

An Examination of School Buildings' Physical Condition and Students' Examination Performance

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Abstract The study has examined the relationship between schools' building physical condition and students' examination performance in Tanzania. Data was collected through physical observation of schools' building facilities and examination results from the National Examination Council of Tanzania for O-Level results for a period of seven years. A total of 97 government secondary schools were examined where a correlation analysis was made between a weighted physical condition status of a school and pass/fail ratio in examinations. The study has established though a positive correlation exists between a school's physical condition and examination performance, such correlation is not of statistical significance.

Keywords School buildings, Facility quality, Academic performance

1. Introduction

Research conducted internationally has linked adequacy of school infrastructure facilities and student academic performance [1-8] and that actualization of goals and objectives of an education system is influenced by the physical of a school [9]. A poor physical learning environment environment is an endemic feature for many schools in developing countries [3,4,6,10-13]. Studies in Africa region have reiterated the same problem of poor physical infrastructure in school facilities [13-16]. The situation is however reported relatively better for private schools when compared to government schools [3,13].

Views differ on the causality of a school's physical condition and student academic performance [9,17-19]. The 12th Architecture and Behaviour colloquium [17] addressing the concern on the relevance of building facility to student's learning was however reported not to be conclusive; likewise, an OECD program for International Students Association (PISA), Education at a Glance: 2006 Edition had nonetheless indicated a negligible net effect of a school's physical infrastructure and student performance. A tentative notion of a link between schools physical environment and student performance was nevertheless given in [19] and confirmed in later studies [20]. The later study linked building design to reading vocabulary,

comprehension, language arts and mathematical science. Quality of school facilities and association with student academic achievement in english and mathematics had similarly been linked [21]. A more recent study has also echoed on the vital role of building facilities in the delivery of quality education [22].

Declining performance of quality of education in Tanzania has been linked to a learning environment that is not conducive to learning. Lack of classrooms, toilets, water, and electricity and inadequate number of motivated teachers is stated to contribute to poor learning outcomes at both primary and secondary levels [13]. A 13 year track record of students' performance at secondary schools for the O-level (Form Four) examinations showed consistently over the 13 years, majority of students being in the lowest division category (division iv); with percentage student failure in particular years exceeding 50% [13].

A physical condition survey of government secondary schools in 2016 of which the authors were part of the team had indicated noticeable inadequacies of school building facilities. Such findings prompted the authors to empirically explore the influence of such physical buildings' condition to student academic performance. It is from such a background that this study had set to investigate the association between school buildings' physical condition and students' academic performance.

2. Methods

Government owned schools in Tanzania as of year 2016 formed a majority of total secondary schools. From a total of 4,759 secondary schools, public schools totalled 3,614 while private schools were 1,145 [23]. Study area regions

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selected for this study represented part of a commissioned study of establishing the status of physical condition of secondary schools building facilities in the North-Eastern part of the country.

Data was collected in 6 out of 26 regions that form mainland Tanzania, hence forming a representative sample of 23% in terms of spatial representation. Administratively these six regions represented a total of 32 District councils, 4 Municipal/ Town/City council. A total of 97 government owned secondary schools in Tanzania were hence investigated. The respective administrative authority covered in the sample are shown in Table 1.

Table 1. Summary Table of administrative status of sample study

Local Government Authority	Number of administrative government authority
Regions in Tanzania	6
District Councils	32
City, Municipal and Town Councils	4
Total number of schools	97

Frameworks that assess physical condition of schools' facility vary particularly from studies of first world countries [7,24] and developing countries [25]. This study has used functionality as a key assessment criterion amongst others. Additional assessment criteria for physical condition of schools' facilities were borrowed from [25-28]. These studies had defined a quality educational facility as one that is "fit for purpose in relation to the users' needs and one that provides a healthy and safe environment" [26]; had also indicated the scope of assessing the physical condition includes looking at the quality of maintenance of rest rooms, building facility ventilation, ceiling, walls, floor condition, classroom size and space [24,25,27]. This study has limited the investigation of schools' building facilities to classrooms, laboratories, toilets and staff house buildings. These were taken as they represent typical building facility existing for any secondary school in Tanzania.

