



**Industrialisation and Development
DES 419**

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DES 419: INDUSTRIALISATION AND DEVELOPMENT

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MODULE 1: INDUSTRIALISATION - AN OVERVIEW

UNIT 1: PRE-INDUSTRIAL MODES OF PRODUCTION

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1.0 Introduction

A mode of production simply refers to the combination of human labour power plus the means of production to deliver subsistence for social survival. For short, means of production includes the implements, equipment's or things used for production. Pre-industrial societies were quite different, and this was an epoch where technology was in its rudimentary forms or simple forms as it were. As such, production in pre-industrial societies was strictly based on production-for-use rather than production-for-exchange. These are terms coined by Karl Marx. Production-for-use entails subsistence economy where production is more or less for personal and individual consumption, as opposed to production-for-exchange which denotes

commercialisation. Production-for-exchange is associated with capitalism and involves producing and selling to earn income or money. The pre-industrial modes of production were characterized by the use of the hand to produce. Agriculture was critical and technology for production was simplistic. Although, that was the case, some forms of technology were displayed for productive activities in this mode of production. As we go along in this course, we will come to terms with the different pre-industrial modes and comprehend the dimension of technology that was used in producing for their subsistence.

2.0 Objectives

At the end of this unit, you should be able to:

- List out five pre-industrial modes of production.
- Explain how production was carried out in the pre-industrial modes of production.
- Mention the various technology utilized at each mode.

3.0 Main Content

Prior to Industrialisation, as earlier mentioned in the introduction, early societies had produced food and other things for themselves. Since this was before the industrial revolution, the question that readily comes to mind is, what forms of technology existed then? We will briefly look at early pre-industrial modes of production and see how they produced their food. Some of these pre-industrial modes are as below:

1. Hunting and gathering
2. Simple horticulture

3. Intensive horticulture
4. Agrarian
5. Pastoralism

1. hunting and gathering

In the hunting and gathering society, production of food was carried out mainly through hunting wild animals and gathering wild plants as food. The technology used for production in this type of society were mainly nets, bows and arrows, spears as well as traps for entrapping animals. This society was purely subsistence in nature as they produced foods essentially for individual family's consumption.

2. Simple horticultural society

Simple horticultural society families lived in small villages that were intensely forested. They depended on agriculture for food and utilize a form of technology on their agricultural production, which is called shifting cultivation or what Sanderson (1988:63) calls "slash-and-burn", which entails the burning of a section of the forest, and the debris from such burning is later used as fertilizer on planted crops.

3. Intensive horticulture societies

Intensive horticulture societies, just like the previous societies also depended on agriculture for food production and utilized the slash-and-burn technology to deliver productive activities.

Averagely, they produced more foods than the simple horticultural society. However, the basic distinction is that intensive horticultural society deployed a better technology of land fallowing than the simple horticultural societies. Strictly speaking, intensive horticultural society allowed land to fallow for a shorter period of time say 5 to 10 years before engaging in cultivation compared to that of simple horticultural societies which stayed between 20 to 30 years. Owing to this technique, and the utilization of hoes and irrigation technology for cropping, they therefore produced more food than the simple horticultural societies. By land fallowing we refer to a land or ground that has been left unfarmed for a long period of time. It is basically a land which is left to repose and regenerate (Raina, 2021). Fallowing is beneficial because according to Darcy (2021), “it improves moisture holding capacity, and increases beneficial microorganisms in the soil. Studies have shown that a field that has been allowed to lie fallow for just a year produces a higher crop yield when it is planted”.

4. Agrarian societies

Agrarian societies are the real agricultural societies. They were more advanced comparatively and relied more on improved technologies for agricultural production. Agrarian societies had more population; hence production began changing from this society. It is said that this type of societies emerged as a result of increasing commercialisation of agricultural production in the Mediterranean city-states of 1000-1500 C.E (Johnson, 2000; Thompson, 2010). They worked much harder. Clearing lands, plowing, and sowing as well as harvesting through extensive labour techniques including fertilizing with animal manure. In this society, fallow periods have reduced substantially or do not even exist.

5. Pastoral societies or pastoralism

Pastoral societies or pastoralism were societies that depended on animal herding. They practiced caring for roaming groups of livestock over a large area. Meaning they tended for animals or herds all year round moving from one place to the other in search of pasture for these animals. In most cases, pastoralist do not engage in farming, and relied on their food production through a system of trade relations. They were mostly found in Africa and some parts of Asia. Pastoralism generated milk from the herd of animals especially sheep and goats which were fundamental for cheese, meats are secured from the animals, wools were made out of a Lamb and used for weaving and rope making.

4.0 Conclusion

Industry in pre-industrial mode or society was neither here nor there, however, production took place in the varied modes but differently. At every mode, social survival rested on the productive capacity of the people to produce for themselves so as to survive. As earlier mention, the pre-industrial mode of production was purely based on production-for-use. Meaning there was no clear forms of buying and selling or commercialisation of production.

5.0 Summary

In hunting and gathering societies, technology used for production were mainly nets, bows and arrows, spears as well as traps for entrapping animals. Simple horticultural societies form of technology for production is called shifting cultivation or what Sanderson (1988:63) calls

“slash-and-burn”, which entails the burning of a section of the forest. In intensive horticultural mode, they produced more food than the previous because they deployed land fallowing for a shorter period of time, between 5 to 10 years before engaging in cultivation. Agrarian societies were more advanced and had more population. Their technology involved clearing lands, plowing, and sowing as well as harvesting through extensive labour techniques including fertilizing with animal manure. Lastly, pastoral societies or pastoralism were societies that were mainly herders. Food was secured through relationship with others, as well as their herd of animals and produce milk, as well as wool for cloth making.

6.0 Tutor-Marked Assignment

- Explain what you understand as mode of production?
- Outline and explain the different pre-industrial modes of society?
- Highlight the various technologies used for productive activities in the preindustrial mode?

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UNIT 2: EARLY FORMS OF INDUSTRY IN EUROPE AND ENGLAND

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7.0 References/ Further Readings

1.0 Introduction

Industrialisation is associated with capitalism. Capitalism is understood to mean an economic system where the means of production of goods and services are in the hands of a few persons.

The means of production here includes the implements, equipment's or things used for

production. In other words, these includes the machineries and technology that facilitates work. For societies to produce their food, they require forms of technology. In Europe, early industries existed in rather simple forms which did not provoked producing in commercial quantities to enhance mass production and commercialisation. In this unit, we shall explore the various forms of early industry that were visible in Europe.

2.0 Objectives

At the end of this unit, you should be able to:

- Explain the meaning of early forms of industry
- Mention and explain proto-industrialisation
- List and explain the various types of early industry in Europe.

Main Content

3.1 Early forms of industry in Europe

Early forms of industry were not capitalistic in nature, rather it was based on simple forms of exchange. Early forms of industry simply denote the era before the emergence of the industrial revolution, which in academic parlance is usually referred to as proto-industrialisation. Which means the early phase of industrialisation in Europe and England where production was mainly done by hands. When we say by hands, this means that there was no modern technology to aid or facilitate economic activities or production. According to Ogilvie & German (1996), proto-industrialisation is a concept coined by Franklin Mendel (1972), and is also the name given to the early expansion of industries producing goods for non-local markets which took place in

many parts of Europe between 16th and 19th centuries. Such industries grew out of the countryside and expanded without adopting advanced technology.

Apparently, prior to the industrial revolution the following forms of industry had existed in Europe:

A. Family Workshop:

Here, the home is actually the factory. Meaning that productive activities took place or were carried out in family homes considered as workshop. A workshop in this case could either be a room or a building that housed the tools and implements used for the manufacturing or repairing of goods. Workshops of this nature at the time, were primarily the only places where simple manufacturing or repairs took place prior to the advent of bigger and larger factories. According to Burress (1997), home workshops naturally comprised a workbench, hand tools, power tools and other hardware.

B. Dispersed factory:

Here, the dispersed factory was located all over the place, but the man that sells was also regarded as a merchant. As the name sounds, this kind of industry was found almost everywhere. The goal of multiple location was for ease of services. That is, to provide services and make it rather easy for customers to get and receive support services. The idea behind this was strictly because at the time, distance was a barrier, and such industries were quite scarce. By the time the merchant realized how important the service was, restructuring became critical to attract more customers and more gains.

C. Concentrated manufacture:

According to Girigiri (1999) the concentrated manufacture entailed an industry that is focused or particularised. In this type of industry, division of labour had been introduced, and this marked the difference with other early forms as it engendered effective production. Simply, the concentrated manufacturing means that only one facility or industry produced and distributed products. Such system of having a single facility meant that factories were not dispersed or scattered around. Rather, a centralized workplace was carved out to ensure consistency in delivering quality products (Moy, 2020). The division of labour in this type of industry underscored increased production of goods and services. Examples include fulling mills, where workers cleaned woolen cloth, as well as hammer forges, glassworks, breweries, and early paper mills.

D. Putting-out system:

This form of industry is similar to the first, here the merchant or trader as it were takes his finished productive goods to the town and markets it. It is also known as the cottage system or industry. The major difference from the first is that peasant families produced more goods than they needed to use themselves, as such sold them to others. In some areas, this developed into a type of proto-Industrialisation when entrepreneurs provided raw materials and paid peasants for their labor to turn them into finished goods. A businessman might provide one peasant with wool to turn into yarn, then provide the yarn to a different household to be woven into cloth. Karl

Thompson (2017) is of the view that many authors resign to call this early form of industry as the putting out system.

E. Factory system:

The factory system was a new way of making products by the introduction of machines and division of labour. The factory system used powered machinery or expensive equipment, division of labor, unskilled workers, and a centralized workplace to mass-produce products. It was the factory system that ushered in the industrial revolution. The emergence of this form of industry led to the recruitment of many persons as well as children into the emerging labour market. As a result of differentiated activities in the factory system, production began leaving households and artisan shops to be located in plants and factories instead. Owing to this, the experience of workers transformed immensely due also to the fact that the new factory system was well coordinated, with well-organized factory settings compared to the putting-out system.

4.0 Conclusion

Early forms of industry refer to the era before the emergence of the industrial revolution. It is also known as proto-industrialisation. A term developed and invented by Franklin Mendels in the early 1970s. Generally, proto-industrialisation refers to the early phase of industrialisation in Europe and where production was mainly done by hands and in homes. As we earlier mention, put differently, it can be said to be a name given to the early expansion of industries producing goods for non-local markets in Europe between 16th and 19th centuries. Such early industries strived particularly without any form of advanced technology but were the precursor to the industrial revolution.

5.0 Summary

Early forms of industries in Europe in this lecture are classified into five. These are: Family workshop where industrial activities took place at family homes and particularly rooms. Dispersed factories involved the location of the industry in different places. The goal of multiple location was for ease of services. In Concentrated manufacture, only one facility or industry produced and distributed products. Putting-out system is also known as cottage industry or the cottage system, where the trader as it were, takes his finished productive goods to the town and markets them. Lastly, factory system was the early industry that ushered in industrialisation. It made use of advanced equipments and a centralized workplace to produced goods in quantity. In all, these early forms of industry advanced from one stage to the other, underscoring levels of progress that ushered in the industrial revolution. Whilst these forms of industries were not automated or thrived on advanced technology, at their various levels created opportunities for production of goods and services for the society assuring merchant capitalism.

6.0 Tutor-Marked Assignment

- What is proto-industrialisation?
- List and explain the various forms of early industries in Europe?

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UNIT 3: THE INDUSTRIAL REVOLUTION

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3.2 Causes of the industrial revolution

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6.0 Tutor-Marked Assignment

7.0 References/ Further Readings

1.0 Introduction

As we have seen from previous unit, the world was not always the way it is today. In the past, industry was at its rudimentary stage, meaning very simple forms. As society advanced through stages, changes began to take place that advanced society to a different status. You can see from the very simple societies as in the pre-industrial modes, technology was in the form of bow and arrows, spears or even shifting cultivation. In early industries of Europe, we witnessed a rather

elevated forms of industry that merely produced goods and services relatively greater than the previous societies. As factories systems paved way for the industrial revolution, a lot of changes entered the society that led to various improvements in the way things were made, especially productive activities. In this unit of the Module, we shall look at the industrial revolution to understand what it is.

2.0 Objectives

At the end of the unit, the student should be able to;

- Explain the meaning of industrial revolution.
- Outline and explain the forces that gave rise to the industrial revolution.

3.0 Main Content

3.1 The industrial revolution

Scholars have argued strongly that the industrial revolution began in England in the middle of the 1700s (Sanderson, 1988; Ekpenyong, 1993; Schaefer, 2003). According to Sanderson (1988), the industrial revolution dates back to the 1760 to 1830. The industrial revolution refers to a period when there was a rise in technology that led to increase in industrial and productive activities in England and flourished to other parts of Europe. In essence, the industrial revolution ushered in an industrial society. According to Schaefer (2003:123), an industrial society is a society that depends on mechanization to produce its goods and services. This kind of society as we earlier mentioned is different from the previously mentioned societies in that specialization of tasks and manufacturing of goods became increasingly common, as families - both men and

women and children left home to work in factories. A new form or mode of economic production was created by the industrial revolution, and this is called industrial capitalism. This mode simply means the earning of profit through the exploitation of workers or wage-earners. As people began to work intensely in factories, Marx says, they were exploited in terms of their labour or efforts.

3.2 Causes of the industrial revolution

Many scholars, according to Foundations of Western Culture (2016), especially historians have stated that the emergence of capitalism, as well as European imperialism were strong forces that underscored the industrial revolution. Here, we will adumbrate the forces or factors that gave rise to the industrial revolution.

