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The Comparative study of ICT equipment preventive maintenance with Corrective maintenances: In case of Wolaita Zone

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Abstract— *In most rural and semi-urban, people purchasing ICT equipment per each budget years. And after purchasing the devices they should have assign budget to repair fix, maintain the devices. In our study we are focusing on the types of maintaining and feasibility of the type of maintenances. In this study we have done our project work for the last three years in preventions rather than repairing the broken parts. And the study is helpful for the community of the Semi-urban in Wolaita Zone, Ethiopia. In our catchments area of the project we have implemented in more than 360 staffs of the district or Woreda. So, we are focusing to show the differences and effectiveness of the preventive maintenance rather than corrective maintenance for the ICT equipment.*

Keywords— ***Corrective maintenance, ICT equipment, machine, preventive maintenance, Repair, Woreda.***

I. INTRODUCTION

Maintenance can represent a significant portion of the cost in asset intensive organizations, as breakdowns have an impact on the capacity, quality and cost of operation[1]. ICT equipment describes various steps to keep your electronic machine functioning at an optimal performance level from a software and hardware point of view.

ICT Equipment Preventive Maintenance is a schedule of planned maintenance actions aimed at the prevention of breakdowns and failures for the ICT Equipment like printer, Fax, Photocopy, computer hardware or software and others to help ensure it continues to operate properly. In Remote Areas cannot afford for their technology to fail them. Even a short amount of computer downtime can lead to a huge loss of productivity and information, not to mention patience[2]. In order to ensure you are keeping your computer firing on all cylinders the same things for all ICT equipments could be happened. We have prepared very essential cures for the failure of devices .this way is also the best maintenance way in ICT. This types of maintenance we had implemented in our community for the last 3 years and the product is really valuable as based on the feedback we got from the different offices of Wolaita Zone rather than ICT equipment corrective maintenances. ICT equipment Corrective maintenance is defined as the maintenance performed to return equipment to proper working order. Depending on the context of its use it may refer to maintenance due to a breakdown, or maintenance identified through a condition monitoring program[3].

In general Preventive maintenance is the scheduled maintenance for the machine before failure, but the Corrective as the fixing the machine after failures [4]

And also, Preventive maintenance issues considers the care and handling of the devices in well manner and the corrective is the most errors occurred or happened in the case of miss handling the devices.

In our study we have visited 6 districts out of 15 from the Wolaita Zone, and we communicated with the District/Woreda officers, In each district or Woreda have 24 sectors and they have at minimum computers, copiers, printer, Fax, Plasma TV and etc.. In each sector in one weredas can hold 10% of annual budget for the Maintenance, but they have no awareness how to handle and make the scheduled maintenance to operate the device

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in working conditions. But they are losing data, in case of corrective maintenance, shortages of machine life or durability in mishandling, office job instability, and unreliability in machine, costly by paying the repair parts and professional payment.

II. METHODOLOGY

i. Trainee Selections Methods

We have given the training for selected six(6) known districts/ woreda from the Wolaita namely Bolosso Sore, Damota Woyde, Kindo Koysha, Damota Sore, Damota Pulassa and Ofa Districts. In our project, all sectors that use ICT equipment should have implement preventative maintenance measures. because of the Woredas are most semi urban, remote and less numbers of ICT professionals.

By considering these reasons we had planned to trainee Preventive Maintenance of ICT equipment in the five weredas. The Trainee offered for 24 sectors per Woreda and Per sector we will select 1 Human Resources(HR) and 1 secretary as well as 2 others. Therefore, the training is expected to give 50 trainers per Woreda and the total numbers of trainers for Six selected woredas had been 6*60= 360 trainee from Wolaita zones in 2016/17, 2017/18 and 2018/2019 annual project budget years of Wolaita Sodo University.

The reasons for selecting the HR and office secretary are the office secretary is responsible for the machine she handles and also installing the updated antivirus. And also the HR is responsible to hire the professionals and specify the good ICT equipment specifications to purchase and also maintain.

ii. Machines specifications in our project

The machines that we mentioned in the above Computer, printer, Copier, DSL, Power stabilizer, Scanner, Fax and others are there in each sectors of the Woredas. The expected machines per sectors is at least 20 and above Then; The Woreda expected machine is at minimum 20* 24 =480+ (is the machines from 2 High schools and ICT offices in the total woredas out of 2400:

iii. The Project works:

The training given for the staffs of 300 registered and 60 unregistered from the Wolaita zonal administrations in 6 district/Woredas. Regarding, the preventive maintenance in both hardware and software level for the 15 days in each district. The project budget sponsored by Wolaita Sodo University Ethiopia for the last 3 consecutive research budget years.

iv. Supervisions and feedback

After the end of each training we visited the districts, we collected the feedback before and after.

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III. DISCUSSIONS AND RESULTS

The study implemented by using different methods that we have mentioned in above. To get the results we have given training in the area of topics listed under here for the staffs in the topics under the preventive maintenances. [5]

No	Easily trained the preventive maintenance	Effectively operated trainee out of 360
1	Using the computer account creating, folder creation, and management	300
2	Handling offices and machines properly	200
3	Cleaning your computer hardware.	200
4	Preparing the purchasing machine specifications	100
5	Downloading the latest drivers for your hardware.	200
6	Downloading the latest updates for your computer software.	200
7	Verifying you have the latest anti-virus protection updates on your computer.	200
8	Running disk software utilities such as defrag and Scandisk on your hard drive.	300
9	Deleting unused programs or other files on your computer.	350
10	Switch off and Reboot the machine properly	350
11	Using power stabilizers to stabilize the power	200
12	Creating the suitable places for office machines/ICT derives	250
13	Office layout standard	250
14	Furniture and facility required for the ICT electronics	250
15	Creating the dust free environment for ICT electronics	250
16	Stabilized power usage for the machines	200
17	Installing the softwares, OS and antivirus	250

We have easily trained staffs in each district to take preventive maintenance, therefore they have awareness how to use take the action on the ways of prevention. Based on their feedbacks and our supervisions we found great impact on machine operations, the stability of the machines in the offices of Woreda in Zone.

IV. CONCLUSION

When we compare the preventive maintenance with corrective maintenance; there is a big difference. So, we concluded our study based on the following mentioned advantages over the corrective one.

- ✓ Anybody without maintenance professionals can take the prevention
- ✓ Worthwhile maintenances compared with others.
- ✓ This type of maintenance saves the maintenance cost for each officer.
- ✓ Using the preventive maintenance makes the machine is durable, reliable and stable data in organizations.

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