



# Level of Infrastructure and Resource Preparedness in the Implementation of Competency-Based Curriculum in Public Primary Schools in Baringo County, Kenya

Too Bethuel Chepkilot, Lydia Kipkoech & Joshua Keter  
Department of Education Management and Policy Studies  
University of Eldoret, Kenya  
Email: [bethwelt2011@gmail.com](mailto:bethwelt2011@gmail.com)

**Abstract:** *Despite the introduction of the CBC aimed at enhancing educational outcomes, many schools in Kenya struggle with inadequate classrooms, limited teaching materials, and insufficient outdoor play spaces, which undermine the curriculum's objectives. The purpose of this study was to assess the level of infrastructure and resource preparedness in the implementation of competency-based curriculum in public primary schools in Baringo County. The study adopted descriptive research design using the mixed method approach. The target population included all the 748 head teachers and 6039 teachers in the 748 primary schools in Baringo County. The schools were selected through stratified and random sampling methods. A total of 306 teachers, 7 head teachers and 7 sub county directors of education were selected to participate in the study. Questionnaires, interview schedules and an observation schedule were used to collect data. The findings from the study reveal significant gaps in the infrastructure and resource preparedness for implementing the Competency-Based Curriculum (CBC) in public primary schools in Baringo County. An overwhelming majority of respondents indicated dissatisfaction with the adequacy of infrastructure, including classrooms and laboratories, necessary for effective CBC implementation. A substantial number of teachers reported shortages in essential teaching materials across various subjects, including mathematics, literacy, and creative arts. Additionally, concerns were raised about the insufficient availability of outdoor play spaces and environmental materials. These findings will be useful in addressing the need for improved infrastructure and resource allocation to support the successful adoption and execution of the CBC in the region.*

**Key words:** *Infrastructure, resource preparedness, Competency-based curriculum, Public primary schools, Baringo County*

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## 1. Introduction

The implementation of competency-based curriculum (CBC) aims to enhance educational outcomes by focusing on learners' abilities to apply knowledge and skills in real-world contexts. This approach emphasizes the development of competencies rather than merely covering content, which necessitates robust infrastructure and resource preparedness in schools. Effective

implementation relies on adequate physical facilities, educational materials, and technological resources. In regions with insufficient infrastructure, such as many rural areas, the transition to CBC presents significant challenges that can impact its success. Globally, the shift towards competency-based education reflects a growing recognition of the need for educational systems to prepare students for a rapidly evolving job market. Countries like Finland and Singapore have successfully integrated CBC

into their systems, supported by well-established infrastructures and comprehensive resource allocation. The effectiveness of CBC is often linked to the availability of modern facilities, up-to-date learning materials, and teacher training programs. However, many countries still grapple with disparities in infrastructure, which can hinder the effective implementation of CBC. Research highlights that disparities in educational resources can lead to unequal learning opportunities and outcomes (OECD, 2022).

In Africa, the adoption of competency-based curricula is gaining momentum as part of broader educational reforms aimed at improving quality and relevance. Despite progress, the continent faces challenges related to infrastructure and resource limitations. Many African countries, including Kenya, struggle with inadequate physical facilities, insufficient learning materials, and limited access to technology. Studies indicate that these challenges can undermine the effectiveness of CBC implementations (World Bank, 2023). Efforts to address these issues are underway, but progress is uneven, with significant disparities between urban and rural areas. East African countries are increasingly focusing on competency-based education to enhance educational quality and relevance. Nations like Uganda and Tanzania have made strides in incorporating CBC into their educational systems, yet they face similar infrastructure and resource challenges as the broader African context. Inadequate classroom facilities, limited access to digital tools, and insufficient teacher training are prevalent issues that affect the effectiveness of CBC implementation in the region (UNESCO, 2022). Addressing these challenges requires coordinated efforts to improve infrastructure and provide necessary resources to schools.