1. Spinning Jenny

First and foremost, the invention of the spinning jenny, the water frame, the power loom and the cotton gin as Sanderson (1988) opined, gave rise to the textile industry that enhanced the manufacturing of cotton cloth which actually stimulated the factory system. The spinning jenny was invented between 1764/65 by James Hargreaves and this equipment or machine as it were revolutionised the process of cotton spinning, which facilitated cloth-making (Nardinelli, 2020). With the boom in textile manufacturing, there was the need for increased number of people to work in the factory, hence emergence of wage-earners or the working class.

2. The Steam Engine

Moreso, the invention of the steam engine by James Watt was also a force that spurred the industrial revolution. With the revolution in the textile industry, the steam engine further enhanced this as the steam engine was used to power the textile industries heavy machines. In the early days of the industrial revolution the invention of the steam engine gave a boost to the textile manufacturing space and unleashed it as a global demand, as it was a major source of export for the British economy.

3. Coal

The discovery of coal was a potent force or enabler of the industrial revolution. Coal was eventually the game changer, a power source. The utilisation of coal as a power source changed the way that we looked at industry, from energy generation to manufacturing. Although prior to the industrial revolution, coal had been used but perhaps in a different way. However, it was until the early 19th century that coal became a source of power generation and facilitated manufacturing of goods and services.

4. Iron Ore

Iron Ore was also critically instrumental for the industrial revolution. It facilitated machines to be domiciled in factories and boosted the transportation system (Evans & Ryden, 2005). Whilst that is the case, it is also stated that population was also a major force responsible for the industrial revolution (Komlos, 1990; Wilde, 2020). England is said to have had a ready-to-go population at the time. This is so in that there were more people from the rural areas or countryside that were willingly ready to work for wages in the urbanized cities of early England.

Again, due to the increased population in England, the demand for textile products were increasingly high. As such, the more the population, the more the consumption of textiles.

5. Revolution in Agriculture

Another force or cause of the industrial revolution is what we call revolution in agriculture. As mentioned earlier, prior to this time agricultural production was practiced rudimentarily. As such it had no superior force due to relative unadvanced implements. However, revolution in the agricultural sector enabled higher food output from fewer farm workers, leading to surplus workers who could go and work in factories. This revolution in agriculture was as a result of new farming techniques, new techniques like crop rotation, improved breeding selective livestock breeding, and economies of scale from bigger farms and better transportation system (O'Brian, 1977; Westrich, 2017).

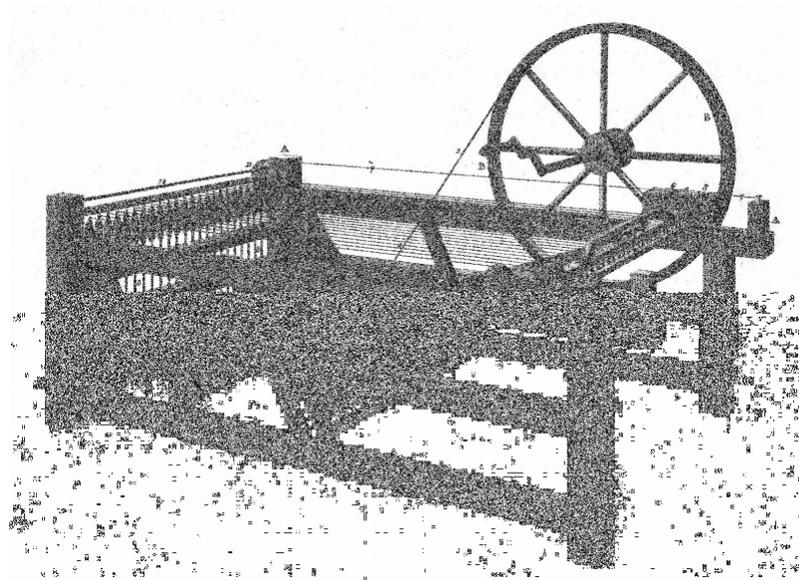


Figure 1: An example of James Hargreaves spinning jenny.

4.0 Conclusion

The industrial revolution is a period of transformation, especially from an agriculturally-based society to an industrialised setting. It heralds a time when productive activities shifted from handicraft to mechanization. We can say that scientific invention and discoveries were the spur of the day that engendered industrial revolution in England in the 1700s. Powered by the game-changing use of steam power, the industrial revolution which began in Britain, however spread to the rest of the entire world, including Japan, Russia and the United States, by the 1830s and '40s.

5.0 Summary

The industrial revolution refers to a period when there was a rise in technology that led to increase in industrial and productive activities in England and flourished to other parts of Europe. In essence, the industrial revolution ushered in an industrial society. Some factors or forces gave rise to the industrial revolution. As we have discussed in this unit, some of these forces/factors are improvement in the textile industry, invention of the spinning jenny by James Hargreaves, invention of the steam engine by James Watt, coal, game-changing impact of the iron ore as well as revolution in agriculture. Although beyond these forces, other scholars have maintained that the rise of capitalism and the emergence of British imperialism speak volume about the industrial revolution.

6.0 Tutor-Marked Assignment

- What do you understand by the term industrial revolution?
- List and explain the forces that gave rise to the industrial revolution?

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UNIT 4: IMPACTS OF THE INDUSTRIAL REVOLUTION

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6.0 Tutor-Marked Assignment

7.0 References/ Further Readings

1.0 Introduction

The industrial revolution that took place in England and by extension flowed to other European countries and was a great milestone of the era. In academic space it is usually classified as the first industrial revolution. This is so because after that era, going forward the world has experienced further industrial revolutions that also revolutionized how things were actually done in the past. In this unit we will take a quick look at the associated impacts of the first industrial revolution on the English society and of course the entire Europe and the world.

2.0 Objectives

At the end of this unit, the students should be able to

- identify and explain the various impacts of the industrial revolution

3.0 Main Content

3.1 Impacts of the industrial revolution

The industrial revolution as we have already mentioned in previous unit took place in England. It is usually referred to as the technological innovations that took place in Europe, especially England between 1760–1830. The industrial revolution however involves the substitution of human energy with machines or inanimate sources (Sima et al. 2020; Stern & Kander, 2012; Girigiri, 1999). What that means is that technological innovations facilitated work. There are some impacts that can be deduced from the industrial revolution. We will look at few of them as below.

1) Modern working class

Prior to the industrial revolution, as we saw in both the pre-industrial mode and the early forms of industry, production or industrial activities were carried out at homes or at family workshops. Families worked for no one but themselves. As we earlier mentioned, in these periods production indeed was for-use and not-for-exchange. As such there was no commercialisation that would have required a critical mass of wage-earners. However, with improvements in technology signifying the industrial revolution, a mass of people was created without ownership of any

implement of their own, they had to work to earn a living. This marks the birth of modern working class (Nardinelli, 2020).

2) Increased productivity

The industrial revolution gave rise to increased production of goods and services. As opposed to previous times, the invention of the spinning Jenny as well as the steam engine and iron ore facilitated productive activities in every dimension. The volume of cotton that was produced in certain period in the industrial revolution is on record.

3) Extensive specialization

This is also known as division of labour. Meaning, one person or one worker does not do all the work, rather he or she does a little part, and another person does another and in so doing becomes a specialist in that little aspect of work. The extensive specialization of task is associated with the introduction of machines into work. Some scholars, especially Karl Marx argued that with division of labour the worker is deskilled by the use of machines. Division of labour encourages specialization of task; each one will focus on his or her own area and close out the task. This way, the productive capacity of each wage-earner can be calculated and measured.

4) Extensive urbanisation

Prior to the industrial revolution, population was concentrated in the rural areas. This is so because agriculture was the bane of economic life, and this practically took place in the rural areas. The emergence of advance technology provoked improvement in productive activities which now became concentrated in cities. Although there were cities, like Mesopotamia before the industrial revolution, but such cities were rather very few. With the industrial revolution, urban centres began to emerge extensively. Which eventually attracted people out of the rural areas to the newly emerged cities for work.

4.0 Conclusion

With industrial revolution, human energy was substituted with machines, leading to variegated improvements. The industrial revolution of the early 18th century caused a lot of changes in the society. With technological improvement, work became simpler and faster leading to increased number of people qualified as the working class. Today, workers all over the world understand that the history of modern times is pretty much tied to the industrial revolution of 1760 – 1830s.

5.0 Summary

The industrial revolution brought a lot of changes, which we call impacts. Some of these impacts include a modern working class, Extensive specialization, increased productivity, and extensive urbanisation.

6.0 Tutor-Marked Assignment

- Mention and discuss four major impacts of the industrial revolution?

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MODULE 2: THEORIES OF INDUSTRIAL DEVELOPMENT

UNIT 1: CLASSICAL THEORIES OF INDUSTRIALISATION (MERCANTILISM, ADAM SMITH, MAX WEBER)

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3.2: Mercantilism

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7.0 References/ Further Readings

1.0 Introduction

When the notion of classical theories is mentioned, one thing that should come to our minds as students is that we are simply referring to traditional theories. These are theories that predate contemporary times. These traditional theories are the foundation upon which contemporary theories hinge on. In module two, we will be examining theoretical backgrounds to the understanding of industrialisation. In unit one, our focus will be to examine the classical theories. We will look at mercantilism, Adam Smith and Max Weber's contributions.

2.0 Objectives

At the end of this unit, the student should be able to;

- Explain the meaning of mercantilism

- Explain Adam Smith's and Max Weber's theories of industrialisation

3.0 Main Content

3.1 Classical theories of industrialisation (Mercantilism, Adam Smith, Max Weber)

The development of Industrialisation overtime has been explained differently by different scholars. The basis of the arguments and the focus as it were is what we dive into. Let's look at these accordingly.

3.2 Mercantilism

Mercantilism emerged as a result of the feudal mode coming to a closure. It was a move away from the agricultural system to a different economic base. Basically, it emerged as a result of new knowledge gained by man in the society, and this is what Mokyr (2003) calls "the Industrial Enlightenment."

In the early 16th century, the preoccupation of most countries especially European countries was how to expand and energise their economies against that of any other country. The strategy then was to be involved in sponsoring private businesses or private explorations. Now, the word mercantilism emanates from the Latin word – mercāns, which ordinarily means buyer. In order words, mercantilist were buyers who traveled far and wide exploring opportunities. The mercantilist believed that wealth was somehow fixed, therefore it behooves a country or nation to locate such wealth and extract it. Hayes (2021) maintains that mercantilism as a theory placed emphasis on the notion that nations should sell their goods to other countries while buying nothing in return. In order words, increased exportation of own goods as opposed to a "No" importation from other countries.

Therefore, mercantilism can be viewed as an economic system centered on the belief that a government can make a nation practically prosperous by regulating trade and using tariffs and other protective measures to achieve a balance of exports over imports. In a word, this entails the fact that a country wants to sell more goods than they purchased from any other country. For instance, England required export markets to grow its improving cotton textile industry, but it was confronted by shortage of land to produce raw cotton (Nihar, 2020; Lahaye, 2008). England took advantage of the transatlantic African slave trade and surplus plantations of the New World with its mercantilist trade restrictions to accumulate huge capital that also helped England ease its limited land resource pressure. With the discovery of America, Britain used the opportunity to raise the mercantilist system to a degree of grandeur which was ordinarily never in sight. England's protectionist measures in the triangular Atlantic trade brought about a real boom to its cotton textile production and hence to its industrialisation. The question is how did mercantilism encourage industrialisation? It encouraged industrialisation through the creation of monopolistic trading companies. Examples of such companies are, the East India Company and the French East India Company. As Sanderson (1988) stated, these companies were granted trade monopolies to plunder territories and bring back the profits home. By 1602, the Dutch Indian company emerged and had trade monopoly over the Far East, thus leading to various conflicts between England and the Netherlands. This led England to impose taxes on imported French and Dutch goods especially fabrics.

Generally, mercantilism was the early form in which capitalism operated in the early seventeenth century Europe. It spurred industrialisation through monopolistic tendencies whereby companies were given licenses to trade across region on the behest of the government, with a view to conquer and dominate other countries in the trading space.

3.3 Classical theory of Adam Smith

Adam Smith's famous work is known as the *Wealth of the Nations*, which was published same year the American declaration of independence took place - 1776. Adam Smith was never in support of mercantilism as an economic system that enabled the wealth of a nation. He rejected the primary tenets of mercantilism (export as against import) and rather argued that the division of labour and the market process allows for, and are the major forces or rationale behind economic growth or greater industrialisation. He frowned at a system or economic system that restricted importation of goods and services but encourages export. To him this was unnecessary and a source of conflict between nations. However, at the time, this system dominated Western European economic thought and policies from the sixteenth to the late eighteenth centuries. Mercantilism held that wealth was fixed and finite, and that the only way to prosper was to reserve gold and tariff products from abroad (Hayes, 2021; Hanley & Paganelli, 2014).

By nature, mercantilism was a discouragement to economic growth that would attract wealth for any country under its web. No matter the fact that some countries as at the time of the mercantile era profited, Smith is of the view that all countries could have profited better without rancour. To Smith, where there is division of labor in an economy and a free market, would naturally underscore a web of mutual interdependencies that promotes stability and prosperity through the market mechanism. By free market, Adam Smith was referring to a system where government does not interfere with restrictions. Meaning everyone can prosper where each concentrate on the production of his own goods and services but opens the door to both import and export. That would enhance comparative advantage. Finally, Adam Smith's classical theory as an opposition to mercantilism encouraged specialization and discouraged protectionism as mercantilism did. Rather opted for states to look inwards and trade goods they had competitive advantage over whilst importing the otherwise. This way wealth would come to nations, and industrial

development would be swift. In the final analysis, Adam Smith's basic interest was to see governments jettison protectionism in the manner of removing tariff and taxes and give way to free-market principles by keeping taxes low and allowing free trade across borders. He pointed out that tariffs and other taxes only succeeded in making life more expensive for the people while also stifling industry and trade abroad (Hayes, 2021). Thus, his theory became the bane of economic growth and enhanced greater industrialisation.

