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The Challenges of Urbanization in Africa and Strategies for Addressing Them

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Abstract

Urbanization is an inevitable process in a country's economic development. With a rapidly growing population and huge growth potential, as well as the increasing level of consumption power, Africa is accelerating its urbanization process. However, the level of urbanization development in most African countries is still relatively low, showing that they are not prepared for the rapid urbanization. There is a severe shortage of public facilities： for instance, schools, hospitals, public transportation, and waste disposal systems are far from meeting its needs. Consequently, the urbanization process in Africa is accompanied by a series of challenges. This paper analyses the current characteristics of urbanization development in Africa at the first place. And then, through a comparative analysis with China, it is found that the urbanization process in Africa has not brought about corresponding economic growth. By using the urbanization quality evaluation model, it is concluded that the quality of urbanization development in most African countries is not high. On this basis, the paper finally analyses the causes of the challenges in African urbanization development and deeply explores how they can be improved.

Keywords: African urbanization, urbanization rate, African population

1. Introduction

Urbanization, also known as urbanization or metropolitanization, is a dynamic process. It refers to the movement of population towards cities, the expansion of urban areas, and the subsequent economic and social changes that result. Essentially, it is the transformation of economic, social, and spatial structures. It marks the transition of a country from an agricultural-based economy to a modern economy dominated by cities and services. It reflects a shift in the structure of production, with the three major industrial sectors changing from the primary sector (agriculture, forestry, animal husbandry, and fishery) to the secondary and tertiary sectors. This transformation not only impacts economic development but also brings about multiple social impacts, such as changes in social stratification, occupational structure, and lifestyle. Therefore, urbanization is not only an inevitable product of economic development but also an important indicator of social progress and modernization.

Urbanization is a crucial process for a country's economic development, being complex yet unavoidable, with profound implications for both economic growth and social development. Urban populations worldwide have been steadily increasing for years. In 2023, the urbanization rates of the United States, the United Kingdom, France, and Japan reached 83.29%, 84.4%, 81.78%, and 92.04%, respectively, while China's urbanization rate stood at 66.16%, and the global urbanization rate reached 57.24%. In contrast, Africa's urbanization rate is only 44.7%. As shown in Table 1, Africa's urbanization rate not only lags behind that of China but also falls short of the global average, with a significant gap compared to developed countries, indicating considerable potential for improvement.

Table 1. Comparison of Urbanization Rates (%)

Urbanization Rates	World	Japan	Afrian	China	America	France	England
2023	57.24	92.04	44.7	66.16	83.29	81.78	84.64
2022	56.90	91.95	44.0	65.22	83.08	81.51	84.40
2021	56.48	91.87	43.9	64.72	82.87	81.24	84.15
2020	56.06	91.78	43.8	63.89	82.66	80.97	83.90
2019	55.63	91.70	43.4	60.31	82.46	80.71	83.65
2018	55.19	91.62	42.9	59.58	82.26	80.44	83.40

The data source: World Bank Database, National Bureau of Statistics of China website.

Urbanization in developed countries is currently in a mature stage, while urbanization in developing countries is in a rapid growth phase. In the future, the majority of urban population growth will come from developing countries. It is expected that by the mid-21st century, 90% of urban population growth will occur in Asia and Africa, primarily concentrated in a few developing countries (United Nations Department of Economic and Social Affairs, Population Division, 2024).

2. Literature Review

In recent years, scholars have conducted extensive research on the coordinated development of urbanization, focusing on three main areas: (a) Coordination of Urbanization with External Factors: This research explores how urbanization interacts with external factors such as the ecological environment, agricultural modernization, tourism, and industrial structure (Lv Youjin, Kong Lingch i& Li Yan, 2019; Zhao Lei, Pan Tingting, Fang Cheng & Lin Shuang, 2020; Wang Fang, Tian Minghua & Qin Guowei, 2020); (b) Coordination of Urbanization in Specific Regions: This area of research focuses on the coordinated development of urbanization at the provincial (regional or municipal) level, urban agglomeration level, or in specific areas (Jiang Zhengyun, Yang Yang & Zhou Jiewen, 2019; Chen Yu, Tian Weiteng, Ma Wenbo, Gu Jieling & Ma Zihan, 2020; Fan Qingyu & YangShan, 2021); (c) Coordination of Internal Urbanization Elements: This research addresses the internal factors of urbanization, particularly the coordination between population, land, and economic systems (Chen Yu et al., 2020). Some scholars view urbanization as a complex system and argue that it should be studied from multiple dimensions, including population, economy, society, and space (Jiang Zhengyun et al., 2019).

There are different research perspectives on the urbanization development in Africa. From the viewpoint focusing on the interaction between urbanization and industrialization, analyses suggest that urbanization provides human capital, spatial carriers, and innovation networks for industrialization. This perspective explores the spatial and economic correlations between urbanization and industrialization, advocating for the promotion of urbanization through industrialization. It also proposes that China's experience with Industry-City Integration offers valuable insights and references for African countries' urbanization efforts (Zhuo Xian & Chen Xiao, 2021; Dong Qiqi, 2020; Zhou Jun & Zhou Jing, 2018). From a sustainable development perspective, studies examine the impact of economic growth and urbanization on carbon emissions in Southern Africa, emphasizing that urbanization development should not outpace the level of productive forces (ABRO GNANBA JOELLE LOIC, 2024). From the perspective of challenges in African urbanization, it is argued that urbanization and industrialization in Africa are not well-coordinated and often constrain each other. The quality of urbanization in African countries lags behind the speed of urban growth, leading to a mismatch between the pace and quality of urban development15 (Dong Qiqi, 2020; Yu Haiying, 2019).

The specific objectives of this paper are: With the economic growth and rapid population increase, Africa is accelerating its urbanization process. However, the urbanization development in many countries is faced to issues such as insufficient quality ,as well as out of contact with economic growth. This paper analyses the causes of these issues and explores strategies to address the challenges of African urbanization in order to improve the quality of development.

1) To analyse the current characteristics of urbanization development in Africa. The analysis is conducted from the perspectives of rapid development speed, its correlation with regional economic features, and the emergence of belt-shaped urban agglomeration patterns.

2) To analyse the lack of coordinated development between Africa's economy and urbanization. This section provides a detailed discussion on the disconnect between urbanization development and economic growth, as well as the application of urbanization quality evaluation models.

3) To analyse the causes of the challenges in Africa's urbanization development. The analysis is carried out from economic growth, urban layout, and social environment perspectives.

4) To explore strategies to improve the quality of urbanization development in Africa. Strategies are discussed, including accelerating industrialization in Africa and effectively leveraging the role of China-Africa economic and trade cooperation.

The specific innovative aspects of this paper include:

1)Through a comparative analysis with China to illustrate the disconnect between urbanization development and economic growth in many African countries, the proposed strategies draw lessons from China's experience, creating a coherent connection throughout the article.

2)The application of the urbanization quality evaluation model aims to analyse the causes of the challenges in Africa's urbanization development.

3)The establishment of the urbanization quality evaluation model includes the following improvements:

① A perfectly rational state or a full score does not exist in urbanization development. Here, the evaluation of urbanization is based on comparative analysis, the United States, Japan, the United Kingdom, France, and Germany serving as the evaluation standard. These five countries are all developed nations, with their GDP totals, per capita GDP, and urbanization rates ranking among the highest in the world. Although Germany's urbanization rate is not the highest, it follows a unique path of evenly distributed population urbanization.

② The evaluation indicators are not purely positive or negative assessments but also include tendencies toward optimal or ideal values. The closer to the ideal value, the better. Ideal values can be the highest or lowest positive or negative values, fixed values, or range values.

③ The selection of weights and the rationality of primary and secondary indicators can be derived and tested based on the 2023 data of Japan, the United States, the United Kingdom, France, and Germany. This approach uses developed countries as benchmarks, avoiding the common practice of many scholars calculating weights based on the current state of urbanization development in Africa.

3. Methods and Approaches

3.1 Research Methods

The research methods employed in this paper include documentary analysis, comparative analysis, and quantitative analysis.

This paper explores the reasons behind the challenges faced by urban development in African cities and analyzes the comprehensive measures taken to address these challenges. The aim is to explore how African countries can accelerate their urbanization process in a high-quality manner, providing a direction for future research on urban development in Africa.

The study covers the period from 2018 to 2024, as evidenced by the various tables and data presented in the paper. The data used for analysis is mainly drawn from this time frame, with a key focus on data from 2023. For example, the urbanization rates and GDP per capita data for African countries, the world, China, Japan, the United States, the United Kingdom, France, and Germany are all based on 2023 figures. The key research conclusions are drawn from data collected between 2021 and 2024. However, the research's starting point is long-term, comparing the urbanization rates of Africa and the world since 1950. This highlights that while urbanization in Africa has been rapidly developing in recent years, there remains a gap when compared to the global average, and the gap between Africa and China is also widening.

The key research topics are the development of urbanization in Africa. The research approach involves: first, analyzing the current characteristics of urbanization in Africa; second, identifying the challenges faced by many African countries in their urban development; and third, analyzing the reasons for these challenges from two perspectives: the lack of coordinated development between Africa's economy and urbanization, and the need to improve development quality. Finally, the paper explores strategies to address these issues.