In Kenya, the Competency-Based Curriculum (CBC) was introduced to align education with current and future needs, emphasizing learner-centered approaches. Despite the policy's promise, implementation has been hampered by infrastructure deficits and resource constraints, particularly in rural areas like Baringo County. Schools often lack modern facilities and educational materials, affecting the quality of education delivered under CBC (Kenya Institute of Curriculum Development, 2023). Recent reports highlight that while urban schools may have better access to resources, rural schools face significant barriers that need addressing to ensure equitable implementation across the country. Baringo County, exemplifies the challenges associated with CBC implementation in rural areas. Schools in this region often struggle with inadequate infrastructure, including insufficient classrooms, outdated learning materials, and limited access to technological resources. The schools face significant hurdles in meeting the CBC requirements, impacting the quality of education (Baringo County

Education Office, 2024). Recent assessments emphasize the need for targeted interventions to improve infrastructure and resource availability to support the successful implementation of CBC in Baringo County. This study sought to examine the level of infrastructure and resource preparedness in the implementation of competency-based curriculum in public primary schools in Baringo County.

## 1.1 Objective of the study

The objective of this study was to examine the level of infrastructure and resource preparedness in the implementation of competency-based curriculum in public primary schools in Baringo County.

## 1.2 Research hypothesis

**H0<sub>1</sub>:** There is no statistically significant relationship between the level of resource and infrastructure preparedness and the implementation of competency-based curriculum in public primary schools in Baringo County.

## 2. Literature Review

The implementation of competency-based curricula (CBC) requires significant infrastructure and resource preparedness to ensure effectiveness. Infrastructure and resources are critical in supporting the transition from traditional content-focused education to a competency-based approach that emphasizes student skills and application. This literature review explores how various countries have addressed these needs and the implications for the successful implementation of CBC in public primary schools. Globally, the shift towards competency-based education (CBE) reflects a growing emphasis on equipping students with practical skills and knowledge applicable to real-world scenarios. The success of CBC often depends on the availability of modern educational infrastructure and resources, including updated learning materials, technology, and adequately trained teachers. According to the OECD (2022), countries that have invested in improving their educational infrastructure and resources have seen positive outcomes in CBC implementation. However, disparities in infrastructure can lead to uneven application of CBC principles, particularly in low-resource settings, highlighting the need for targeted support and investment.

France's approach to CBC implementation is supported by substantial investments in educational infrastructure and resources. The French education system has integrated CBC elements within its national curriculum, emphasizing student competencies across various subjects. Research by

the French Ministry of Education (2023) highlights that the country's robust infrastructure, including modern classrooms and digital tools, plays a crucial role in facilitating effective CBC implementation. Additionally, ongoing professional development programs for teachers ensure that they are well-equipped to deliver the new curriculum effectively. These efforts underscore the importance of comprehensive resource allocation in the successful adoption of CBC. In the Netherlands, the transition to a competency-based approach is characterized by a strong focus on resource preparedness. The Dutch education system benefits from well-established infrastructure, including advanced digital resources and innovative teaching materials. Studies by the Dutch Education Council (2023) reveal that the Netherlands' investment in digital infrastructure and teacher training has been instrumental in supporting CBC implementation. The emphasis on continuous improvement and adaptation of resources ensures that schools are equipped to meet the demands of the CBC, contributing to its overall success.

Finland is renowned for its effective implementation of competency-based education, largely due to its comprehensive infrastructure and resource strategies. The Finnish education system prioritizes high-quality facilities, access to technology, and extensive teacher training. Research by the Finnish National Agency for Education (2023) indicates that Finland's investment in educational infrastructure and resources has facilitated a smooth transition to CBC. The country's focus on equity ensures that all schools, regardless of location, have access to the necessary resources, which supports the effective delivery of the curriculum. Ecuador's implementation of CBC has been challenging due to disparities in infrastructure and resource availability. While the government has made efforts to reform the education system, research by the Ecuadorian Ministry of Education (2023) shows that many schools, especially in rural areas, still face significant barriers. Inadequate facilities, limited access to technology, and insufficient training for teachers hinder the effective adoption of CBC principles. The findings suggest that addressing these gaps is crucial for improving the success of CBC implementation in Ecuador.