3.4 Max Webber

As we have seen with Adam Smith, the concern about theorization is on how industrialisation comes about. Going by what we have discussed above, obviously with division of labour and a free market that entails competitive advantage countries gain economic advantages and experience industrial development. Max Weber saw things differently, as such his theory is hinged on religion and a rational system or government. What that means is that Weber believed that industrialisation was the resultant effect of a growing influence of rational ideas which, in turn, led to the bureaucratization of society.

That is, industrialisation is connected with the application of reasoned and logical thought to problems of everyday life. The question that comes to mind as asked by Brown & Harrison (1978) is, what then is rationality and what constitutes the process of rationalisation? Weber used the concept, rationalisation, to form a bridge linking together a series of developments which he saw as leading to industrial capitalism. With rationalization it means that social behaviour had changed, and reason was critical. Man, no longer looked to explanations that were backward, rather how to power progress with actions that were clear and profitable.

However, to really understand Weber's thesis on rationality or rationalization, and his argument that religious affiliation affected the willingness of people to engage in capitalist enterprises. We take a quick step to his seminal work, *The Protestant Ethic and the Spirit of Capitalism*. Here, in this work, Weber emphasized that a kind of rationality that came into existence and provoked capitalism, or industrialisation is 'the protestant ethic'.

What is the protestant ethic? The protestant ethic was associated with the Calvinist branch of Protestantism, they offered a doctrine that seemed somewhat away from the ordinary protestant doctrine. Calvinism promoted a rather more individual approach to gaining salvation. The ethic emphasized that hard work and worldly success were promising, and it was a direct channel to salvation and a heavenly signal that one had been saved. Interestingly, this means that success in the world of business through an individual's efforts was the avenue to the eternal life. According to Weber, this new religious thinking transformed people's attitude towards the world into one emphasising greater rational control and manipulation of it, and such changed however spurred industrialisation and economic growth. According to Sanderson (1988), as people worshiped God with a mindset of worldly success, and the rational pursuit of profit, it underscored a new economic system that engineered industrialisation. Although this according to Weber is not the only reason that spurred industrialisation, yet it was fundamental.

4.0 Conclusion

Mercantilism was the early form in which capitalism operated in the early seventeenth century Europe. It spurred industrialisation through monopolistic tendencies whereby companies were given licenses to trade across region on the behest of the government.

Adam Smith basic interest was to see governments abandon protectionism in the manner of removing tariff and taxes and give way to free-market. He pointed out that tariffs and other taxes only succeeded in making life more expensive for the people while also stifling industry and trade abroad. Weber argued that industrial development was associated with the rise of reason especially the protestant ethic which spurred capitalist development.

5.0 Summary

Classical theories of industrialisation include mercantilism, Adam Smith as well as Max Weber's theories. Mercantilism as an economic system, existed from 17th century in Europe. It was a form of protective system whereby states empowered big companies with monopolistic licenses to explore and capture profits and bring it back home. It placed emphasis on exports as against importation. Although some countries profited, however it was problematic as it led to various confrontations and wars. Adam Smith kicked against such a system and proposed a free-market system where countries would have comparative advantage, leading to industrial development. Weber's classical theory centred on the impact of reason and religion especially the protestant ethic, and how it impacted industrialisation in early Europe.

5.0 Tutor-Marked Assignment

- Mention and explain three classical theories of industrial development?
- How is Adam Smith's classical theory different from that of Max Weber?

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UNIT 2: RADICAL THEORIES OF INDUSTRIALISATION (KARL MARX, FRIEDRICH LIST, JOSEPH SCHUMPETER)

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5.0 Summary

6.0 Tutor-Marked Assignment

7.0 References/ Further Readings

1.0 Introduction

In this unit, we will be highlighting some radical theories of Industrialisation. When we talk about radical theories, we mean those theories that take a sharp departure from conventional, orthodox interpretations of reality. The term "radical theories" is also used to tag the ideas and

works of scholars who take a rather left-wing view or perspective on social phenomena or social reality. Here we look at Karl Marx, Friedrich List and Joseph Schumpeter.

2.0 Objectives

At the end of the unit, the student should be able to:

- List and discuss some radical theories of industrialisation.
- Differentiate radical theories from classical theories of industrialisation.

3.0 Main Content

3.1: Radical theories of Industrialisation

Numerous scholars have been identified with radical ideas as to industrialisation or capitalist development. Some of these are western scholars, and some are Asian or African scholars. In this unit our focus is to have insight into the views and or theorisation of the underlisted trio.

3.2: Karl Marx

Capitalism was ushered into the productive process by the industrial revolution which marked a transition from feudalism (Heller, 2011). As with other previous societies, the industrial revolution which ushered in capitalism was largely viewed differently by Karl Marx. Although he reasoned that the industrial revolution was an integral but critical phase in the development of man, yet he viewed industrialisation as merely representing a further stage in the dehumanization of workers (David, 2016). The expectation that the industrial revolution would bring about development and prosperity for mankind was rebuked by Marx. Marx argued that the Industrial

Revolution had polarised the gap between the owners of the means of production and the workers even more.

He saw the industrial revolution as not emerging to solve the historical problem of exploitation, rather, that the industrial revolution had further differentiated social relations in the society. That the relations of production in the new society had created a gap between the owners of the means of production and the workers even more. Though the gulf was there between the feudal Lords and the serf, Marx posited that the industrial revolution created the bourgeoisie, which used its wealth and control over government to exploit the industrial working class. This exploitation was in the amount they were paid compared to the duration they had to work and their productive capacity.

Writing in the communist manifesto, Marx, and Engels stress that whereas this exploitation was ongoing the workers had no knowledge because they were unconscious of the exploitative social relations of production (Schaefer, 2003). However, Marx and Engels posited that this would change, when the proletariat (that is, working class), develops a class consciousness, they would rise up and overthrow capitalism and enthrone the dictatorship of the proletariat that would usher in a classless society, devoid of taskmasters or the class of the haves.

3.3: Friedrich List

Friedrich List's contribution to the radical theory of industrialisation hinges on the infant industry argument. The infant industry discourse was introduced by Hamilton & Carrey from the United States (Shafaeddin, 2000). Infant industry or industries are seen as those emerging industries that are not rooted because either they are just entering the market or because they are located in countries that are emerging economically. His theory is geared towards protectionism for infant industries other than expose such industries to free trade.

List stresses the significance of trade and imagines free trade as a definitive aim of every nation. Here, protection of an infant industry is for the purpose of achieving development. List sees the instrument of protectionism not in the negative or in a restrictive or imposition of tariff manner as Adam Smith saw it. According to Friedrich List, an infant industry will have to grow, expand massively, export wise before engaging in free trade (Szporluk, 1993).

He argued that infant industry protection is essential for countries at early stages of industrialisation, especially where they are “outdistanced” by other countries in manufacturing etc. Whereas Adam Smith had argued that against protectionism, that countries should engage in competitive advantage and unleash the free trade prosperity, List believed that protection should serve a purpose and must be for a specific period, in this case temporary, targeted and not excessive. In conclusion, List central thesis is that protection should be confined to the manufacturing sector; agriculture should not be protected, even though productivity growth in this sector is important for development.

3.4: Joseph Schumpeter

Industrialisation or economic development for Schumpeter is a dynamic and a discontinuous process. He stated that society progresses through trade cycles, and innovations is fundamental in this process. And those that drive innovations are the entrepreneurs. Therefore, entrepreneurs hold a critical place in Schumpeterian theory of development (Ayesha, 2019). He believes in the role of technology in leading up to industrialisation. This technology is obviously an aspect of the innovations he referred to. So, the rate of innovations also determines the rate of change or economic advancement.

Following Schumpeter's thesis, it is innovation that led to the industrial revolution that occurred in Britain in the early 17th century, and the agent which brings about innovations, according to Schumpeter is known as the entrepreneur. Schumpeter says, innovation follows a process, this process is outlined below:

- (1) Introduction of a new good,
- (2) Introduction of a new method of production,
- (3) The opening of a new market,
- (4) The discovery of a new source of supply of raw materials or semi-manufactured goods, and
- (5) Introduction of a new organisation in an industry.

In order to break the circular flow, the innovating entrepreneurs are financed by bank credit expansion. Since investment in innovation is risky, these innovative entrepreneurs must by all means reimburse their credit with interest (Thanawala, 1994). In the process that leads up to industrialisation, risk is associated, and not everyone can survive risk except for businessmen of exceptional ability and audacity. Such would birth innovations and introduce enterprises that would exploit opportunities for profit. While that is the case, Schumpeter is of the view that these entrepreneurs are not majorly interested in just profit at the interim but are generally motivated to found a dynasty in the business world. Clearly then, in the Schumpeterian thesis, the significance of the entrepreneur is key in determining rate of economic growth and where the entrepreneur is nonexistent, industrialisation and growth rate is bound to be slow.

5.0 Conclusion

The radical theories of industrialisation discussed here includes Karl Marx, Friedrich List and Joseph Schumpeter. These theories are non-conventional as their views are existentially different

from that of the classical theory. Marx emphasized that with industrialisation, social relations of production has been polarized. That industrial development only emboldens the gap between the rich and the working class. List's view stem from the fact that as industrialisation evolves, infant industries may not be able to compete in the free market trade, therefore infant industries require protection to enhance their development. Schumpeter's analysis centres on innovation and how it underscores industrial development. His position is that there are associated risk in advancing technologically into the development level, however critical here are the entrepreneurs who facilitate this drive.

6.0 Summary

Karl Marx was concerned that industrial development only led to an increased gap between those who own the means of production and the working class. Change for him would come when the workers have class consciousness. Friedrich List theory has a focus on protecting infant industries until they bud, then can join the free market to avoid emasculation. Radical theories like that of Schumpeter places emphasis on innovation and the entrepreneur as the critical factors that give rise to industrialisation.

7.0 Tutor-Marked Assignment

- Identify and explain three radical theories of industrial development.
- How does Friedrich List's theory differ from that of Joseph Schumpeter

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UNIT 3: CONTEMPORARY THEORIES OF INDUSTRIALISATION

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3.2: Stages of Growth theory

3.3: Dependency theory

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7.0 References/ Further Readings

1.0 Introduction

In this unit, the concern is to examine some rather more recent theories of industrial development. These are called contemporary theories. As opposed to the classical and radical

theories, contemporary theories are viewed as modern theories since they were developed either in the early 1960s or even later. Here, we will look at the stages of growth theory as represented by W.W. Rostow and the dependency theory, represented by multiple scholars.

2.0 Objectives

At the end of this unit, the student should be able to

- Explain stages of growth theory.
- Explain dependency theory.

3.0 Main Content

3.1: Contemporary theories of Industrialisation

Both the stages of growth theory and the dependency theory are viewed by scholars as highly rational theories that explain industrialisation or the economic development of countries. However, irrespective of the quality of these theories, their drawback is also very clear. Let's examine these theories.

3.2: Stages of Growth theory

This theory is associated with the works of W.W. Rostow (1960). It is also popularly known as modernisation theory. It simply states that for countries to experience industrial development or industrialisation, they simply must transition through five stages of growth. These stages of growth are:

- The traditional society
- The preconditions for take-off
- The take-off
- The drive to maturity
- and the age of high mass-consumption.

Traditional stage: At this stage, Rostow says that all societies are agricultural. Meaning agriculture is the sole means of occupation, and only those who own land or agricultural land have political power. The family is critical at this stage as it plays a vital role. However, agricultural productive capacity is limited owing to the kind of technology used in production. Very often, to some extent, productivity could possibly improve owing to improvement in irrigation works. Yet, output per head could not go above a ceiling due to no scientific improvement in agricultural implements.

Precondition for take-off: In this stage, the preconditions to transition begins to fall in places. However, here, the characteristics of the traditional society begin to wither. Rostow says England or Britain was the first to take off, because she was kind of favoured by her geography, natural resources, trading possibilities, social and political structure. Education begins to grow as economic cum ideological orientation also transforms. This stage also marks the emergence of risk-taking individuals, they take risk in capital investment which in turn yields significant growth in commercial activities. According to Sanderson (1988), changes begin to take place in the political space especially in building an effective central government. Rostow says, political changes particularly the emergence of an effective central nation state was crucial for this stage.

The take-off stage: The take-off is the interval when the old blocks and resistances to steady growth are finally overcome. The forces making for economic progress, expand and come to

dominate the society. Here, growth becomes a fundamental feature of the society. During the take-off new industries expand rapidly, with increased profits of a marginal proportion which are reinvested to develop new plants, and new industries. Also, as industries increase, the demand for more workers and service delivery intensifies. Moreover, in this stage, agricultural production once rudimentary improves dramatically in line with new technology and become commercialised. The revolutionary changes in agricultural productivity are an essential condition for successful take-off.

Drive to maturity: In this stage the technological base of the society has improved drastically. The economic space has straightened up with new industries meeting demands of increased population. As new industries accelerate, older industries wither. The economy booms locally and takes a place at the international space. Goods formerly imported are now produced in-country. Investment increases to a new level, 10 to 20% of a country's national income is reinvested, infrastructures etc. are in top gear as commitment to research and development takes a new leap. Rostow stated that, it would take a country 60 years to eventually achieve this stage (Girgir, 1999).