1)Documentary analysis is based on peer-reviewed academic articles extracted from Web of Science, CNKI (China National Knowledge Infrastructure), and Google Scholar. Additionally, support documents from non-governmental organizations are used to understand trends related to urbanization development in Africa.

2) Comparative analysis is applied in two areas: first, comparing China with African countries due to China's economic development being behind before its reform and opening up, which shares similarities with many African countries. Moreover, many provinces and cities in China, whether in terms of population or area, can be compared with African countries and possess relatively independent administrative powers, making this comparison reasonable. The second comparison is with developed countries such as Japan, the United States, the United Kingdom, France, and Germany.

This comparison is made because urbanization does not have an ultimate rational state, and the current urbanization status of these developed countries represents the direction that African countries should strive to follow.

3) Quantitative analysis is used to assess the quality of urbanization development in African countries. The methods of the Ideal Solution Approach (ISA) and Linear Weighted Sum Method (LWSM) are employed. However, the selection of evaluation indicators, standardization of raw data, and the selection of weights are uniquely designed.

3.2 Construction Steps of the Evaluation Model

1) Establishment of Indicator System. Delphi Method is employed to screen indicators. The urbanization quality evaluation system selects economic development, social development, livelihood, and infrastructure as Tier-1 indicators. Tier-2 indicators are derived through an interpretive hierarchical model, ensuring completeness, independence, and consistency. This comprehensive framework evaluates urbanization development across economic, demographic, ecological, and social dimensions, aiming to objectively assess Africa's urbanization progress.

Indicator Types include not only positive and negative evaluations but also proximity-to-ideal metrics (closer to optimal values is preferable). Ideal values may represent fixed maximum/minimum thresholds (positive or negative) or interval ranges.

2) Weight Determination. Weights of Tier-1 indicators are derived through the Analytic Hierarchy Process (AHP) based on expert-constructed judgment matrices. Weights of Tier-2 indicators are calculated using the entropy weight method, an objective weighting approach.

Data standardization protocol is normalized against benchmark values, 2023 averaged data from five developed economies: Japan, the United States, the United Kingdom, France, and Germany. All five nations rank globally among the top in total GDP, GDP per capita, and urbanization rate. No "ideal state" exists for urbanization; this benchmark reflects empirically observed high-performance thresholds.

3) Evaluation Methodology. TOPSIS (Technique for Order Preference by Similarity to Ideal Solution), a multi-attribute decision-making method, is adopted as the evaluation criterion. Solutions are ranked by their relative closeness to the positive ideal and distance from the negative ideal. Positive or negative ideal solution are constructed using the maximum or minimum values from the 2023 averaged indicators of five developed nations, the United States, the United Kingdom, France, Germany, and Japan.

As multi-attribute decision-making method, the accuracy is verified through a consistency check of the judgment matrix. (Fu Jiangliang, 2021).

The data used in this paper are sourced from authoritative institutions such as the World Bank, International Monetary Fund (IMF), African Statistical Yearbook, and United Nations Development Programme (UNDP) Human Development Reports, ensuring reliability and credibility. To address technical biases in indicator measurement, the paper employs interval values, allowing for tolerance of methodological deviations and appropriate adjustments.

The credibility of the comprehensive quality evaluation conclusions on Africa’s urbanization development can be validated through two aspects: (a) comparison with existing research, the results show a high overlap in the top 10 rankings with studies by authors Dong Qiqi (2020) and Yu Haiying (2019), both of whom applied linear evaluation methods. However, this paper extends their work through deeper, more expansive research, introducing innovations (see the innovative aspects); (b) alignment with global development trends, urbanization and economic growth are mutually reinforcing, as evidenced by developed countries where urbanization rates and per capita GDP consistently rank high globally. Notably, 7 out of the top 10 African countries in urbanization quality identified in this study overlap with those leading in per capita GDP, reinforcing the validity of the findings.

4. Results and Interpretation

4.1 Characteristics of Urbanization in Africa

4.1.1 Rapid Urbanization in Africa

By 2023, the total population of Africa reached 1.48 billion people (Lv Youjin et al., 2019). As shown in Table 2, it is evident that Africa has a large population, rapid growth, and significant growth potential. In terms of population growth rate, Africa maintains a growth rate of over 2.30%, which is considerably higher than that of China, the United States, and the global average, ranking first in the world. Although the global population growth rate has not accelerated, the total global population continues to increase significantly, with Africa playing a crucial role in this growth.

Table 2. Comparison of Total Population and Growth Rate

	World	Africa	China	America
2023	809 1734 930	148 0770 525	142 2584 933	343 477 335
	0.88 %	2.34 %	-0.18 %	0.57 %
2022	802 1407 192	144 6883 651	142 5179 569	34 15340 46
	0.84 %	2.34 %	-0.09 %	0.40 %
2021	795 4448 391	141 3753 052	142 6437 267	340 161 441
	0.86 %	2.38 %	0.02 %	0.21%
2020	788 7001 292	138 0821 170	142 6106 093	339 436 159
	0.97 %	2.43 %	0.18%	0.49 %
2019	781 1293 698	134 8005 492	142 3520 357	337 790 067
	1.05 %	2.48 %	0.32%	0.82%
2018	772 9902 781	131 5409 766	141 9008 956	335 056 497
	1.10%	2.53 %	0.47%	0.86%

The data source: World Bank Database

Africa's abundant labor force and increasing consumer purchasing power have accelerated the urbanization process, making it the fastest-growing region in terms of urbanization in the world today. The region is gradually narrowing the gap with global urbanization levels. It is estimated that the urban population in Africa will exceed 1 billion by 2040, and by 2050, the urban population is expected to rise to 1.33 billion, with the urbanization rate approaching 60% (World Real-Time Data Statistics, Worldometer, 2025).

As shown in Table 3, in 1950, Africa's urbanization rate was only half of the global urbanization rate. By 2020, it had surpassed three-quarters of the global level. Africa is the continent with the latest start to urbanization but has the fastest growth rate. In 1950, the urban population in Africa accounted for 14.4% of the total population, making it the region with the lowest urbanization level in the world at the time, only half of the world average (28.4%) (Chen Weiwei, 2024). However, with the successive independence of African countries, the urbanization process entered a phase of rapid development, significantly increasing the proportion of urban population.

Table 3. Comparison of Urbanization Rate between Africa and the World (%)

year	1950	1960	1970	1980	1990	2000	2010	2020
Africa	14.4	18.5	22.5	26.7	31.4	34.9	38.9	43.8
world	28.4	33.6	36.6	39.3	43.0	46.7	51.6	56.2

The data source: World Bank Database

In 2023, Africa's urbanization rate stood at 44.7%, nearly three times the rate in 1950. Although Africa's urbanization rate is still below the global average, it is evident that the gap between Africa's urbanization rate and the global average is gradually narrowing. As for the growth of the urban population (as shown in Table 4), prior to the 1990s, Africa's urban population grew rapidly at a rate of over 4% per year, far exceeding the global average. Although the urban population growth rate has slowed since then, it still remains above 3.5%, marking the highest growth rate in the world. Africa's urbanization process continues to accelerate.

Table 4. Comparison of Urban Population Growth Rate between Africa and the World (%)

year	1960-1970	1970-1080	1980-1990	1990-2000	2000-2010	2010-2020
Africa	4.51	4.52	4.54	3.64	3.63	3.72
world	2.83	2.62	2.68	2.31	2.28	2.03

The data source: World Bank Database

4.1.2 The Relationship between Urbanization Development and Regional Economic Characteristics

Due to various factors such as history, society, and economic foundation, there are significant differences in the speed and level of urbanization development across different regions and countries in Africa.

1) Uneven Urbanization Progress: In 2023, approximately 22 countries in Africa had an urbanization rate higher than 50%, and about 17 countries surpassed the global average urbanization rate. However, there are still 11 countries with an urbanization rate of less than 30%(World Bank Database, 2024; (Economic and Commercial Affairs Office of the Embassy of the People's Republic of China in African Countries, 2024).

2) Regions with Higher Urbanization Levels: Areas with higher urbanization rates in Africa are mainly concentrated along the coast, in areas with developed transportation networks, and in industrial and mining zones. In 2023, the country with the highest urbanization rate in Africa was Gabon, with an urbanization rate of 90.42%, located on the Atlantic coast. Other countries with high urbanization rates, such as Libya and Tunisia, are situated along the Mediterranean coast, while Djibouti lies near the Indian Ocean.

3) Countries with Developed Mining and Agricultural Industries: Countries with developed mining and agriculture also exhibit high urbanization levels. South Africa, with abundant reserves of gold, nickel, and iron; Botswana, known for its production of asbestos and diamonds; and Zambia and the Republic of Congo, rich in diamonds and copper, all have relatively high urbanization rates.

4) Landlocked Countries with Lagging Urbanization: Landlocked countries such as Burundi, Niger, and Rwanda are relatively slow in their urbanization development, with current urbanization rates still below 20%.

