# NASOMA Progress Report

## 2024

**camara education Tanzania**

A collaboration between PO-RALG, MoEST and Camara Education Tanzania for E-Learning centre setup in 75 public secondary schools across 11 regions between 2024 and 2028.

# About Camara Education

Camara Education Tanzania is a non-profit organization using technology to improve educational outcomes and empower youth.

Established as a Non-Government Organization (NGO) in 2012, we are part of Camara Education, an international educational organization working in 5 African countries impacting over 3.6 million learners.

Camara's aim is to improve education outcomes by using technology from the pre-primary level to higher learning institutions. We design and implement scalable and sustainable programs combining a holistic package of products and services (hardware, software, content, and warmware) that address the needs of those we serve.

Our mission is to transform education using technology to empower disadvantaged learners. We envision a world whereby technology-enabled education is accessible to all.

Camara Education believes that quality education and youth empowerment are the greatest tools to alleviate poverty. Over the past 9 years, Camara Tanzania has worked with more than 550 education institutions, trained over 3500 teachers, and installed more than 5500 computers which impacted over 180,000 learners.

# Background

⬛ **The Problem we are addressing**

By 2035, Africa will have the largest workforce in the world. Investing in education is one of the best ways to make the most of this opportunity and ensure that the future workforce has the skills and capacity to progress the country's economy. Digital transformation can only lead to rapid economic growth if countries invest in digital infrastructure and human capital. Youth need to be prepared for the digital economy and the future of work, and teachers play a crucial role in achieving this.

As in many developing countries, the education sector faces many challenges within Tanzania, including funding, infrastructure, and human resources. Despite great efforts by the government and teachers in schools, the quality of education provided to students is often below the desired standards. Once qualified, teachers rarely receive opportunities for further training and capacity development throughout their careers, and this can typically lead to ineffective teaching practices and poor performance in schools (Mbunda, 1998).

It has been noted that teachers with sufficient knowledge, skills, and confidence can be an important catalyst for introducing and effectively using technology in schools. Unfortunately, the limited ICT capacity of many teachers has been identified as a major impediment to effectively integrating technology into schools in Tanzania. Limited ICT skills and knowledge impact the teacher's ability to use ICT resources to support curriculum delivery and students' opportunities to develop their digital skills in school. Additionally, many schools lack adequate ICT resources and tools, which could simplify the journey of adopting technology into teaching & learning.

# Background

### 🖥 The Problem we are addressing

With the advent of the knowledge era, teacher education needs to prepare teachers to face changing technological contexts and model pedagogies for better learning. However, not much attention has been paid to Teacher Professional Development.

In many developing countries, teachers receive no additional professional support for a long time, leading to ineffective teaching and, hence, poor school performance (Mbunda, 1998). Pointing out the importance of lifelong learning for teachers, Mbunda states, "Pre-service training alone is not enough, whether one acquires a teacher certificate or a first degree. One aspect of technology that can provide such professional development programs is e-learning. ICT has the potential to prepare students for life in the 21st century.

By 2035, Africa will have the largest workforce in the world. Investing in young people's education is the best way to take advantage of this opportunity. Tanzania's education system should prepare students for the digital economy and the future of work. Despite government and other stakeholders' efforts to enhance our education system, few initiatives have specifically focused on ICT skills among teachers and students, rather, they concentrate on infrastructure and connectivity.

In Tanzania, as in many other developing countries, education is highly dependent on teachers. Our monitoring & evaluation report over the past 3 years indicated that teachers and students had limited ICT skills despite having access to the ICT lab within the school.

# Nasoma Project

## Project Overview

For the past 15 years, Camara Education has worked to enhance the integration of ICT into teaching and learning and improve educational outcomes across 5 African countries. In collaboration with the Ministry of Education Science and Technology (MoEST) and the President's Office for Regional Administration and Local Government Authorities (PO - RALG), Camara Education Tanzania aims to equip 75 public schools with fully furnished computer labs through the Nasoma Education Project.