In Nigeria, the implementation of CBC in public primary schools faces considerable challenges related to infrastructure and resources. According to the Nigerian Education Research and Development Council (2023), many schools lack basic facilities and educational materials necessary for CBC. The scarcity of digital resources and inadequate teacher training further exacerbates these issues. Efforts to improve infrastructure and resource availability are ongoing, but significant disparities remain between urban and rural schools, affecting the overall effectiveness of CBC. South Africa

has made strides in implementing CBC, supported by investments in educational infrastructure and resources. The South African Department of Basic Education (2023) reports that efforts to modernize classrooms, provide digital tools, and enhance teacher training have positively impacted CBC implementation. However, challenges persist, particularly in under-resourced areas. The country's approach emphasizes the need for continuous support and investment to ensure that all schools have the necessary resources to effectively deliver the CBC.

Ethiopia's implementation of CBC in public primary schools is constrained by infrastructure and resource limitations. Research by the Ethiopian Ministry of Education (2023) highlights that many schools struggle with inadequate facilities, outdated learning materials, and limited access to technology. These challenges affect the effectiveness of CBC and highlight the need for targeted interventions to improve resource availability and infrastructure. Addressing these issues is essential for the successful adoption of CBC in Ethiopia. In Swaziland, the implementation of CBC is hindered by significant infrastructure and resource challenges. The Swaziland Ministry of Education (2023) reports that many schools lack essential facilities and educational materials necessary for effective CBC delivery. Efforts to address these issues include initiatives to improve infrastructure and provide additional resources, but progress remains slow. The findings underscore the need for continued investment and support to ensure that CBC can be effectively implemented across the country.

In Kenya the implementation of the Competency-Based Curriculum (CBC) has been a significant educational reform aimed at enhancing students' practical skills and competencies. However, its success largely depends on the level of infrastructure and resource preparedness in public primary schools across the country. Infrastructure plays a crucial role in supporting effective teaching and learning processes, particularly in rural and underserved areas where schools may lack basic facilities and resources. Research has shown that inadequate infrastructure can hinder the successful implementation of CBC, as it affects both the quality of education and student outcomes (Kenya Institute of Curriculum Development, 2023). In urban areas, schools are often better equipped with modern facilities and resources compared to their rural counterparts. According to recent data, many urban public primary schools in Kenya have made significant strides in adopting the CBC, thanks to their relatively better access to infrastructure and educational materials (Education Policy and Data Center, 2024). These schools generally have better classrooms, libraries, and access to digital tools, which facilitate the delivery of the CBC. However, disparities remain, as rural schools frequently struggle with

outdated facilities and insufficient resources, which can impede the effective implementation of the new curriculum (World Bank, 2023). The Kenyan government has made efforts to address these disparities through various initiatives aimed at improving educational infrastructure and resource allocation. Programs such as the National Education Sector Plan (2022-2026) include provisions for upgrading school facilities, providing educational materials, and enhancing teacher training (Ministry of Education, 2022). Despite these efforts, the pace of infrastructure development and resource distribution has not always kept up with the demands of the CBC, leading to uneven implementation across different regions (Kenya National Bureau of Statistics, 2023).

In rural areas like Baringo County, the challenges are more pronounced. Schools in this region often face significant infrastructure deficits, including inadequate classrooms, lack of proper sanitation facilities, and limited access to learning materials and technology (Baringo County Education Office, 2024). These infrastructural shortcomings hinder the effective application of the CBC, which relies on a conducive learning environment to foster students' competencies. Research indicates that addressing these infrastructure gaps is essential for the successful adoption of CBC in such underserved areas (Kenya Institute of Curriculum Development, 2023). Teacher preparedness is another critical aspect influenced by infrastructure and resources. Effective implementation of the CBC requires teachers to be well-trained and equipped with the necessary resources to deliver the curriculum. Studies show that in many Kenyan schools, especially those in less developed areas, teachers often lack adequate training and resources to effectively implement CBC (Education Policy and Data Center, 2024). This lack of preparedness can significantly impact the quality of education and the extent to which students can benefit from the CBC.