Observatory data was used to assess the status of physical condition of the building facility in the schools. A weighted system was introduced in the assessment to reflect the building condition.

The assessment of a school building facility had three criteria: functionality, conformance to standards and safety for use. The assessment criteria were weighted based on the school's physical condition. Where numerical values ranging from 4-1 were given as such: 4= building is functional and conforms to standards; 3= building is functional; 2= building is sub-standard but functional; 1= building is unsafe for use and not functional.

Academic performance of students in respective schools was measured based on examination results of Certificate of Secondary Examination (CSEE) that is being administered by the National Examination Council of Tanzania. (NECTA). The assessment criteria adopted the grading system of NECTA, where: division I = outstanding

performance; division II= excellent performance; division III=good performance; division IV=low performance; division Zero= unsatisfactory performance [NECTA]. As the examination council categorizes division I – IV as "Pass" and division zero as "Fail" these were equally adopted by the study.

Students examination performance for secondary schools as per the results of the National Examination Council of Tanzania for a period of 7 years (2012 - 2018) were obtained. The percentage of students that had passed/ failed in a school over the stated period was used as a measure of its academic performance. A pass/fail ratio was subsequently established.

3. Results

The calculated pass/fail ratio of the National secondary school examination for the period 2012 – 2018 for each school is shown in table 4 (see appendix "A"); the results show pass/fail ratio varying significantly from school to school. The analysis shows highest percentage pass of students during the study period is 94.48% with a pass/fail ratio of 17.11 and lowest performing school with a percentage pass of 27.28% and a pass/fail ratio of 0.38.

An evaluation of the physical condition of the schools' building facilities in all the 97 cases was done. Each building facility (classroom, staff houses, laboratory and toilets) was taken to have equal importance for the school functioning. An assessment of the building condition was guided by a weighting system as explained. Table 5 (see appendix "B") shows results of condition assessment of the 97 cases.

The results show the mean physical condition of building facility likewise varying from case to case; notably some schools scored zero for laboratory building facilities. From the two sets of data (see table 2), a correlation analysis was subsequently pursued to test association between physical condition of school building facility and pass/fail ratio for each school. See table 3.

Table 2. Physical condition of building facility and examination performance scores

	School	Physical Condition Mean rate/case=X	Pass Fail ratio=Y
1	Tanga Region Secondary School		
	Mkinga SS	0.50	17.11
	Kwekivu SS	0.75	1.91
	Marungu SS	0.38	1.01
	Pongwe SS	0.69	1.08
	Tongoni SS	0.63	0.52
1.1	Bumbuli District Council		
	Funta SS	0.50	0.94
	Mibukwe SS	0.44	1.02
1.2	Kilindi District Council		
	Kilindi Asilia SS	0.50	1.88

1.3	Handeni District Council		
	Kwasunga SS	0.44	2.40
	Kwankonje SS	0.44	0.67
	Kangata SS	0.56	1.95
1.4	Kongwe Town Council		
	Joel Bendera SS	0.31	1.34
	Kilole SS	0.56	0.85
1.5	Mkinga District Council		
	Gombero SS	0.63	1.32
	Kwale SS	0.44	2.00
1.6	Lushoto District Council		
	Monolo SS	0.44	0.87
	Mazasha SS	0.38	0.79
	Mdando SS	0.44	1.65
	Shaghayu SS	0.25	1.41
	Ubiri SS	0.50	0.97
1.7	Muheza District Council		
	Ngomeni SS	0.38	0.67
	Pande SS	0.19	0.38
	Zirai SS	0.50	0.71
1.8	Pangani District Council		
	Bushiri SS	0.50	1.73
	Kilimangwido SS	0.44	0.92
2	Kilimanjaro Region Secondary School		
2.1	Moshi District Council:		
	Mlang'a SS	0.38	4.30
	Oria SS	0.50	2.07
	Tema SS	0.50	2.89
2.2	Hai District Council secondary schools		
	Longoi SS	0.56	1.12
	Lukani SS	0.50	2.79
	Nkuu SS	0.50	1.82
	Tumona	0.25	1.64
2.3	Mwanga District Council		
	Kwangu SS	0.50	1.05
	Ubangi SS	0.38	1.01
	Chaangaja SS	0.63	1.09
	Ndorwe SS	0.31	1.41
2.4	Rombo District Council		
	Umarini SS	0.44	2.63
	Mlambai SS	0.38	2.75
	Mramba SS	0.44	1.37
2.5	Same District Council Secondary Schools		
	Vunta SS	0.50	1.83
	Pareni SS	0.38	1.11
	Moipo SS	0.63	1.74
2.6	Siha District Council Secondary Schools		
	Karansi SS	0.38	1.10
	Nuru SS	0.38	1.42
3	Arusha Region Secondary Schools:		

