the plot's boundary wall meant residents were free to use it as structural support, progressively occupying the inner void of the parcel that was often larger than the property's covered area. The incremental process set up by the inhabitants followed the traditional housing layout and was largely expected by SETAP and Dimitrijevic, whose preparatory analysis of domestic spaces in Atar and Chinguetti had already showed, in the simplest and clearest way, the typical process of land occupancy (fig. 15). To some extent, the modern design of Cansado reflects the traditional urban hierarchy of Islamic Sahara, where the enclosure wall is intended as the main generative element. It embodies the potential of adaptive transformations, as long as the strict control of communitarian space does not allow any volume exceeding the plot. On the other hand, the process of introverted densification represented the physical outcome of a larger transition. While fostering the shift from nomadic dynamism to sedentary settlement, postcolonial industrial development represented by MIFERMA and later by SNIM wielded a strong power on public and open spaces: traditional and communitarian rules were replaced by corporate policies.

Any adaptation in fact, can only be conducted according to the SNIM prescriptions: new volumes built inside the parcel cannot overpass the height of the exterior wall, i.e. 1,90 meters, which means that the inhabitants have been forced to lower the level of the ground floor to make new additions habitable and livable. No additional volume is therefore visible from the street. The densification process does not affect the inner structure of the city, but different degrees of adaptation are detectable according to each typological layout. Densification is more evident in the northern part of the city where plots are larger and owners wealthier, while the low-cost housing in the west presents a different condition. Courtyards in medium-cost housing area are large enough to allow for a wide range of transformations that, in some cases, involve the whole parcel. New extensions, always located at the ground level are often rented to temporary workers, whose salary is not sufficient to pay for the entire house, or used to host livestock. In many cases, income-generating activities represent the most fruitful way to occupy large portions of the courtyard even if no additional openings are allowed on the street: in such cases, if the courtyard acquires a multipurpose character that breaks down the rigid subdivision between public and private space, the public street is crippled by a static morphological configuration imposed by regulations.

Caught between flexible modern design and strict industrial rules, the urban landscape of Cansado suffers from the paradoxical overlap of opposed conditions. Like a traditional oasis, the city cannot exceed its predetermined structure; nevertheless, it is the visible result of a process, which merges industrial constraints with modernist ambitions.

By contrast, Zouerate's evolution followed an opposite path. Nowadays, the modern city planned during the 1960s is just a small portion of an unbounded environment that exceeds SNIM property limits and that accommodates more than 40 000 people from Africa, Canada, Spain, Saudi Arabia, China, India, Japan and Australia. Even though the original settlement still plays a central role, the structure of the city has radically changed. If in Cansado the transformation process is restricted to the single property, in Zouerate it involves the whole urban structure. The habitat deficit, clearly shown by KPDV's report in 1967, pushed inhabitants to find different way to settle themselves, even against the prescriptions of SNIM. The fragments of planned city that followed one another from 1967 to 1976 did not succeed in fighting the huge informal growth. Over the years, the result is an integrated pattern of settlements that culminated in a vibrant urban environment (fig. 16).

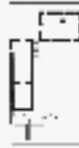
In both cases the passing of time has strongly stressed the opposite character of the two cities: while the visible structure of Cansado is, even today, not far from the one sketched by Dimitrijevic, in Zouerate the former informal habitat structures are today the new core of the city, bordering its east-west "main street". However, the open structure of the first modernist settlement fostered urban growth by avoiding, at the same time, the sameness that

Traditional Housing Layouts in Alfar and Chinguetti

ground floor

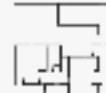
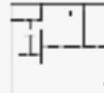


1st floor



Cansado, 1983

ground floor



1st floor



Cansado, 2000

ground floor



1st floor

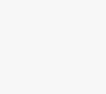


FIG. 15. TRADITIONAL HOUSING IN MAURITANIA. MODERN TYPOLOGIES AND DENSIFIED PARCELS IN CANSADO. © FILIPPO DE DOMINICIS, 2016.



FIG. 14. CANSADO: *THE URBAN FABRIC TODAY*. © FILIPPO DE DOMINICIS, 2016.



FIG. 16. ZOUERATE: *THE URBAN FABRIC IN 1976*. © FILIPPO DE DOMINICIS, 2016.



FIG. 17. ZOUERATE: A VIEW OF THE HOTEL OF THE MIDDLE-CLASS NEIGHBORHOOD FROM THE LOW-CLASS NEIGHBORHOOD. © PHOTO: CECILIA FUMAGALLI, 2014.

characterizes the sub-Saharan megalopolis, intended as one of the main legacies of colonial planning. Although the crisis of the traditional caravan trade routes deeply affected the scattered model of the desert dwelling, a new form of unbounded mobility characterizes the desert city today. This would become a developmental and incremental model able to accommodate people coming from all over the world and employed by global companies (fig. 17). Even local retirees that moved to the mining city from the regions of Hodh, Adrar and Tagant have given up seasonal migration to their native places in favor of the fulfillment ensured by Zouerate's lively environment. In spite of its partial failure in term of spatial segregation, the former *Cité d'Idjil* is today part of a global city which tries to balance coastal urbanization and cope with the region's main issues, namely the flow of people in the middle of the desert.

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