

Effective Maintenance Culture: A Panacea for Maximum Production in Industries

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Abstract

For industries to meet the objectives for which they were established, the equipment, tools and machines have to be maintained on a consistent basis. It should be noted that effective maintenance that will bring about maximum production in our industries is generally lacking with its attendant consequences on the effective production of items in industries. This paper therefore focuses on effective maintenance culture as a panacea essential for maximum production in industries. The paper discussed the concept of maintenance, maintenance culture, industry, production process, importance of maintenance in industries, problems militating against effective maintenance and consequences of inadequate maintenance in industries. It is recommended among others that industries should employ experts in handling of their equipments so as to be able to detect faults early enough for prompt rectification. Industries should keep relevant maintenance records and documents as this will serve as the beginning of any form of main maintenance programme and industries should make adequate budgetary allocations for the purpose of maintenance.

Introduction

Tools, machines and other facilities such as skilled workers make up the industry for effective production. Some of these facilities are however very expensive to produce and coupled with the fact that many industries producing for public are in a state of financial distress and as such cannot come by most of these equipment, let alone providing the number that will be adequate for their workers. The production equipment alongside machines are constantly used and subjected to other forces that bring about wear and tear (Robert and Thomas, 1991). Based on the foregoing, it becomes important that an industry need to devise a maintenance culture to maintain equipment since out-right replacement may not be feasible Shrivastav (2005). Besides maintenance of equipment, skilled or production workers in our industries are generally known for poor maintenance culture of available facilities especially those provided by the management of industries. In essence, one should not lose the very sight of the fact that the management of the industries, whether small or large, spent a huge amount of fund for the procurement of tools, machines and equipment. This equipment are expected to be used for effective production over a long period of time. Unfortunately, this is not the case, as after short use, they get spoilt, deteriorated and abandoned which leads to the shutdown of the plant, this in turn is a result of a popular syndrome called "Poor maintenance culture".

Shrivastav (2005) explained that maintenance came into focus as a necessary industrial activity that was closely associated with production only after the Second World War. He further maintained that prior to this, maintenance activities, repairs or replacement were carried out when a machine broke down. Accordingly, Andrew, John and Lawrence (1996) revealed that in many sectors of industry, maintenance has been regarded as a necessary evil and often has been carried out in an unplanned and reactive way. They further argued that it has frequently aged behind other areas of industrial management in the application of formal techniques and/or computing technology.

The Concept of maintenance

Maintenance as a concept is widely applied in many different types of industries, organizations and even homes. Maintenance is defined by Okopi and Martha (2006) as any actions or group of actions taken to keep a facility in a good working condition for as long as possible without failing unexpectedly or restore it to its operational state after a failure occurrence. They further stressed that it is a programmed set of actions, activities or processes undertaken to keep anything (equipment, materials or facilities) in an "as new" condition as possible to sustain maximum functionality, guarantee safety, usability and life-span for intended services. Saba (2006) defined maintenance as at the act of taking good care of tools and equipment to prolong its lifespan and to prevent it from sudden breakdown. Atsumbe (2006) described the maintenance as work undertaken to

keep, restore or improve any part of facility and its services to a currently accepted standard to sustain the utility and value of the equipment. From the foregoing analysis, it could be seen that maintenance is not repairing an item and putting it back to service after failure occurrence but it also involves the things you do to avoid damage in order to keep the facilities in service all the time.

Maintenance culture

The term maintenance has already been explained. Nevertheless, Ekenze (1991) opined that maintenance is work undertaken in order to keep or restore every facility to an acceptable standard. Generally speaking, the term "Culture" is the way of life of people. Olaitan (2000) explained that the term culture is a fairly consolidated pattern of learning behaviour of a group of people which are usually transmitted from generation to generation. He further maintained that it is the aggregate of a people's cherished way of life, and the essence of their being as members of the society. Biesanz and Biesanz (1964) see culture as a learning position of human behaviour. The way of thinking, feeling and doing that man himself has developed as part of his environment.

Saba (2006) viewed maintenance culture as an acquired and sustained habit of ensuring tools and equipment are in good condition through maintenance. Orikpe (1994) observed as a system with maintenance as an integral part of its culture makes conscious effort and takes appropriate steps and precaution to ensure that available equipment within the system attained its maximum possible lifespan. A good maintenance culture ensures that machinery function properly even without eliminating depreciation. Olaitan (2000) further lamented that a nation that has cultivated a maintenance culture is therefore that nation that has accepted to speak and practice maintenance as an integral aspect of her philosophy.

Broadly speaking, maintenance can be grouped into three namely: Preventive maintenance, predictive maintenance and corrective maintenance.

In preventive maintenance, attempts are made to prevent the equipment and other facilities from breaking down through regular cleaning, lubricating, painting and servicing. Its financial involvement is lower than other types. In predictive maintenance, what it implies is watching out for danger signals such as unusual noise, danger light indicator, inefficiency of performance etc and arresting the situation promptly before there is any major breakdown. Corrective maintenance involves huge financial expenditure; it often requires the service of experts. Corrective maintenance is employed where there is malfunctioning as a complete breakdown of the equipment, hence it involves major repairs and outright replacement of damaged parts. Preventive maintenance is recommended to avoid total breakdown, though at each stage there is need to carry out appropriate maintenance in order to prolong the useful life of the equipment.