This project will enable teachers to integrate ICT into teaching and learning while allowing students to acquire ICT skills and access digital learning resources. Schools in this project will receive intensive training from MoEST and technical support from PO-RALG, while Camara will provide ICT equipment and lab setup. The project focuses on three key areas;

- Improve ICT infrastructure and systems.
- Strengthen the capacity of teachers and school leaders
- Building a sustainable model for supporting ICT in project schools.

Each of these project components builds upon one another to maximize outcomes.
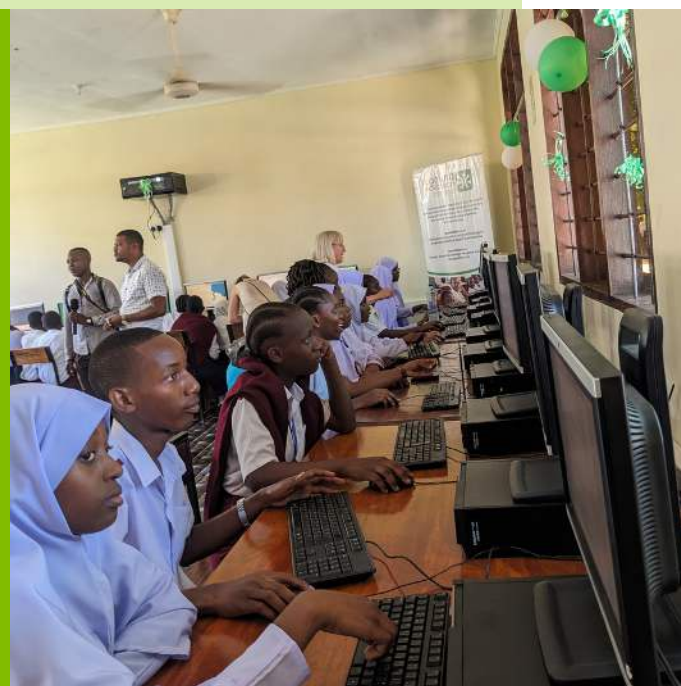
## Schools Selection Creteria

- Government Secondary School
- Within 11 regions (each education zone)
- Schools with Qualified ICT Teachers.
- Prioritizing schools registered for the ICS national exam.

## Project Approval

- Engagement & Discussion with MoE & PO-RLAG.
- MoU Between MoEST, PO-RLAG & Camara.
- School's Approval Letter from PO-RLAG.
- REO & DEO Meeting before Kick-off.

# Project Design

**Addressing Edtech Integration Challenges in Seconary Schools**

The project aims to scale and strengthen Edtech integration while building a sustainable model to ensure long impact for the beneficiary schools. This is achieved through four major project components outlined below:



## E Learning Rooms Preparation

- Room Renovation (Door, Paint etc)
- Power & Network Installation

## Equipment Installation & Configuration

- Computers Installation
- Server & Network Configuration
- Upgrading Existing ICT Equipment

## Capacity Building & Stakeholders Engagement

- Teachers Capacity Building
- Edtech Leadership Workshop
- Students Awareness Training
- REO, DEO & Other Officials Meeting

## Sustainable Technical Support & Retraining

- Remote Technical Support
- Maintenance & Repair
- Refresher Training
- Local Technician Engagment

# Project Coverage



## Coverage
**11 Regions**

One from each Edu. Zone

## Beneficiaries
**75 Sec Schools**

15 Schools Annually

## Project Duration
**5 Years**

From 2023 to 2028

# Project Luanch

📺 **A Brief Story About The Portfolio**

Provide an explanation of the general profile of the products we have. Arrange information about our products/services in a systematic and fact-based manner. Also express our success stories and also the pride in the products/service that done.

# Completed Activities



### 01 E-Learning Center Setup

By June 30, we have worked with schools to prepare 8 E-learning centres out of 15 planned for this year. Each centre has a local area network, sufficient power infrastructure to support 26 computers.

### 02 Equipment Installation

We installed 25 computers in each of the 8 schools, a local resources server for offline learning materials and a platform for teachers to add digital resources. The server also monitors computer usage via the local area network.

