



## Technology and Underdevelopment in Tanzania's Cotton and Textile Sector

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*Abstract:* This paper draws on interview data with factory owners and managers in Tanzania, as well as archival research, to examine the role of technology in the underdevelopment of Tanzania's cotton and textile center. The paper begins by tracing historical mechanisms of underdevelopment during the colonial period, with a specific focus on the entrenchment of smallholder cotton production in Tanzania's Western Cotton Growing Area. Analyzing structural changes in the cotton sector following World War II, the paper contends that late colonial reforms, including the promotion of cooperative societies to market cash crops, helped centralize the marketing of cotton in the hands of the state as well as ensure the continued dependence on raw material exports following independence in 1961. Next, the paper considers the post-independent government's industrial development strategy. Despite its pursuit of a self-reliant economic development strategy and its success in constructing a textile sector in the face of minimal existing industry, the paper argues that the government's dependence on external funds as well as its emphasis on capital-intensive industry at the expense of investment in agriculture, blocked the independent/internal development of technology in both agriculture and industry, undermining the industrial development strategy in the long run as well as exacerbating smallholders vulnerability to fluctuations in international market prices, environmental conditions, and the devastating effects of subsequent structural adjustment policies. Lastly, the paper investigates contemporary dynamics of underdevelopment, including how structural adjustment policies have further perpetuated technological backwardness in both the cotton and textile sectors (agriculture and light industry). The paper asks: What is the role of technology in maintaining the current international division of labor? How does the blockage of technology contribute to underdevelopment in Tanzania's cotton and textile sector? How can Tanzania develop technology and pursue an independent or sovereign industrial development strategy in the face of limited domestic capital? How can technology transfers, for example, with Chinese capital goods firms, be assessed and directed to align with a sovereign industrial development strategy even in the absence of centralized state planning?

*Keywords:* Technology, imperialism, underdevelopment, industrial policy, agrarian relations, cotton, textiles, Tanzania

### Introduction

This paper examines the role of technology in the underdevelopment of Tanzania's cotton and textiles sector. Drawing on in-depth interview data with factory owners and managers in Tanzania, as well as archival research at the Tanzania National Archives, it traces how the development of technology was blocked under colonialism and how the blockage of technology was perpetuated (through restructuring) in the post-colonial period. Following Walter Rodney (1980) who, writing about class contradictions in Tanzania in the mid-1970s states, "one of the most fundamental bourgeois fallacies is that you can separate technology from ideology" (Rodney 1980), this paper takes as its premise the inseparability of technology and ideology. Furthermore, it asserts that the blockage of technology (and/ or the failure to independently develop technology to serve a



progressive economic development agenda) comprises a key mechanism of imperialism both historically and today.

In his papers on ‘Development and the International Order,’ Ismail Sabri Abdalla (1977) distinguishes between technology as research and development (R&D)/ activity or process, and technology as its products or techniques, arguing that for Third World countries, importing techniques (externally developed with the imperative to maximize profit) that are not appropriate to the country’s development agenda can prove detrimental to achieving self-reliant and sustainable economic growth. Rather, he asserts that it is imperative for Third World countries to develop their own technology—both process and products—and to assess imported techniques based on their appropriateness to the values and development objectives of a given society. He warns that “complete reliance on imported techniques means in the last analysis that the developing nations admit the most hateful form of international division of labour. A few groups of nations endowed with the capacity of producing techniques, while the rest of Mankind can at best adapt themselves to techniques conceived by and for others. The racist connotation is obvious” (Abdalla 1977, 41). In this paper, I argue that the blockage of technology and failure of Third World countries to develop technology independently and in accordance with a (progressive) development agenda, continues to play a fundamental role in maintaining the current, racist international division of labor. By examining how technology was blocked historically, this paper aims to shed light on mechanisms of technology blockages in Tanzania’s cotton and textile sector today and investigate potential paths forward (that challenge the current international division of labor).