3.1	Arusha City Council Secondary Schools:		
	Kinana SS	0.56	1.12
3.2	Arusha District Council Secondary Schools		
	Bangata SS	0.38	1.17
3.3	Karatu District Council Secondary Schools		
	Banjika SS	0.63	1.10
	Olturumet SS	0.50	0.70
	Orboshan SS	0.50	1.41
3.4	Longido District Council Secondary Schools		
	Ketumbaine SS	0.56	1.19
3.5	Meru District Council		
	Kikwe SS	0.50	1.21
	Ngyeku SS	0.63	0.88
	Sakila SS	0.38	1.07
3.6	Monduli District Council		
	Nanja SS	0.44	2.43
3.7	Ngorongoro DC		
	Nainokanoka SS	0.75	4.49
4	Morogororo Region Secondary School		
4.1	Gairo District Council		
	Njungwa SS	0.38	1.48
	Nongwe SS	0.38	1.03
4.2	Kilosa District Council secondary schools		
	Gongwe SS	0.38	0.99
	Lumbiji SS	0.38	1.53
	Masanze SS	0.25	0.66
	Ulelingombe SS	0.44	2.37
4.3	Morogororo Municipal Secondary School		
	Bungodimwe SS	0.31	0.72
4.4	Ulanga District Council Secondary Schools		
	Biro SS	0.44	0.74
	Kichangani SS	0.50	1.30
	Mtimbira SS	0.38	1.09
	Ngoherange SS	0.38	1.10
4.5	Kilombero District Council District Council		
	Kiberege SS	0.50	1.53
	Kiburutu SS	0.50	1.46
	Masagati SS	0.50	3.65
4.6	Morogoro District Council		
	Kolero SS	0.44	1.57
	Mvuhia SS	0.31	0.86
	Kinole SS	0.25	1.29
4.7	Mvomero District Council		
	Langali SS	0.50	1.00
	Mtibwa SS	0.38	0.90
5	Dar es Salaam Region Secondary Schools		
5.1	Ilala District Council		

	Msongola SS	0.63	0.70
	Mvuti SS	0.81	0.84
	Zingiziwa SS	0.44	0.70
	Ulongoni SS	0.69	2.23
5.2	Temeke District Council		
	Kibada SS	0.75	0.95
	Kimbiji SS	0.63	1.04
	Kisarawe SS	0.63	2.09
5.3	Kinondoni District Council		
	Njechele SS	0.69	0.90
	Kibwehere SS	0.69	1.34
6	Coast Region Secondary Schools		
6.1	Bagamoyo District Council Secondary Schools		
	Kibindu SS	0.38	1.67
	Kiwangwa SS	0.38	1.00
	Matimbwa SS	0.38	0.87
	Talawanda SS	0.38	1.20
6.2	Kibaha District Council		
	Magindu SS	0.50	0.82
	Kwala SS	0.44	0.71
6.3	Kibada Town Council		
	Visiga SS	0.63	1.00

6.4	Kisarawe District Council		
	Makurunge SS	0.56	1.24
	Chole SS	0.38	0.91
6.5	Mkuranga District Council		
	Panzuo SS	0.50	0.78
	Vikindu SS	0.50	1.11
6.6	Rufii District Council		
	Mtanga Delta SS	0.50	0.71
	Zimbwini SS	0.44	0.87
	Mjawe SS	0.38	1.62

4. Discussions

The correlation analysis made between physical conditions of a school's building facility and pass/ fail ratio of the O- Level examination in the 97 secondary schools indicated a weak positive correlation of 0.07 .A further test was made to establish if the correlation was of any statistical significance. Alpha was taken at 0.05, the results gave a p-value of 0.4886 implying the correlation is not of statistical significance. See table 3.