### 03 Capacity Building & Stakeholders Engag.

We have trained a total of 147 teachers, 57 school leaders and 359 students from 8 schools. We have engaged 27 stakeholders from village, ward, district to regional level. Stakeholders engagement is ongoing remotely via emails and phone calls.
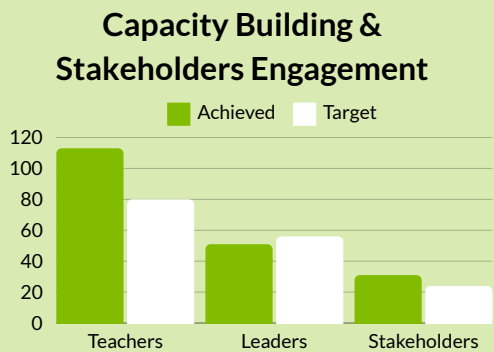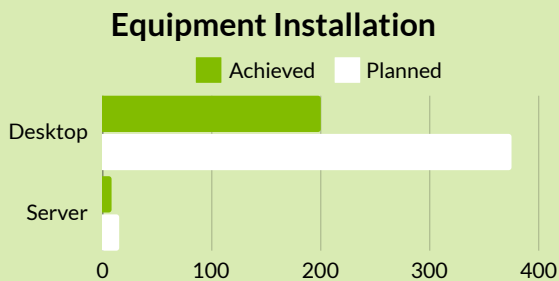
### 04 Technical Support & Retraining

We have provided ongoing remote support to all 8 schools, visited three for on-site technical support, and swapped 7 devices (mice, keyboards, etc.) with technical faults. All 2024 schools will receive their first refresher training in 2025.

# Activities Summary

🖥 **Summary of Completed Activities by 30 June 2024**

Below is a summary of completed activities by 30 June 2024, indicating planned and completed activities. The daily has been mainly caused by school delays in setting up their E-learning centres.

### Equipment Installation

Legend: ■ Achieved □ Planned

Desktop
Server

0    100    200    300    400

### Capacity Building & Stakeholders Engagement

Legend: ■ Achieved □ Target

120
100
80
60
40
20
0

Teachers    Leaders    Stakeholders

**Trained Teachers**
**94,43%**

🔲 Trained Leaders
**$ 192.1 M**

**Engaged Stakeholders**
**94,43%**

# E-Learning Center Setup

🖥 **Renovation, Power & Network**

As described in the MoU, PO-RLAG will support schools in ensuring they have the e-learning rooms prepared as per Camara standards. Thus, We informed all schools about the requirements for the E-learning centres from windows, doors, furnishers, ventilation, and power to ensure the room is ready for equipment installation.

We supported schools through the process, giving them guidance and advice on what and how the E-learning centre should be prepared. Some schools struggled due to limited financial resources, while others struggled due to poor support from school leadership. We supported some struggling schools with power installation to help them speed up their preparation.

Once the centre is ready, we verify through photos and video clips the school shares; we move on with local area network installation to allow computers to communicate and set up the centre ready for the internet. We also installed ceiling fans in each e-learning centre, ranging from 2 to 4 per school, depending on size and ventilation within the centre.

| Switch Sockets | Netwrok Outlet | Network Switch | Fans |
|---|---|---|---|
| **208** | **208** | **16** | **19** |
| Double Switch | LAN Outlet | Two for each school | Min 2 Per School |

# Equipment Installation

### 🖥 Client Computers & Server

In each school, we installed 25 desktop computers and one local resource server. These computers are loaded with offline apps for different subjects, such as dictionaries, periodic tables, and solar system apps for students and teachers. The server loads different systems as well as learning resources. Such as notes, books and videos.



## Server Functions within The E-Learning Center



### ☑ Camara Portal

Camara portal contains supplementary notes in PDF format, videos, and articles that can be accessed offline. It allows teachers to upload resources and track how students are accessing them. Camara portal simplifies access to learning resources within the school for both teachers and students.