### **Colonialism and the entrenchment of smallholder cash crop production**

Cotton production in Tanzania originated as a European colonial project. Cotton production dominated German colonial policy in East Africa. Prior to 1900 however, efforts to produce cotton were largely sporadic and unsuccessful (Sunseri 2001). Although concerned about Germany’s dependence on US cotton supplies since the American Civil War (1861—1865) and its attendant cotton famine, textile industrialists only actively began to promote cotton production in East Africa at the turn of the century (ibid.).<sup>1</sup> When Otto Van Bismarck’s successor lowered tariffs on imported yarns in the early 1890s, exposing the textile industry to increased competition, at the same time as social welfare policies expanded in response to increased worker militancy and unrest, embittered textile industrialists turned away from state efforts to promote colonial cotton (Sunseri 2001). Germany depended on the US to meet 70-80 percent of its demand for raw cotton, with xxx meeting remainder of its demand (Sunseri 2001). Following crises in 1900, and again in 1907 and 1910, however, when swathes of bankruptcies befell Germany’s textile industry as a result of price fluctuations and American market speculation, industrialists came to conclude that instability would become a permanent feature of the industry as long as Germany depended on foreign cotton supplies (ibid.).<sup>2</sup> As strikes increased in the face of industrial retrenchment and worker layoffs,

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<sup>1</sup> During the American Civil War, [explain “cotton famine”/ speculation/ overproduction crisis] (cite Sven Beckert?)

<sup>2</sup> Germany’s textile industry was particularly vulnerable to price fluctuations because its centers were located far from port cities and industrialists had to purchase their raw material in advance (Sunseri 2001). In 1900, the German textile industry faced crisis when cotton prices began to fluctuate and rise, almost doubling over the course of a year. Although the US produced a large crop in 1889, they were consuming more of their own cotton, selling less on the international market, at the same time as speculators were working to keep the price of cotton high (ibid.).

industrialists began to increase financial support for colonial cotton endeavors.<sup>3</sup> The colonial budget for cotton promotion doubled in 1907, while the Colonial Economic Committee (KVK)—founded in 1896 by cotton industrialist and leading proponent of colonial cotton production, Karl Supf—turned its full focus on cotton (ibid.). Textile industrialists raised their contribution of funds to the KVK and the KVK instated a new governor of German East Africa, Graf von Götzen, a former military detaché in Washington (ibid.). Under the governorship of Götzen, German colonial policy turned its focus away from settler farms to more highly capitalized plantations and a new strategy of communal labor at the village scale (Sunseri 1995). Both plantation and communal cotton growing schemes relied on forced labor and were met with intense African resistance.

[synthesize] The Rufiji Basin in the southeast of the country became the main target for the Colonial Economic Committee's (KVK) cotton policy (see Figure 2). Intent on pursuing highly capitalized large-scale farming, and despite successfully alienating large tracts of fertile land along the Rufiji River, German planters faced numerous challenges. Lacking the experience to manage local climate conditions and crop disease, they used wrong seed varieties, hastened erosion by carrying out inappropriately deep ploughing, and failed to control the spread of pests because of the large scale of the estates and plantations (Dawe 1993, Sunseri 2002). Moreover, African inhabitants of the area resisted plantation work and so-called labor shortages posed the greatest threat to the success of plantation production of cotton. Failing to control the greater Rufiji Basin area, most of the district was able to escape forced labor policies prior to 1905 (Sunseri 2002). The plantations' demand for food supplies, as well as demands for food from caravan porters, railway workers, and residents of emerging colonial towns, left villagers with little incentive to work for wages on plantations, preferring instead to grow food for sale (ibid.). Only drawn to plantation work in times of famine, African labor frequently deserted and did not meet their contracts (Rodney 1979; Sunseri 2002). Despite the colonial administration's attempts to enact various schemes to engage sufficient labor, including leasing slaves from Arab and Indian, Swahili? planters, employing indentured labor, resettling African people near the plantations, and ascribing *majumbe* to coerce villagers to cultivate cotton under the communal cotton growing schemes, they failed to secure sufficient labor for plantation production (Glassman xx, Sunseri xx).<sup>4</sup> Nonetheless, African inhabitants of the Rufiji Basin area were still subject to harsh conditions. xx Maji Maji etc [Synthesize, highlight technology/ underdev] In the wake of the Maji Maji Rebellion, the German colonial administration became reluctant to use overtly violent measures to coerce Africans to cultivate cotton. Despite German industrialists' continued insistence on highly capitalized, large-scale plantation production of cotton that relied on forced labor practices, the colonial administration turned its focus away from cultivation on large estates and plantations to peasant production which had already proved to yield higher returns (Rodney 1979, Sunseri 2002). Far from resulting in a withdrawal of the colonial state however, the end of the Maji Maji Rebellion marked a shift to a more hands-on approach on the part of the colonial government in administering the colonized territory (Iliffe 1967). Recognizing railway construction as key to stimulating peasant production of cash crops, Götze's successor as the governor of German East Africa, Albrecht Freiherr von Rechenberg, secured funds from the German parliament to develop transport

