

Emerging Issues in **MANAGEMENT SCIENCES:**

PERSPECTIVES FROM NIGERIA

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PROFESSOR SIDIKAT LARABA ADEYEMI



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ENVIRONMENTAL ISSUES IN OPERATIONS MANAGEMENT: A PRODUCTIVITY EFFICIENCY APPROACH

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PREAMBLE

The core value of any organisation be it manufacturing or service industry is production. This is critical as the image of the organisations depends largely on the quality of their product or service. Production does not exist in isolation, the effectiveness of production activities are influenced by the environment. Production is made in the environment and for the environment. This makes it difficult for the production activities to be clearly separated from the environmental activities. The interrelationship between organisations and environment can make or mar productivity efficiency. It is expedient for business organisations to be proactive rather than expecting a reactive actions from the environmental forces before being socially responsible. Thus, for organisations to be socially responsible, managers must be able to think strategically in making decisions to protect the environment through raw material used, waste generated, emission and pollution control, and good working environment to gained support from all stakeholders in enhancing productivity efficiency.

INTRODUCTION

Generally, every business whether dealing in goods or services engages in production management (Asa, 2001). Production is simply the activity involved in transforming raw materials or components into finished products. Product in this case refer to goods (tangible) and services (intangible) (Jeffers, 2010a). Production, viewed in a restricted sense, refers to the fabrication of physical objects through the use organisational resources. However, with reference to services, production is the discharge of a function which has some utility (C.Otegbulu, 2011). Therefore, a more general term used to describe the use of tools to achieve changes that are not limited to manufacturing operations on materials is "operations". Thus, while production is primarily concerned with the conversion of raw inputs into finished physical goods, operations is broader in scope to embrace all activities necessary to produce and deliver a service as well as a physical product. In the context of this write-up, production and operations management might be used interchangeably.

Production can simply be described as the manufacture and distribution of goods. It is the conversion of raw materials to finished goods (Orea, 2020). Production system consists of interrelated and interdependent sub-systems which are integrated to effectively convert raw materials to finished goods and services (Asa, 2001). Production is all embracing, having interface with men, money, machines and materials. Production process takes place within an environment and since there is mutual interactions between any organization and its environments, production system, as a basic functional

area of a company, has important role to play in seeing the company as a socially responsible one (Lamba et al., 2020).

Over the last three decades, the issues of environmental management has been a major concern to all stakeholders as they require manufacturers to reduce environmental hazard effects from their products and operational activities. In achieving this, managers play significant role in selecting the right input to use, energy consumption, wastes generated and pollutants emitted in the manufacturing activities. Environmental issues have extended beyond pollution control to strategic thinking which involves management decisions, programs and technologies by managers to effectively manage the environment in order to enhance productivity efficiency (Bitto, 2016). Likewise, employees as a crucial internal environmental variables have expectations from the organization such as good working environment in discharging their responsibility effectively.

Environmental Law: Factory Act of 1987

The factory ordinance of 1955 which was replaced by the Factories Act 1958 as amended by the 1987 Act aimed at the provision of working environment that ensures physical security, good health, and safety of the workman.

The most recent Act (1987) focused among others, on Health (Part II). Welfare (Part IV), Safety (Part III) as well as other areas, as it affects the affection of the factory.

Health: sections 7 to 13 deal on this area as follows:

- Cleanliness: The work environment has to be kept clean, the walls has to be painted and repainted regularly – (s.7).
- Overcrowding: Must be avoided, each worker has to be provided a working space of not less than 400 cubic feet. (s.8).
- Ventilation: Adequate ventilation of work room must be secured for circulation of fresh air. (s.9).
- Lighting: There must be sufficient illumination of every part of the factory and passages – (s.10).
- Drainage: Where wet processes are carried on, adequate means of draining the floor must be provided. (s.11).
- Sufficient and suitable sanitary conveniences: must be provided, separate for each sex. – (s.12).
- Persons working with injurious or offensive substances have to be provided with protective clothing and appliances. (ss. 47, 48).

Welfare: Part IV under the general provision (ss. 40-44) deal on:

- Drinking water: Section 40 stipulates that adequate supply of wholesome drinking water must be provided, and that its contamination must be prevented.