The availability of educational materials is also a key factor in the implementation of CBC. Recent reports highlight that many public primary schools in Kenya face shortages of essential teaching and learning materials, which affects the delivery of the curriculum (Ministry of Education, 2022). The distribution of these materials has been uneven, with rural and underfunded schools experiencing more severe shortages compared to their urban counterparts. Ensuring equitable distribution of resources is crucial for the successful implementation of CBC across all schools (World Bank, 2023). Technology plays a vital role in modern education, and its integration into the CBC is no exception. However, many schools in Kenya still lack the necessary technological infrastructure, such as computers and internet access, to fully support the CBC (Kenya National Bureau of Statistics, 2023). The digital divide

between urban and rural schools exacerbates existing inequalities and hampers the effective application of CBC principles. Bridging this digital gap is essential for ensuring that all students have access to the benefits of technology-enhanced learning (Education Policy and Data Center, 2024).

Community involvement and support are also critical in addressing infrastructure and resource challenges. Community-based initiatives and partnerships can play a significant role in improving school facilities and resources. Recent studies suggest that schools with active community engagement often have better infrastructure and more resources compared to those without such support (Baringo County Education Office, 2024). Encouraging community involvement can help bridge some of the gaps in infrastructure and resource availability, supporting the effective implementation of CBC. Therefore, the level of infrastructure and resource preparedness is a major determinant of the success of CBC implementation in Kenya's public primary schools. While progress has been made in some areas, significant challenges remain, particularly in rural and under-resourced schools. Addressing these challenges requires a comprehensive approach that includes improving physical infrastructure, ensuring equitable distribution of resources, and enhancing teacher training. Ongoing efforts by the government and community stakeholders are crucial in supporting the successful adoption of CBC and ensuring that all students benefit from this educational reform.

### 3. Methodology

The study adopted a descriptive research design using the mixed-method approach. The target population included all the 748 head teachers and 6,039 teachers in the 748 primary schools in Baringo County. The schools were selected through stratified and random sampling methods. A total of 306 teachers, 7 head teachers, and 7 sub-county directors of education were selected to participate in the study. Questionnaires, interview schedules, and an observation schedule were used to collect data. To ensure the validity of the research instruments, the questionnaires and interview schedules were reviewed by experts in educational research to assess their content validity and relevance to the study objectives. A pilot study was also conducted in selected schools in the neighboring county to refine the instruments and ensure they measured what they intended to. Construct validity was ensured by aligning the questions with the key variables of the study, while face validity was confirmed through feedback from the pilot study participants. Reliability of the research instruments was tested using the test-retest method, where the instruments were administered to the same group twice, with a time lapse between the administrations. A

Cronbach's alpha coefficient was calculated to measure internal consistency and an acceptable threshold of 0.7 or higher was obtained. During data collection, strict procedures were followed to maintain consistency. Quantitative data was analyzed using descriptive statistics such as frequencies and percentages, and inferential statistics using Pearson correlation. Qualitative data was presented thematically in line with the objectives of the study to ensure comprehensive reporting of the findings

## 4. Results and Discussion

### 4.1 Level of resource and infrastructure availability for the implementation of competency-based curriculum

The purpose of this study was to establish the level of infrastructure availability for the implementation of competency-based curriculum in primary schools in Baringo County. To achieve this objective, the respondents were requested to rate their level of agreement on a five-point likert scale items in the questionnaire on level of resources and infrastructure available to teachers for the implementation of competency-based curriculum. The responses were tabulated and the results are presented in Table 1

**Table 1: Level of resource availability and implementation of CBC**

Statement	SD		D		U		A		SA	
	F	%	F	%	F	%	F	%	F	%
Our school is fully prepared with sufficient infrastructure and resources to implement the competency based-curriculum	26	9.8	181	68.0	13	4.9	35	13.2	11	4.1
We have adequate buildings labs/classrooms etc	12	4.5	168	63.2	10	3.8	29	10.9	47	17.7
Schools' infrastructure and resource preparedness influences how teachers engage students with subject matter	11	4.1	90	33.3	11	4.1	114	42.9	40	15.0
Outdoor space is adequate for children play activities	80	30.1	156	58.6	9	3.4	15	5.6	6	2.3
Maths activities materials are available and adequate	25	9.4	174	65.4	15	5.6	43	16.2	9	3.4
Literacy materials are available and adequate	14	5.3	150	56.4	16	6.0	67	25.2	19	7.1
Environment materials are available and adequate	17	6.4	142	53.4	15	5.6	67	25.2	25	9.4
English materials are available and adequate	46	17.3	189	71.1	2	.8	20	7.5	9	3.4
Creative art materials are available and adequate	37	13.9	108	40.6	27	10.2	71	26.7	23	8.6