### ☑ Computer Usage Tracking

The computer Usage tracker monitors computer usage determines whether educational content is fully utilized and sends data to the server. The server sends a report to the online dashboard as part of project monitoring and evaluation.

### ☑ Classroom Management

Installed in the server, this system allows teachers to view and control students' computer screens. It offers features such as screen broadcasting, remote control, remote shutdown, and messaging, which can be useful to facilitate teaching and ensure students are on task.

# Stakeholders Engagment

Realizing the important role of stakeholders, we engage them at different levels, from the project design launch to implementation. Before equipment installation, we scheduled meetings with regional, district, and ward education officers and engaged the school board and other local government officials via training and meetings. After completing capacity-building sessions, we share a brief report with regional, district, and ward education officers and keep them updated throughout the project implementation. We also engaged Councillors, the chairman of the council, and members of the parliament to ensure they provide more support and follow-up to project schools.

## National Level
- MoEST
- PO-RALG
- Tanzania Teachers Union
- Min of Communication

## Regional
- Meeting with REO/RAS before school visit
- Regional report shared to all REO

## District
- Meeting with DEO/DED before school visit
- School report shared to DEO & REO

## Other Stakeholders
- School Board Chair & Parents
- Councillors & Chairman of the Council
- Members of Parliament
- Ward Education Officer

# Capacity Building

## For teachers and students

For effective ICT integration in teaching and learning, we have conducted 20 hours of face-to-face training for teachers focusing on different ICT topics. The training was hands-on, ensuring teachers acquired basic digital skills and gained confidence and tactics to use ICT as an integral part of their teaching rather than as an adjunct. Our focus was ensuring teachers understand the basics of ICT and basic technology integration in teaching and learning.

## Topics covered on teachers training

- Role of ICT in education
- MS Office (Word, Excel, PowerPoint)
- Offline Learning resources loaded on Computers
- Integration of ICT in teaching and learning (TPACK Framework)
- Basic Troubleshooting & Preventive Maintenance
- Basics of Internet & Email

## Students ICT Awareness Session

Students were also engaged through a two-hour session focused on ICT awareness and utilising offline learning loaded on computer resources for their learning.

Students learned about the importance of ICT through theoretical and practical sessions and interacting with educational resources like the Camara portal.  Justina Jastin, a form III student from Aboud Jumbe expressed her gratitude, stating, "I deeply appreciate the generous donation of computers to our school. These devices enable us to explore, create, and learn innovatively."
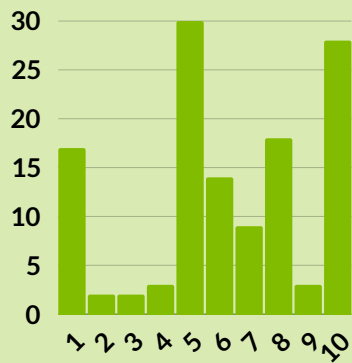
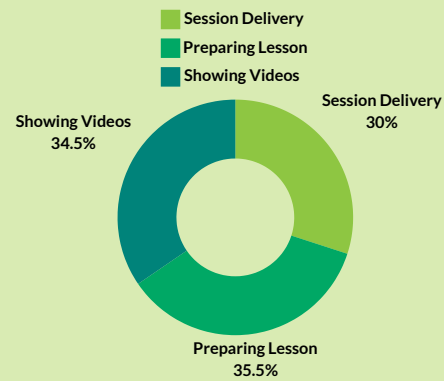| Trained Teachers | Trained Students |
| --- | --- |
| **133** | **943** |