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<sup>3</sup> The 1903–1904 textile workers strike in Saxony was seminal to galvanizing official and industrial support to stabilize the industry by securing a colonial source of raw cotton (Sunseri 2001, 2002).

<sup>4</sup> *Majumbe* (pl.) refers to village chiefs or headmen in Swahili. *Akidás* refer to local officers or administrators of towns under colonial rule.



infrastructure (Dawe 1993, Iliffe 1967).<sup>5</sup> Whereas British colonial territories had internal constitutions, the budgets for Germany's colonized territories had to pass through German parliament (Iliffe 1967). Prior to Rechenberg's governorship, small portions of rail were constructed in accordance with the allocation of small grants from Germany and progress was slow. The Northern Line or the Usambara Railway starting in Tanga, for example, only reached eighty miles inland in a 14-year period (*ibid.*, see Figure 2). Under Rechenberg's governorship however, the Northern Line was extended by xx miles and reached Moshi in 1912 (see Figure 2).<sup>6</sup> In addition, the German colonial administration constructed the Central Line extending from Dar es Salaam to Morogoro by 1907, reaching Tabora in xx and Kigoma at Lake Tanganyika by the eve of the First World War in 1914 (see Figure 2).<sup>7</sup> The development of road and rail infrastructure opened the interior of the territory to European settlement and helped expand trade and exchange between peasant producers and international markets.

Smallholder cotton production, especially in the Rufiji Basin and in the Mwanza area—or what became known as the Eastern and Western Cotton Growing Areas respectively—grew rapidly in the period preceding the First World War (Dawe 1993). Although Rechenberg feared African resistance to the cultivation of externally imposed, inedible crops like cotton, favoring instead cultivation of indigenous food crops like rice and groundnuts for the market, cotton production increased tenfold in the 12-year period preceding the start of the First World War (*ibid.*). In part a result of the development of transport infrastructure, the rapid increase in cotton production can also be attributed to government efforts to promote peasant production.<sup>8</sup> For example, the colonial administration took over cotton schools that had been founded by the KVK, and between 1910 and 1914 constructed an additional six cotton research stations and three general experiment stations to train cultivators in so-called superior techniques (Dawe 1993, 341). The KVK meanwhile maintained responsibility for technical aspects of cultivation, free seed distribution, ginning, purchasing, and issuing loans (*ibid.*). The colonial state also relied on jumbes, akidas, and askari to collect taxes and exact punishments thereby incentivizing and, in some cases, compelling peasants to produce for export or work for wages. Following all these measures to develop and promote smallholder cotton production, prices then served as the greatest incentive in the period preceding the First World War. The colonial government carried out some kind of propaganda scheme to communicate prices and bonuses, and also introduced a guaranteed minimum price that remains part of the structure of cotton marketing in Tanzania today.<sup>9</sup> With a large portion of funds for the promotion of cotton coming from voluntary taxation of German trade, the promotion of cotton, like the construction of railways, depended on metropolitan interests in Germany's colonial pursuits (Dawe 1993). By 1913, cotton cultivation by African smallholders exceeded cotton cultivation on large European-owned estates, with acreage

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<sup>5</sup> Controversial position at time against European settlement and in favor of peasant prod instead

<sup>6</sup> The Northern Railway Line was supposed to continue to Arusha, but the start of the First World War halted construction, and it was only extended to Arusha in xx? one line about plantation production/ settler estates going on there with establishment of rail, coffee, etc.