**KEY: SD: Strongly Disagree, D: Disagree, U: Undecided, A: Agree, SA: Strongly Agree**

From the findings in table 1, an overwhelming majority of the respondents, 181 (68%), disagreed with the statement that schools are fully prepared with sufficient infrastructure and resources to implement the competency-based curriculum (CBC). Meanwhile, 35 (13.2%) agreed with the statement, and 13 (4.9%) were undecided. This finding aligns with a study by Brown and Smith (2020) who found that many schools in rural areas of the United States faced significant infrastructure challenges that impeded the effective implementation of new educational programs.

Similarly, in India, Sharma et al. (2021) reported that inadequate resources and infrastructure were barriers to implementing curriculum reforms effectively.

Similarly, on the statement that schools have adequate buildings, labs/classrooms for the implementation of CBC, 168 (63.2%) disagreed with the statement, 47 (17.7%) strongly agreed, 29 (10.9%) agreed, 12 (4.5%) strongly disagreed, and 10 (3.8%) were undecided. This finding is similar to findings by Garcia et al. (2019) in rural Mexico

which showed that a lack of adequate classroom space and facilities was a major obstacle to implementing new educational strategies. Additionally, in Uganda, Nsubuga et al. (2021) found that insufficient physical infrastructure in schools hindered the effective delivery of educational reforms.

Moreover, most of the respondents, 114 (42.9%), agreed with the statement that schools' infrastructure and resource preparedness influence how teachers engage students with the subject matter. A further 90 (33.8%) agreed, 40 (15%) strongly agreed, and 11 (4.1%) were undecided, with an equal number strongly disagreeing. This finding is consistent with research by Jones and Thompson (2020) who found that well-equipped classrooms significantly impacted teachers' ability to engage students and deliver curriculum effectively. Additionally, a study by Wang et al. (2022) in China highlighted that resource availability was closely linked to the quality of teacher-student interactions.

On the statement that outdoor space is adequate for children's play activities, a majority, 156 (58.6%), disagreed, 80 (30.1%) strongly disagreed, 15 (5.6%) agreed, 9 (3.4%) were undecided, and 6 (2.3%) strongly agreed. This finding relates to a study by Moyo and Smith (2018) which established that many schools lacked adequate outdoor facilities for play, affecting children's overall development. Similarly, a report by Ahmed et al. (2021) in Bangladesh highlighted that limited outdoor spaces in schools hindered children's physical activity and social interactions.

Furthermore, the majority of respondents, 174 (65.4%), disagreed with the statement that Mathematics activity materials are available and adequate. In contrast, 43 (16.2%) agreed, 25 (9.4%) strongly disagreed, 15 (5.6%) were undecided, and 9 (3.4%) strongly agreed. This finding is similar to a study by Patel et al. (2019) in India which found that inadequate math materials were a significant barrier to effective teaching. In Kenya, an earlier study by Otieno and Mwaura (2020) also reported a lack of sufficient mathematical resources in many schools.

Similarly, a majority of respondents, 150 (56.4%), disagreed with the statement that literacy materials are available and adequate. In contrast, 67 (25.2%) agreed, 19 (7.1%) strongly agreed, 16 (6.0%) were undecided, and 14 (5.3%) strongly disagreed. This finding aligns with studies indicating that literacy materials are often insufficient in various educational settings. For instance, in Ethiopia, a study by Ayele and Gebre (2021) found that a shortage of literacy materials was a significant challenge in primary schools. Additionally, in Nigeria, Ojo and Ilesanmi (2022) reported similar issues with the availability of literacy resources.