Urban Agglomerations Along Transportation Routes: Urban agglomerations have formed along certain transportation routes, such as the eastern section of the Benguela Railway (in Angola), the Zambia Railway, the Zimbabwe Railway, the railway in the Copperbelt region of Central Africa, and transportation routes in the South African Waterberg mining area (Fan Qingyu & YangShan, 2021).

4.1.3 The Emergence of the Corridor Urban Agglomeration Model

The accelerated urbanization in Africa has led to significant changes in the form and spatial patterns of African cities. Urban spaces have begun to expand outward, extending from one city center to another, forming urban agglomerations. These isolated cities are gradually being connected to each other, creating a linear urban layout, specifically known as urban corridors. In Africa, this linear city development is progressing along corridors, resulting in a "belt-shaped" urban agglomeration growth model. Moreover, since large-scale industrial cities and port cities in Africa are typically located along rivers (such as the Nile) and coastlines, this geographical layout has objectively facilitated the development of urban agglomerations.

Currently, most of these urban agglomerations are concentrated within the borders of a single country. Examples include the Cairo-Alexandria-Port Said-Ismailia-Suez urban corridor in Egypt, the Lagos-Ibadan corridor in Nigeria, the Kenitra-Casablanca corridor in Morocco, and the Gauteng corridor in South Africa. In the future, as regional integration within Africa and sub-regional cooperation strengthen, trade, labor, and capital flow between cities will become more frequent. This will likely lead to the development of cross-border mega urban agglomerations. For instance, the Ibadan-Lagos-Cotonou-Lomé-Accra urban agglomeration, which connects important coastal cities in West Africa such as Nigeria, Benin, Togo, and Ghana, is gradually expanding.

4.2 Problems in Urbanization Development in Africa

Although Africa is currently the region with the fastest urbanization growth globally, the urbanization process is accompanied by corresponding challenges. There is a lack of coordination between urbanization and socioeconomic development, leading to imbalances in African development process. At the same time, the challenges of Africa's urbanization process are intensifying. In developed countries, urbanization generally progresses in three stages: the first is the modernization of agriculture; the second is the simultaneous development of transportation infrastructure and industrialization; and the third is the informationization stage. In Africa, these stages occur almost simultaneously, causing problems from each stage to erupt concurrently (Zhuo Xian & Chen Xiao, 2021).

4.2.1 Disconnection between Urbanization and Economic Growth in Africa

1) The urbanization process has not brought about corresponding economic growth.

There is a clear asymmetry between the urbanization process and economic growth in Africa. Although urbanization is progressing rapidly, this process has not led to a corresponding increase in economic growth. Per capita GDP remains relatively low in most African countries, significantly below the global average. To illustrate this, a comparison with China can be made. Many Chinese provinces and cities, in terms of both population and area, can be compared with African countries and have relatively independent administrative rights, making this comparison reasonable (ABRO GNANBA JOELLE LOIC, 2024).

Generally speaking, urbanization development is accompanied by sustained economic growth, and the two processes are mutually reinforcing. Economic development leads to an increase in the level of urbanization, while a higher level of urbanization can, in turn, promote further economic growth. However, in Africa, urbanization has not resulted in corresponding economic growth. The rapid urbanization in Africa is occurring in the context of low per capita GDP. According to the World Bank, China’s per capita GDP in 2023 is approximately 12,641 USD, while the world average is 13,138 USD. In contrast, 17 African countries have an annual per capita GDP of less than 1,000 USD, far below the global average.

Although some African countries have an urbanization rate higher than the world average, their per capita GDP, which reflects their economic development level, is lower than the world average. The urbanization and economic development in these countries are out of sync. The urban poverty rate in sub-Saharan African countries is the highest in the world. For example, in countries like Chad, Niger, and Sierra Leone, more than 50% of the urban population lives

below the poverty line (World Real-Time Data Statistics, Worldometer, 2025).

Table 5. Countries in Africa with Urbanization Rates Higher than China

country	Urbanization rate	GDP per capita	country	Urbanization rate	GDP per capita
China	66.16	12.614	World	57.24	13138
Gabon	90.42	9290	Botswana	72.3	7642
Djibouti	77.3	3907	Tunisia	69.9	4192
Libya	81.0	6576	Republic of Congo	67.8	2350
São Tomé and Príncipe	75.1	2828	South Africa	67.8	6138
Algeria	74.3	5324	Angola	67.5	2566
Equatorial	73.6	6660	Cape Verde	67.1	4368

China, with a population of over 1.4 billion, faces considerable challenges in achieving a high level of GDP per capita. Table 5 lists 13 African countries in 2023 with an urbanization rate exceeding that of China, and also surpassing the global average urbanization rate. However, none of these countries have a per capita GDP greater than China's. Three countries—São Tomé and Príncipe, the Republic of the Congo, and Angola—have a per capita GDP that does not reach 3,000 USD, which is less than a quarter of China's GDP per capita.

The urbanization level in Africa is advancing at a faster pace than economic development. This phenomenon can be considered as "over-urbanization," where urban population growth is rapid, but the corresponding productivity and economic development have not kept pace. In some countries, the urbanization level in Africa exceeds their economic development level, resulting in over-urbanization, which presents a distorted form of urbanization that is detached from the development of productive forces.

Table 6. Top 10 Provinces and Municipalities in China by Urbanization Rate in 2023

Name	Urbanization rate	GDP per capita	Name	Urbanization rate	GDP per capita
China	66.16%	12614	World	57.24%	13138
Shanghai	88.6%	27245	Zhejiang	74.2%	17931
Beijing	87.8%	28620	Liaoning	73.5%	10282
Tianjin	85.5%	17543	Chongqing	71.7%	13402
Guangdong	75.4%	15313	Fujian	71.0%	18541
Jiangsu	75.0%	21512	Neimenggu	69.6%	14652

From Table 6, we can observe that:

1)The urbanization rates of the top 10 provinces and cities in China are higher than the world average urbanization level and also exceed the national average urbanization level. This indicates that the urbanization development in these provinces and cities is in good condition. The provinces and cities with higher urbanization rates in China are all economically developed. Among the top 10 provinces and cities in terms of urbanization rate, all except Liaoning have a per capita GDP that exceeds both the national and world averages. This suggests that urbanization and economic development are well-coordinated (Chen Weiwei, 2024; World Bank Database, 2024; Economic and Commercial Affairs Office of the Embassy of the People's Republic of China in African Countries, 2024).

2)By comparing Table 5 and Table 6, it can be found that China's urbanization is in sync with its economic development. However, in Africa, the urbanization process has not progressed alongside sustained economic growth.

Table 7. Top 10 Provinces and Municipalities in China by Urbanization Rate, GDP per Capita, Total GDP in 2023, and Total GDP in 2022

Rank	2023 Urbanization Rate	2023 GDP per Capita	2023 Total GDP	2022 Total GDP
1	Shanghai	Beijing	Guangdong	Guangdong
2	Beijing	Shanghai	Jiangsu	Jiangsu
3	Tianjin	Jiangsu	Shandong	Shandong
4	Guangdong	Fujian	Zhejiang	Zhejiang
5	Jiangsu	Zhejiang	Sichuan	Henan
6	Zhejiang	Tianjin	Hennan	Sichuan
7	Liaoning	Guangdong	Hubei	Hubei
8	Chongqing	Neimenggu	Fujian	Fujian
9	Fujian	Hubei	Shanghai	Hunan
10	Neimenggu	Chongqing	Hunan	Shanghai

From Table 7, we can observe that:

1) The urbanization rate and per capita GDP rankings for China in 2023 are almost identical. When considering the rankings without order, there is only one difference: Hubei replaced Liaoning. This suggests that China's urbanization and economic development are in sync, mutually reinforcing each other.

2) The rankings of per capita GDP in China for 2023 are consistent with the GDP total rankings for 2022 and 2023 in seven provinces and cities: Shanghai, Jiangsu, Fujian, Zhejiang, Tianjin, Guangdong, and Hubei. The remaining three provinces are affected by their smaller populations, which influence the total GDP. This indicates that China's economic development not only contributes to national growth but also brings wealth to its citizens, demonstrating good coordination between economic development and national prosperity.

3) The rankings of GDP total in 2023 align with those of 2022 for the top 10 provinces and cities, with only a change in order. This shows that China's economic development is coherent and stable.