Stages of high mass consumption: This is the final and highest stage of Rostow's stages of growth theory. Societies reach this stage when all economic sectors move towards production of consumer goods. Here, per capita income increases even above the level of individual needs for shelter, food and clothing. At this stage, societies chose to allocate improved resources to social welfare and security. The emergence of the welfare state is one manifestation of a society's moving beyond technical maturity.

The understanding here according to Rostow is that once a country has passed through these five stages, such a society has become industrialised (Simandan, 2020). Hence, his suggestions are

that other countries that want to transition must emulate the western society's ways to attract industrial development.

Criticism

- The stages of growth theory have been criticized for being merely a description (Sanderson, 1988). It follows that Rostow was barely describing how to move from one stage to the other without logical analytical consideration. He did not pay attention to what causes development or what undermines it as in underdevelopment of one country as opposed to the other.
- His theory has also been criticized for been a show of traditions and superiority. He failed to comprehend cultural relativity.
- Lastly, the admonition that the drive to maturity would take 60 years is unthinkable and a mirage that Rostow only imagined.

3.3: Dependency theory

This was a critique of Rostow's stages of growth theory. The notion of the stages of growth tradition had continued until the early 1960s when Third World scholars' especially Latin American scholars at the initial time began to question the situation about industrial development in Third World countries, about what kind of relationship existed between the developed and underdeveloped countries. The answer was a dependency relationship.

The dependency school emphasises that the relationship between the countries of Latin America, Asia and Africa is nothing more than a dependent one. The fundamental argument of this tradition is that the inability of certain countries to industrialise, especially Africa is as a result of the integration of Africa into a capitalist economic system. The pervading social relationship in the capitalist economic system is a dependent one. As such by means of this integration, the resources of Africa were carted away, as a result, surplus value were cast out from Africa, Latin America and Asia thus rendering these societies underdeveloped and unable to industrialise but created industrial development in the West. These societies became dependent on Europe and America.

Andre Gunder Frank, (1966), and Samir Amin are the main architects of this school. Gunder Frank calls the relationship between Africa and the West, a relationship of Metropolis and Satellite. Whereas the Metropolis flourishes, the Satellite depreciates. According to Samir Amin (1974), this dependent relationship can best be seen in the largess, as the West gains 'articulate economies' Africa and the rest secure 'disarticulated economies' (distorted economies). Therefore, generally the whole idea and agenda of the incorporation of Africa, Latin America and Asian into the capitalist economic system is to plunder and usurp her resources and wealth and render it incapacitated industry-wise. So, the source of backwardness for these countries which Rostow failed to see, is nothing close to consistent sustenance of culture and tradition but is basically a lopsided relationship constructed to favour the West and undo Africa.

Criticism

- Nohlen (1980) is critical of the dependency tradition for its lack of structural consistency in terms of its terminological usage. The fact that there are multiple scholars in this tradition raises the question of terminological incoherence.
- Dependency theory completely refutes the prospect that everyone could possibly rise to material comfort by aligning to prescribed stages of growth as recommended by modernization theory. Dependency lacks strong theoretical cohesion and is split between camps - reformist and revolutionary camps (Nduonofit & Emina, 2021).
- The theory also faces the criticism of vagueness. Especially with respect to Gunder Frank's analysis. It is rather difficult to comprehend what he meant by metropolis particularly when smaller metropolises are seen as hinterlands for the bigger metropolises. Countries like Canada and Australia are considered smaller metropolises or hinterlands to places like New York that housed over 23 headquarters of the biggest corporations in the world as at the late 1980s, and currently over 100 headquarters of these corporations in recent time (Hale, 1990; Kolmar, 2020).

3.0 Conclusion

Contemporary theories as discussed here are theories that are relatively modern as opposed to either classical or radical theories of industrial development. Stages of growth theory views industrial development or Industrialisation based on five stages. Countries who go through these stages would naturally be considered as industrialised nations.

While that is the case, the fundamental argument of the dependency tradition is that the inability of certain countries to industrialise, especially countries in Africa is as a result of the integration of the continent into a capitalist economic system, where relationships are lopsided. A

relationship of Metropolis and Satellite. Whereas the Metropolis flourishes, the Satellite depreciates.

4.0 Summary

Rostow emphasized that for countries to be considered industrialised they had to transition through the stages of growth. From traditional stage to the precondition for take-off, take-off stage, drive to maturity, and then to the Stages of high mass consumption. Any transition that does not drive up to maturity would never embrace Industrialisation. Rostow emphasized that to transition the fourth stage (drive to maturity took Britain 60 years). Industrial development therefore according this theory is a stage-by-stage process.

Dependency theory on the other hand places emphasis on underdevelopment. That other countries develop at the peril of others. They argue that Industrialisation is a mirage in many African countries as a result of integration into capitalist framework, where the resources of Africa were carted away, as a result, surplus value were cast out, thus rendering these societies underdeveloped and unable to industrialise but created industrial development in the West. These societies became dependent on Europe and America for their growth opportunities.

5.0 Tutor-Marked Assignment

- Mention and discuss two contemporary theories of industrial development.
- Critically differentiate between stages of growth theory and the dependency tradition.

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UNIT 4: WORLD SYSTEMS THEORY AND INDUSTRIAL DEVELOPMENT

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3.0 Main Content

3.1: World systems theory and industrial development

4.0 Conclusion

5.0 Summary

6.0 Tutor-Marked Assignment

7.0 References/ Further Readings

1.0 Introduction

In this unit, we present the world systems theory as propounded by Immanuel Wallerstein as introduced in his work, *The modern world-system*. This theory takes a rather distinctive view as to how industrialisation or industrial development emerges in countries.

2.0 Objectives

At the end of this unit, the student should be able to:

- Explain world systems theory of Immanuel Wallerstein.

3.0 Main Content

3.1: World Systems Theory and industrial development

Immanuel Wallerstein introduces his theory and argues that industrial development is a world-system, and in the world-system not every country industrialises or experience industrial

development. According to him, a world-system is defined as any relatively large social system having three principal characteristics:

- A high degree of autonomy. Meaning it does not depend on anything outside of itself for existence.
- An extensive division of labour, hence high degree of economic specialization.
- A multiplicity of cultures, that is the existence of different groups (Sanderson, 1988:125).

Wallerstein stated that the world-system is an economic system and is composed of three basic components or economic units –

- The core: These are countries that dominate the capitalist world economy and usurp the bulk of the surplus produced (Sanderson, 1988). Represented by mainly Europe and America and constitute the West.
- Semi periphery: The segment of the economy that operates between the core and the periphery. Those countries in this segment according to Sanderson are both exploiters and itself being exploited. Meaning it is an exploiter of the periphery and in turn it is exploited by the core. Some Asian and Latin American countries fall into this space.
- Periphery: The poor countries of Africa, Latin America and Asia fall into this segment. These are basically the countries and regions that export raw materials to the semi-periphery, who then make the products that the Core consumes.

According to this theory, in the world system, countries only industrialise if it is in the interest of the core and generally, it is not often in the interests of the core for every country to industrialise and grow economically (Dragos, 2020).

The world-system theory advances that over time countries of the core, that is the west have experienced industrial development because this is secured at the detriment of both the semiperiphery and of course essentially the periphery. The process of industrialisation is a

process of usurpation, plundering and expropriation. Many of the periphery countries have served as sources of raw materials for the core, through which they advanced and became industrialised. Immensely, this industrial development experienced by the core countries means retrogression for others, hence they cannot become industrialised (Onyishi & Amoke, (2018).

This theory further states that the semi periphery countries over time have begun to experience industrial development because the core or west wants that to happen. Reason being these countries are centres of manufacturing for the core countries.

Dragos (2020) posits that in the last half century, much of Asia and Latin American countries have moved up industrially because this has benefitted the core. The core countries use these Asian countries as centres to manufacture cheap and affordable goods due to cheap labour.

4.0 Conclusion

The theory is of the view that industrial development is a world system, and a world system is any relatively large social system with three basic characteristics, which includes a high degree of autonomy, an extensive division of labour and the existence of multiple groups. The world system is also composed of economic units – core, semi periphery and periphery. The core dominates this economic system and has benefited developmentally to the detriment of the others especially the periphery. In other words, countries in the periphery have served as sources of raw materials for the core, through which they advanced and became industrialised. To that extend these countries in the periphery over time have remained industrially backward since they continue to serve as conduit pipes.

6.0 Summary

The world systems theory of Immanuel Wallerstein clearly shows that economic systems are dominated by countries of the core, who advance industrially by impoverishing other countries of the semi periphery and periphery. The argument, generally is that the process of industrialisation is a process of usurpation, plundering and expropriation. Many of the periphery countries have served as sources of raw materials for the core, through which they advanced and became industrialised. In the world system, not every country can become industrialised except it is in the interests and benefit of the core.

7.0 Tutor-Marked Assignment

- Briefly explain your understanding of the world systems theory?
- How does the world system theory differ from the stages of growth theory?

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MODULE 3: INDUSTRIALISATION IN AFRICA

UNIT 1: INDUSTRIALISATION AND DEVELOPMENT IN NIGERIA

CONTENTS

1.0 Introduction

2.0 Objectives

3.0 Main Content

3.1: Industrialisation and development in Nigeria

4.0 Conclusion

5.0 Summary

6.0 Tutor-Marked Assignment

7.0 References/ Further Readings

1.0 Introduction

Industrialisation is fundamentally an element of a long-term sustained economic growth, which is obviously an outcome of structural transformation and of course improved manufacturing sector's capacity to create and absorb reasonable workforce, while stimulating the growth of

other sectors through various linkages (Martorano & Sanfilippo, 2017). Nigeria is a colony of the British Empire and has been at the receiving end of aid for advancement. The country remains at the fringe of development inspite of the various dictates of the development theories. With all the associated defects that accompany both Modernisation and dependency theories the country has sustained frantic efforts to industrialise and attain the status of a developed nation. This unit will expose the student to the various attempts Nigeria has made to attract industrialisation upon decolonisation.

2.0 Objectives

At the end of this unit, the student should be able to:

- Define industrialisation
- Discuss Nigeria's effort at industrialisation.
- Explain the meaning of import substitution.
- Explain indigenization policy.
- Explain structural adjustment programme (SAP).

3.0 Main Content

3.1: Industrialisation and development in Nigeria

In this module, we define industrialisation as the transformation from a mainly agricultural economy with employment potential to a rather more significant system of economy where manufacturing of goods and services are mechanized. In other words, it entails the migration and replacement of individual manual labour and craftman by mechanized mass production and an assembly line system. Apparently, post-colonial Nigeria was a frantic move to extricate the

country from the doldrums of backwardness and propel her into the development space (become industrialised). What were the choices available for Nigeria? How did the country fare with her efforts at industrialising, and did she succeed? All these are the questions to be answered in this unit as we examine Nigeria's early attempt at industrialisation.

3.2 Import Substitution

Nigeria's first attempt at industrialisation was through the instrument of import substitution. Import substitution according to Girigiri (1999) is the process of gradually establishing industries for the production of goods that were otherwise imported by the country.

This strategy was aimed at beginning with the local sale of final goods, and moving gradually towards the production of intermediate goods, then capital goods. The strategy also involved the introduction of restrictive external trade policies and considerable protection for the rather emerging infant industries (Musibau, 2012). In essence, it was meant to diversify the local economy and advance the country industry-wise. To protect the emerging local industry, the government set up a regime of complex systems of tariffs and non-tariff protection (Nduonofit & Emina, 2019). The initial protectionist policies were intended to assist emerging industries go up on the learning curve. This was never the case in terms of the outcome. However, the efforts according to Chukwuemeka, Anazodo & Nzewi (2011) led to increased dependence on imported raw materials, industrial inputs, machinery and equipment, technology and expatriate personnel to aid the local industry. The failure of the import substitution policy is basically the lack of the right attitude to look inward for sufficient local capacity and materials to support growth of local industry.

3.3 Indigenization policy.

Another dimension of efforts towards industrialisation by the Nigeria state was in the area of indigenization. The indigenization policy was enhanced by the promulgation of the Enterprise Promotion Decree of 1972 which was further amended in 1973, 1974 and 1977. The indigenization policy was a framework to nationalize the Nigerian economy and give greater participation to Nigerians. The policy classified all enterprises into two schedules, and gave Nigerians special preserve around - rice milling, printing and publishing. Meaning every industry in the above mentioned spaces had to be controlled by Nigerians only.

There were also enterprises left for foreigners or 'aliens' as it were to participate, however with indigenous equity participation of 40%. By 1977, the policy was further amended, and indigenous equity participation reviewed upward to 60% for Nigerians and 40% for foreigners (Akpakpan, 1987).

Even with these policy instruments and the frequent amendment of policy to particularly favour Nigerians, there were external and internal factors that derailed the efforts at industrialisation via the indigenization policy. Externally, foreign capital was involved and the policy at the time largely worked against them. Internally, there was no sincerity of purpose. This is so due to the fact that the policy was not generally designed for industrialisation proper, rather it was an attempt by the military government to control and localize ownership of the economy (Girigiri, 1999).

3.4 Structural adjustment programme (SAP).

The structural adjustment programme (SAP) emerged owing to the failures of the previous efforts or attempts at industrialisation. The debt crisis of the early 1980s led to a new consensus on the importance of trade policy reform and exports in growth strategies (Nduonofit & Emina, 2019). This new consensus came during the Babangida administration. The administration

aligned to various reforms suggested to her by international bodies. One of such reforms came from the IMF – through the instrument of the structural adjustment programme (SAPs) (Musibau, 2012; Oyejide, Ndulu & Gunning, 1999). As a result, the mid-1980s witnessed the formulation and implementation of wide-ranging trade policy-related economic reforms.