Further, 142 (53.4%) disagreed with the statement that environmental materials are available and adequate, 67 (25.2%) agreed, 17 (6.45%) strongly disagreed, and 15 (5.6%) were undecided. This finding is consistent with international research on environmental materials in schools. For example, a study by Liu et al. (2020) in China found that many schools faced shortages of environmental education materials, which affected the implementation of environmental curricula. Similarly, in Kenya, a study by Mwangi and Njenga (2019) highlighted challenges related to the availability of environmental resources in schools. On the statement that English language materials are available and adequate, an overwhelming majority, 189 (71.1%), disagreed, 46 (17.3%) strongly disagreed, 20 (7.5%) agreed, 9 (3.4%) strongly agreed, and 2 (0.8%) were undecided. This finding relates to a study by Nduka and Okoye (2018) in Nigeria reported that a lack of adequate language resources was a significant issue in schools. Similarly, in Tanzania, a study by Kweka and Amani (2021) noted that insufficient English language materials impacted students' learning outcomes.

Furthermore, the majority of respondents, 108 (40.6%), disagreed with the statement that creative art materials are available and adequate. A further 71 (26.7%) disagreed, 37 (13.9%) strongly disagreed, 27 (10.2%) were undecided, and 23 (8.6%) strongly agreed. This finding is similar to research conducted by Cruz and Hernandez (2021) who established that a lack of art materials hindered the implementation of creative arts programs. In Kenya, earlier research by Ochieng and Wanjiru (2019) also reported shortages of creative art materials in schools.

From the above findings, it is quite clear that there is insufficient teaching and learning materials for the implementation of CBC in Baringo County. This observation aligns with global research highlighting similar challenges in various educational contexts. For instance, a study by Brown et al. (2022) in Kenya found that inadequate teaching materials were a common issue affecting the implementation of new curricula. Additionally, research by Miller and Thompson (2021) across multiple countries showed that insufficient resources and materials were significant barriers to effective curriculum implementation.

## **4.2 Relationship between the level of resource and infrastructure preparedness and implementation of CBC**

The hypothesis of this research stated that:

**H0<sub>1</sub>:** There is no statistically significant relationship between the level of resource and infrastructure

preparedness and the implementation of competency-based curriculum in public primary schools in Baringo County.

This hypothesis was tested using Pearson correlation Analysis and the results are presented in Table 2

**Table 2: Correlation Coefficient between the level of resource and infrastructure preparedness and implementation of CBC**

		Implementation of CBC
	Pearson Correlation	.843**
Infrastructure preparedness	Sig. (2-tailed)	.000
	N	266

\*\* Correlation is significant at the 0.01 level (2-tailed). Table 2 shows that there was a significant positive correlation between the level of resource and infrastructure preparedness and implementation of competency-based curriculum in Baringo County ( $r = .843$ ;  $p = .000$ ). At 95% confidence level the  $r$  value for level of resource and infrastructure preparedness on implementation of Competency based was .843 showing a positive correlation with Implementation of CBC. This implies that an improvement on infrastructure in schools enhances sound implementation of the competency based curriculum. Therefore, the null hypothesis which stated that there is no statistically significant relationship between the level of resource and infrastructure preparedness and the implementation of competency-based curriculum in primary schools in Baringo County was rejected showing that there was a significant relationship between the level of resource and infrastructure preparedness and implementation of competency-based curriculum in primary schools in Baringo County.

Upon interviewing the head teachers one of the respondents P3 said;

*“The ministry of education had reported that additional classrooms had been constructed across the country to accommodate the learners in the new system; however, this did not mean that new classrooms were built in all the schools but very few schools were lucky. No new classroom had been constructed in my school”.*

This response suggested that there is inadequate learning infrastructure to accommodate the new competency based curriculum. This study is similar to the findings by Ondimu (2018), on learning materials used to deliver the competency- based curriculum which revealed that many schools did not have adequate infrastructure and learning facilities making classroom implementation of the competency-based curriculum difficult.

On interview, one of the sub county directors of education said;

*Additional classrooms had been provided in some schools which were urgently in need but due to inadequate funds it was not enough, the lack of computer laboratories is one of the major challenges to the implementation of ICT among the learners.*

This statement also indicated that infrastructure preparedness to implement the competency based curriculum remains a big challenge in Many schools in Baringo County. A similar finding was noted by Muasya and Waweru (2019) who carried out a study on the constraints facing competence-based curriculum implementation in Machakos County, Kenya. Despite getting huge groups of students, most schools have had a crisis of insufficient classrooms, laboratories and inadequacy of learning and teaching materials, among others.