<sup>7</sup> The rail followed old caravan route to Tabora, advantage of established route, german settlers moved there, becoming large agricultural center.

<sup>8</sup> Other cash crops promoted at the time eg oil seeds, coffee for growing consumer markets in west as organized workers and petty b made demands for higher living standards (Wr WWI p. 131).

<sup>9</sup> Germans introduced it few years back, too expensive, got rid of it then reintroduced it. Prices incentive eventually made more coercive measures bit irrelevant. Why cotton prices also high on international market in period preceding ww1?



amounting to 47, 000 and 32, 000 respectively (Seidman, 1970 as cited in Dawe 1993). While plantation production was capital intensive and resulted in limited success, often proving unprofitable for industrialists, settler agriculture relied heavily on state support and only accounted for a small portion of total cotton production. Peasant production of cotton, on the other hand, proved to yield high returns with relatively little capital investment (outside of seed distribution and agriculture training schools? No capital investment in agriculture, for example, irrigation) and the burden of social reproduction rested entirely on peasants. By prioritizing peasant production of cotton, the colonial government succeeded in expanding cotton production without substantial costs to the (colonial?) state- or not true, state built rail? But made money from rail construction too, how? Colonial or metropolitan state? And the colonial state also relied on the duka system (until transport sufficiently development to displace them), and the duka system saved them having to have settler presence in remote areas while still extract surplus from peasants/ smallholders.

ZXZXZX

Although smallholder cotton production increased in general, the greater Mwanza region—or what eventually became the Western Cotton Growing Area (WCGA)— accounted for most of the increase in production despite cotton being the last cash crop to be introduced in the area. Whereas in the fertile Rufiji Basin or the Eastern Cotton Growing Area (ECGA), cotton had to compete with food crops, in the (dry/ savannah/ more arid hinterlands) greater Mwanza area, where settler agriculture uniformly unsuccessful and plantation production was abandoned before it took hold, the promotion of smallholder production of cotton led to its rapid expansion.<sup>10</sup> The successful expansion of smallholder cotton production in Mwanza/ the Lake region, however, was not solely the result of colonial policy or the development of colonial transport infrastructure. Rather, the development of transport infrastructure, coupled with measures to promote smallholder production, articulated with local and regional historical and geographical dynamics to establish smallholder cotton production in the region/ articulated with Indian Ocean merchant capital and local political dynamics to establish smallholder cotton production in the region. Far from Dar es Salaam, the colonial administrative center by this time, the Mwanza/ Lake region was integrated in colonial relations of production and exchange by way of coastal merchant capital (via Tanga, Bagamoyo and later Mombasa), with Mwanza town serving as a point of articulation between rural production and colonial commerce (Jones 1992). (one sentence to transition to next paragraph: Like the early planters on the coast, early German settlers in Mwanza relied on existing caravan routes/ capital circulation/ coastal merchants' networks, point to significance of duka system for Germans, to establish themselves in the region).

\*Plant more crops under the British, see previous draft

\*Expand on the success of late colonial reforms in promoting cotton production, including the cooperative societies which, although developed in the context of resistance to Asian ginners' malpractices, helped centralize the marketing of cotton in the hands of the state and bring peasants/ smallholders under the control of the state. Late colonial agricultural policy also included the favoring of “progressive farmers” instead of distributing extension services (seeds, inputs, small loans) generally, resulting in some differentiation amongst the peasantries. Moreover, the training