Table 8. Top 10 African Countries by Urbanization Rate, GDP per Capita, and Total GDP in 2023

Rank	2023 Urbanization Rate	2023 GDP per Capita	2023 Total GDP
1	Gabon，90.42%	Seychell，21575	Nigeria，5066.0
2	Libya，81.0%	Mauritius，11396	South Africa，3990.2
3	Djibouti，78.22%	Gabon，9290	Egypt，3781.1
4	S ão Tom éand Pr ńcipe, 75.1%	Botswana ， 7642	Algeria , 2060.1
5	Algeria ， 74.3%	Equatorial Guinea，6660	Ethiopia，1560.8
6	Equatorial Guinea ， 73.6%	Libya，6576	Morocco，1387.8
7	Botswana ， 72.3%	South Africa ， 6138	Kenya，1181.3
8	Tunisia，69.9%	Algeria ， 5324	Angola，1178.8
9	Republic of the Congo，67.8%	Namibia，4665	Tanzania，854.2
10	South Africa，67.5%	Cabo Verde，4368	Ivory Coast，770.5

Comparison between Table 7 and Table 8:

1) In China, the rankings of the top 10 provinces for the four indicators in 2023—urbanization rate, per capita GDP, total GDP in 2022, and total GDP in 2023—overlap significantly, with six provinces: Shanghai, Jiangsu, Fujian, Zhejiang, Guangdong, and Hubei. This indicates a high degree of consistency. In contrast, in Africa, only South Africa and Algeria rank in the top 10 for urbanization rate, per capita GDP, and total GDP in 2023, which is a phenomenon rarely observed in both developed and developing countries. This suggests that the economic development in African countries is not well-coordinated with overall national development.

2) When comparing the top 10 African countries by urbanization rate in 2023 with those ranked by per capita GDP in 2023, only Libya, Algeria, Botswana, and South Africa appear in both lists, showing a relatively low degree of overlap. In contrast, China's overlap reaches 9 countries, which is considerably higher. However, the development experiences of these four African countries can still be considered for broader application.

3) In 2023, the rankings for GDP total and per capita GDP in Africa show a significant divergence, with 8 out of the top 10 positions not overlapping. In China, only 3 positions do not overlap. This indicates that African economic powers have shortcomings in promoting national prosperity and ensuring regional harmonious development.

Table 9. The Bottom 10 African Countries in Urbanization Rate and GDP per Capita in 2023

Urbanization Rate	Burundi 14.1%	Niger 16.8%	Rwanda 17.6%	Malawi 17.7%	South Sudan 20.5%
	Ethiopia 22.2%	Chad 23.8%	Eswatini 23.8%	Uganda 25.6%	Comoros 29.4%
GDP per Capita (USD)	Burundi 325	Sierra Leone 461	South Sudan 468	Central African Republic 514	Madagascar 529
	Sudan 537	Malawi 578	Niger 611	Mozambique 630	Democratic Republic of the Congo 673

Table 9 lists the 10 countries with the lowest urbanization rates and the 10 countries with the lowest per capita GDP in Africa in 2023. The common countries among them are Burundi, Niger, South Sudan, Malawi, and the Central African Republic, with Burundi being ranked lowest in both categories. These five countries are characterized by slow economic development and urbanization processes, and targeted assistance should be provided to support their development.

4.2.2 Insufficient Quality of African Urbanization Development

The urbanization rates of African countries are generally inflated. Countries with urbanization rates exceeding 50% include Gabon, Libya, Djibouti, Sao Tome and Principe, Algeria, Equatorial Guinea, Botswana, Tunisia, the Republic of Congo, South Africa, Angola, Cape Verde, Gambia, Morocco, Cameroon, Seychelles, Ghana, Mauritania, Namibia, Nigeria, Côte d'Ivoire, and Liberia. However, many of these countries do not exhibit strong economic performance.

The single indicator of urbanization rate only reflects quantitative urbanization in terms of population transfer and cannot measure the quality of African urbanization. Therefore, the proportion of urban population mustn't be the sole criterion for evaluating urbanization levels, and should be replaced by a comprehensive assessment should consider various aspects such as population, economy, society, livelihoods, and infrastructure. In other words, the measurement of urbanization levels should shift from population-based indicator to a functional and quality-oriented indicator system. A comprehensive evaluation system should be established, encompassing population, economy, society, and other dimensions to highlight the urbanization quality, to objectively and holistically assess the true level of urbanization development in Africa. This system would also help analyse the cause of the existing challenges.

1) Indicator Selection and Weight Calculation

(1) Data Sources

To measure the quality of urbanization in African countries, this paper ensures data consistency and systematically by sourcing data from the World Bank Database, the International Monetary Fund (IMF)Database, the African Statistical Yearbook, the 2022 Statistical Handbook published by the United Nations Conference on Trade and Development (UNCTAD), and 2023-2024 Human Development Report by the United Nations Development Programme (UNDP). For missing data points in certain countries, interpolation methods are applied based on data from adjacent years to ensure completeness.

(2) Indicator Selection

The sufficient quality of urbanization development should encompass a well-going economic situation, improvements in people's living standards, advanced infrastructure, and better access to education and healthcare, among other factors. These indicators collectively reflect the economic, social, livelihood, and infrastructure levels of urban development quality, as shown in Table 10. Hierarchical indicators are derived through an interpretive hierarchical model constructed from judgment matrices, ensuring completeness, independence, and consistency. Additionally, the data for these indicators are readily accessible.

Standardization of raw data.Since the comprehensive evaluation system for urbanization quality includes multiple indicators with different characteristics, it is necessary to normalize these data to make them dimensionless.

① For positive and negative indicators, the min-max normalization method is applied to standardize the raw data.

② For the indicators whose ideal value is a fixed value or a range value

As the proportion of primary industry in GDP, a high value indicates a low level of urbanization, but if it is too low, there may be an over-reliance on food imports; Similarly, the proportion of the largest city's population to the total urban population, a value that is too high is unfavorable for population distribution, while a value that is too low is unfavorable for industrial agglomeration. For these indicators, the ideal value is a fixed value denoted as b, which means that the closer the value is to b, or the value approaches b from either side from a positional perspective, the more satisfactory it is. The standardization of raw data is performed as follows:

$$r_{ij} = \begin{cases} (x_{ij} - x_{Lj\min}) / (b - x_{Lj\min}) & x_{Lj\min} \le x_{ij} \le b \\ (x_{Rj\max} - x_{ij}) / (x_{Rj\max} - b) & b \le x_{ij} \le x_{Rj\max} \end{cases} \quad (1)$$

There are some indicators whose ideal value is an interval value denoted as $[b_1, b_2]$ which means that the indicator values within this interval are all considered excellent, and the closer the value is to this interval, the more satisfactory it is. For example, in the case of a country's per capita household consumption expenditure indicator, if the value is too high, it shows a heavy burden on the people's livelihood, and if it is too low, it indicates a poor quality of life, a value between 1200 and 1280 dollars is considered ideal. The standardization of raw data is performed as follows:

$$r_{ij} = \begin{cases} (x_{ij} - x_{Lj\min}) / (b_1 - x_{Lj\min}) & x_{Lj\min} \le x_{ij} < b_1 \\ 1 & b_1 \le x_{ij} \le b_2 \\ (x_{Rj\max} - x_{ij}) / (x_{Rj\max} - b_2) & b_2 < x_{ij} \le x_{Rj\max} \end{cases} \quad (2)$$

Herein, r_{ij} represents the standardized value of the indicator, x_{ij} denotes the original data of the indicator, and b or $[b_1, b_2]$signifies the ideal value, which is derived from the average of the relevant indicator values of Japan, the United States, the United Kingdom, France, and Germany in the year 2023. In order to account for scenarios on both sides of the ideal value,$x_{Lj\min}$, $x_{Rj\min}$, The minimum and maximum values in the original indicators, representing those smaller than and greater than the ideal value, respectively.

(3) Weight Calculation

The weights of the primary indicators are determined by the expert method, while the weights of the secondary indicators are calculated by the entropy method in objective weighting approaches, as shown in Table 10. The specific calculation method is as follows:

The proportion of the value of the indicator j for the country i:

$$y_{ij} = \frac{r_{ij}}{\sum_{i}^{m} r_{ij}} \tag{3}$$

Information entropy:

$$e_j = -\frac{1}{\ln m}\sum_{i=1}^{m}(y_{ij} \times \ln y_{ij}) \tag{4}$$

Entropy weight:

$$w_j = (1 - e_j) / \sum_{j=1}^{n}(1 - e_j) \tag{5}$$

It is noteworthy that the ideal values of the relevant indicators used here are based on the corresponding data from Japan, the United States, the United Kingdom, France, and Germany in 2023, as these countries serve as the benchmarks for comparison. Utilizing data from African countries would imply an acknowledgment of Africa's current state of development.

Table 10. Comprehensive Evaluation Index System and Weights for Urbanization Quality in African Countries

Primary Indicator and Weight	Secondary Indicator	The Nature of Indicator	Weight
Economic Development 0.35	GDP (dollars)	Positive	0.151
	GDP per capita (dollars)	Positive	0.227
	Total import and export trade volume (dollars)	Positive	0.092
	Proportion of primary industry in GDP (%)	Positive, approaching the ideal value	0.178
	Proportion of secondary industry in GDP (%)	Positive	0.200
	Proportion of tertiary industry in GDP (%)	Interval value	0.152
Social Development 0.25	Proportion of the largest city's population to the total urban population (%)	Positive, approaching the ideal value	0.321
	Public education expenditure as a percentage of the budget (%)	Positive	0.224
	Public health expenditure as a percentage of the budget (%)	Positive	0.237
	Average years of education (years)	Positive	0.218
Livelihood 0.2	Per capita household consumption expenditure (dollars)	Interval value	0.290
	Urban unemployment rate (%)	Negative	0.403
	Urban slum population rate(%)	Negative	0.307
Infrastructure 0.2	In the Global Logistics Performance Index (LPI) ranking.	Positive	0.327
	Electricity access rate (%)	Positive	0.241
	Proportion of urban population with access to public transportation (%)	Positive, approaching the ideal value	0.237
	Mobile phone users per 100 people (people)	Positive	0.195

(4) Consistency Check

The accuracy is verified through a consistency check of the judgment matrix (Operations Research textbook compilation committee, 2021).