# Baseline Assesment

Before training, we conducted a baseline assessment of teachers, students, and school leaders to understand their attitudes, experience, ICT skills, and challenges. They filled out closed-ended questions on the survey form. I've shared below the results of our findings.
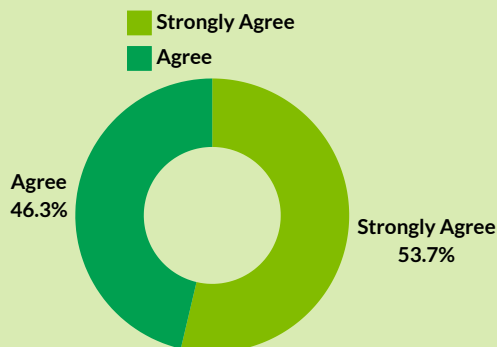
## ICT Confidence (1 to 10)
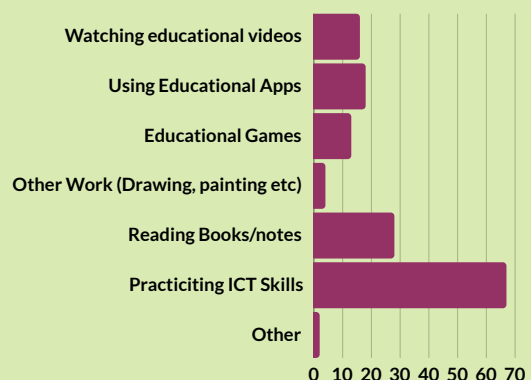


## Use of ICT equipment when teaching?

- Session Delivery
- Preparing Lesson
- Showing Videos



Showing Videos
34.5%

Session Delivery
30%

Preparing Lesson
35.5%

# Students Baseline

## Using a Computer makes my learning easier ?

- Strongly Agree
- Agree



Agree
46.3%

Strongly Agree
53.7%

## Which activity do you prefer to do when you are in Computer lab?



Watching educational videos
Using Educational Apps
Educational Games
Other Work (Drawing, painting etc)
Reading Books/notes
Practiciting ICT Skills
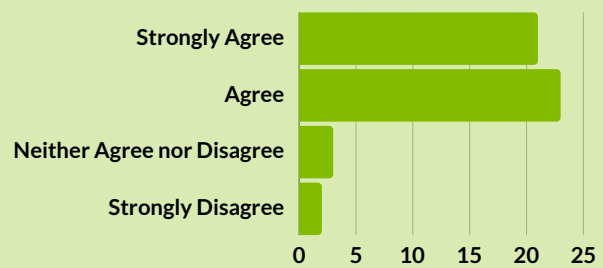Other

0  10 20 30 40 50 60 70

# Training Feedback

At the end of each training session, we conducted a feedback assessment to understand training effectiveness and identify where we need to improve in upcoming training,

## Did you benefit from training?

- Yes, very helpfu
- Yes
- Somehow

Somehow
4.6%

Yes
20.7%

Yes, very helpfu
74.7%
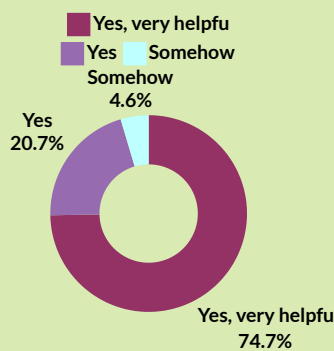
## I gained more confidence in ICT after training

| | |
|---|---|
| Strongly Agree | |
| Agree | |
| Neither Agree nor Disagree | |
| Strongly Disagree | |

0   5   10   15   20   25

Teachers who need additional ICT equipment

**48%**

**12 : 31**

Teachers who use videos for lesson delivery

## Do you need additional training?

- Yes
- No

No
2%

Yes
98%
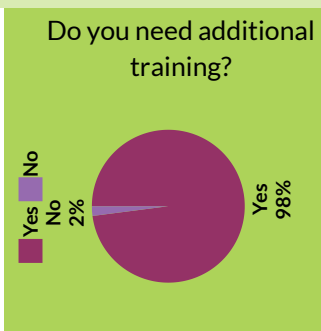
Teachers who will recommend other teacher to attend ICT training conducted by Camara.

**98%**

Head teachers who reported seeing improvement in the use of ICT after phase one.