Table 3. Correlation analysis school condition and pass/fail ratio

SUMMARY OUTPUT

Regression Statistics					
Multiple R	0.0712				
R Square	0.005065				
Adjusted R Square	-0.00541				
Standard Error	1.763414				
Observations	97				
ANOVA					
	df	SS	MS	F	Significance F
Regression	1	1.50404	1.50404	0.48367	0.48846
Residual	95	295.414	3.10963		

The study's outcome does not fully conform to those works that are of a view that physical condition of a school's building facility has no influence to students' academic performance [9,18,19]. One of these studies had arguably stated that though quantitative studies suggest some link between learning environment and school performance, direct causal relationship is still unclear [9]. The study results however conform to a recent OECD report [28] that has claimed that schools that are overcrowded, inadequately maintained, lacking facilities for conducive learning to students, have a potential of thwarting an educational system pursuit for excellence. Other notable studies that had shown a positive correlation

are that of [2-4,7,12,15,27,29]. The fact that a positive association has been found by the study not to be of statistical significance, is however viewed by the authors that the potential for it thwarting or hampering the quality of education is still eminent. This has been evidenced in a similar study by Tanner [19]. Additionally another study that had explored the impact of improved conditions [8] further reinforce the results obtained of a positive relationship, as students performance had improved with improved building conditions. Henceforth the study supports efforts echoed towards investment in schools infrastructure [30] and the integration of facilities management and educational decisions [31].

4.1. Limitations

The authors acknowledge the limitation of a single parameter, the physical condition of the schools being used to assess causality with student performance. Other limitations include the non - identification of heterogeneity of the secondary schools investigated; as the case schools vary in size, age of building, educational programs and geographical location. Such differences also explain the variation in the physical condition as noted by the study and supports the view that spending on physical resources in school facilities is a function of size, location of school, age, and education program [17]. All these features are

considered by the authors could have provided a more informative research study. Nevertheless such limitation are considered not to have affected the outcome of the study.

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Appendix A

Table 4. Pass/fail ratio of schools

	Name of Secondary School	% PASS (2012-2018) W=MEAN=X/7	% FAIL (2012-2018) V=MEAN=Y/7	% PASS FAIL RATIO PASS/FAIL=W/V
1	Tanga Region Secondary School			
	Mkinga SS	94.48%	5.52%	17.11
	Kwekivu SS	65.65%	34.35%	1.91
	Marungu SS	50.27%	49.73%	1.01
	Pongwe SS	51.96%	48.04%	1.08
	Tongoni SS	34.11%	65.89%	0.52
1.1	Bumbuli District Council			
	Funta SS	48.52%	51.48%	0.94
	Mibukwe SS	50.61%	49.39%	1.02
1.2	Kilindi District Council			
	Kilindi Asilia SS	65.30%	34.70%	1.88
1.3	Handeni District Council			
	Kwasunga SS	70.61%	29.39%	2.40
	Kwankonje SS	40.24%	59.76%	0.67
	Kangata SS	66.06%	33.94%	1.95
1.4	Kongwe Town Council			
	Joel Bendera SS	57.30%	42.70%	1.34
	Kilole SS	45.88%	54.12%	0.85
1.5	Mkinga District Council			
	Gombero SS	56.97%	43.03%	1.32
	Kwale SS	66.61%	33.39%	2.00
1.6	Lushoto District Council			
	Monolo SS	46.45%	53.55%	0.87
	Mazasha SS	44.19%	55.81%	0.79
	Mdando SS	62.30%	37.70%	1.65
	Shaghayu SS	58.53%	41.47%	1.41
	Ubiri SS	49.14%	50.86%	0.97
1.7	Muheza District Council			
	Ngomeni SS	40.18%	59.82%	0.67
	Pande SS	27.28%	72.72%	0.38
	Zirai SS	41.65%	58.35%	0.71
1.8	Pangani District Council			