Structural adjustment programme implementation in Nigeria was based on two strategies, viz;

- **The Second –Tier Foreign Exchange Market (SFEM):** This was later restructured to Foreign Exchange Market (FEM). The introduction of the FEM was intended to have a realistic value for the Nigerian Naira which at the time was an overvalued currency owing to price distortions (Ike, 1988). Majorly, SAP reforms included economic deregulation, liberalization, privatization, commercialisation and reliance on market forces to determine the value of the Nigerian currency.
- **Trade liberalization:** By interpretation this meant the outright removal or reduction of restrictions or trade barriers on the free exchange of goods between nations. By removing such barriers as tariffs, duties, surcharges, etc. meant it was a strategy to actively promote exports of goods from Nigeria to other countries. However, this was not the case for the country. Rather it led to uncertainties especially as the price of food items and many more consumables, became quite difficult to access leading to various difficult situations including hunger in the country.

Main Characteristics of the structural adjustment programme (SAP)

Besides the points listed above, some of the major characteristics of the structural adjustment programme as outlined by Chete, Adeoti, Adeyinka & Ogundele, (2014) are as below;

- Major currency devaluations.

- Major real cuts and reorientation towards agriculture in the government budget.
- Reorientation of public expenditures in the productive sectors towards rehabilitation and Maintenance.
- Increased taxes on consumer goods.
- Holding nominal wages fixed and/or raising them by significantly less than required to make up the effects of inflation.
- Liberalization of the import regime.
- Substantially raising nominal producer prices for agricultural cash crops to limit real Declines.
- Reduced price controls.
- Increased competition and flexibility in agricultural marketing.
- Privatization of government-owned assets and concentrated efforts to raise efficiency in remaining government institutions.

4.0 Conclusion

Industrialisation efforts in Nigeria dates to the mid-1970s when the country ventured through a mix of choices, with import substitution regime as entry point. The goal of import substitution was to produce goods locally that were initially imported into the country. However, due to both internal and external factors, this strategy failed. Efforts via indigenization policy as well as the structural adjustment programmes had their attendant issues that nose-dived the efforts into fiasco. Beyond that, the country has still not given up on industrialisation as the efforts are still ongoing.

5.0 Summary

Efforts towards industrialisation in Nigeria was carried out via import substitution, indigenisation policy and the structural adjustment programme (SAP). While there was much energy to all these by the government, several forces or factors that are both internal and external contributed to their various failures.

8.0 Tutor-Marked Assignment

- What is industrialisation?
- What is import substitution?
- How does indigenisation policy differ from the structural adjustment programme?
- List and discuss the various strategies adopted by Nigeria to advance industrially.

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UNIT 2: INDUSTRIALISATION IN LIBERIA

CONTENTS

1.0 Introduction

2.0 Objectives

3.0 Main Content

3.1: Industrialisation in Liberia

4.0 Conclusion

5.0 Summary

6.0 Tutor-Marked Assignment

7.0 References/ Further Readings

1.0 Introduction

As a country in West Africa, Liberia was granted independence by the United States of America (USA) in 1847, but recognition for this status came much later in 1862 (History, 2021). From then till date, although with various internal issues peculiar to almost all African countries, the country has been making efforts at becoming an economically self-sufficient industrial nation.

2.0 Objectives

At the end of this unit, student should be able to

- Explain Liberia's efforts towards industrialisation.

3.0 Main Content

3.1: Industrialisation in Liberia

The 14 years civil war retrogressed the country to an economic decline, which saw the country's GDP fall by 91%. Upon stability the Liberian government fostered efforts to enhance industrialisation. The country understands the critical role of the private sector in mainstreaming industrial development. The reason they believe that a strong private sector is essential to economic growth and job creation. Over time, historically, the country's efforts at industrialisation has been extractive industry based, and this did not provide the needed linkage to the wider economy, thus resulting in "growth without development" (Johnson-Sirleaf, 2011).

Reform for industrialisation

As earlier mentioned, the Liberian government awareness that any effort that does not create a linkage to the wider economy is an effort in futility, thus decided to look inward and muster efforts towards industrialisation. To do this the government of the country policy-wise, focused on four cardinal areas:

1) Legal and regulatory reforms.

Established a legal framework that was focused on programmes implementation and strengthen institutions to promote better manufacturing practices and standards, and reform and restructure state owned enterprises (SOEs).

2) Promoting better practices

The implementation of the legal and regulatory framework was bolstered via the promotion of better practices, that involves best practices that meet minimum labor, health, safety, environmental, technological and intellectual property standards in terms of products that are safe to consume, manufacturing practices that allows the continuing and sustainable use of environmental resources, and a safe work place for employees; and potential for higher business margins, as well as the ability of businesses to insert theirself into global value chains.

3) Infrastructure development. Prioritised local infrastructure development planning and encourage private sector investment in infrastructure.

4) Investment in human capital. Invest in the building of capacity of Liberians for employment in the industrial sector by partnering with the private sector on skills training and development, including engaging in consultative processes and providing incentives

to businesses to provide employment and training to Liberian staff in specialized technical areas (Ministry of Commerce and Industry, 2011).

Implementation of the policy framework

Following instituted reforms for industrialisation, the road to implementation however focused on specific measures in certain areas to stimulate industrial development in Liberia. These areas were in:

Specific sector support: The government looked around and replicated examples from across the globe especially Brazil and Botswana to drive support in developing specific sectors. For example, Cassava Strategy to create a cassava-based industry in Liberia. Other programs were initiated in partnership between UNIDO, UNOPS and focused on developing fisheries, food and vegetable, rice processing and timber and rubber wood processing value chains.

Fiscal Incentive: In 2010 Liberia reformed the system for granting incentives so that it is more transparent and more certain for businesses to secure incentives.

Industrial Zones: Post war Liberia had a weak investment portfolio and barriers to trade were quite many. Moreso, given the fact that FDI plays critical role in the economy, that of Liberia was very low. Going forward, the Government created special economic zones in Liberia. The purpose of these industrial free zones was to accelerate Industrialisation and attract foreign investment (IFAA, 2009).

Industrialisation outlook in Liberia

Post war Liberia is one of the poorest countries in the world with a large part of the country challenged infrastructurally. Yet, in recent years, with reforms and restructuring Liberia's economy has been growing steadily as mining and rubber industries have been growing

tremendously. Gross Domestic Product (GDP) in Liberia contracted 3 percent in 2020 from the previous year and was expected to reach 2.70 USD Billion by the end of 2021 (Trading Economics, 2021).

As a country that emerged from 14 years of civil war, Liberia has acted fast and strongly to industrialise. Her efforts however can be seen in the state of infrastructural development that is now set to promote industry. In spite of these efforts, Liberia is not where it wants to be as the road to industrialisation is not an easy one. However, with daunted efforts, milestones are being covered, compared to many other African countries.

4.0 Conclusion

Post war Liberia was one of the poorest countries in Africa. Meaning so much deficiency in infrastructure and associated components to spur industrialisation. However, the government of Liberia paid special attention to industrialisation by engaging in reforms that centred on Legal and regulatory reforms, infrastructural development as well as investment in human capital. These reforms were implemented via strategies that focused on Specific sector support, financial incentives as well as the creation of special industrial zones. These are settings preparing the country for clear industrialisation. Although the country has not reached her goal, the efforts appear quite daunting for a country just emerging from a 14 year civil war.

5.0 Summary

A basic feature of Liberia's road to industrialisation lies in the various reforms and implementation strategies followed. As a country that had been hindered by 14 years civil war, her efforts towards industrialisation is commendable though with relevant challenges.

6.0 Tutor-Marked Assignment

- Explain some of the strategies deployed to attract industrialisation in Liberia.

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UNIT 3: INDUSTRIALISATION IN RWANDA

CONTENTS

1.0 Introduction

2.0 Objectives

3.0 Main Content

3.1: Industrialisation in Rwanda

4.0 Conclusion

5.0 Summary

6.0 Tutor-Marked Assignment

7.0 References/ Further Readings

1.0 Introduction

Rwanda is relatively a small landlocked country in central East Africa and has experienced a fair share of conflicts and violence as most African countries have. Just like Liberia, in 1994, a 5-year large-scale civil war that culminated in the Kigali genocide wreaked havoc and undermined the countries growth aspirations. In this unit we examine industrialisation in Rwandan to understand the government's role and efforts in its attempts.

2.0 Objectives

At the end of this unit, the student should

- understand policy regimes deployed to venture into industrialisation by the Rwandan government

3.0 Main Content

3.1: Industrialisation in Rwanda

Rwanda's industrialisation effort is tied to a policy framework called Vision 2020. The aspiration of the country with a view to the vision is the diversification of the Rwandan economy into new sectors of activity so as to profit all Rwandans. However, to achieve this, requires the share of industry to increase to 26% of GDP and of course the agricultural sector which employed over 80% of workforce to transform and become mechanized (Ministry of Trade and Industry (MoTAI), 2011).

Vision 2020 and industrial development

This was the policy regime that set the grounding framework for Rwanda's attempt at industrialisation. The objective is basically to build a "Competitive industrial and advanced services sectors producing over \$1.5 billion of exports by 2020, while increasing the number of off farm jobs." (MoTAI, 2011). The vision, however, is based on the following:

- Short term: Promotion of macroeconomic stability and wealth creation to reduce aid dependency.
- Medium Term: Transforming from agrarian to a knowledge-based economy
- Long Term: Creating a productive middle class and fostering entrepreneurship

Rwanda is a small country, and industrialisation cannot take place or happened therein without export related activities. Exports from firms in small markets permit them to attain the economies of scale and specialisation necessary to become regionally and even globally competitive. As studies (Newfarmer & Twum, 2018) have shown, most countries who experience high growth in industrialisation do so on the basis of export-oriented manufacturing. The reason the vision was to drive industrial development through structured economic pillars of domestic production and export competitiveness.

Rwanda before Vision 2020

Prior to setting up the Rwandan Vision 2020 in April 2000, the country's economic outlook was pathetic. Some of the challenges that confronted the country were:

- An unproductive agricultural sector
- No link to regional railway network
- Narrow economic base

- Low level of human resource development
- Public debt
- Weak institutional capacity
- Social and economic consequence of the 1994 genocide

Rwanda Economic Outlook 20 years later

- Post Vision 2020, Rwanda by all standards have attained impressive economic outlook, mostly achieved through sustained structural transformation. Particularly around the movement of workers from low productivity sectors (agriculture) to higher productivity sectors like construction, services, commerce and of course finance (English, 2017).
- Sustained efforts have also seen the country's exports growing, yet steadily below average. Drivers of this sustained growth are basically as a result of the government attitudes towards building an enabling business environment for domestic and local firms as well as improvements in national infrastructure.
- Due to infrastructural improvements, Rwanda's service sector has grown tremendously from post war era thus contributing immensely to the country's GDP. Following this growth, the service sector accounts for 53% of the total GDP, with the annual GDP growing at a rate of 20.6% in quarter 3 of 2021(Trading Economics, 2021).
- Rwanda's real GDP grew to a level of 9.4% in 2019 and was estimated to contract by 0.4% in 2020 due to the COVID-19 pandemic. However, there are clear projections that the Rwanda's economy would rebound this 2022 in view of anticipation of her role and participation in the African Continental Free Trade Area (African Development Bank, 2021).

- Rwanda ranks quite high in the ease of doing business, or what is popularly called business freedom and monetary freedom (57.1% & 74.4%) as this is underscored by efficiency in regulatory implementation. Moreso, whilst the country thrives in investment freedom, there is also a corresponding increase in trade freedom (Heritage Foundation, 2022).

In spite of the considerable efforts made to restructure the economy, bolster infrastructure ease business operations in-country, Rwanda still has a lot to do in terms of industrialisation,

4.0 Conclusion

Post war Rwanda economy was comparatively very poor and socially lacked infrastructural development. With steady government and a vision 2020 Rwanda was able to have plans and a framework that guide in-road to industrialisation. The brief economic outlook of Rwandan as shown here speaks volume when mirrored against twenty (20) years ago. Rwanda has done much as a country, yet much remains to be done.

5.0 Summary

Rwanda is small landlocked country in Central East Africa. Just like Liberia, the country has had her fair share of violence that shattered initial infrastructure and hopes of a better country. Prior to the year 2000, there were various odds against the country, especially an unproductive agricultural sector and very weak institutional capacity. With daunted efforts the country developed a Rwandan Vision 2020 and followed through with various implementation frameworks, with hopes to gain access into industrialisation.

6.0 Tutor-Marked Assignment

- Explain the framework of Rwanda's approach to industrialisation

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UNIT 4: INDUSTRIALISATION AND THE EMERGENCE OF THE ASIAN TIGERS

CONTENTS

1.0 Introduction

2.0 Objectives

3.0 Main Content

3.1: Industrialisation and the emergence of the Asian Tigers

4.0 Conclusion

5.0 Summary

6.0 Tutor-Marked Assignment

7.0 References/ Further Readings

1.0 Introduction

Asian economies improved over time as a result of resilience and sustained implementation of economic and development policies. Across the continent of Asia, four countries stand out in terms of their efforts towards industrialisation. The four countries are usually referred to as the Asian Tigers. Which four countries? What did they do to become industrialised? This unit is concerned with providing an understanding as to the emergence of the Asian Tigers vis-à-vis industrialisation.