Industry

An industry is an organised group of people working together in order to achieve common business goals, manufacturing industries have two major goals, one is make product that the public need or wants to buy. The other is to sell this product to the public at a profit. Industry can be organised differently according to the need and wishes of the owners. Manufacturing industries are usually organised in one of three ways; as a proprietorship, partnership or a corporation. Proprietorship and partnership are usually small and relatively new industry corporations. However are often huge industry with thousands of workers and employees (Robert and Thomas, 1991).

Andrew et al (1996) explained that industry or factories where products are made and operated by a team of people. The team is made up of managers and skilled workers. The managers are responsible for organising the resource of industries, they plan the product to be made, purchased, raw material, train workers to do the job, organise the production line and sell goods and that skilled worker are responsible for operating the machine accurately and safely. They further outlined the functions of industry to include product engineering, production planning, manufacturing and marketing,

Production process

Production process is the use of machine, tools and skilled workers to make things for use or sale. The term may refer to a range of human activities from handicraft to high technology. But its most commonly applied to industrial; production in which raw materials are transformed into finished

goods on large scales. Such finished goods may be used for manufacturing or producing more complex products such as household appliance or automobiles or sold to wholesaler who in turn sells them to retailers who then sell to item end users i.e. consumers.

Production takes place under all types of economic systems. In a free market economy, production is usually directed toward the mass production of products for sale to consumers at a profit. In a collective economy, production is more frequently directed by the state to supply a centrally planned economy. In free market, economy, production occurs under some degree of government regulation.

In an industry, the production department is concerned with actual production of products. This department co-ordinate the people, machines and materials that are involved in a production run. Production department emphasizes production output, production quality and employee safety.

The need for Maintenance in Industry

The need for maintenance in an industry cannot be over stressed, in that where tools, equipment as well as machines are not functional, production process as well as production of the products will suffer which may consequently lead to the production of the defective products or items. It should be noted that functional equipment will enables industries to achieve their maximum production, but the functionality of the equipment can only be ensured through prompt maintenance and for the industries to attain their maximum production capacity, there is need for the equipment and facilities to be well maintained. By so doing, the longevity of the said facilities and equipment will be enhanced.

Andrew et al (1996) maintained that the need for maintenance in most engineering operation is self evident. Without maintenance, they are of the opinion that plant and equipment used will not survive over the required life of the system without degradation or failure. As a result of this Ekenze (1990) opined that imbibing maintenance culture will produce the following:

- The facilities will be preserved and wastage prevented
- There will be more functional equipment and tools for effective use
- There will be increase in skilled manpower production and economic stability will be promoted
- Will help reduce cost of purchasing new equipment and prevent wastage.

In a similar vein Idiris et al (2005) pointed out that good maintenance culture brings about the following achievement:

- Increase in production
- There will be less importation of new equipment
- Reduction in repairs thereby saving time and money
- Sudden breakdown of equipments is minimized.

Problems militating against effective maintenance

Olaitan (2000) noted that there is lack of maintenance in our homes and factories. He identified some of the factors militating against maintenance culture as follows:

- Lack of data and poor information processing is a handicap to effective maintenance
- Absence of efficient inventory system leads to a frequent shortage of materials and spare parts
- Indiscipline and ignorance on the part of user of equipment often leads to persistent equipment breakdown. In such situation maintenance becomes problematic
- Most establishments have erroneous conception of maintenance as a task meant for technicians. The result is that engineers who possess or should possess expert knowledge and skill consider themselves "too big" for maintenance jobs.

Abdullahi (2000), Oduh (1992) and Okafor (1995) highlighted several factor militating against effective maintenance of equipments and facilities as follows

- Inadequate funding
- Shortage of skill manpower.

- Inadequate incentives in terms of salaries, allowance and mobility of maintenance staff
- Maintenance work for unqualified personnel
- Lack of periodic check of equipments
- Most maintenance personnel were not much involved in purchasing of equipments

Consequence of inadequate maintenance in industry

Onkpe (1994) observed that when there is poor maintenance culture, there will be production of half-baked skilled manpower. However for industry where maintenance is generally lacking, the following will result

- There will be wastage in human and material resource
- Tools and equipments may be damaged beyond repair
- Damaged facilities may constitute hazard in the industry
- Production capacity in the industry will be reduced
- There will be redundancy which may consequently lead to the retrenchment of workers
- Defective items or [products will be produced
- And finally, any industry that lack requisite maintenance culture have now operated outfits

Conclusion

Imbibing maintenance culture for tools, equipments and facilities will go a long way to promoting effective and maximum production of items in our industries. It should be noted that any system not well maintained would naturally die. Most manufacturing industries in Nigeria have very few equipment for their skilled workers, it will be of no use to allow these few equipment available to deteriorate and breakdown due to lack of maintenance. To promote effective utilization of equipment and facilities in our industries, it is very important that maintenance service be carried out regularly

Recommendation

The following recommendations are hereby suggested towards inculcating maintenance in our industries in order to promote the life span of equipment, tools and environment necessary for effective and maximum production of products in industries.

1. Workshops Conferences should be organized occasionally for skilled workers on effective equipment management and minor repairs
2. Industries should employ experts in handling of their equipment so as to be able to detect faults early enough for prompt rectification
3. There should be periodic servicing of equipment in industries. This will forestall total breakdown of the equipment
4. Industries should embark on regular maintenance activities and adopt relevant maintenance strategies
5. Industries should keep relevant maintenance records and documents as this will serve as beginning of any form of main maintenance programme
6. Industries should make adequate budgetary allocations for the purpose of maintenance
7. All concerned individuals should be involved in maintenance activities in the industry

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