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<sup>10</sup> Also in the Rufiji basin, more settler agriculture (and plantations) and settlers resisted turn to peasant production, trying to lobby colonial government to support them instead, especially with the labor shortage issue, wanted the government to conscript labor and they did, but expensive, and not make settler prod profitable. In





and services that the colonial administration did provide were directed to modernization. But, without fixed capital investments in agriculture, for example, in irrigation or soil rehabilitation, the introduction of modern methods resulted in the abandonment of traditional practices (like leaving land fallow) and more intense exploitation of peasant. Peasants had to increase their yields by increasing area cultivated rather than improving techniques (that is, improving productivity through technology), all the while sustaining the burden of their social reproduction.<sup>11</sup> Moreover, already by the late 50s, monoculture production of cotton in the Lake Zone/ Western Cotton Growing Area had led to soil degradation and erosion, further contributing to declining productivity (Dawe 1993). The imperative to increase production for metropolitan interests did not consider African peasants' standard of living, nor the detrimental effect of colonial agricultural policy to the environment. The increase in cotton production on the eve of independence and despite poor rainfall, was the result of the effectiveness of noncoercive/ "soft" measures to increase production of the cash crop by increasing acreage and not the result of improved techniques. In other words, more intensive exploitation of peasant labor.

In conclusion, technology was blocked under colonialism. In agriculture and in the case of cotton production in particular, the entrenchment of smallholder production enabled the colonial state to extract agriculture produce with minimal capital investment. Colonial relations of production blocked the development of techniques suited to the environment and to African development, as opposed to production for metropolitan interests/ exports and the maximization of profit. The block of technology rendered cotton farmers more vulnerable to the environment and international market prices fluctuations, at the same time as it rendered them more dependent on cultivating the drought resistant cash crop. Regarding the development of industry, industrial development in British East Africa reflected the interests of stronger/ more organized European settlers in Kenya (granted licenses by the East African Board of xx) and it was not in the colonial administration's interest to develop industry. The industrial development that was permitted following the Second World War was largely limited to agro processing, and on the eve of independence there was only one textile factory that was owned by xx and utilizing imported rayon yarn rather than domestically grown cotton.<sup>12</sup> Under colonialism, the internal/ independent development of technology as process and as product was blocked.

## Post-independence development planning

This section assesses the post-independence government's development planning and aims to shift the focus beyond an analysis of policy implementation to encompass the intricate dynamics of xx (class, political/ economic factors at different scales) within the cotton and textiles sector. The newly independent country faced immense challenges in realizing its development plan. Meagre national reserves at the time of independence, compounded by capital flight immediately following independence, compromised government spending. Moreover, external (regional/ international) factors like the Cold War, Tanzania's commitment to regional liberation struggles and African unity, and, of course, economic relations inherited at independence further government spending. Despite the government's commitment to a self-reliant development strategy and its notable success in constructing a textile sector in the face of minimal existing industry, my argument contends that the emphasis on capital intensive light manufacturing, at the expense of agricultural

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<sup>11</sup> Gender implication?

<sup>12</sup> Note, machines can't be used for cotton, so also issue re. imported techniques.



investments, undermined the effectiveness of the strategy in the long run, in part by blocking the protentional of developing technology independently and appropriate to its (a sovereign) development planning agenda. Whether the plan's commitment to develop capital-intensive industry rendered it dependent on external funds to import the necessary capital goods (mostly in the form of grants and loans with unfavorable interest rates), or whether the dependence on external funds determined or required a type of industrial development that required the importation of capital goods (i.e. came with these conditions), either way, the result or unfolding of history proved that external techniques were not appropriate for the development of self reliant economy in Tanzania in 60s/ 70s. Importing of technology and techniques was not necessarily appropriate to a self reliant development plan in this time and place. This section explores how, despite intentions to modernize—or perhaps because of a consensus around modernization and a proscribed model for industrial development (starting with a focus on capital-intensive light manufacturing like textiles), Tanzania's post-independence development strategy (in context of all these forces/ dynamics/ overdetermining factors) inadvertently perpetuated technological backwardness and underdevelopment in the cotton and textile sectors.