- Every factory must have adequate washing facilities (s.41).
- Adequate and suitable cloak room must be provided and maintained. (s.42).
- In every factory, there must be provided first aid box or cupboard of prescribed standard, and under the charge of a responsible person who must always be available during the working hours. (s. 43). But section 44 gives exemption if an ambulance room is provided in the factory where adequate treatment of any injury occurring in the factory is made. (s. 44).

Safety: Sections 14 to 39 deal on safety (general provisions). Here the Act stipulates that various provisions be made for the safety of the workers. For example, every factory must have a means extinguishing fire (s. 35) and adequate means of escape must be provided (s.36). Also, the workers must be made to know and to be familiar with the escape way and what to do in case of fire outbreak (s.36 (8)).

Duties of Persons Employed: A person employed must not willfully interfere with, misuse any means appliance, conveniences, or other things provided for securing health, safety or welfare; and must not willfully do anything likely to endanger himself or others. (s.61).

Registration of Factories: Every factory must be registered (ss. 1, 2, 3).

General Register and Form: Part VIII (sections 58 to 61) deal on the register and documents to be kept in the factories.

Section 62 of the Act prohibits the deduction from wages the cost of provision of the requirements by the Act. (s.62).

Notification of Accidents: Every accident that causes loss of life or disability to worker for more than five days must be reported in writing in a prescribed form (s. 51).

Inspection: The Act empowers inspectors to inspect any part of the factory day or night (s. 65), demand the production of prescribed registers and documents – s.65(1c), ask questions and take samples for analysis – s.65(1). And subsections 4 and 5 prohibit any person obstructing and inspector (Asa, 2001).

Industrial Pollution Impact on the Environment

Industrial pollution simply refers to pollutions arising from industrial activities. It could take the form of noise, water, (textile industries), air (smoke or odour omitted from machines) or even litters of solid waste like bottles, cans, scraped machines etc.; and toxic waste (Razikordmahaleh & Larijani, 2020).

Some of the negative impacts of industrial pollutions on the environment include;

- i. Accidents e.g. industrial or road accidents
- ii. Damage of health i.e. health and safety hazards e.g. loss of sights or sense of hearing

- iii. Damage of environmental beauty or aesthetic
- iv. Reduction in productivity of workers
- v. Shortage of raw materials e.g. the discharge of toxic waste in water can kill fishes.
- vi. Can lead to epidemics and unprecedented deaths thereby reducing a country's population (Asa, 2001).

Thus, due to health and safety implications of industrial wastes, there is need to dispose them effectively. Good drainage system, if possible underground, can be used to dispose-off liquid industrial waste. Furthermore, the wastes can be re-cycled for further usage. In Nigeria, most Local Government Councils set up Waste Disposal Boards. At the Federal level, the FEPA (Federal Environmental Protection Agency, now merged with the presidency) was established to enforce various regulations on industrial waste disposal. However, waste management is a problem that has defied possible solutions. It should be recognized that lack of necessary equipment, waste disposal vehicles and corruption have been militating factors to effective industrial waste disposal.

Industrial Accidents and Prevention

A healthy worker is a productive asset to an organization. Workers should be kept safe, healthy and away from industrial accidents; occupational hazards should be minimized (Falahati et al., 2019). An accident is a sudden and unexpected event which disrupts production. Accidents do not just happen, they are caused and it is the duty of the manager to remove all possible causes of accidents.

Industrial accidents have associated costs which include:

- i. Time lost by injured employee: An injured employee is not expected to continue working until after sometimes. Where productivity is measured per employee, such employee productivity is zero.
- ii. Time lost by fellow employees who stop work; (a) from curiosity (b) from sympathy (c) to assist.
- iii. Time lost by supervision in; (a) assisting the injured, (b) investigating causes, (c) rescheduling work, (d) re-training replacement, (e) preparing accident reports, and (f) attending to enquiries.
- iv. Time spent by first-aid staff: The period spent in attending to injured staff will definitely stopped production activities for a while.
- v. Damage to equipment: valuable and important machine needed for the production activities may be damage which is also another cost to the organization (Burdock & Ampt, 2018).
- vi. Payment of compensation: An injured staff will definitely demand compensation from the organization which increase the cost on the organisation.
- vii. Lowered morale of work-force: An organization known with consistent workplace accident send a bad signal to their present and potential employees. It kills the morale of the employees

- viii. Reduced output of the injured employee upon return: To avoid repeated injury, the employee reduced the efforts put into their work (Falahati et al., 2019).