On observation, the study noted mixed results in this area. Schools with well-established infrastructure, including adequate classroom space, functional ICT equipment, and resourceful libraries, demonstrate a smoother transition to the CBC. These schools can provide a conducive learning environment that supports various competency-based activities and projects. However, a significant number of schools face infrastructural challenges that hinder effective CBC implementation. Issues such as overcrowded classrooms, insufficient learning materials, and outdated ICT equipment were commonly reported. These limitations not only affect the quality of education but also the overall student engagement and learning outcomes. Addressing these infrastructural deficiencies through targeted investments and resource allocation is crucial for the successful implementation of the CBC across all primary schools.

## 5. Conclusion and Recommendations

### 5.1 Conclusion

The study concludes that the current state of infrastructure and resource availability in public primary schools in Baringo County is inadequate for the effective implementation of the Competency-Based Curriculum (CBC). The majority of respondents expressed concerns about the lack of sufficient buildings, classrooms, and specialized facilities necessary for delivering the CBC. This inadequacy extends to essential teaching materials, including those for mathematics, literacy, and creative arts, which are crucial for engaging students and meeting curriculum requirements. The scarcity of adequate outdoor play spaces further highlights the broader challenges faced by schools in providing a supportive learning environment. These findings indicate an urgent need for targeted interventions to enhance the infrastructure and resource base in Baringo County schools. Addressing these deficiencies will be critical for ensuring that the CBC can be implemented as intended, enabling teachers to deliver quality education and fostering an effective learning environment for students. Strategic investments in school facilities and resources, along with a robust support system for teachers, are essential to overcome the current barriers and achieve the goals of the CBC.

### 5.2 Recommendations

The study suggested the following recommendations:

1. There is a need to undertake a comprehensive assessment of the current infrastructure and resources available in public primary schools in Baringo County to identify specific gaps and prioritize areas for improvement. This assessment should include evaluating the adequacy of classrooms, laboratories, outdoor play areas, and teaching materials. Based on these findings, a detailed action plan should be developed to address the identified deficiencies, ensuring that schools are equipped with the necessary facilities and resources to effectively implement the Competency-Based Curriculum (CBC).
2. There is also need to allocate increased funding and support towards the procurement of essential teaching materials and the enhancement of school infrastructure. This includes investing in the construction and renovation of classrooms and laboratories, expanding outdoor play spaces, and providing adequate materials for subjects such as mathematics, literacy, and creative arts.

3. Further, there should be ongoing professional development for teachers to help them effectively utilize the available resources and adapt to the CBC framework. Collaborating with local stakeholders, including government agencies, non-governmental organizations, and community leaders, can help mobilize additional resources and support for these initiatives.

## References

- Ahmed, S., Hossain, M., & Rahman, M. (2021). *Outdoor Spaces in Schools: Impacts on Physical Activity and Social Interaction*. Dhaka: University Press Limited.
- Ayele, G., & Gebre, T. (2021). *Availability of Literacy Materials in Ethiopian Primary Schools*. Addis Ababa: Ethiopian Education Research Association.
- Baringo County Education Office. (2024). *Assessment of Educational Infrastructure and Resources in Baringo County*. Baringo: Baringo County Government.
- Brown, J., & Smith, R. (2020). Infrastructure Challenges in Rural Schools: Implications for Curriculum Implementation. *Journal of Education Policy*, 15(2), 45-58.
- Brown, K., Jones, L., & Patel, R. (2022). Teaching Materials and Curriculum Implementation in Kenyan Schools. Nairobi: Educational Research Journal.
- Cruz, A., & Hernandez, L. (2021). Availability and Use of Creative Arts Materials in Philippine Schools. Manila: *Philippine Journal of Arts Education*.
- Dutch Education Council. (2023). Report on Competency-Based Education Implementation in the Netherlands. Amsterdam: Dutch Education Council.
- Ecuadorian Ministry of Education. (2023). Challenges and Progress in Competency-Based Curriculum Implementation. Quito: *Ecuadorian Ministry of Education*.
- Education Policy and Data Center. (2024). Report on Educational Resource Distribution and Infrastructure in Kenya. Nairobi: EPDC.
- Ethiopian Ministry of Education. (2023). Assessment of Infrastructure and Resource Needs for Competency-Based Curriculum. Addis Ababa: *Ethiopian Ministry of Education*.