**95%**

# Technical Support

## Learning and Growing Together

For further engagement and support to teachers, we have created a teachers' community of practice where they engaged, learn and share different issues about ICT in education. This is achieved via a WhatsApp group with 135 teachers, phone calls, emails, and weekly Zoom training on different ICT topics.

We have a planned schedule for each day and plan to engage further with teachers via other platforms they are currently using. Both teachers and Camara staff share different tips, and articles, and respond to teachers' questions about the use of ICT in education. Our weekly zoom sessions on Friday provide additional training to teachers based on the topic of their choice.



## Weekly Schedule

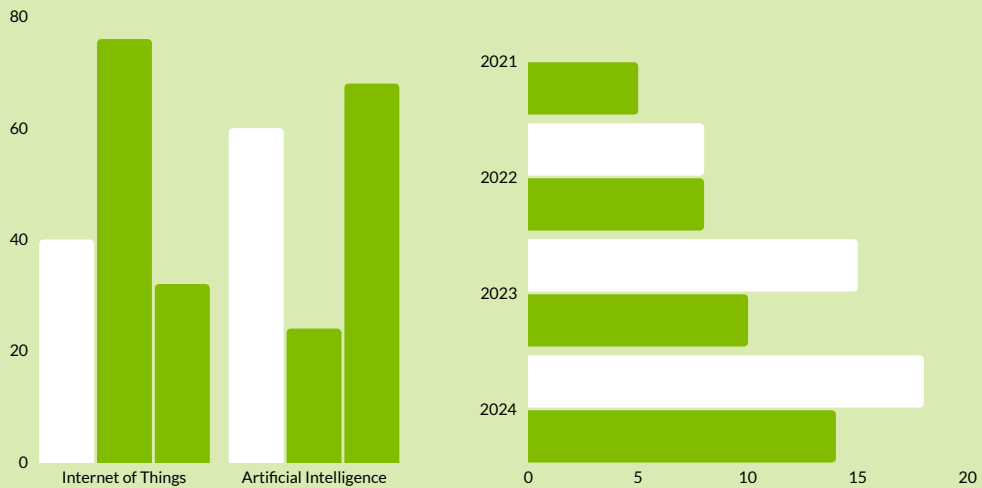| Monday | Tuesday | Wednesday | Thursday | Friday |
|--------|---------|-----------|----------|--------|
| Questions & Answers | Tips, Articles & Quotes | Discussion about ICT in Education | Weekly Updates from Schools | Training via Zoom or sharing a video. |

# Usage Data



Describe how to monetize, who your customers are, distribution channels or fee structure. The goal is to get an idea of how this business will survive your product or service and tell how your company will make money and achieve its goals.

| Yearly Developing | The Ratio |
|---|---|
| **67% - 82%** | **1:4 - 1:3** |

# Testimonials



**Aaron Loeb**

Chief Executive Officer
& Founder

**Olivia Wilson**

Chief Marketing
Officer

**Chidi Eze**

Chief Operating
Officer

# Challenges

- **Compatibility**: Most schools have old computers, hence newer programs, and operating systems can not be installed.
- **Power outage**: This is a challenge as it leads to unavailability of computer usage and equipment damage when power resumes.
- Improper maintenance of computer labs. Schools need to well maintain the computer lab with its equipment to ensure they last longer.
- **Utilization:** Some schools have minimal use of the labs for students. There are no clear timetables for ICT classes or qualified ICT teachers.
- **Theft**: Improper management of the device in some schools led to the theft of computer parts like RAM, HDD, and faults on mice and keyboards.
- **Computer to students ratio**: The number of computers is small compared to the number of students.

# Recommendations

- **Qualified ICT Teachers**: We request qualified ICT teachers to be allocated in all schools with 10 or more computers so that students can acquire more ICT skills and register for computer and information studies national exam. We have observed that schools with qualified ICT teachers have better usage of ICT compared to other schools.
- **District ICT Officers** can play a vital role in ensuring the sustainability and durability of ICT equipment in schools. We recommend that they engage more with schools, visiting them at least twice a year for maintenance & technical support.
- **E-Waste collection and recycling** to ensure ICT equipment don't end on landfill. Camara request approval and guidance from TAMISEMI so that we can collect e-waste in all schools through our e-waste partner Chilambo & General. There will be no cost to schools, and the recycler will provide a certificate after collection.