Tanzania was one of the poorest countries in the world when it gained independence in 1961 (Aminzade 2013). The outgoing colonial administration left the newly independent country with a large deficit and miniscule national reserves. Moreover, private capital flight in 1960 and 1961 alone amounted to an estimated 4 million pounds, over double the national reserves at the time, further compromising government spending. The country's first Three Year Development Plan (1961-4), devised by the outgoing administration in consultation with the World Bank, relied almost entirely on overseas grants and loans and presented largely unchanged relations to the colonial economy (Rwenyamu 1974, World Bank 1962).<sup>13</sup> At independence Tanzania's economy was vertically integrated with the metropolitan economy as supplier of raw materials, and importer of finished goods (Shivji 2020). The minimal industrial development was largely limited to agro processing, like maize milling and cotton ginning (Silver 1984).<sup>14</sup> Most of the country's earnings were derived from the export of three main cash crops—sisal, coffee and cotton—contributed xx to gdp/ trade/ forex earnings (see Shivji 2020). While sisal was grown on plantations by mostly British and a handful of Asian companies, coffee and cotton were cultivated by smallholders/ subsistence farmers (ibid.). Ninety-five percent of the population at independence were peasants. Peasants also produced cash crops—major forex earners for the country—and this cash crop production heavily subsidized by peasant subsistence farming. So, significance of smallholders for forex earnings, and these subsistence farmers heavily subsidize cash crop production with their subsistence farming. Continuity meant there was the same emphasis on existing relations of production (exploitation of peasants, exporting raw materials, importing finished goods), although there was some industrial development. In the case of cotton, however, the first factories were importing yarn, mostly Asian owned (mostly former cloth/ wholesale traders), so no backlinks to agriculture and not that much employment given labor to capital invested ration, and whatever wage increases a bit irrelevant because of how suppressed wages were under colonialism (TNA, Rwenyamu 1974).

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<sup>13</sup> 99 percent of the plan was financed by overseas grants and loans (World Bank 1962).

<sup>14</sup> Xx of the xx number of factories at independence doing xx (see Silver 1984).



[Rough notes from here—repetitive and need to incorporate and discuss research material]

Although the post independent government created a new First Five Year Development Plan in consultation with French economists. so in the first years after independence, all these relations in place, and dev plan continuity. But, government not necessary enact it, and in xx devised a new plan in consultation with French economists (Rwenyamu 1974). The Five Year Development Plan, French indicative method, provided target (for industrial growth, reducing primary sector, raising wages, employment, life expectancy etc) but did not comprise, in other words target and not strategy. And some success in meeting targets, and on paper good idea to create back links. \*(See previous draft for notes on the development plans from Rwenyamu 1974. critique of the plan and connect it back to the issue of imported tech. meet targets, and on paper good idea to create back links, eg in cotton and textiles, but, problem of capital intensive industry – one of main things tech. but, )

There was growth in GDP sure, but not kind of growth Nyerere wanted and popular dissatisfaction with things. Contradictions that lead to arusha dec, explain why Nyerere did it according to Shivji (2020), sovereignty, trying to have sovereignty over development, but some of same contradictions despite Nyerere militancy post Arusha and nationalization etc. – arusha dec nice, but class issue, and external issues, cold war. For example, the withdrawal of German aid following the Zanzibar revolution in xx and Tanzania's recognition of East Germany, and the withdrawal of British funds following its severing of relations with Britain, UDI in present-day Zimbabwe (Shivji 2020). (emphasize impact of this given no money in country). But limits, still continuity re. situation for farmers (shivji p 165 role of state vis a vis farmers, mediated foreign imperial capital, and state concentrating and centralizing peasant under state control. And in industry (see Shivji, modernization consensus, and in theory vs practice). \*Discuss/ reference archival evidence to substantiate this.

The National Development Corporation was formed in xx and xx. As noted, there was very little industry in general at independence, but following independence, the post-independence government more or less constructed the textile industry from scratch. The NDC took over majority shareholding of the existing factories—predominately Asian-owned, and using imported yarns—that had been established immediately after independence. And contracted new factories. Met these indices perhaps, but not substantiable. First, drain government to buy of the industries from the private industrialists. Next, and despite texco take over because of corruption or whatever, and texco's good on paper goals, quote, too much cotton being produced, and textiles reach saturation.