- Finnish National Agency for Education. (2023). *Competency-Based Education: Insights and Strategies from Finland*. Helsinki: Finnish National Agency for Education.
- French Ministry of Education. (2023). *Evaluation of Competency-Based Curriculum Implementation in France*. Paris: French Ministry of Education.
- Garcia, M., Lopez, J., & Martinez, A. (2019). Classroom Infrastructure and Curriculum Implementation in Rural Mexico. *Education Review*, 22(3), 78-92.
- Jones, A., & Thompson, L. (2020). Classroom Infrastructure and Teacher Engagement: A Review of Evidence. *Educational Insights*, 18(1), 34-47.
- Kenya Institute of Curriculum Development. (2023). *Report on the Competency-Based Curriculum Implementation in Kenya*. Nairobi: KICD.
- Kenya National Bureau of Statistics. (2023). *Educational Infrastructure and Resource Availability in Kenya*. Nairobi: KNBS.
- Kweka, M., & Amani, J. (2021). Language Resource Availability in Tanzanian Schools. Dar es Salaam: *Tanzanian Educational Review*.
- Liu, H., Zhang, Y., & Wang, X. (2020). *Environmental Education Materials in Chinese Schools: Availability and Challenges*. Beijing: China Education Press.
- Miller, T., & Thompson, H. (2021). Global Perspectives on Resource Adequacy for Curriculum Implementation. *International Journal of Education Research*, 29(4), 112-127.
- Ministry of Education. (2022). *National Education Sector Plan (2022-2026)*. Nairobi: Ministry of Education.
- Mwangi, J., & Njenga, M. (2019). Challenges in Environmental Resource Availability in Kenyan Schools. Nairobi: *Kenyan Journal of Education Research*.
- Nduka, C., & Okoye, M. (2018). Language Resources in Nigerian Schools: Availability and Impact. Lagos: *Nigerian Education Review*.
- Nigerian Education Research and Development Council. (2023). *State of Competency-Based Education Implementation in Nigeria*. Abuja: Nigerian Education Research and Development Council.
- Nsubuga, Y., Mukasa, M., & Kamara, E. (2021). Infrastructure and Resource Challenges in Ugandan Schools. Kampala: *Uganda Education Journal*.
- Ochieng, A., & Wanjiru, E. (2019). Creative Arts Materials in Kenyan Schools: Availability and Impact. Nairobi: *Kenyan Journal of Arts Education*.
- OECD. (2022). *Education at a Glance 2022: OECD Indicators*. Paris: OECD Publishing.
- Ojo, T., & Ilesanmi, T. (2022). Literacy Resources in Nigerian Primary Schools: A Critical Analysis. Abuja: *Nigerian Education Research Journal*.
- Otieno, J., & Mwaura, N. (2020). Mathematics Resource Adequacy in Kenyan Primary Schools. Nairobi: *Kenya Institute of Curriculum Development*.
- Patel, S., Kumar, P., & Reddy, S. (2019). *Mathematics Materials in Indian Schools: Challenges and Solutions*. New Delhi: Indian Journal of Education.
- Sharma, R., Singh, A., & Kumar, A. (2021). Resource and Infrastructure Barriers to Curriculum Reform in Indian Schools. Mumbai: *Indian Educational Review*.
- South African Department of Basic Education. (2023). *Review of Competency-Based Curriculum Infrastructure and Resources*. Pretoria: South African Department of Basic Education.
- Swaziland Ministry of Education. (2023). *Infrastructure and Resource Challenges in Competency-Based Curriculum Implementation*. Mbabane: Swaziland Ministry of Education.
- UNESCO. (2022). *Education for Sustainable Development Goals: Learning Objectives*. Paris: UNESCO Publishing.
- Wang, Y., Liu, X., & Chen, Z. (2022). Resource Availability and Teacher-Student Interaction in Chinese Schools. Shanghai: *Chinese Journal of Education Studies*.
- World Bank. (2023). *Learning for All: Perspectives on Education in Sub-Saharan Africa*. Washington, DC: World Bank Publications.