REPORT ON ANALYSIS OF GENERAL EDUCATION, TTCS, AND TVET NATIONAL EXAMINATION RESULTS FOR (2019-2022)

By

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Foreword

Education is one of the main pillars upon which Rwanda's socio-economic development hinges. For nearly the past three decades, Rwanda has registered progressive improvement in education in terms of access, quality, and equity. In a bid to make education more relevant to national aspirations of becoming a knowledge-based economy, a competence-based curriculum was introduced. In view of this, national examinations are administered at the end of each learning cycle (Primary 6, senior 3, senior 6 for general basic education, level 5 of Technical and Vocational Education and Training (TVET), and end of year 3 for TTCs) to assess the attainment of intended curriculum competencies to inform decision making and education system management.

As such, National Examination and School Inspection Authority **(**NESA) was established with a prime mission of ensuring the quality of education in basic education and Technical and Vocational Education and Training (TVET) from level one (1) to five (5) and to regulate the comprehensive assessments of students and national examinations.

Accordingly, NESA conducted an analysis of national examination results to establish the trend of learners' performance and pass rate to inform improvement pathways in teaching, learning, and assessment. The analysis covered all the subjects examined in the 2019, 2021, and 2022 school years.

On this note, NESA presents a report of the analysis of the national examination results for each subject or trade at each level. The report highlights the general pass rate and performance, pass rate disaggregated by gender, school location (rural and urban), school ownership (public, private, and government-aided), and school status (boarding/day school) for each subject.

It is hoped that this report provides a general picture of learners' achievement at the end of the respective learning cycles, and informs education stakeholders of areas for intervention.

We express our sincere gratitude to the World Bank for the financial support and to everyone who contributed to the successful compilation of this report.

Sincerely,

Dr. BAHATI Bernard

Director General

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1. Introduction

Analysis of student national examinations helps to determine the extent to which the curriculum learning outcomes have been achieved and to identify areas where students perform well and those that need improvement. This report presents results of the analysis of national examinations for end of primary six, end of Ordinary level, end of advanced level, end of level 5 of Technical and Vocational Education and Training (TVET), and year three of teacher training colleges for three years (2019, 2021 and 2022). The objectives of the analysis were twofold: 1) to compare the pass rate of students in the old and the new grading system, and 2) to identify subjects that require intervention in terms of teaching, learning & assessment to improve student performance in the future. Student performance in 2022 was analyzed based on the revised grading system in comparison with the performance in previous years, that is, 2019 and 2021. The initiative of analyzing national examinations for primary six, lower secondary level, upper secondary level, Teacher Training Colleges (TTCs), and Technical and Vocational Education and Training (TVET) draws from other countries in the region such as Kenya, Uganda, Ghana, and South Africa where analysis of national examinations is conducted and elicits valuable information for informed decision making by policymakers as well as informing education supervisors at various levels.

Accordingly, the analysis began with collecting, organizing, and synthesizing the results of students in all national examinations for 2019, 2021, and 2022 as well as the views of teachers. The results were retrieved from National Examination and School Inspection Authority (NESA) examination database, national examination guidelines, chief markers' reports produced during the marking of national examinations, and teachers' views during focus group discussions regarding national examination performance.

2. Methodology

This section presents the procedure of data analysis, sources of data, methods, and tools of data collection, processing and interpretation, and data presentation. The process of analyzing students' results in national exams began with a collection of students' results in national examinations for the three years (2019, 2021, and 2022) and organizing them. Data entry into SPSS version 20, Stata 14, Access, and Excel was done for easy tabulation, analysis, and interpretation. Students' results were processed, categorized, coded, and analyzed. Descriptive statistics (measures of central tendency and variability) were used to analyze and interpret the findings. Charts, frequency tables, and cross-tabulation were generated using SPSS version 20, Stata 14, Access, and Excel. The number of subjects for which the national exam results were analyzed at every level include the Primary level (5), O-level (9), A-level (14 subject combinations), and TTCs (18 subjects.