Steps for consistency check of a judgment matrix:

① Calculate the consistency index (CI);
② Obtain the random index (RI) by referring to a standardized table;
③ Compute the consistency ratio (CR).

While $CR < 0.1$, the judgment matrix is accepted which means it meets consistency requirements; otherwise the judgment matrix does not satisfy the perfect consistency condition, thus it's necessary to adjust it by employing heuristic methods for revision until satisfactory consistency is achieved.(Fu Jialiang, 2021).

Use the maximum eigenvalue $\lambda_{\max}$ of the judgment matrix $\mathbf{A}$ to measure the consistency of its elements a_{ij} ($i, j = 1, 2, \cdots, n$). The consistency index is:

$$CI = \frac{1}{n-1}\left(\lambda_{\max} - n\right) \tag{6}$$

Adjust CI using the average random coefficient (mean random consistency index of the judgment matrix) RI to calculate the consistency ratio CR of the judgment matrix. The consistency ratio is:

$$CR = CI / RI \tag{7}$$

Therein, the value of the random index RI increases monotonically with the matrix order n, as shown in Table 11.

Table 11. The Correspondence between the Random Index RI and Matrix Order n

n	2	3	4	5	6	7	8	9	10	11	12
RI	0.00	0.52	0.89	1.12	1.26	1.36	1.41	1.46	1.49	1.52	1.54

2) Urbanization Quality Evaluation Model

The evaluation scores of secondary indicators are obtained using the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) method, which involves constructing ideal and negative ideal solutions for multi-attribute problems. The evaluation of feasible alternatives is based on their proximity to the ideal solution and their distance from the negative ideal solution. The ideal solution is defined as the one where all attributes reach their most desirable values, while the negative ideal solution refers to the scenario where all attributes reach their least desirable values.

the ideal value and the negative ideal value are as follows : A^* 、 A^- ;

$$A^* \qquad v_1^*, v_2^*, \cdots, v_n^* \qquad) \tag{8}$$

$$A^- \qquad v_1^-, v_2^-, \cdots, v_n^- \qquad) \tag{9}$$

Each country as a plan, using this formulas to determine the distance between each plan and the ideal plan:

$$s_i^* = \sqrt{\sum_{j=1}^{n} (v_{ij} - v_j^*)^2} \tag{10}$$

Using this formulas to determine the distance between each plan and the negative ideal plan:

$$s_i^- = \sqrt{\sum_{j=1}^{n} (v_{ij} - v_j^-)^2} \tag{11}$$

The attribute weighted normative value is:

$$v_{ij} = w_j r_{ij} \tag{12}$$

Using this formulas to calculate relative proximity:

$$c_i = \frac{s_i^-}{s_i^- + s_i^*} \qquad i = 1, 2, \cdots, m \qquad) \tag{13}$$

The first level indicator uses linear weighting method to calculate the comprehensive evaluation value of urbanization quality.

3) Analysis of the Comprehensive Urbanization Quality Index Results

The statistical data of various indicators are incorporated into the urbanization quality evaluation model to measure the quality of urbanization. Table 11 presents the evaluation results of comprehensive index of urbanization quality for the top 20 countries in Africa. For ease of analysis, the scores are provided on a percentage scale.

Table 12. Top 20 Countries in the Comprehensive Evaluation Scores of Urbanization Quality in Africa in 2023

Rank	Ranking of the Comprehensive Urbanization Quality	Comprehensive Evaluation Scores of Urbanization Quality	Rank	Ranking of the Comprehensive Urbanization Quality	Comprehensive Evaluation Scores of Urbanization Quality
1	Mauritius	71.20	11	Namibia	40.02
2	Algeria	67.55	12	Swaziland	38.16
3	Botswana	54.35	13	Ghana	35.18
4	Egypt	52.21	14	Senegal	31.55
5	South Africa	51.80	15	Djibouti	28.03
6	Morocco	48.39	16	Angola	27.24
7	Tunisia	45.69	17	Sao Tome and Principe	25.60
8	Gabon	43.23	18	Cameroon	25.41
9	Cape Verde	42.21	19	Nigeria	24.38
10	Equatorial Guinea	40.15	20	Kenya	23.09

According to the urbanization quality evaluation results, the overall scores for urbanization quality in Africa are relatively low. Out of 54 countries, only 11 have achieved a score of 40 or above in urbanization quality, while the remaining 43 countries perform even weaker. It is important to note that the evaluation criteria are based on the urbanization development standards of developed countries, therefore the evaluation results indicates that the quality of urbanization development in Africa is insufficient.

Table 13. Top 10 Countries in the Comprehensive Quality of Urbanization, GDP Per Capita, the rate of Urbanization in Africa in 2023

Rank	Ranking of the Comprehensive Quality of Urbanization	Ranking of GDP Per Capita	Ranking of the rate of Urbanization
1	Mauritius	Seychelles	Gabon
2	Algeria	Mauritius	Djibouti
3	Botswana	Gabon	Libya
4	Egypt	Botswana	Sao Tome and Principe
5	South Africa	Equatorial Guinea	Algeria
6	Morocco	Libya	Equatorial Guinea
7	Tunisia	South Africa	Botswana
8	Gabon	Algeria	Tunisia
9	Cape Verde	Namibia	the Republic of Congo
10	Equatorial Guinea	Cape Verde	South Africa

Table 13 only lists the top 10 countries for different indicators，but the comparison holds reference value for all 54 countries in Africa.

(1) There are 7 countries that overlap in the top 10 rankings for both per capita GDP and comprehensive quality of urbanization: Mauritius, South Africa, Botswana, Algeria, Equatorial Guinea, Gabon, and Cape Verde. Among these, 5 countries—Gabon, Algeria, Botswana, South Africa, and Equatorial Guinea—overlap for all three indicators, suggesting that these three indicators possess a certain degree of credibility in assessing Africa's development. Meanwhile, these countries stand out as relatively more advanced within Africa's development landscape, and their development experiences hold value for promotion.

(2) The coexistence of high urbanization rates and low scores of urbanization quality in certain countries reflects an imbalance between economic growth and urbanization development. Libya's high urbanization rate is mainly due to geographical constraints, with over 90% of its land being desert,which forcing the population to concentrate in coastal cities such as Tripoli, Benghazi, and Misrata. Additionally, in Libya, concentrated resources and oil urban employment also attract rural migration to cities, and the civil war post-2011 fueling conflicts and security risks drives population displacement from affected regions toward relatively stable urban areas. São Tomé and Príncipe has an urbanization rate of 75.1%, yet it is classified by the United Nations as one of the world's least developed countries. Djibouti's economic development relies primary on its port-driven economy, with the majority of its population concentrated in its largest city.

(3) Countries with high per capita GDP but low scores of urbanization quality often lack industrial base and diversification development.Such as Seychelles, its economy heavily depends on tourism, offshore finance, and fishing, with 42% of its land designated as natural reserves.

5. Analysis and Discussions

5.1 Causes of the Challenges in African Urbanization Development

Through comparative analysis with China and the application of a comprehensive urbanization quality evaluation index

model, the causes of Africa's disjointed urbanization and its developmental challenges are identified as follows:

5.1.1 Economic Perspective Analysis

1) Overconcentration of Urbanization

In Africa, the urban population is highly concentrated, with a large influx of agricultural population into cities. An increasing number of people, goods, and financial resources are flowing into megacities and provincial capitals, leading to overpopulation in these areas. The population is excessively concentrated in a small number of large cities. The explosive population growth in the capitals of some countries has resulted in the largest cities having a population size significantly greater than the second-largest cities, often more than twice the size. The trend of rapid population growth in large cities continues, yet without a solid industrial base, leading to the overcrowding of infrastructure and other resources. This results in a situation where economic growth cannot keep pace with the population growth. The rapid population growth has not been supported by corresponding infrastructure and service systems. The urban transportation system layout, coordination of population employment systems, rational residential area planning, improvement of urban water, electricity, and fuel supply systems, and the layout of satellite cities surrounding large cities have all failed to keep up with development (Song Wei & Yin Haoran, 2024).

Globally, the average proportion of a country's largest city population to its total urban population does not exceed 20%. Tokyo's population accounts for about 12.2% of Japan's urban population, London's for 17.3% of the UK's urban population, and Paris's for 19.7% of France's urban population. In most African countries, the proportion of the population in the largest city to the total urban population is higher than 20%, indicating a higher level of urban concentration. In eight countries including Djibouti, Rwanda, Mauritania, and Togo, the largest city concentrates more than half of the total urban population, with Djibouti's largest city making up as much as 72.8% of the urban population (Economic and Commercial Affairs Office of the Embassy of the People's Republic of China in the Republic of Djibouti, 2024). Currently, Africa has three megacities with populations exceeding 10 million, namely Cairo, the capital of Egypt, Kinshasa, the capital of the Democratic Republic of the Congo, and Lagos, Nigeria. Cairo's population surpassed 20 million in 2018 (Economic and Commercial Affairs Office of the Embassy of the People's Republic of China in the Republic of Djibouti, 2024).