These costs should be avoided and it is the duty of the manager to ensure the health and safety at work of all employees. To this end, the manager/employer should;

- i. Prepare and distribute to all employees a written statement of general policy with respect to health and safety at work;
- ii. Educate appropriately employees in matters concerning health and safety at work
- iii. Consult with employees' representatives and committees on matters concerning health and safety;
- iv. Establish safety committees if need be;
- v. Ensure that information is given on hazards to all non-employees who may use plant and substances;
- vi. Ensure that products used at work are safe, have been tested for safety and safety instructions issued to all concerned (Asa, 2001).

As a first step to reducing accidents, it is necessary to;

- i. Eliminate the hazard by good design and layout; as well as
- ii. Train staff in safe behaviour

Ergonomics and Employees Productivity: A link

Ergonomics, otherwise known as human engineering, is the study of a worker in his working situation. Ergonomics see man as a machine on his own which needs certain physical requirements (Jeffers, 2010a). Inadequate or lack of these man's physical requirements at the workplace will result into stress and discomfort which are at variance to enhanced productivity. Hence, the saying that the application of ergonomics can lead to higher productivity. Some of these aspects of man's physical requirements at a workplace which promote higher productivity are:

- Work should be carried out seated,
- the workplace should permit a change in posture,
- working position should be made natural as possible,
- keep movements balanced and symmetrical to avoid fatigue,
- ensure that working area is at a comfortable height,
- use mechanical devices to hold work;
- provide comfortable support for forearms, elbow, hands and feet (De Lima et al., 2014).

The foregoing are not necessarily a productivity tool, but their effective and efficient application will lead to greater productivity.

Application of ergonomics in the design of work

Conducive working environment is an important ingredient needed to enhance productivity. This is because the working environment impacts the various human senses used in productive work. In designing a good work-bench situation, therefore, efforts should be made to put the following into consideration:

Lighting: The work place should be well illuminated. Good lighting is important as it helps in the efficient performance of work; it allows people to move easily and safely. In fact, the visual efficiency with which a task can be performed is a function of the illumination provided. The minimum service value of illumination should be increased according to the class of visual task (Jung et al., 2017).

Noise: Noise is an unwanted sound; and it can lead to stress and prevent effective communication, thereby affecting efficiency adversely. The design of a work place should be such that noise is reduced drastically. Sometimes the use of acoustic devices is recommended, though this may produce feelings of fear. Where it is not possible to reduce noise, then ear protectors should be worn (Jeffers, 2010b).

Stakeholders' Environmental Expectations: A link to Social Responsibility

The concept of social responsibility is wide. As an organization, social responsibility includes:

- i. Environment protection – providing equipment and systems for controlling the disposal of waste into the water and air.
- ii. Consumer relation - finding out what the organization's customers think about its product and development ways to upgrade its image.
- iii. Minority employment- luring and training the minority and disadvantaged groups.
- iv. Minority business support- providing special assistance to minority businesses (Olfat et al., 2018).

A production system that is socially responsible should do the following;

Suppliers:

- a. Must be fairly treated; purchasing contracts signed must be honoured.
- b. Payments due must be made promptly

Owners:

- a. Create and distribute wealth in form of dividends. This can be done through increased productivity to enhance profitability of operation (Asa, 2001).
- b. Keep owners informed on the production policies and programmes of the company.

Government:

- a. Implementation of production policies that should help to eliminate high unemployment and redundancy e.g. use of labour intensive production method of Nigeria.
- b. Payment of import tariff, excise and custom duties.
- c. Sponsoring national and international games and competition.
- d. Use of local inputs i.e. internal or local sourcing of raw materials.
- e. Managing the economy through diversification, backward and forward integration policies.
- f. Operate within the framework of the law

Community:

- a. Operations must not be allowed to pollute the environment or destroy human values
- b. Mitigate the effects of environmental pollutions (Jeffers, 2010a).
- c. Be responsive to the welfare and needs of the local community.
- d. Provide infrastructural facilities like drainage, recreational facilities, schools, specialist hospitals, etc.

CONCLUSION

In the contemporary business world, any business enterprises with survival and continuity as one of their key objectives must take environmental issues seriously. Though, organizational activities (either goods or services) follows a logical sequences which in one way or the other have effect on their environment. Operations managers must think strategically in dealing with issues of industrial pollution, industrial accident, human engineering (ergonomics) and stakeholders' expectations to enhance productivity efficiency.

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