Students' results were retrieved from the NESA examination database, national examination guidelines chief markers' reports produced during the marking of national examinations, and teachers during focus group discussions regarding national examination performance. Data on student performance was categorized and presented according to school ownership (private, government-subsidized, and public schools); gender; school location (districts and provinces, rural and urban); and school status (boarding and day schools).

It should be noted that while the interpretation of standard deviation is dependent upon the context and nature of the dataset, in this report, the interpretation of the standard deviations and variation coefficients of scores for various subjects were based on the American Psychological Association (APA)[1] guidelines for reporting statistical results, which recommends that a standard deviation that is less than one-third of the mean can be considered a small variation, while a standard deviation that is greater than or equal to one-third of the mean can be considered a large variation.

3. Summary of key findings in specific subjects at all learning cycles/levels

Overall, results from the analysis of national examinations for each learning cycle show that the pass rate of students in all the examinable subjects in 2022 (when the revised grading system began) was relatively higher than in the previous two years (2019 and 2021) in the old grading system. This suggests that the revised grading system did not negatively impact the pass rate of students.

The pass rate of students in national exams in the three years (2019, 2021, and 2022) varied according to the learning cycle/level, subject, gender, school ownership, and type of school (boarding and day), among others. However, it should be noted that for A-level, TTC, and TVET, there was no consistency in the pass rate between male and female students over the three years. While pass rates among female students were generally higher than male in some subject combinations and trades, they were lower in others.

At the primary school level, the pass rate in private schools was relatively higher than in public and Government aided schools. However, in 2022, in which the revised grading system began, the pass rate was relatively higher than in the two previous years (2019 & 2021). Specifically, in 2019 and 2021 the pass rate stood at 81.6% and 81% respectively while in 2022, it increased to 90.69%. Disaggregated by gender, the pass rate of girls was relatively higher than that of boys. Overall, Kinyarwanda had the highest pass rate across all three years and Mathematics had the lowest. The pass rate in rural schools was relatively lower than the pass rate in urban schools in 2021 and 2022. On average, the pass in 2021 was 75.12% in

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1 American Psychological Association. (2020). Publication manual of the American Psychological Association (7th ed.). https://doi.org/10.1037/0000165-000

rural schools and 86.90% in urban while in 2022, it was 82.08% in rural schools and 89.48% in urban.

With respect to O-level, students' pass rate in all the subjects examined was relatively consistent over the three school years. It stood at 86.6% in 2019, 86.3% in 2021, and 85.7% in 2022. When disaggregated by gender, the trend of pass rate was similar, but the pass rate among girls was relatively higher than among boys. The average pass rate for all the examined subjects at O-level significantly increased over the three years. It rose from 56.8% in 2019 to 67.1% in 2021 and to 93.3% in 2022. It is worth noting that while there was a substantial increase in the pass rate in all the examinable subjects across the three years, the mathematics subject remained to have the lowest pass rate. The highest pass rate in each of the three years was observed in Kinyarwanda. In contrast to primary school leaving exams in which the pass rate among girls was predominantly higher than boys across the three years, in O-level exams, the pass rate among boys in all exams was relatively higher than girls in the three years.

For A-level, the general pass rate of candidates who sat for national examinations varied. In 2019, it stood at 89.5% and reduced to 85.3% in 2021. However, in 2022, it sharply rose to 94.6%. Among the core combination subjects for humanities, the highest average pass rate was in Kiswahili (87.8%) and the lowest in French (74.56%) across the three school years. Similarly, for science core combination subjects, Biology had the highest average pass rate (91.58%) while Mathematics had the least average pass rate (66.76%). General Studies and Communication Skills, which is a non-core subject had the overall highest pass rate in the three years (2019, 2021 & 2022). With respect to gender, the pass rate of male students was relatively higher than that of female students in all the A-level examined subject combinations. In addition, for A-level, the type of school (boarding and day) was considered and it was found that, in general, the pass rate in boarding schools was relatively higher than a day.