2.0 Objectives

At the end of this unit, the student should be able to,

- identify the four countries qualified as Asian Tigers
- explain why they are called Asian Tigers
- understand and describe factors that led to their industrialisation

3.0 Main Content

3.1: Industrialisation and the emergence of the Asian Tigers

In development parlance, the concept of the Asian Tigers is a term associated with the economies of four East Asian countries. These countries are:

- Hong Kong

- Taiwan
- Singapore
- and South Korea

They are called Asian Tigers or “Asian Miracle” because these four countries have steadily sustained a high rate of economic growth since the 1960s (CFI, 2021). This sustained economic growth has been clearly driven by exports and rapid Industrialisation. These four countries are however classified as amongst the richest economies of the world alongside the likes of the United States of America, Japan, Germany, Canada etc. Although, in the early 1960s these countries were mostly referred to as economically backward countries or third world countries (Harvey & Lee, 2002). Over the past years they have worked very smartly to become industrialised countries.

Since 1960, the East Asian countries of Hong Kong, Singapore, South Korea and Taiwan began to grow and had an average annual growth rate of about 6 percent a year (in per capita terms) (Sarel, 2002). This impressive growth rates were sustained over a 30-year period that ushered these countries into a steady state growth performance that changed their economic narratives and spotlighted them as industrialised countries.

What did the Asian Tigers do?

Here, we discuss some of the supposed strategies these four countries adopted that spurred their development. These factors are as discussed below:

- **A Free-Market Economy Led by Exports**

Over the course of 25 years, the share of GDP increased astronomically in these four countries. Why? This is so because these countries adopted a free-market economy that promoted exports. Infact, they had designed a market that facilitated exports and in economic terms this is usually referred to as “export-oriented Industrialisation. Export-oriented industrialisation in earnest means a country has fashioned all aspects of her industry to play a role in the global market in terms of exporting her goods and services to derive foreign exchange.

Moreso, these countries as it were, did not allow the then exchange rate to become overrated as such exporters had access to incentives (free access to foreign exchange, duty exemption, and free trade zones). In all, foreign investment was critical for these countries. In this case, direct foreign investment assisted these countries in establishing trade regime which grew from 16% in 1970 to 33% in 1990 (Borgen Magazine, 2021).

- **A Capitalist Developmental State**

Many have argued that one of the strategies adopted by the Asian Tigers was the idea of a capitalist development state (Gulat, 1992). This simply means that the state was actually involved in the industrialisation process, however through state control of national resources and by directing clear incentives through particular policy making while economic and human development were simultaneously ongoing. In many ways, this entails a policy that integrated public-private cooperation while ensuring that exchange rates reflected economic fundamentals, interest rates yielded positive returns. That way, inflation was kept in check while taxes were given enough flexibility to boost economic activity in the public domain.

- **Rapid Industrialisation**

This is another factor that spurred the economic advancement of the Asian Tigers. Economic advancement or industrialisation as it were began in these countries through a process of rapid industrialisation that was derivable from the agricultural sector. In the colonial days, agriculture was invested in by the colonial government. Post-colonial government of these countries sustained the tempo by investing heavily into the improvement of agricultural productivity. This became possible through the various land reform policies initiated by the governments, by extension facilitated increased agricultural production at the same time undermined food scarcity. With poverty level reduced and domestic production catered for, these countries began the export of their locally manufactured agricultural products. They initiated import substitution policies that protected domestic industries from the competition of the global market while subsidizing and investing in same industries. This way, the local industries became successful in both domestic and global markets front. Furthermore, these local or domestic industries grew quite fast as they relished a low borrowing ceiling and low deposit rates, that augmented their businesses.

- **Human resource development**

Investment in human resource development was essentially a priority for these countries. In the early 1960s, these economies had a population with lower-level education, although the population with secondary education was comparatively much higher than that of other developing countries. With time, they began to invest heavily in education to build an educated and a hard-working labour force particularly in the areas of science and technology. Over time, with increased population and the resilience of investing in education, these countries were able to build a highly educated, large labor force that played a significant role in achieving positive economic outcomes. By the time these countries investment in heavy industries (steel,

petrochemical) and hi-tech industries (electronics) took off it became clear that such efforts in human capital development was critical.

- **Strong Centralized States**

A strong centralized state was quite critical in all four countries at the early stages of their industrial advancement. Most of the Asian Tiger states were autocratic except for Singapore with a somewhat subtle administrative democracy (Bruno, 2014). Perhaps one would say it made a lot of difference in these countries as the centralized government had no dissent voices, as such this provided the opportunity for the government to be focused. The governments centered their efforts on core economic ministries which formulated and coordinated economic policy. Both authoritarian and participatory institutional mechanisms managed to create features that allowed stability in growth, limited economic controls and provided adequate support services and a strategic vision for the future (Davidheiser, 1992; Acemoglu et al. 2020).

4.0 Conclusion

In this unit we have discussed about the Asian Tigers and how they emerged into the spotlight of industrialisation. Asian Tigers are four countries of East Asia (Hong Kong, Taiwan, Singapore, and South Korea) whose economies grew rapidly more than any other developing country. They are so called because they steadily sustained a high rate of economic growth since the 1960s driven by exports and rapid Industrialisation. The resilience of these countries and the sustained

efforts of their government in providing the enabling environment and driving change ushered these countries to becoming part of the largest economies of the world.

5.0 Summary

Asian Tigers are Hong Kong, Taiwan, Singapore, and South Korea. They are all located in East Asia. From the 1960s these countries made frantic efforts to become industrialise. Their efforts paid off and their economies grew faster than any other developing country at the time. To become industrialised, these countries adopted a free-market economy that promoted exports, the state became a capitalist development state that integrated public-private cooperation while at the same time controlling national resources, invested in rapid industrialisation of local industries and human capacity development and operated a centralized system of government that is autocratic in many forms.

6.0 Tutor-Marked Assignment

- What countries are usually referred to as the Asian Tigers, and why are they so called?
- What are the various factors that provoked industrialisation of the Asian Tigers?

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MODULE 4: INDUSTRIALISATION AND DEVELOPMENT: CHALLENGES & DRAWBACKS

UNIT 1: INDUSTRY AND ENVIRONMENT

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1.0 Introduction

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3.0 Main Content

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1.0 Introduction

With industrialisation comes transformation from agriculturally based economy to a manufacturing-based economy driven by technology. The industrial revolution was merely the earliest form of advancement in terms of economic production. Today's world has witnessed a different form of industrialisation that is associated with the despoliation of the environment. In this module, our concern is with the relationship between industrialisation and development with a view to the existential challenges. In this unit, we draw down to industry and the environment. As science has advanced and manufacturing taken a different form, our environment is confronted with enormous challenges. Why? Because industrial activities takes place in the environment. Early industries were small factories that produced smoke as the primary pollutant. Industrial production in recent time has orchestrated more pollution and degradation that has become a problem to humanity.

Industry and pollution

First, it will not be out of place to comprehend the meaning of pollution.

2.0 Objectives

At the end of this unit, the student should,

- understand the meaning of environment
- understand the meaning of pollution
- describe and explain the impact of industry on the environmental

3.0 Main Content

3.1: Industry and environment

The environment does not necessarily mean where man is living or staying. This assertion becomes important because man is not the only one that exists or inhabits the environment. The environment therefore is composed of the air, rivers, trees, organisms, animals and every other thing found therein. In other words, the environment is inclusive of the flora and fauna that makes up our biodiversity. Whereas the industry, whether petrochemical, textile, shipping, mining etc. has economic benefits to a country and generally the people, the implications for livelihood, community health, and the environment in general has been noted to be enormous (Nduonofit, Kidi & Nwakanma, 2020).

As science has advanced and manufacturing taken a different form, our environment is confronted with enormous challenges. Why? Because industrial activities take place in the environment. Early industries were small factories that produced smoke as the primary pollutant. Industrial production in recent time has orchestrated more pollution and degradation that has become a problem to humanity.

Industry and pollution

First, it will not be out of place to comprehend the meaning of pollution. But what is critical here is for us to understand that pollutions or at best environmental pollution is a derivative of the activities of man (Folk, 2021; Nduonofit, Nkpah & Ekpenyong, 2015). These activities are more or less industry driven owing to nascent technologies and the desire of man to make more financial gains.

According to Rinkesh (2021), any form of pollution that can trace its immediate source to industrial practices is known as industrial pollution. As earlier mentioned, majority of the pollution on the planet are traceable to industries. Most countries facing sudden and rapid growth of such industries have come to the realization that this is a serious issue and must be tackled. Simply therefore, pollution can be said to mean the introduction of harmful and dangerous materials into the environment. These dangerous materials are also known as pollutants.



Figure 2: Industrial pollution in action

Industrial activities that cause pollution:

Various activities that take place in the industry responsible for pollution are as listed below.

1. Exploration/exploitation of fossil fuels like oil, natural gas, and petroleum

2. Untreated gas and liquid waste being released into the environment
3. Improper disposal of radioactive material
4. Burning coal
5. Chemical solvents used in dyeing and tanning industries
6. Plastics from bottling/bagging industries

Causes of Industrial Pollution

1. Inefficient Waste Disposal

Water pollution and soil pollution are often caused directly due to inefficiency in the disposal of waste. Long term exposure to polluted air and water causes chronic health problems, making the issue of industrial pollution into a severe one. It also lowers the air quality in surrounding areas, which causes many respiratory disorders.

2. Unplanned Industrial Growth

In most industrial townships, unplanned growth took place wherein those companies flouted rules and norms and polluted the environment with both air and water pollution.

3. Lack of Policies to Control Pollution

Lack of effective policies and poor enforcement drive allowed many industries to bypass laws made by the pollution control board, which resulted in mass-scale pollution that affected the lives of many people.

4. Use of Outdated Technologies

Most industries still rely on old technologies to produce products that generate a large amount of waste. To avoid high cost and expenditure, many companies still make use of traditional technologies to produce high-end products.

5. Presence of a Large Number of Small-Scale Industries

Many small-scale industries and factories that don't have enough capital and rely on government grants to run their day-to-day businesses often escape environment regulations and release a large number of toxic gases in the atmosphere.

6. Leakage/Discharge of Resources

Industries do require a large amount of raw material to make them into finished products. This requires the extraction of minerals from beneath the earth. The extracted minerals can cause soil pollution when spilled on the earth. Leaks from vessels can cause oil spills that may prove harmful to marine life.

7. Natural Resource Use

Raw material is a must for industries, which often requires them even pulling out underground elements. One of the most common forms of leaching from natural resources is fracking for oil.

When industries extract minerals, the process causes soil pollution and also causes oil leaks and spills that are harmful and even deadly to people and animals.

Impacts of industrial pollution on the environment

As stated above, there are various ways in which industries cause pollution. However, such pollution(s) may have one or more effect on the environment. These are discussed below.

1. Water Pollution

The impacts of industrial pollution are extensive and has capacity to undermine the environment for a long period of time. Most industries require large amounts of water for their work. When involved in a series of processes, the water comes into contact with heavy metals, harmful chemicals, radioactive waste, and even organic sludge would contaminates the ecosystem as well as the rivers. Fishes in such water would naturally be destroyed. Most communities rely on rivers for their source of drinking water, once this occurs the human health by extension is affected. In the Niger Delta area for instance there has been so many issues around the activities of multinational oil companies and how it impacts the livelihood of the communities in terms of pollution that destroys fishes and by extension income of fisher folks (Nduonofit et al. 2020).

2. Soil Pollution

Soil pollution is creating problems in agriculture and destroying local vegetation. It also causes chronic health challenges to the people that are contact with such soil daily. Most rural communities where industrial activities take place have agriculture as their economic mainstay. With the soil destroyed, there would be poor agricultural yield. This naturally means destruction of employment opportunities, reduced income and livelihood.

3. Air Pollution

Many industries release effluents into the atmosphere, and these effluents are dangerous pollutants that have capacity to undermine human health. In China, the atmosphere is usually always misty due to industrial effluents. In Niger Delta, the activities of artisanal refining led to large-scale emission of black soot which has contributed enormously to health challenges in

Rivers State. Although the government of the state have consistently fought the situation, yet such activities remain.

4. Biodiversity Loss

Industrial pollution continues to cause significant damage to the earth and all of its inhabitants due to chemical wastes, pesticides, radioactive materials etc. According to Nduonofit et al (2020), the activities of man in terms of oil exploration and exploitation has largely contributed to the destruction of biodiversity and as such has rendered the natural habitat or ecosystem uninhabitable. To that extent, many natural organisms are becoming extinct.

The increasing liquid, solid and hazardous wastes undermine ecosystem health and impact on food, water and health security. Industrial pollution disasters, including oil spills and radioactive leakage, take years to decades to clean up.

4. Wildlife Extinction

By and large, the issue of industrial pollution shows us that it causes natural rhythms and patterns to fail, meaning that the wildlife is getting affected in a severe manner. Habitats are being lost, species are becoming extinct, and it is harder for the environment to recover from each natural disaster. Major industrial accidents like oil spills, fires, the leakage of radioactive materials and damage to property are harder to clean-up as they have a higher impact in a shorter timeframe.

5. Global Warming

With the rise in industrial pollution, global warming has been increasing at a steady pace. Smoke and greenhouse gases especially chlorofluorocarbons (CFCs) are being released by industries

into the air, which causes an increase in global warming. Melting of glaciers, landslides, erosions, extinction of polar bears, floods, tsunamis, hurricanes are few of the effects of global warming. Alleviate

Measures to reduce Industrial Pollution

Industrial pollution is a very topical issue to every nation on the planet. With the increase of the harmful effects of industrial pollution, there are many agencies and individuals who are working to reduce carbon footprints and live and work in an environmental friendly space.