	Name of Secondary School	% PASS	% FAIL	% PASS FAIL RATIO
	Bushiri SS	63.40%	36.60%	1.73
	Kilimangwido SS	47.94%	52.06%	0.92
2	Kilimanjaro Region Secondary School			
2.1	Moshi District Council:			
	Mlang'a SS	81.15%	18.85%	4.30
	Oria SS	67.45%	32.55%	2.07
	Tema SS	74.28%	25.72%	2.89
2.2	Hai District Council secondary schools			
	Longoi SS	52.76%	47.24%	1.12
	Lukani SS	73.63%	26.37%	2.79
	Nkuu SS	64.57%	35.43%	1.82
	Tumona	62.07%	37.93%	1.64
2.3	Mwanga District Council			
	Kwangu SS	51.32%	48.68%	1.05
	Ubangi SS	50.28%	49.72%	1.01
	Chaangaja SS	52.18%	47.82%	1.09
	Ndorwe SS	58.43%	41.57%	1.41
2.4	Rombo District Council			
	Umarini SS	72.42%	27.58%	2.63
	MIambai SS	73.36%	26.64%	2.75
	Mramba SS	57.86%	42.14%	1.37
2.5	Same District Council Secondary Schools			
	Vunta SS	64.72%	35.28%	1.83
	Pareni SS	52.70%	47.30%	1.11
	Moipo SS	63.46%	36.54%	1.74
2.6	Siha District Council Secondary Schools			
	Karansi SS	52.30%	47.70%	1.10
	Nuru SS	58.62%	41.38%	1.42
3	Arusha Region Secondary Schools:			
3.1	Arusha City Council Secondary Schools:			
	Kinana SS	52.85%	47.15%	1.12
3.2	Arusha District Council Secondary Schools			
	Bangata SS	53.89%	46.11%	1.17
3.3	Karatu District Council Secondary Schools			
	Banjika SS	52.32%	47.68%	1.10
	Olturumet SS	41.03%	58.97%	0.70
	Orboshan SS	58.58%	41.42%	1.41
3.4	Longido District Council Secondary Schools			
	Ketumbaine SS	54.39%	45.61%	1.19
3.5	Meru District Council			
	Kikwe SS	54.83%	45.17%	1.21
	Ngyeku SS	46.87%	53.13%	0.88
	Sakila SS	51.58%	48.42%	1.07
3.6	Monduli District Council			
	Nanja SS	70.84%	29.16%	2.43
3.7	Ngorongoro DC			
	Nainokanoka SS	81.78%	18.22%	4.49
4	Morogororo Region Secondary School			