Regarding TTCs, the pass rate in year three TTC national examinations was relatively consistent over the three school years considered (2019, 2021, and 2022), with no significant difference across the years. In 2019, the proportion of students that passed was 98.2% while in 2021 and 2022 it stood at 99.7% and 99.9% respectively. Nonetheless, there were variations in pass rate in the examined TTC subjects over the three years. The subject with the lowest average pass rate was French (37.5%) while Foundations of Education, Mathematics, Entrepreneurship, Teaching Practices, English, and Kinyarwanda had the highest average pass rate (over 95%). It is worth noting that the pass rate in some subjects was 100%. This was evident in 2022 in subjects such as English, Kinyarwanda, Integrated Sciences, and Entrepreneurship.

The pass rate in other TTC subjects in 2022, when the revised grading system started was generally outstanding ranging from 94% in Chemistry to 100% in Economics, Geography, History, and Creative Performance. In fact, the average pass rate was 98.80%. There was no significant difference in pass rate between female and male students in other TTC subjects. For instance, in subjects such as Creative Performance (Music & Fine Arts), Economics, Geography, History, Religious Education, Social Studies, and Teaching Methods, the pass rate of female and male students was either the same or very close to each other.

With respect to TVET, there were 34 trades in all three years (2019, 2021, and 2022), and each trade consisted of 6-10 subjects in which students were examined at the national level. Overall, the pass rate in TVET trades national examinations across the three years was very good. In 2019, the general pass rate was about 91% and in 2021 and 2022, it increased at nearly the same rate, that is, 97% and 98 % respectively. Another trade of Software programming and Embedded Systems was introduced in 2022, with 17 subjects and the pass rate in 16 of them was 100%, while in the other trade, it stood at about 88%. The trades with the highest average pass rates across the three years were: Graphics Art trade (99%), Ceramics and Sculpture trade (99%), Interior design trade (98%), and Welding (98%). The lowest pass rates were observed in Food and Beverage Services trade (70%), Customs and taxations operations trade (76%), and Accounting trade (76.7%). In addition to the trades, the results of 6 cross-cutting subjects were also analyzed and the highest pass rate was in Kinyarwanda (97%) while the lowest was in Kiswahili (24%).

In a nutshell, there was a progressive improvement in performance in national examinations for primary, O-level, A-level, and Teacher training colleges as well as TVET trades over the three years. In fact, in 2022, the general pass rates of students in exams at all levels were significantly higher compared to 2019 and 2021. The implication is that the new grading system had no impact on student failing or passing. Despite the progressive improvement in general performance at different levels, as earlier mentioned, in some subjects and trades, the performance was poor and there were variations, especially pertaining to location (rural-urban), ownership of school (public, district, private, and government aid), and gender.

4. General findings for each learning cycle/level

This section presents the general findings of the national examination results analysis for basic education learning cycles (P6, S3, & S6), year 3 of TTCs and TVET for 2019, 2021, and 2022.The analysis provides an overview of the general pass rate trends, highlighting the number of candidates who registered for the national exam, the number and percentage of candidates who sat for the exam, and the number and percentage of candidates who passed.

4.1. General pass rates in Primary National Examination in 2019, 2021 and 2022.

The table below presents the total number of primary school pupils registered in 2019, 2021, and 2022, those who sat for national exams as well as the number and percentage pass rate in the three years.

Table 1: General Pass Rates in national examinations for Primary Six

Candidates	2019		2021		2022	
	Number	%	Number	%	Number	%
A candidate registered for the national exam	286,721	100%	255,930	100%	230,158	100%
Candidates who sat for all national exams	278,456	97.1%	250,453	97.9%	227,720	98.9%
Candidates who passed	**227,264**	**81.6%**	**207,315**	**82.8%**	**206,286**	**90.69%**

The table above provides an overview of the overall pass rates in primary six students' national examinations over a period of three years (2019, 2021, and 2022). It also highlights the number of registered candidates and those who actually sat for the exams.