Still, industrial pollution is quite rampant and will take many years for proper control and regulation. However, there are few recommended measures that can possibly be adopted to address this problem.

1. Align to the Recycling model

One of such measures to adopt in order to manage industrial pollution is via recycling. Recycling is the process of converting waste materials into new materials and objects. According to Villalba et al. 2002) recycling is the recovery of energy from waste materials. There is the need to be compliant in aligning to the recycling model. So that as much as possible industries can possibly be free of contributing to the destruction of the atmosphere.

2. Proper Treatment of Industrial Waste

By deploying and implementing adequate treatment facilities for handling industrial waste and proper habits can reduce pollution.

3. Rebuilding Habitats and Afforestation

Rebuilding habitats by planting more trees and plants can help give wildlife back their homes, and the trees can help purify the air with enough oxygen, and act as a buffer against the environment.

4. Stricter Laws and Enforcement

The Environmental Protection Agency (EPA) works to correct the damage from industrial pollution. There should be more stringent rules to take action against the companies who do not follow proper protocol and more significant rewards for the companies who operate properly. It requires creating policies that prevent misuse of land.

5. Regular Environmental Impact Assessments

Being a responsible company or industry should require regular environmental impact assessments that are reported for evaluation. If there are harmful impacts discovered during the review, necessary actions to correct the negative consequences should be developed and enforced. Businesses should be made to comply with local environmental laws like the EGASPIN law and align strictly with set guidelines.

4.0 Conclusion

The activities of the industries are the activities of man, and man does not exist alone in the environment. The environment is a biodiversity (that is, a collectivity of species including man). These activities of industry largely undermine the environment. As industrial activities intensify, so also would improper disposal of radioactive materials, untreated gas, and liquid waste etc. will

be released into the environment. These pollutants have a way of impacting negatively on the environment – water, air, biodiversity, wildlife, and of course global warming.

5.0 Summary

As industrial activities intensify, our environment is confronted with enormous challenges. These challenges come in the form of pollution. The environment is composed of the air, rivers, trees, organisms, animals, and every other thing found therein. Pollution can be said to mean the introduction of harmful and dangerous materials into the environment. These dangerous materials are also known as pollutants. There are certain industrial activities that provokes pollution, examples are: Exploration/exploitation of fossil fuels like oil, natural gas, and petroleum, untreated gas and liquid waste being released into the environment, improper disposal of radioactive material, burning coal etc. Through such, the industries in turn contributes to the pollution of their environment. These pollution affects the water, air, soil, wildlife, biodiversity and causes global warming.

6.0 Tutor-Marked Assignment

- What is environment?
- What is pollution?
- Explain how industrial activities impacts on the environment

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UNIT 2: INDUSTRIALISATION AND URBANISATION

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1.0 Introduction

2.0 Objectives

3.0 Main Content

3.1 Industrialisation and urbanisation

4.0 Conclusion

5.0 Summary

6.0 Tutor-Marked Assignment

7.0 References/ Further Readings

1.0 Introduction

As a society advances industrially, obvious changes become noticeable around how society is arranged and how people live. With rise in industry comes dynamics in communities once agricultural. Such changes come with the location of a factory or multiple factories which draws people from various places into the vicinity for factory labour. With time such areas once rural opens and becomes urbanized. The influx of such number of people underscores multiple vices. This unit details the role and impact of Industrialisation on urbanisation.

2.0 Objectives

At the end of this unit, the student should be to

- explain the meaning of urbanisation
- describe the impact of industry on urbanisation
- understand and explain the problems of urbanisation in an industrialised era.

3.0 Main Content

3.1 Industrialisation and urbanisation

Industrialisation and urbanisation are naturally related. The two concepts obviously appear more like Siamese twins. This is so in that the more industries you have in a locality, the more urbanised such a locality. On the other hand, the more urbanized an area, the more industries you have within such an area. Since the industrial revolution multiple factories or industries have found their way into rural communities thus leading to location of schools and other associated

businesses that provides one service to the other. Such situation further leads to the demand for housing (Boyle, 2021). As more businesses and industries emerge, so also do more houses, in-migration follows for wage earning. Generally, on that note, urbanisation emerges, transforming once peaceful and naïve environment into a boisterous populated area.

Urbanisation is a process whereby populations move from rural to urban areas, thus enabling cities and towns to grow. It is a progressive process that takes couple of years owing to location of industries or factories, schools, universities, modern markets, etc. According to Hussain & Imitiyaz (2018), urbanisation is a process of becoming urban, the movement of people or processes to urban areas, increase of urban areas, population, or processes. Urbanisation does not happen overnight, rather as mentioned above it is a gradual process that becomes quite obvious with time. Since the 1900, according to (Langeweg et al. 2000) the world economy has grown by 3%, whereas 30% of the terrestrial natural environment has disappeared and about 40% of the land areas have been domesticated, leading to increased urbanisation.

For the most part, Africa and largely Asia have become the spotlight of urbanisation. Growing faster than was ever imagined when compared to couple of years back. As the world population increases, more people will live in the city. By projection, in 2050, 6.5 billion people (two third of world population) will live in urban centres. Moreso, studies have shown that in the early 1990s only a third of Africa's population was urban (31%). It is however projected that by 2035, 49% of Africa's population will be urban (United Nations Economic Commission for Africa, 2017). The challenge with such statistics is that it presents Africa with significant demands for employment opportunities, services, and infrastructure.

Challenges of urbanisation

When we talk about challenges of urbanisation, we are simply referring to the potential issues that emanates because of urbanisation. In other words, the problems that are associated with urbanisation. We have mentioned here that industrialisation transitions a rural society to an urban centre completely different from what it originally was. However, such transition is not without a problem. Here, we will adumbrate some of the associated problems and challenges of urbanisation.

1. Insufficient housing

As a once small rural community transitions to an urban centre, there is the demand for more houses due to an increased number of persons that have relocated to the vicinity. The influx of people to an area especially for wage earnings or employment opportunities means they will have to stay somewhere. This is usually a huge challenge because in most cases there are insufficient housing in urban centres. It is projected that by 2035, 49% of Africa's population will be urban. However, Africa, especially Sub-Saharan Africa has a deficit of 51 million housing unit (The Borgen Project, 2020). The negative impact of such a situation in majority of cases is the emergence of slums. About 53 million people in sub-Saharan Africa live in slums (Voice of African News, 2019). Slum dwelling has become a nightmare for major cities across the world, especially in Africa and Asia. Kidi, Nduonofit & Nkpah (2013) noted that as more people move into an urban area for job purposes, and where they cannot afford decent housing for accommodation, they would naturally move to and inhabit ecologically marginal areas – indecent areas with makeshift accommodation. Such areas in most cases as Kidi et al. (2013)

stated, are marginally degraded, thus becomes environmental nightmare to the city. Africa requires more than 331 million new low-cost housing to meet the growing housing demand by 2025 (The Borgen Project, 2020). After all, the sustainable development goals implies that everyone should have access to a decent and affordable accommodation by the year 2030.

2. Poverty/Urban poor

As cities emerge, people emigrate from various places into such cities for better prospects in life. Largely these are mostly dashed hopes, as cities are usually quite competitive and expensive. With limited access to land for agriculture, there is usually dependence on food from outside and this comes at a high cost. Hence, because not everybody secures employment or one form of earning opportunity in the city, poverty is usually high. Such poverty leads to associated health problems because access to medical care in the city is also quite expensive. Therefore, the emergence of urban centres is associated with the emergence of poverty as well as the urban poor (Christiaensen, De Weerd & Todo, 2013; Brockerhoff & Brennan, 1998). To this end, it is worth stating that if there is sustained increase in city populations without a corresponding economic transformation, then it is most likely that there will equally be a sustained and increased vicious and persistent cycle of high poverty.

3. Traffic and growing congestion

Cities or urban areas are the epicentre for traffic and congestions. Rural areas have no such thing. This is a serious nightmare in most cities and is mostly as a result of the fact that there is a growing need to move from one place to the other in the city. However, this is bedeviled by very nefarious traffic situations. With a population of almost 24 million people, the United Nations estimates that at its current growth rate, the commercial capital city of Nigeria, Lagos, is one of

the fastest growing cities in the world and will be the third largest city in the world by 2015. Traffic situation in the city of Lagos is a serious drag as one could spend 4 to 6 hours on traffic. The city is so congested that it ranks amongst most congested city.

4. Poor air quality /Health risk

Most cities in the world are bedeviled by poor air quality and this underscores poor health or associated health risk. In Nigeria, Port Harcourt city has suffered this immensely with the consistent black soot that makes air quality in the city very poor. Although the government has given this a serious thought and efforts, yet it proves difficult to abate because it is associated with financial gains. Most urban centres atmospheric air quality are undermined by illegal industrial productive activities. Lin & Zhu (2018) found in their study that the urbanisation process has a significant and negative impact on air pollutant concentration. By interpretation, their study found that cities with higher industrial activities tend to be more urbanized, hence have poor environmental air quality.

5. Unemployment /Crime

Most people who migrate to urban centres go there in search for employment opportunities. As a result of the growing population of urban centres, employment opportunities are relatively insufficient and, in most cases, non-existent. Many who cannot find good jobs or a job at that, resort to other means. Mostly crime results because of unemployment and lack of income. The cities in recent time have become a centre for crimes of all categories. Ojo & Ojewale (2018) explored the nexus between urbanisation and crime in the Nigeria arguing that urban crime is environmentally determined. By adopting environmental determinism, the authors simply want

us to understand that crime in urban centres are derivatives of the social structure of city life. Meaning, physical realities of urban centres in other words, shapes the behaviour of people and their inclination towards crime. Since unemployment is obvious and city life is about successes, many who are unemployed and unsuccessful are shaped by this understanding to act accordingly.

6. Prostitution

Prostitution is one of the many problems that are associated with urbanisation. Now, let us not get it wrong. Urbanisation is good, however as we earlier state, it has its attendant problems. And prostitution is one of such. Prostitution remains one of the oldest trade or business that emerged with cities. Many have argued that prostitution actually emerged because of the marginalization of women. For instance, that women were removed from a large sector of the workforce and increasingly found themselves dissatisfied with what employment they could acquire and ventured into prostitution in urban areas before it gradually found meaning in most rural areas. To that extent, it has also been debated that men provided the greater platform that flourished prostitution in cities. How? Men contributed to this rise by providing an expanded market to which prostitutes could cater for themselves (Shelton, 2013), thus increased the profession. In recent time in Port Harcourt city, Rivers State Nigeria, Governor Nyesom Wike have tried to fight this by closing centres and places (brothels) that encourage prostitution in the city. However, one could argue that this is an obvious effort in futility, as the business of prostitution seems rooted in modern life clearly expressed in urban centres.

4.0 Conclusion

As societies becomes more industrialised, it creates opportunities for the emergence of cities or what we call urbanisation. Urbanisation as we have mentioned here refers to a process of

becoming urban, the movement of people or processes to urban areas, increase of urban areas, population, or processes (Hussain & Imityaz, 2018). As the world population increases, more people will live in the city. As mentioned, studies have shown that in the early 1990s only a third (that is 31%) of Africa's population was urban. Current projection shows that this will be greater in 2035. Meaning, more people will move into the urban areas and this would naturally present further challenge for Africa. As industrialisation intensifies, urbanisation potentially increases also. However, urbanisation is also associated with various problems which we have listed above.

5.0 Summary

Industry and urbanisation are related. As more factories are concentrated in an area or locality, it has potential to urbanise such an area, and provoke migration or in-migration as it were. As more businesses and industries emerge, so also do more houses, more opportunities, more employment and of course more problems. Urbanisation equally presents various challenges that expose urban life to negativities.

6.0 Tutor-Marked Assignment

- What is urbanisation?
- How does industrialisation relate to urbanisation?
- Mention and explain some problems that are associated with urbanisation?

7.0 References/ Further Readings

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UNIT 3: COVID-19 AND INDUSTRIALISATION

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- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Covid-19 and industrialisation
 - 3.2 Impact of covid-19 on industrialisation
 - 3.3 Covid-19: Implication for African industrialisation
- 4.0 Conclusion
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- 6.0 Tutor-Marked Assignment
- 7.0 References/ Further Readings

1.0 Introduction

Industrialisation is a positive situation, occurring to create substantial changes in and around a countries economic space. Social development requires industrialisation so that a society's economy can be beneficial to all and sundry. However, industrialisation may not be able to take

place when or where there are relatively health related challenges. That may not allow movement, transportation, import etc. This has been the situation the world found herself in the very recent time with the emergence of covid-19, a global pandemic that negatively transformed the world. In this unit our concern is to look at how covid-19 pandemic affected industrialisation.

2.0 Objectives

At the end of this unit, the student should be able to

- Understand and explain the impact of covid-19 on industrialisation
- understand and explain the implication of covid-19 for African industrialisation

3.0 Main Content

3.1 Covid-19 and industrialisation

Covid-19 simply stands for coronavirus. It is so name because it was first notice in the year 2019, hence the number 19. It is a highly contagious infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The first known infections from SARS-CoV-2 were discovered in Wuhan, China. The original source of viral transmission to humans remains quite unclear. Upon discovery to date and still counting, it has had a global catastrophic effect resulting in more than 2.9 million deaths worldwide, thus, emerging as the most consequential global health crisis since the era of the influenza pandemic of 1918 (Cascella et al. 2022).