	Name of Secondary School	% PASS	% FAIL	% PASS FAIL RATIO
4.1	Gairo District Council			
	Njungwa SS	59.67%	40.33%	1.48
	Nongwe SS	50.64%	49.36%	1.03
4.2	Kilosa District Council secondary schools			
	Gongwe SS	49.78%	50.22%	0.99
	Lumbiji SS	60.53%	39.47%	1.53
	Masanze SS	39.65%	60.35%	0.66
	Ulelingombe SS	70.31%	29.69%	2.37
4.3	Morogoro Municipal Secondary School			
	Bungodimwe SS	41.74%	58.26%	0.72
4.4	Ulanga District Council Secondary Schools			
	Biro SS	42.66%	57.34%	0.74
	Kichangani SS	56.58%	43.42%	1.30
	Mtimbira SS	52.23%	47.77%	1.09
	Ngoherange SS	52.43%	47.57%	1.10
4.5	Kilombero District Council District Council			
	Kiberege SS	60.51%	39.49%	1.53
	Kiburutu SS	59.27%	40.73%	1.46
	Masagati SS	78.48%	21.52%	3.65
4.6	Morogoro District Council			
	Kolero SS	61.03%	38.97%	1.57
	Mvuha SS	46.24%	53.76%	0.86
	Kinole SS	56.27%	43.73%	1.29
4.7	Mvomero District Council			
	Langali SS	50.12%	49.88%	1.00
	Mtibwa SS	47.34%	52.66%	0.90
5	Dar es Salaam Region Secondary Schools			
5.1	Ilala District Council			
	Msongola SS	41.27%	58.73%	0.70
	Mvuti SS	45.77%	54.23%	0.84
	Zingiziwa SS	41.25%	58.75%	0.70
	Ulongoni SS	69.04%	30.96%	2.23
5.2	Temeke District Council			
	Kibada SS	48.76%	51.24%	0.95
	Kimbiji SS	51.04%	48.96%	1.04
	Kisarawe SS	67.68%	32.32%	2.09
5.3	Kinondoni District Council			
	Njechele SS	47.34%	52.66%	0.90
	Kibwehere SS	57.29%	42.71%	1.34
6	Coast Region Secondary Schools			
6.1	Bagamoyo District Council Secondary Schools			
	Kibindu SS	62.55%	37.45%	1.67
	Kiwangwa SS	50.05%	49.95%	1.00
	Matimbwa SS	46.55%	53.45%	0.87
	Talawanda SS	54.52%	45.48%	1.20
6.2	Kibaha District Council			
	Magindu SS	45.20%	54.80%	0.82
	Kwala SS	41.57%	58.43%	0.71

	Name of Secondary School	% PASS	% FAIL	% PASS FAIL RATIO
6.3	Kibada Town Council			
	Visiga SS	49.93%	50.07%	1.00
6.4	Kisarawe District Council			
	Makurunge SS	55.34%	44.66%	1.24
	Chole SS	47.56%	52.44%	0.91
6.5	Mkuranga District Council			
	Panzuo SS	43.68%	56.32%	0.78
	Vikindu SS	52.59%	47.41%	1.11
6.6	Rufii District Council			
	Mtanga Delta SS	41.60%	58.40%	0.71
	Zimbwini SS	46.44%	53.56%	0.87
	Mjawe SS	61.90%	38.10%	1.62

Appendix B

Table 5. Physical condition school buildings

Name of Secondary School		Cls	Sth	Lab	Tlt	Total	Mean
	Condition Grade	3	3	3	3	12	
		W/4*3	X/4*3	Y/4*3	Z/4*3	(W+X+Y+Z)/4*3=U	U/12
1	Tanga Region Secondary Schools						
	Mkinga SS	1.5	1.5	1.5	1.5	6	0.50
	Kwekivu SS	2.25	2.25	3	1.5	9	0.75
	Marungu SS	1.5	0.75	0.75	1.5	4.5	0.38
	Pongwe SS	1.5	1.5	3	2.25	8.25	0.69
	Tongoni SS	1.5	1.5	3	1.5	7.5	0.63
1.1	Bumbuli District Council Schools						
	Funta SS	1.5	2.25	0.75	1.5	6	0.50
	Mibukwe SS	1.5	1.5	0.75	1.5	5.25	0.44
1.2	Kilindi District Council						
	Kilindi Asilia SS	1.5	2.25	0.75	1.5	6	0.50
1.3	Handeni District Council Schools						
	Kwasunga SS	1.5	1.5	0.75	1.5	5.25	0.44
	Kwankonge SS	1.5	1.5	0.75	1.5	5.25	0.44
	Kangata SS	1.5	2.25	0.75	2.25	6.75	0.56
1.4	Kongwe Town Council Schools						
	Bendera SS	1.5	0	0.75	1.5	3.75	0.31
	Kilole SS	1.5	2.25	1.5	1.5	6.75	0.56
1.5	Mkinga District Council						
	Gombero SS	1.5	1.5	2.25	2.25	7.5	0.63
	Kwale SS	1.5	1.5	0.75	1.5	5.25	0.44
1.6	Lushoto District Council						
	Monolo SS	1.5	2.25	0	1.5	5.25	0.44
	Mazasha SS	1.5	1.5	0	1.5	4.5	0.38
	Mdando SS	1.5	2.25	0	1.5	5.25	0.44
	Shagayu SS	1.5	0	0	1.5	3	0.25
	Ubiri SS	1.5	1.5	0	3	6	0.50
1.7	Muheza District Council						
	Ngomeni SS	1.5	0.75	0.75	1.5	4.5	0.38