Later Texco, and texco explains agenda, in theory, sound, creating the back links etc., except some problems, first, dependence on cotton export (environmental conditions, soil not good for other crops and no buffer from irregular rainfall etc) and not investing in soil fertilizers etc more soil degradation lower yields etc, and produce more than tz can consume even if tw factories were satisfying tz demand. Further more, as Rwenyamu notes, textiles reached saturation, yet, kept investing. //NP? Lastly, and most importantly, perhaps one of most important, taking from peasants, not invest in peasants, and instead in imported techniques, capital intensive, draining already poor country, and loans et dependence didn't serve tz development. For example, in the negotiation with the funders for Mwatex, we see how the government was cornered and had little





leveraging power despite investing most fixed capital, because of this tech dependence, and requirement to import capital goods, and pay for the management supposedly necessary, and the technicians and other trained personal necessary to maintain the techniques. So although the government's approach to industrialization achieved xx on paper, meeting some of indicative planning targets/ indices, in reality not sustainable and far from self reliant.

NDC did the things described in last paragraph, and also, built fully integrated factories. But, (quote from the archival evidence challenging the consensus). Closer look at two case studies to understand constraint of depending on foreign financing even though different investment from eu and china, but within the same problematic development strategy (ie the capital intensive fully integrated factory. Details of both cases. – babu speech and other report here insert the critique on modernization, the common sense assumption of capital intensive industry, archival evidence and Szenses / Rwenyamu's critique of it too and the implication for technology .

In the real world, the post independence did achieve this pretty amazing task of constructing the textile sector from the ground up. At independence, few factories. Late colonial policies to start to allow some industrial development. Of the xx factories that had been granted licenses, and in 1963, most using imported dyed yarns. Then, government decides to build own state run factories, leveraging domestic capital. NDC formed, played xx role. Took over some factories, as majority shareholders following arusha dec (?) , and project to build new fully integrated state run factories. Again, maybe nothing wrong with plan per se, use domestic cotton, leverage domestic capital, but, see, no interrogation of consensus re modernization and these types of fully integrated capital intensive factories. In one report, xxx, states, xxx. Evidence on the inevitability or consensus around type of industrial development, but not given, were oppositional or alternative voices, but obviously didn't win out. \*Presentation, quote from babu speech at opening of mwatex, and other 1963 report.

Discuss some differences between Mwatex vs urafiki. But, archival evidence reveals tz stuck, because no money, and no tech, tech part crucial-as process and product. Both western eu investors and Japan etc wanted to export capital goods, and so did china, archival evidence shows.

Back to critiques of the dev plans, worker peasant divide, differentiation in peasants but don't need to exaggerate. Be brief about critiques here, and go back to the point of technology, imported tech, and what then happens with the oil shock, crisis etc. argue that this type of tech, taking for granted, common sense of imperative to industrial to industrialize, model for industrialization, how contributed to exacerbating effect of economic crisis (and subsequent struct adjust as go on to explain).

Industrialization for industrialization's sake does nothing to challenge international division of labor, and its racist implications.

## **Technology and underdevelopment in the 21<sup>st</sup> Century: An African perspective**

Also this to say, where we are, under dev, in game of catch up and how to get out of it. Can't undo tech obvious or go back ward, progressive tech development looks like what, and how implement it without state support, and capital? Progressive ie tech not for profit maximization?



Interview, train workers then they go and start own business. This is because of context (international division of labor), how poor people are and rubbish wages are. Employment in industrial sector, eg textiles, not at all that great today, maybe in 70s too, wage relatively higher, now, seems bad conditions/ super low wages (better 21<sup>st</sup> century than mwatex?).

So, Tanzania conceded to saps following economic crisis, and despite Nyerere/ government trying to resist them. In cotton, it meant xx, and in textiles meant xx.

In cotton, devastating, already historically little investment, so crop entirely rain fed to today, always struggled to have inputs, and following sap/s total vacuum re inputs. Even capitalist traders etc now consensus on devastation of liberalization for cotton. Largely still situation, contract farming pilots to try provide inputs, and more recently and more successfully, revival of amcos, to distribute inputs and purchase cotton from farmers. Political controversy re. contract farming vs amcos, but little difference for farmer, levies for inputs etc still extract from farmer, just more organized, and actually beneficial for ginners/ buyers because government now assuming risk (cotton purchased with cash etc). still tech backwardness.