# Next Steps

We are planning to commence the second phase of the project in the second week of September 2022 focusing on additional capacity building and collecting end-line assessments.

Our team will spend two days in each school, whereby we will address other technical challenges encountered by teachers since our last visit. This will be the final visit for this project, and we will continue to support the schools via a community of practice as well as other remote means of communication.
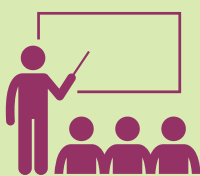


## Remaining Schools

We are planning to conduct a minimum of 8 hours of training for teachers based on the topics they suggested on the midline assessment. This training aims to address specific training needs for teachers from each school.

## Stakeholders Engagement

We aim to collect end-line data from teachers, students, and school leaders via interviews and questionnaires. We will also collect computer usage data that will allow us to understand how computers have been utilized.

## Final Project Report & Review Meeting

The project will end on 11th November, and we expect to submit the final project report by the first week of December. Camara will continue to support all project schools remotely after the project.

# Thank You

## Because, we're here to help

We would like to acknowledge and thank everyone for the support in facilitating the Nasoma Project in all regions we visited from the start-up to where we are now. We look forward to further engaging in facilitating the integration of technology in teaching and learning for improved educational outcomes.

Special thanks to ministry officials, regional & district education officials, district ICT officers, head teachers, ICT teachers and last but not least teachers and students from all forty schools.

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## Total Available Devices in All Schools

| Name of Region | Region | District | CPU | Monitor | Server | Switch | Mice | Keyboard |
|---|---|---|---|---|---|---|---|---|
| Arusha | | | | | | | | |
| Kilimanjaro | | | | | | | | |
| Manyara | | | | | | | | |
| Dodoma | | | | | | | | |
| Tanga | | | | | | | | |
| Morogoro | | | | | | | | |
| Iringa | | | | | | | | |
| Njombe | | | | | | | | |
| Mbeya | | | | | | | | |
| Mwanza | | | | | | | | |
| Shinyanga | | | | | | | | |
| Mtwara | | | | | | | | |
| Pwani | | | | | | | | |
| Ruvuma | | | | | | | | |
| **Total** | | | | | | | | |

## Training Data From All Schools

| Name of School | Region | District | Teachers Trained | Leaders Trained | Students | ICT Club Members |
|---|---|---|---|---|---|---|
| Mandera Girls  Sec | Pwani | Chalinze | 23 | 10 | 65 | 0 |
| Aboud Jumbe sec | Dar es salaam | Kigamboni | 35 | 6 | 84 | 147 |
| Chinangali sec | Dodoma | Dododma Municipal | 37 | 8 | 54 | 35 |
| Mazinde day | Tanga | Korogwe | 34 | 12 | 151 | 30 |
| Sanjo sec | Mwanza | Misungwi | 48 | 11 | 48 | 30 |
| Nzega sec | Tabora | Nzega | 30 | 7 | 52 | 0 |
| Jamhuri sec | Dar es salaam | Ilala | 21 | 8 | 0 | 24 |
| Diplomasia sec | Dar es salaam | Temeke | 18 | 0 | 0 | 24 |
| Mnadani sec | | | | | | |
| Nyerere sec | Tanga | Korogwe | 24 | 7 | 107 | 0 |
| Tabora Girls | 0 | 0 | 0 | 0 | 0 | 0 |
| Tabora Boys | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | |
| **Total** | **40** | **222** | **56** | **8** | **125** | **73** |

# Link to Training Attendance

# Link to Schools Album

- 
- PHOTOS FROM ABOUD JUMBE SECONDARY SCHOOL
- 
- 

# Link to Schools Report

- 
- PHOTOS FROM ABOUD JUMBE SECONDARY SCHOOL
- 
-