The data reveals a slight decline in the total number of registered candidates, dropping from 286,721 in 2019 to 250,453 in 2021 and further to 230,158 in 2022. Similarly, the number of candidates who participated in the exams also decreased over the three-year period, going from 278,456 in 2019 to 227,720 in 2021 and then increasing to 250,453 in 2022.

Pertaining to the pass rates, the data demonstrate consistently high performance. In 2019, the pass rate stood at 81.6%, which slightly increased to 82.8% in 2021. Notably, in 2022, there was a significant improvement as the pass rate increased to 90.69%. This substantial increase in the pass rate indicates an improvement

in student performance, particularly in 2022 when the new grading system was implemented. It may be worthwhile to conduct an investigation to explore the potential factors contributing to this notable improvement

4.2 General pass rates in Ordinary Level (S3) National examination in 2019, 2021, and 2022

The general pass rates in the Ordinary Level (S3) National examination for the years 2019, 2021, and 2022 are presented in the table below.

Table 2: General pass in ordinary level national examinations

Candidates	2019		2021		2022	
	Number	%	Number	%	Number	%
Registered candidates	115,414	100%	122,536	100%	127,589	100%
Candidates who sat for all exams	114,426	99,1%	121,626	99.3%	127,078	99.6%
Candidates who passed	99,122	86,6%	105,008	86.3%	108,566	85.4%

As depicted in the table above, there was an increase in the total number of registered candidates from 115,414 in 2019 to 122,536 in 2021 and further to 127,589 in 2022. The number of candidates who took all the exams remained relatively stable with insignificant differences across the three years. The percentage of candidates who successfully passed the exams showed consistent patterns throughout the years. In 2019, the pass rate stood at 86.6%, followed by a slight drop to 86.3% in 2021, and a further decline to 85.4% in 2022. Overall, the findings indicate a significant rise in the number of registered candidates and those who completed all exams over the three years, while the pass rates displayed relatively consistent trends with minor variations.

4.3 General pass rate in Advanced level National Examinations in 2019, 2021 and 2022

At the advanced level, national examination results for 14 subjects were analyzed. The table below provides detail of the general pass rates for the three years.

Table 3: General pass rate for all national examinable subjects at Advanced Level (Senior Six)

Candidates	2019		2021		2022	
	Number	%	Number	%	Number	%
Registered candidates	50,576	100%	47,638	100%	47,606	100%
Candidates who sat for all exams	46,861	98.6%	47,399	99.5%	47,379	99.6%
Candidates who passed	41,944	89.5%	40,435	85.3%	44,818	94.6%

The table above illustrates the overall pass rates of Senior Six students in the national examinations over a span of three years (2019, 2021, and 2022). According to the table, there was a slight decrease in the total number of registered candidates from 50,576 in 2019 to 47,638 in 2021, and further to 47,606 in 2022. However, the number of candidates who sat for all the exams remained relatively consistent across the three years, with a minor difference.

In terms of the pass rates in the national examinations, the data in the table shows that it was generally high. The pass rate in 2019 stood at 89.5% but slightly reduced to 85.3% in 2021. However, in 2022, the pass rate significantly increased to 94.6%. These findings suggest that there was a considerable improvement in student performance in national examinations, particularly in 2022.

4.4 General pass rates in TTC national examinations

The table below presents the total number of TTC students who registered for national exams, the number of students for sat for exams, and those who passed.

Table 4: General TTC Students' pass rates in 2019, 2021 and 2022

Candidates	2019		2021		2022	
	Number	%	Number	%	Number	%
Registered candidates	4251	100%	2,988	100%	2,907	100%
Candidates who sat for all exams	3,938	92.6%	2,988	100%	2,895	99.6%
Candidates who passed	3,869	98.2%	2,980	99.7%	2,892	99.9%

As presented in Table 4, the number of registered candidates for the TVET national exams in 2019, 2021, and 2022 was 4,251,2988 and 2907 respectively. However, the actual number of students who sat for all exams was 3,938, which accounted for 92.6% of the registered candidates. In 2021, all candidates (2,988) registered and sat for the exams, and this trend almost remained the same in 2022 with a slight decrease to 2,907 candidates (99.6% of registered candidates).