One of the fundamental pre-requisites for industrial activity is the health of those involved in the whole value chain - manufacturing, processing, packaging, transporting etc. Without good and strong healthy men and women productive activity may not take place. Because industrial

activity is a social process it become even more difficult to undermine the life of humans for industrial and financial gains.

It is quite obvious that Covid-19 has had a global foothold on every aspect of human endeavour in the past 2 to 3 years and the magnitude of this disruption can only be compared with the realities of the Second World War, WWII. Be that as it may, the Covid-19 pandemic equally has exposed the underlying weaknesses, asymmetries and contradictions in our world. Meaning our world was not and is not prepared to handle a disease and infection with such a far-reaching consequence. A number of African economies recorded robust growth and some promising signs of industrialisation prior to the pandemic, but this progress risks being undermined by the ongoing health and economic effects of the pandemic.

In the context of this module and unit, our concern is however on the impact of covid-19 on industrialisation. We shall carefully look at this.

Impact of covid-19 on industrialisation

1. Restrictive transportation

Fundamentally, one of the critical aspects of modern day industrialisation is movement of goods and services from one destination to the other. This however entails transportation. With the pandemic, various restrictions were initiated to safeguard human life. From social distancing, isolation to lockdown. These measures while critical to save and protect human life, totally restricted the transportation of economic goods in terms of business agreements for deliveries etc. Largely, this had a negative impact on lots of businesses as various airports and seaports had several restrictions that did not permit the transportation of goods.

2. Global trade/Retarded investment

Industrialisation is all about investment opportunities to establish industries etc. The covid-19 pandemic generally retarded business investment opportunities and of course reduced the level of global trade. The world trade organization (WTO) reports that global trade in the last two years has suffered tremendous blow. According to WTO (2021), global trade on a single but critical commodity like cotton that provides inclusive prosperity faced many challenges. The World Bank also reports that global investment dropped as a result of the global pandemic, impacting on both emerging and multinational industries. Results from the World Bank quarterly global multinational enterprises Pulse Survey suggest the situation was worst earlier on in the first half of 2020 as investment in supply chain structures were relatively limited (World Bank, 2021).

3. Industrial bankruptcy

The covid-19 pandemic besides impact on health and mortality has also had severe impact on industries, companies and their solvency status. Many industries faced very critical financial conditions and became isolated business wise. Many of such businesses or industries experienced financial shocks that underscored bankruptcy. Wang, Ying, Iverson & Kluender (2020) in their study found out that bankruptcy filings by large industries or companies increased from 2019 when the pandemic started and has gone 200% up from January through August of the subsequent year. Which has prompted the government to support by providing relief to such businesses before they totally go down the drain.

4. Destruction of emerging small industries

Many businesses, companies and industries have been destroyed due the covid-19 pandemic. Companies that had just come online with regards to start ups. Many had just entered the line of manufacturing, production etc. and were cut short by the coronavirus pandemic. As sad as it is,

such owners were traumatized especially where they had already sought for loans and rented business premises. Bartik, Bertrand, Cullen & Stanton (2020) reports that just a few weeks into the covid-19 crisis, many small businesses had already started layoffs, and closures occurred. As a result of the global preventive measures of social distancing, lockdowns, these small businesses could not sustain financial management of their employees hence could not function. Bartik et al. (2020) emphasized that 54% of small business in New York City closed down. Ecorys, et al. (2021) stated that due to the lockdown, several industries across Europe were severely affected, as disruptions were witnessed in multiple supply chains especially in internationalised and complex value chains. In Africa such disruptions also resulted in a lot of production shutdown for many industries, and these are industries that would have created a value chain of employment opportunities.

Covid-19: Implication for African industrialisation

The first case of the coronavirus (Covid-19) in Africa was recorded in Egypt on 14 February 2020. Ever since, many more countries have recorded and reported their first cases. Although the covid-19 pandemic has not had a devastating consequence on the African continent with regards to mortality, yet it has had a tumultuous effect on the economic development of the continent. As an emerging industrial hub, Africa faces enormous challenges posed by the pandemic.

With the spate of the pandemic, the United Nations advised African countries to align to intense social distancing as the continent could possibly be the next epicentre of the scourge (OECD, 2020). Although Africa did not experience or witnessed enormous mortality due to the global pandemic of covid-19, the warnings and projections of the World Health Organisation was really alarming and terrifying, as it projected Africa could see 122 million infections, 2.3 million

hospitalisations and 300 000 deaths in quick succession (OECD, 2020). Be that as it may, containment measures actually saw Africa through as it set up various machineries to relegate the effect of the pandemic on human health.

Most African governments have implemented measures to encourage social distancing, focusing on border and travel restrictions, school closures, and bans on large gatherings. South Africa implemented a 21-day period of full lockdown. Other countries, such as Nigeria, Senegal and Côte d'Ivoire, followed suit by implementing curfews, lockdowns or partial lockdowns. All these saw Africa through somehow with regards to human health.

As it were, the implications of the coronavirus pandemic for industrialisation is a clear warning and a call to action by African leadership. It shows that Africa is not prepared medically to salvage a pandemic in the 21st century that can obliterate her emerging industries. Meaning going forward, Africa may lose half her population in the event of any future rampaging global pandemic. A nation without human capital means a country without industries. Africa requires good healthcare institutions and management system that is prepared with vital medical equipment to forestall such nefarious situation.

Moreso, the implication, by extension is in the domain of integrated delivery. Africa is not united to deliver herself from a pandemic. The information sharing, expertise sharing, and steady state interfacing of the European and western countries is something to reflect on and replicate by African leaders to strategise for the future. Interface management is critical for a continent that is supposed to be an emerging force in global economy.

Therefore, it is important for African leadership to take quick actions that aid industrialisation.

1. Strengthen health systems and extend health and social protection coverage
2. Liquidity to small businesses, informal workers and households

3. Strengthen continental and regional integration

4.0 Conclusion

The coronavirus pandemic had a huge toll on industrialisation. As a result of the various policies that were put in place to protect human lives, by extension it turned out to hurt industries and businesses. Such policies as social distancing, lockdowns etc. led to disruptions of various industries. The implications of all these for African industrialisation is that it is a clear warning to act, as it is obvious Africa may not be able to manage a pandemic which could wipe out her population and render her without industries. Africa must therefore take clear measures to prepare to build and grow her economy.

5.0 Summary

Coronavirus (Covid-19) is a highly contagious infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The first known infections from SARS-CoV-2 were discovered in Wuhan, China. One of the fundamental pre-requisites for industrial activity is the health of those involved in the whole value chain. Since industries are given meaning by people, when the people are down health, industries cannot operate. The coronavirus had tremendous impact on industrialisation in several ways. The implications of this for African industrialisation is a warning to do the right thing and put things in place to avert future catastrophe for economic development in Africa.

6.0 Tutor-Marked Assignment

- Briefly explain the impact of covid-19 on industrialisation?
- What is the implication of the covid-19 pandemic for African industrialisation efforts?

7.0 References/ Further Readings

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Unit 4: Towards sustainable Industrialisation in Africa

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1.0 Introduction

Strong growth in the manufacturing industry is critical for industrialisation to take place, and that is not feasible in Africa. Africa remains the world's least industrialised region, with only one country on the entire continent - South Africa, currently categorized as industrialised (Hai, 2020). The general agreement is that this should not continue but must change. For this change to happen, a lot of work and policies must be in place to make Africa an industrial hub and not merely an emerging industrial hub. This unit of the module is concerned with understanding measures that should be taken to move Africa into the spotlight of industrialisation that is not momentary, but sustainable.

2.0 Objectives

At the end of the unit, the student should be able to

- discuss measures that Africa can take to have a sustainable industrial development

3.0 Main Content

3.1 Towards sustainable industrialisation in Africa

When we talk about making industrialisation sustainable in Africa, we are simply referring to the concept of sustainable development. As a concept, it is defined as, development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. Sustainable development simply implies that whatever the current generation does, it should be preserved for the future generations to see or also have. If we are building or establishing an industry, such an industry must not just exist for a while but must continue to grow to benefit the future generations. Therefore, the following are some of the frameworks Africa can take to build sustainable industrialization.

Shift in the structure of the economies of African nations

The shift here is that African industrial development should be based on manufacturing. Manufacturing always accounts for a far greater share of national investment, output and trade (Signe, 2018). Hence it is a critical aspect of industrialisation. Any country in Africa that must be spotlighted as an industrialised nation must for all practical purposes invest in the manufacturing sector. The shift to manufacturing can also be boosted by the African Continental Free Trade Area (AfCFTA) agreement. This agreement became active and operational in January 1, 2021. The anticipation is that the AfCFTA will usher in new and dynamic opportunities by enhancing intra-African trade and fostering an environment that can unlock foreign direct investment in the continent (Hai, 2020). Such a shift in the structure of African economic structure would take industrialisation forward, however, each and every African state must commit to an industrial transformation agenda that reflects the fundamental role of industry.

Decouple economic growth from environmental degradation

Most African countries on their way to industrialisation have created a mess environmentally. Industrial emissions have degraded many African countries environment leading to harsh pollution. Now, this is all in the name of trying to be industrialised. Therefore, it is pertinent that African countries must understand the importance of the environment even as they work towards industrialisation. Promoting cleaner and resource-efficient pathways to increase manufacturing production, and of the decoupling of economic growth from environmental degradation would create and underscore a sustainable industrialisation in Africa. Industrial waste leads to various pollution of the environment. It is key to align business with clear waste management system, water purification and pollution. Once such interventions exists in the manufacturing space, it would lead to effective and significant reduction in environmental degradation

Technology for cleaner industrial production

A fundamental target of the sustainable development goal (SDG 9) is to build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation. This is the road African countries should go to create sustainable industrialization. As industries in Africa begin to expand and develop, they must make use of current and innovative technological capabilities for cleaner industrial production. New industrial plants must be constructed to ensure that production patterns are sustainable utilizing cleaner technologies.

Economic diversification

Economic diversification is the process of shifting an economy away from a single income source toward multiple sources from a growing range of sectors and markets (United Nations Climate Change, 2018). African counties must align to this to go far with industrialisation. For so many decades now, many African economies if not all have been dependent on a sole product.

Economic diversifications promote growth and development through self-reliance. Industrialisation has not peaked in Africa because the economies of Africa are mono economies. They depend on a single product. Nigeria has depended on her fossil fuel for years and this has not created an expanded industrial economy.

Economic diversification remains a critical component of economic development in which a country moves to a more diverse production and trade structure (WTO, 2019). A lack of economic diversification is often associated with increased vulnerability to external shocks that can undermine prospects for longer-term economic growth. The world's poorest countries, many of which are often small or geographically remote, landlocked and/or heavily dependent on primary agriculture or minerals, tend to have the most concentrated economic structures. This creates challenges in terms of exposure to sector-specific shocks, such as weather-related events in agriculture or sudden price shocks for minerals.

Inward Local capacity

African countries must stop reliance on foreign goods, foreign capacities etc. They should stop, poise and look inward and tap on her local resources and invest on it such that they can earn foreign exchange. The Asian Tigers for instance looked inward and positioned their selves to invest in local resources and from there connect the world with their capacity. This is a lesson for African countries, to expand their economies with locally made products or resource and make it world class, then such would present itself for an expanded export market thus increasing both the manufacturing and processing sectors.

Infrastructural development

Industrialisation thrives in an economy or society where infrastructures exist. African countries must wake up and build infrastructures that can enhance industrial development. Most countries in Africa have a dearth in infrastructural development. Although there are clear signs that countries like Rwanda, Kenya and Liberia are making giant leap in building infrastructures, such is the reason for a sustained economic development. Studies have shown that Least developed countries especially those in Africa have immense potential for industrialisation in food and beverages (agro-industry), and textiles and garments, with good prospects for sustained employment generation and higher productivity (United Nations, 2020). However, the realization of all these is also dependent on a good, inclusive and innovative infrastructural system. With infrastructure, social development accompanied by industrial development would be a possibility.

Increase Regional Trade

The African Continental Free Trade Agreement (AfCFTA) represents a great opportunity to support and increase industrialisation by promoting linkages across the continent, especially in trade in services, which in turn will bolster the manufacturing sector. African countries must see the AfCFTA as an opportunity to intensify regional trade. All countries must be active productively especially in manufacturing and processing so as to benefit. Trade is very important for industrialisation, although over the years African countries in majority of cases have not been integrated in trade. Where AfCFTA is used as an avenue for regional trade it will be a great milestone for the continent.

Invest in digital economy

Digitalisation is one way African countries can leverage the AfCFTA, boost manufacturing and create more productive jobs. By lowering the unit costs of production, information exchange and transactions, digital technologies can help African economies to develop new value chains, as well as strengthen existing ones.

But this relies on developing targeted policies to close the global digital divide. A persistent digital divide can lead to re-shoring of manufacturing tasks, limited offshoring of digitally advanced production in the future, and a slow-down in technology diffusion. All this can harm development in African economies. Aligning to the social transformation in the information age, especially artificial intelligence (AI), African countries can deploy all of facilities that can promote industrialization especially with the growing army of young persons in Africa.

4.0 Conclusion

Sustainable industrialisation entails industry or industries that exist beyond today with capacity to grow for the benefit of future generations. African countries over time have dependent on a mono economy that has not driven the continent into clear industrialization. Africa must therefore look ahead to build industrialization that sustainable.

5.0 Summary

To create a sustainable industrial economy Africa must invest in manufacturing, as that would drive her industrialisation properly. However, Africa must align to certain factors as listed out to secure an industrial economy that is sustainable.

6.0 Tutor-Marked Assignment

- What are the measures that can create sustainable industrialization for Africa?

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