Moreover, one of the trends of urbanization in Africa is the increasing number of large and megacities, while the number of small and medium-sized cities is gradually decreasing. It is expected that by 2030, the number of small and medium-sized cities will continue to decrease, while the number of large cities with populations ranging from 1 million to 5 million will increase to 56, and the number of megacities with populations exceeding 10 million will continue to grow. The secondary cities and smaller cities in African countries are generally too small to foster competitive industries or form corresponding educational support. Small and medium-sized cities, especially rural areas, are increasingly marginalized. They not only serve as shelters for the elderly, the weak, the sick, and the disabled, but are also becoming transfer stations for pollution and, more alarmingly, are turning into cultural deserts and wastelands of talent.

2) Over-reliance on the Tertiary Sector

Many African countries rely heavily on resource exports, which can only create limited employment opportunities. The revenue from selling resources tends to concentrate in a few large cities where the elite reside. Ordinary people often have to depend on various forms of the tertiary sector for employment. This is especially true for desert countries, equatorial nations, and those dependent on mineral resources. The over-reliance on the tertiary sector leads to an imbalanced economic structure.

3) Prevalence of the Informal Economy

The informal economy is widespread in urban areas of African countries. This is largely due to the reliance on local resources, personal or family-owned businesses, and small-scale operations, which make it easier to enter the market economy. The informal sector is characterized by low productivity, low added value, and low income. Workers in this sector earn meager wages, yet it remains the livelihood for many of the urban poor. The large number of unemployed people and the prominence of the informal economy pose a bottleneck to urbanization in Africa. Over-urbanization has led to many African cities having a vast informal sector. According to the African Development Bank, 32.7% of the labor force in South Africa is in informal employment, 43.9% in Namibia, 76.2% in Tanzania, 89.2% in Madagascar, and as high as 93.5% in Uganda.

4) Insufficient Agricultural Development Restricting Urbanization

In developed Western countries, the first step in urbanization often involves the modernization of agriculture, which serves as an economic foundation and releases population pressure. In contrast, most African countries still have underdeveloped agriculture. Their agricultural productivity is less than half the global average, and the number of agricultural machinery tools per farmer in Africa is only one-tenth of that in other developing countries and regions.

Agricultural modernization and mechanization have not received adequate attention or investment, further limiting the healthy development of urbanization.

5.1.2 Urban Layout and Infrastructure Deficiencies

Although the urban population in Africa has experienced unprecedented growth, the government's planning for urbanization has generally lagged behind. Currently, many African countries lack clear and long-term plans and strategic layouts for urban development. The urban planning systems are chaotic, often characterized by "construction preceding planning," and urban development is imbalanced. The infrastructure in African cities severely lags behind the growth of urban populations. The deficiencies in infrastructure construction are mainly reflected in the following areas: delayed development of transportation facilities; the majority of residents lack access to safe drinking water; severe power shortages; inadequate telecommunications infrastructure, including telephones and the internet, with low equipment penetration rates.

1) Unscientific Urban Functional Zoning

The lack of clear land ownership and the arbitrary nature of urban construction are major issues. The vast majority of African cities expand in an unplanned and disorderly manner, leading to a chaotic and dispersed urban layout. Weak urban governance has resulted in unprecedented economic, social, and environmental sustainability challenges for urbanization in Africa. Fragmented urban construction is also common. Compared to cities in Asia and Latin America, African urban patterns are more dispersed. For instance, between 2000 and 2010, 46% to 77% of new buildings in African cities were not located in the city center (World Economic Forum, 2020).

2) Inefficient "Sprawl" Development

The inefficient "sprawl" development model has caused many African cities to fail in achieving economies of scale and efficient growth, making it difficult to provide a favorable environment for businesses. This development model hinders the construction of urban infrastructure, making it difficult for governments to provide essential municipal facilities. Furthermore, it undermines the agglomeration and scale effects that drive urban development. In cities like Dar es Salaam, Kigali, and Nairobi, the road coverage rate more than 10 kilometers from the city center is less than 20%. In contrast, in cities like London and Paris, even 25 kilometers away from the city center, the road coverage rate remains above 40%. This disparity makes it difficult for African urban residents to access the conveniences brought by urbanization, particularly in terms of employment and vocational training, hindering the formation of an efficient labor market and lowering the living standards of urban residents, while also impeding local economic development.

3) Insufficient Water and Electricity Supply

Many African countries suffer from inadequate water and electricity supply. Sub-Saharan Africa has 567 million people without access to electricity, making it the region with the lowest electrification rate in the world. This means that about half of Africa’s population cannot turn on lights or use fans for cooling. The limited electricity coverage across the continent, along with long-term droughts, has exacerbated the energy crisis in some African countries. Although many African nations are increasing their electricity supply, the pace of expansion has failed to keep up with population growth. For example, in Ibadan (a city in Nigeria), only 3% of urban residents have access to tap water, and in Lagos, only 9% of urban residents benefit from municipal services (World Economic Forum, 2020; International Monetary Bank Fund Database, 2025; Zhi YuChen, 2017).

4) Underdeveloped Transportation Infrastructure

In terms of transportation, both internal city transit and intercity connections are severely lacking. Traffic congestion is widespread, and most African cities have very limited public transportation systems. The scarcity of buses for urban travel and the rigidity of public transportation networks have led many city residents to walk or use private cars, resulting in severe traffic jams. The lack of roads and transportation systems has made transportation links between urban districts inefficient and costly, leading to high commuting costs for residents. Additionally, the high cost of transportation has caused the prices of daily goods to rise in cities, while the housing shortage has led to high real estate prices and rents. These high costs related to outdated infrastructure and insufficient public services have significantly lowered the quality of life for urban residents, limiting further urbanization in Africa (China Investment, 2019; Yu Haiying, 2019; Zhou Jun & Zhou Jing, 2018).

5.1.3 Overall Social Environment is Unfavorable

1) High Unemployment Rate

Many African countries have weak economies, and the number of formal employment opportunities in the modern economy is very limited. At the same time, a large number of rural residents, lacking knowledge and work skills, are migrating to urban areas. The urban population is growing rapidly, far surpassing the number of jobs that cities can

provide. The primary issue resulting from this rapid growth is the continuously rising unemployment rate. Among the unemployed in Africa, a significant proportion is young people, who make up around 70% of the unemployed population in urban areas (Dong Qiqi, 2020).

2) High Crime Rate

Poverty and high unemployment rates contribute to crime and social security issues. In particular, the large number of unemployed young people has led to frequent crime in African cities, which has become a pressing social problem hindering urban development. Without work, these individuals earn little or no income, making access to social services (such as healthcare, training, and education), transportation facilities, and adequate housing uncertain or nearly impossible. This frustration may provide opportunities for political agitators, leading urban youth towards extremism and contributing to political instability in cities. Some unemployed youth may resort to prostitution, juvenile delinquency, drug trafficking, and other forms of criminal activity (Wang Zhan & Wang Zeyu, 2018).

3) Expansion of Slums

With the rapid increase in urban population in Africa, there has been a proliferation of slums and informal settlements due to overcrowding, a shortage of housing, and the lack of basic living facilities. In some African countries, the proportion of the urban population living in slums is as high as half of the total urban population. This is a direct consequence of the irregular and rapid urbanization process. These areas suffer from unsafe living environments, lack of housing rights protection, substandard building quality and durability, small living spaces, extremely high population density, and insufficient services. Water and sanitation facilities are lacking, and the living conditions are harsh. Slums often serve as dumping grounds for city waste, including industrial wastewater and toxic waste. The urban poor lack healthy living habits and lifestyles, and the high-density populations, poor sanitation conditions, and inadequate healthcare facilities in slums create favorable conditions for the spread of diseases.

The expansion of slums is due to the inability of the formal real estate market and public housing to meet the massive housing needs of low-income groups in Africa. In some African countries with higher levels of urbanization, the construction industry is unable to keep up with the rapid migration of people to cities, leading to an unmet housing demand from newly arriving immigrants. Housing prices have soared far beyond the purchasing power of the average person.

5.2 Strategies to Address the Challenges in the Urbanization Process in Africa

The analysis above reveals that many African countries has failed to effectively leverage technological innovation and economic growth to drive quality-driven expansion of urban populations in urbanization process. Persistently reliance on agricultural or mineral exports and import-dependent consumption structure, coupled with inadequate domestic food production capacity, has resulted in a distorted economic trajectory and imbalanced urbanization patterns. To address these challenges, Africa's urbanization development should learn from the experiences of developed countries and China, especially the period before China's reform and opening up. Given the similarities between the economies of some African countries and China at that time, these experiences are more easily accepted.