Name of Secondary School	Cls	Sth	Lab	Tlt	Total	Mean
Pande SS	0.75	0.75	0.75	0	2.25	0.19
Zirai SS	1.5	1.5	0.75	2.25	6	0.50
1.8	Pangani District Council					
Bushiri SS	1.5	0.75	2.25	1.5	6	0.50
Kilimangwido SS	1.5	1.5	0.75	1.5	5.25	0.44
2	Kilimanjaro Region Secondary School					
2.1	Moshi District Council:					
Mlang'a SS	1.5	1.5	0	1.5	4.5	0.38
Oria SS	1.5	1.5	1.5	1.5	6	0.50
Tema SS	1.5	1.5	1.5	1.5	6	0.50
2.2	Hai District Council secondary schools					
Longoi SS	1.5	3	0.75	1.5	6.75	0.56
Lukani SS	1.5	1.5	1.5	1.5	6	0.50
Nkuu SS	1.5	1.5	1.5	1.5	6	0.50
Tumwona	1.5	0	0	1.5	3	0.25
2.3	Mwanga District Council					
Kwangu SS	1.5	1.5	1.5	1.5	6	0.50
Ubangi SS	1.5	0	1.5	1.5	4.5	0.38
Chaanganja SS	1.5	2.25	2.25	1.5	7.5	0.63
Ndorwe SS	1.5	0.75	0	1.5	3.75	0.31
2.4	Rombo District Council					
Umarini SS	1.5	1.5	0.75	1.5	5.25	0.44
Mlambai SS	1.5	1.5	0	1.5	4.5	0.38
Mramba SS	1.5	1.5	0.75	1.5	5.25	0.44
2.5	Same District Council Secondary Schools					
Vunta SS	1.5	1.5	1.5	1.5	6	0.50
Pareni SS	1.5	1.5	0	1.5	4.5	0.38
Moipo SS	1.5	1.5	3	1.5	7.5	0.63
2.6	Siha District Council Secondary Schools					
a) Karansi SS	1.5	1.5	0	1.5	4.5	0.38
b) Nuru SS	1.5	1.5	0	1.5	4.5	0.38
3	Arusha Region Secondary Schools:					
3.1	Arusha City Council Secondary Schools:					
Kinana SS	1.5	1.5	2.25	1.5	6.75	0.56
3.2	Arusha District Council Secondary Schools					
Bangata SS	1.5	1.5	0	1.5	4.5	0.38
3.3	Karatu District Council Secondary Schools					
Banjika SS	1.5	3	1.5	1.5	7.5	0.63
Olturumet SS	1.5	1.5	1.5	1.5	6	0.50
Orboshari SS	1.5	1.5	1.5	1.5	6	0.50
3.4	Longido District Council Secondary Schools					
Ketumbaine SS	2.25	2.25	0.75	1.5	6.75	0.56
3.5	Meru District Council					
Kikwe SS	1.5	1.5	1.5	1.5	6	0.50
Ngyeku SS	1.5	2.25	2.25	1.5	7.5	0.63
Sakika SS	1.5	1.5	0	1.5	4.5	0.38
3.6	Monduli District Council					
Nanja SS	1.5	1.5	0.75	1.5	5.25	0.44
3.7	Ngorongoro DC					