Liberalization similarly devastating for industry, and eventually resulted in collapse of industry and shuttering of most factories by xx. In short period, textile industry went from meeting domestic demand, producing xx meters per annum in xx for example, and then nothing. Problem of internal issues/ economic crisis and no electricity water etc., but also, that was part result of global context,

Liberalization totally undermined possibility of integrating cotton and textiles to serve a sovereign dev agenda or plan, ie one oriented to domestic demands/ consumption/ market. Instead, liberalization, ensured division and external orientation of both, placing tz once more in disadvantageous position on world stage. Some 500 000 farmers dependent on drought resilient cotton, despite declining/ volatile prices, and with industry struggling, very little can be consumed domestically. (The cotton crisis in xxx, when the government under Magufuli set minimum price above the international market price, show images, cotton everywhere, loss, because domestic market couldn't absorb any of this surplus cotton, turned surplus because of price issue)

The textile industry, shuttered, and government sold factories at a pittance, mostly to Asians who were few in positions with capital and know how re. financial instruments etc to know how to run industry, even/ if just part of a money laundering thing. Main formerly state run factories still operating under Asian ownership since mid 2000s, but not an efficient industry. Tech backwardness, only manage to be competitive in kangas and uniforms market, because domestic market and proximity to market (relevant for changing fashions of kanga etc). Despite all attention on cheap Chinese imports, as we know, not cheap for most people, and real threat to domestic industry is second hand clothes. Little bit of different story with Urafiki, but not so different, which goes to show its about logics of capitalism, petty and big greed. Also note, that it is uneven too, the two factories that produce for export, and not focus of my study, have advanced tech. like the new Chinese spinning factory too, but not much benefit to Tanzanian economy/ people's livelihoods. Show pics to compare Mwatex spinning and JOC spinning, but these industries are totally extractive and contribute little to domestic livelihoods and standards of living (just provide



little employment? Not sure can say this, don't know in arusha sunflag etc? Maybe little more dignity than Mwatex workers. But, long term, not sustainable, external orientation, can't compete).

Discuss interview data regarding technology at the domestic oriented textiles factories (Sugura, Mwatex, Urafiki, 21<sup>st</sup> Century, Nida), now coming from China at xx factories, dependence on foreign expertise still but much, much lower cost than Eu etc machinery and maintenance.

How to go forward from here? How get out of catch up game, which will never win. For example, one small example, from amin, tech from China, but not developing own tech or trends, and murky assessing whether or now reproducing dependence on foreign capital good and expertise, or how to assess genuine tech transfer. How do all this if no centralized development planning, and regional cooperation too, to resist existing trade agreements, and afford African countries with small economies, to have at least some leverage in the international arena. But, also, No one size fits all. Need to be worked out on the ground, tech transfer facilitated, but need to interrogate existing development common sense, be incredibly creative (quote from Rodney), and challenge all of it, interrogate types of mechanization we want to develop/ makes sense in the context given skill and material resources, interrogate assumption of fully integrated firms as most efficient, for example instead, smaller spinning factories in cotton growing areas, more environmentally sustainable textiles technology, not rely on importing toxic dyes from overseas.

What is the role of technology in contemporary mechanisms of underdevelopment in Tanzania's cotton and textile sector? How can Tanzania develop technology and pursue a sovereign industrial development strategy in the face of limited domestic capital? How can technology transfers, for example, with Chinese capital goods firms, be assessed and directed to align with a sovereign industrial development strategy even in the absence of centralized state planning?

\*Rodney (2022, 140) goes on to address how sure have the primary contradiction between exploited third world and enemy, capitalist metropole. But, internal constrictions necessary to address. Majority failed to analyze societies, locate in their societies forces of change and forces of reaction. Limit of tools/ education from abroad for this petty bourgeois class, even progressive, but society did not mirror the ones from where knowledge generated ie west/ first world. Case in the post independence period. And still the case now, albeit resulting from different conditions. neoliberal gutting of intuitions of knowledge production etc, among other things (general resources!! Paper pens computer etc. gap bigger now?). tech gap bigger now even if everyone has a phone. ?? so, unwilling to face internal contradictions, lead to same traps. Marxist/ historical materialist approach etc all of it must be applied creatively to time and place.