5.2.1 Accelerating Industrialization in Africa

1) Gradually Improving the Industrial System of African Countries

Promoting industrial development is an essential path for economic growth. Africa is at a critical stage of structural transformation and industrial upgrading. There is a need to gradually improve the industrial system of African countries, establishing a positive and mutually reinforcing mechanism between industrialization and urbanization. At the same time, industrialization should be viewed as the goal of urbanization, with a coordinated effort to promote the simultaneous development of urbanization and industrialization.

Developing manufacturing industries to adjust the urban industrial structure can also stimulate the industrialization of agriculture and the development of productive service industries. This gradual and subtle change will correct and optimize the industrial structure, consolidating the economic foundation and providing solid material support for urbanization. Additionally, promoting the development of urban industries can create a significant number of job opportunities, providing ample employment for rural populations migrating to cities, thus helping to reduce social instability.

China’s economic development has placed significant emphasis on the role of manufacturing and basic industries. In the first three decades of the reform and opening-up period, industries such as steel, textiles, petrochemicals, and electronics played a crucial role in supporting China's urbanization. African countries can expand cooperation with China in these areas (Zhang Chunyu, 2021).

2) Increasing and Improving Infrastructure Construction in African Countries

The accelerated urbanization process in Africa further stimulates the growing demand for infrastructure. Improving infrastructure in African countries not only accelerates urbanization but also drives local economic development. However, the lack of systematic long-term planning and coordinated development between upstream and downstream industries in African countries' infrastructure is a significant challenge. There is a need to integrate the development of energy supply facilities, communication infrastructure, and supporting service facilities for upstream and downstream industries. For instance, the development of urban transportation infrastructure such as roads, railways, ports, and airports can facilitate urbanization and drive economic growth (Dan Abudu et al., 2018).

3) Integration with the African Continental Free Trade Area (AfCFTA)

The integration of Africa can reduce the current contradictions caused by the excessive consideration of local interests at the expense of the overall development of Africa. The establishment of a Free Trade Area can promote this integration. The African Continental Free Trade Area is gradually becoming operational and has become the largest Free Trade Area in terms of member countries since the establishment of the World Trade Organization. For global investors, a unified market covering 1.4 billion people undoubtedly holds great appeal. As China has the closest economic and trade relations with Africa, the AfCFTA lowers the risk factors for Chinese enterprises investing and cooperating in Africa, while also providing more conveniences.

4) Africa Gradually Becoming a Specialized Global Factory

Due to the preferential policies of China's reform and opening-up, low labor costs, a large population, abundant resources, low land prices, and continuously improving transportation conditions, China has become the "world's factory," which has greatly contributed to its economic development. African countries, with rapidly growing populations, large population bases, and a young demographic structure, hold significant advantages for development. Depending on the characteristics of each country, Africa focuses on investing in labor-intensive industries such as textiles and light industries, home appliances, and automobiles. This helps absorb a large number of surplus laborers, gradually turning Africa into a specialized global factory (Liu Ailan, Wang Zhixuan & Huang Meibo, 2018).

5) Emphasizing the Rational Balance Between Secondary and Tertiary Industries

The rapid urbanization in Africa has created favorable conditions for industrial development, especially in supporting labor-intensive manufacturing industries. Therefore, sectors such as food processing, textiles, clothing, toys, leather, and furniture manufacturing can be vigorously developed. Meanwhile, taking advantage of rich energy and mineral resources, the development of industries like metallurgy, machinery manufacturing, and petroleum can be further promoted, transitioning from raw material and primary product processing to deep processing. The service sector, or tertiary industry, will also become a strategic choice for African countries to improve the quality of urbanization. Once urbanization reaches a certain stage, the tertiary industry will gradually play a more important role. It is important to focus on the rational balance between secondary and tertiary industries (Liu Ailan et al., 2018).

5.2.2 Effectively Leveraging China-Africa Economic and Trade Cooperation

From the perspective of addressing the existing challenges of African urbanization and the issues that need to be resolved in China-Africa cooperation, this section explores how China can drive improvements in the quality of urbanization development in Africa.

1) Analyzing the Cooperation Path for Sustainable Development between China and Africa

There are significant differences in the economic foundation and development levels among African countries, leading to diverse requirements for economic cooperation. Therefore, country-specific studies should be conducted, considering the resource conditions of each country. This includes exploring the specific implementation of high-level diplomatic engagements, addressing international financial and geopolitical risks in Africa, and responding to the unique challenges faced by different regions. A tailored cooperation path and opportunities should be identified, particularly for regional investments and planning in infrastructure, education, healthcare, and employment.

2) Connecting with Chinese Enterprises in Africa

Currently, there is a large number of Chinese enterprises in Africa, involved in various sectors including agriculture, infrastructure, manufacturing, resource development, finance, trade logistics, and healthcare. Chinese enterprises possess advantages in funding, technology, and experience, making significant contributions to local economic development. These enterprises are the pioneers and barometers of deeper China-Africa cooperation. The integration of these enterprises with the urbanization process in Africa, or the services they provide, should be explored in greater depth (Fan Hongwei & Wang Jialiang, 2019).

3) Connecting with China's Overseas Economic Zones in Africa

In recent years, numerous industrial parks built by Chinese enterprises have sprung up across Africa, becoming a

vibrant feature of China-Africa cooperation. China has established several overseas cooperation zones in African countries such as Egypt, Nigeria, Kenya, South Africa, Ethiopia, Djibouti, and Mauritius. These zones not only help Chinese enterprises familiarize themselves with and adapt to local cultural and capital environments, but they also respond actively to the development needs of African countries. They support Africa's industrialization and economic diversification, enhance trade and investment cooperation, and provide certain employment opportunities, injecting vitality into local economic development. This is also a reflection of the deepening of the China-Africa friendly cooperative relationship.

Further efforts should be made to enhance the role of these parks in Africa's urbanization process. By expanding and optimizing the functions of these parks, leveraging spatial agglomeration effects, and creating industrial clusters, most of the industrial activities within the parks can be integrated into the urban fabric, establishing a seamless connection with the urban economy. If the parks are located on the outskirts of major cities, the agglomeration of industries within the parks can promote the development of industrial chains, facilitate the growth of the local economy, and help alleviate the "urban disease" associated with rapid urbanization.

4) Supporting Agricultural Development in African Countries

China is actively contributing to the agricultural development in Africa, with cooperation spanning various sectors. Agricultural development is the first step in accelerating urbanization, and it is essential to analyze the different cooperation models between China and African countries with varying urbanization rates—fast, medium, and slow. Priority should be given to countries with an urbanization rate of less than 30%, such as Burkina Faso, Comoros, Lesotho, Kenya, Uganda, Swaziland, Chad, Ethiopia, South Sudan, Rwanda, Malawi, Niger, and Burundi. Based on a comprehensive assessment of safety risks, China should assist in the development of African agriculture through methods such as increasing agricultural product trade, enhancing agricultural mechanization, constructing agricultural industrial parks, promoting agricultural technologies, and training agricultural technical personnel (Chen Hong & Wen Chunhui, 2020).

5) Developing E-commerce

E-commerce has become a new trend in global economic development. Cross-border e-commerce can integrate underdeveloped countries into the global trade system and value chain. With the rapid development and penetration of internet technology, this model is gradually extending to Africa. Africa's demand for consumption is strong, and its consumer market is diverse. Cross-border e-commerce is a competitive advantage for China, and cooperation with existing African e-commerce companies should be pursued. This collaboration would combine China's strengths in development experience with the local enterprises' advantages in market recognition and market share, continually enriching and improving trade channels and methods (Huang Meibo & Duan Qiuyun, 2020).

5.2.3 Comprehensive Measures

1) Differentiated Development Strategy

There is considerable diversity among the African nations. Therefore, it is critical to it is essential to adopt differentiated strategies in accordance with the respective stages of urbanization. In the situation of high overall quality of urbanization in a country, stress on industrially led urbanization is most effective. A comparative analysis of some industrially advanced African countries shows this strategy to be effective:

① South Africa is the most industrialized economy in Africa, with a manufacturing base of highly developed sectors including automobile, machinery, and chemicals. In 2024, manufacturing represented 15.2% of GDP. The automobile industry is the backbone of the economy, representing 11.8% of South Africa's exports (IMF, 2024). South Africa, with its extensive transport networks and ports (for example, Durban, which is the busiest port in Africa), is well-positioned to lead urbanization through its motor vehicle industry and port-led economic zones.

Egypt, the third most industrialized country in Africa, has a manufacturing industry comprised of textiles, food production, and chemicals. In 2024, Egypt out-weighed South Africa to become the continent's number one crude steel producer countries. Therefore, urbanization in Egypt could be positively influenced through its steel industry and value chains.

Morocco has a diversified economy where the industrial sector focuses on textiles and food processing, as well as production of construction materials, and remains an important phosphate exporter. Smart manufacturing is starting to develop as a major strategic field. CITIC Dicastal in Morocco is Africa's first "Lighthouse Factory" and it showcases the potential of industry modernization. Manufacturing intelligent factory car parts in the plant has increased productivity by 27% (Li Yahui, 2024), which is an urbanization path through industrial innovation.