Regarding the pass rate, there was no significant difference observed across the three years. In 2019, the pass rate stood at 98.2%, while in 2021 and 2022, it was 99.7% and 99.9%, respectively. These statistics indicate the consistently high performance of students in the TVET national exams, as evidenced by the consistently high pass rates.

4.5 General pass rate in Level 5 TVET National Examinations

This section presents the results of the analysis of national examinations for TVET trades for 2019,2021 and 2022. The analysis focused on the general pass rate.

Table 5: General pass in all TVET trades National examinations

	TVET level five					
	2019		2021		2022	
Number of students	No.	%	No.	%	No.	%
Number of registered students	19,370	100%	22,686	100%	21,340	100%
Number of students who sat for all exams	19,231	99.3%	22,523	99.3%	21,227	99.5%
Number of students who passed	17,530	*91.2%*	21,768	96.6%	20,752	*97.8%*

As can be seen in Table 5, in 2019, there were 19,370 registered candidates, which increased to 22,686 in 2021. However, the number decreased to 21,340 in 2022. Generally, across all three years, the percentage of candidates who sat for all exams remained consistently high, ranging from 99.3% to 99.5%. Concerning the pass rate, in 2019, 17,530 candidates successfully passed the exam, accounting for 91.2% of all candidates who took the exam. This percentage notably increased to 96.6% in 2021 and further rose to 97.8% in 2022.

5. Conclusion and Recommendation

This section provides conclusions and suggests recommendations based on the findings of the analysis of the national examinations for the three school years (2019, 2021, and 2022).

Conclusions

In conclusion, there was a progressive improvement in performance in national examinations for primary, O-level, A-level, Teacher training colleagues as well as TVET trades over the three years. In fact, in 2022, the general pass rates of students in exams at all levels were significantly higher compared to 2019 and 2021. The implication is that the new grading system had no impact on student failing or passing. Despite the progressive improvement in general performance at different levels, as earlier mentioned, in some subjects and trades, the performance was poor and there were variations, especially pertaining to location (rural-urban), ownership of school (public, district, private, and government aid), and gender. Based on the findings of the analysis, the following recommendations are made:

Recommendations

Based on the findings of the analysis, the following recommendations are made:

- The analysis of national examination results for each learning cycle elicited pertinent information regarding pass rate and student performance in specific subjects. We recommend that NESA should have a long-term plan for adopting and implementing this practice every year.

- We recommend that in the future, NESA should plan so that future, end-term III exam results are also analyzed and comparisons made with national exam results to provide a clear picture of student performance. It can also help teachers to evaluate the effectiveness of their teaching strategies.

- Despite the progressive improvement in general performance at different levels, as earlier mentioned, in some subjects and trades, the performance was poor and there were variations, especially pertaining to location (rural-urban), ownership of school (public, district, private, and government aid) and gender. It is, therefore, recommended that NESA, in collaboration with partners should conduct a comprehensive study to identify the factors that have contributed to disparities in performance by location, gender, district, and school ownership. The findings of the study could serve as the basis for the development of evidence-based strategies that can enhance the quality of teaching and learning thereby addressing disparities between provinces, rural and urban schools. The study can also unveil best practices in high-performing districts and schools that can be adopted and implemented by those that perform poorly.

- Dissemination of the report of national examination analysis using different channels such as the NESA website and e-platform, media, and meetings with partners/stakeholders.

6. References

American Psychological Association. (2020). Publication manual of the American Psychological Association (7th ed.). https://doi.org/10.1037/0000165-000

Ministerial guidelines governing comprehensive assessment for primary, secondary (o' level and A' level), TTCs, and TVET Schools

The Rwanda statistical yearbook 2019 & 2021

Rwanda Ministerial Order on national examination guidelines

Presidential Order N° 121/01 of 15/10/2020 establishing national examination and school Inspection Authority