Name of Secondary School	Cls	Sth	Lab	Tlt	Total	Mean
Nainokanoka SS	2.25	2.25	2.25	2.25	9	0.75
4	Morogoro Region Secondary School					
4.1	Gairo District Council					
Njungwa SS	1.5	1.5	0	1.5	4.5	0.38
Nongwe SS	1.5	1.5	0	1.5	4.5	0.38
4.2	Kilosa District Council secondary schools					
Gongwe SS	1.5	1.5	0	1.5	4.5	0.38
Lumbui SS	1.5	1.5	0	1.5	4.5	0.38
Masanze SS	1.5	0.75	0	0.75	3	0.25
Ng'ombe SS	1.5	1.5	0.75	1.5	5.25	0.44
4.3	Morogoro Municipal Secondary School					
Bungodimwe SS	1.5	0	0.75	1.5	3.75	0.31
4.4	Ulanga District Council Secondary Schools					
Biro SS	1.5	1.5	0.75	1.5	5.25	0.44
Kichangani SS	1.5	1.5	1.5	1.5	6	0.50
Mtimbira SS	1.5	1.5	0	1.5	4.5	0.38
Ngoherange SS	1.5	1.5	0	1.5	4.5	0.38
4.5	Kilombero District Council District Council					
Kiberege SS	1.5	1.5	1.5	1.5	6	0.50
Kiburutu SS	1.5	1.5	1.5	1.5	6	0.50
Masagati SS	1.5	1.5	1.5	1.5	6	0.50
4.6	Morogoro District Council					
Kolero SS	1.5	1.5	0.75	1.5	5.25	0.44
Mvuha SS	1.5	0.75	0.75	0.75	3.75	0.31
Kinole SS	1.5	0	0	1.5	3	0.25
4.7	Mvomero District Council					
Langali SS	1.5	1.5	1.5	1.5	6	0.50
Mtibwa SS	1.5	0	1.5	1.5	4.5	0.38
5	Dar es Salaam Region Secondary Schools					
5.1	Ilala District Council					
Msongola SS	1.5	1.5	3	1.5	7.5	0.63
Mvuti SS	3	2.25	3	1.5	9.75	0.81
Zingiziwa SS	2.25	1.5	0	1.5	5.25	0.44
Ulongomi SS	1.5	2.25	3	1.5	8.25	0.69
5.2	Temeke District Council					
Kibada SS	2.25	2.25	2.25	2.25	9	0.75
Kimbiji SS	1.5	2.25	2.25	1.5	7.5	0.63
Kisarawe SS	1.5	2.25	2.25	1.5	7.5	0.63
5.3	Kinondoni District Council					
Njecheli SS	3	2.25	1.5	1.5	8.25	0.69
Kibwehere SS	3	2.25	1.5	1.5	8.25	0.69
6	Coast Region Secondary Schools					
6.1	Bagamoyo District Council Secondary Schools					
Kibindu SS	1.5	1.5	0	1.5	4.5	0.38
Kiwangwa SS	1.5	1.5	0	1.5	4.5	0.38
Matimbwa SS	1.5	1.5	0	1.5	4.5	0.38
Talawanda SS	1.5	1.5	0	1.5	4.5	0.38
6.2	Kibaha District Council					
Magindu SS	1.5	1.5	1.5	1.5	6	0.50

	Name of Secondary School	Cls	Sth	Lab	Tlt	Total	Mean
	Kwala SS	1.5	1.5	0.75	1.5	5.25	0.44
6.3	Kibada Town Council						
	Visiga SS	1.5	1.5	3	1.5	7.5	0.63
6.4	Kisarawe District Council						
	Makurunge SS	1.5	2.25	1.5	1.5	6.75	0.56
	Chole SS	1.5	1.5	0	1.5	4.5	0.38
6.5	Mkuranga District Council						
	Panzuo SS	1.5	1.5	1.5	1.5	6	0.50
	Vikindu SS	1.5	1.5	1.5	1.5	6	0.50
6.6	Rufii District Council						
	Mtanga Delta SS	1.5	1.5	1.5	1.5	6	0.50
	Zimbwini SS	1.5	1.5	0.75	1.5	5.25	0.44
	Mjawe SS	1.5	1.5	0	1.5	4.5	0.38

Key:

CLS	Classroom building
STH	Staff house building
TLT	Toilets building

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