Tunisia is the sample best practice case of North African industrialization, where the industrial sector alone includes 38%

of its GDP (IMF, 2024). New industries, like automobile parts and electronic parts, need to be prioritized to encourage urbanization development.

Mauritius can be seen as an classic example of economic transformation, as Mauritania has developed from a mainly agriculture dependant economy to a mainly manufacturing and service-led economy. Mauritius is well poised, at this stage, to exploit the textile sector and allied industries, to promote urbanization.

Algeria's oil and gas industry has accounted for 45% of GDP (IMF, 2024). Algeria must link energy development to industrial diversification to drive urbanization. Energy projects such as the 233 MW solar photovoltaic power project built by PowerChina (Li Ning, 2024), on the other hand, showcase Algeria's abilities to synergize between energy and industry.

②For countries which are in the intermediate-stage urbanizing nations, the extension of urbanization can be positively stimulated by synergizing the natural resource endowments, supportive policy, collaborative efforts with China and Africa, and a regional integration mechanism such as the African Continental Free Trade Area (AFCFTA).

Two countries exemplify such an approach:

Kenya, the industrial hub of East Africa, has food processing, textiles, and construction materials as its manufacturing industries. The Vision 2030 of the government commits to achieving newly industrialized level in ten years.

Nigeria, which has the most advanced economy in Africa, is based on the food and textile processing industry. The Nigeria Industrial Revolution Plan is wanting to increase the share of the manufacturing sector in GDP from 8% to 10% (Li Ning, 2024).

The two countries can hasten urbanization by formalizing partnerships with China, hastening the advancement of manufacturing industries, and encouraging balanced growth between secondary and tertiary sectors.

③For countries that are early-stage or retarded urbanizing, the strategy must be to rapidly develop agricultural production and farm mechanization. This would raise rural productivity and food supply, as well as allow for structural change towards eventual urban-based economic growth.

2) Perspective of Environmental Protection

Urban development in Africa must prioritize ecological considerations, integrating protection and restoration of urban ecosystems. Africa should adopt green development strategies to avoid overexploitation and pursue sustainable models, rather than replicating China’s historical approach of "remediate after pollution." Learning from global best practices in urban green development is essential. For instance, Freiburg, Germany’s "Green Capital," exemplifies sustainable urban planning through features such as solar-powered municipal buildings, carbon-neutral hotels, bio-waste power plants, extensive bicycle parking facilities, and dedicated cycling infrastructure. Several African countries have already initiated actions to foster harmonious coexistence between humans and nature. Key focus areas include:

Promotion of Green Buildings. African cities should adopt energy-efficient materials and designs to reduce building energy consumption, such as double-glazed windows and solar-integrated facades.

Expansion of Green Spaces. Increasing urban green coverage—through parks, vertical greening systems, and wetlands—can enhance carbon sequestration and mitigate the urban heat island effect.

Development of Green Transportation. Optimizing metro and bus systems, promoting new energy vehicles, and reducing private car usage are crucial for cutting carbon emissions. Kenya, for instance, has been advancing green mobility through partnerships with Chinese enterprises to introduce electric buses, which have lowered energy costs by 70% (Li Ning, 2024). Similarly, Uganda is undergoing a green transition by adopting clean energy solutions, including battery-swapping services for electric motorcycles.

Adoption of Renewable Energy. Urban infrastructure should integrate clean energy solutions such as solar and wind power, including photovoltaic streetlights and wind energy facilities. Egypt, for example, has been advancing renewable energy, with its solar PV capacity ranking second in Africa (1.9 GW). The country aims to achieve a 42% share of renewable energy in its power mix by 2030 (Huang Peizhao, 2024). Similarly, Morocco is promoting green energy, targeting a 52% renewable energy share by 2030, supported by projects like the Noor Solar Power Complex (Xue Li, 2025). Kenya has also made strides in solar energy, with the 50 MW Garissa Solar Plant meeting the electricity needs of 380,000 people while reducing annual carbon emissions by 64,000 tons (Li Ning, 2024).

Improved Waste and Water Resource Management：Implementing waste sorting and recycling systems, along with reclaimed water reuse mechanisms, can enhance resource efficiency. In Freiburg, non-recyclable waste is processed at a waste-to-energy plant, where it is safely incinerated to generate electricity. This facility powers 30,000 households and produces 12.2 million kWh of surplus heat annually, which is supplied to adjacent biogas and organic waste treatment

plants, collectively providing electricity for an additional 4,900 households. Such practices, which strengthen resource recycling and circular economy principles, are worthy of emulation (Hangzhou Urban Research Think Tank Research Report, 2022).

3) Feasibility of Strategy implementation

①Potential Obstacles to the Implementation of Urbanization Development Strategies in Africa.

Political Aspects: Frequent alternation of political parties and governments in some African countries, coupled with political instability, leads to a lack of policy continuity and consistency.

Security Challenges: Security risks remain high in certain African nations, including ethnic and religious conflicts, terrorism, disease outbreaks, and social unrest.

Economic Limitations: Deficiencies in trade, investment, infrastructure, and imbalanced industrial structures (disproportionate ratios of primary, secondary, and tertiary industries) hinder economic stability and growth.

Legal and Policy Enforcement: Inadequate legal frameworks governing foreign trade, investment, taxation, labor, customs, foreign exchange, and insurance, alongside systemic barriers to policy implementation.

Financial Vulnerabilities: Weak economies, limited foreign reserves, low risk resilience of financial institutions, high inflation, and currency volatility—especially in resource-export-dependent countries—exacerbate monetary and financial risks amid global economic fluctuations.

Sociocultural Divides: Challenges in social integration due to linguistic, regional, ethnic, institutional, and interest-based "boundaries," impeding effective collaboration.

Natural Environment: Geographic disparities, arid climates (e.g., North Africa), and varying regional development demands complicate economic planning.

②Feasibility Analysis of Implementing Urbanization Strategies in Africa.

(1) Economic Aspirations: African nations urgently seek economic growth and improved living standards. With internet access and global media exposure, they recognize their developmental gaps compared to rapidly rising countries like China and other African peers. A youthful population eager to embrace globalization and expanding international trade ties will progressively mitigate political and security barriers.

(2) Strategic Learning: The proposed urbanization strategies draw on lessons from developed nations and China’s experience, aiming to avoid pitfalls and address existing challenges.

As for Chinese Expertise, Chinese enterprises and industrial parks in Africa (e.g., China-Egypt TEDA Suez Economic and Trade Cooperation Zon, Ethiopia Eastern Industrial Park, Lekki Free Trade Zone in Nigeria, Uganda Mbale Industrial Park, Senegal Diamniadio Industrial Park, Hisense South Africa Industrial Park) have overcome institutional, financial, and sociocultural obstacles, providing replicable models for urbanization. These parks serve as vital platforms for industrialization and China-Africa economic cooperation.

(3) Mitigating Barriers: Deepened trade cooperation with the U.S., China, France, the U.K., and India can stabilize financial systems; Enhanced education, tourism infrastructure, and the African Continental Free Trade Area (AFCFTA) will foster shared interests and reduce divides; Industrial collaboration with China and India to position Africa as a specialized global manufacturing hub, emphasizing balanced secondary and tertiary industries; Infrastructure development, agricultural mechanization, and e-commerce can alleviate geographic constraints.

6. Conclusions and Further Research Needs

Although Africa is currently the region with the fastest urbanization growth globally, its urbanization process is accompanied by corresponding challenges and growing complexities. Through a comparative analysis with China, this study identifies a disconnection between urbanization development and economic growth in many African countries, characterized by imbalanced coordination between urbanization and socioeconomic development. By applying an urbanization quality evaluation model, the research concludes that most African countries exhibit insufficient urbanization quality, further validating three root causes of these challenges: First, the imbalance between urbanization pace and economic development levels, where rapid urban population outpaces economic capacity; Second, deficiencies in holistic planning and infrastructure development, resulting in fragmented urban systems; Third, urbanization without robust industrial foundations, which fails to absorb massive rural-to-urban labor migration. To address these issues, the paper proposes strategies centered on accelerating Africa’s industrialization and leveraging the synergies of China-Africa economic cooperation to improve urbanization quality.

The paper has limitations in：While the economic development and urbanization foundation in different African countries vary significantly,this paper does not discuss all 54 African countries ,nor does it examine development

characteristics across countries categorized by rapid,moderate,and slow urbanization paces. A detailed analysis should be provided,categorizing them into three groups: countries with an urbanization rate below 30%, countries with an urbanization rate higher than 50% and relatively good economic performance, and countries with urbanization rates at an intermediate level,to systematically analyse distinct urbanization development models and trends for each group .

Future research should investigate the impact of rapidly evolving global ICT(information and communication technologies), internet applications, smart cities, urban clusters and metropolitan areas, and the digital economy gradually becoming emerging hot areas of development in Africa ,and explore to complement the urbanization process. Furthermore, studies must assess the feasibility, operational models, and sustainability of large-scale collaborative or investment projects in African countries involving key economic partners like China, the United States, France, and India. Such analyses will provide critical insights for evaluating the socioeconomic impacts of these initiatives in African urbanization.

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