Engineering Professionals' Salary Scale in Nigeria; A Pivot To Post-Covid 19 Infrastructural Progression

[1]Elisha Joseph & [2]Michael Taiwo
[1&,2]Electrical Engineering Department
The Federal Polytechnic, Ilaro, Ogun State, Nigeria..
adelekejoe12@yahoo.co.uk; michael.taiwo@federalpolyilaro.edu.ng

ABSTRACT

Salary scale could be regarded as a tool to know how much an employee is to be paid as a wage or salary depending on specific skills, experience and level of education (among others). Covid-19 (Coronavirus) which broke out all over the world took many countries unawares. However, most advanced countries were able to control the pandemic to some extent due to the level of their technological/infrastructural development put in place by their respective visionary leaders. Nigeria being poorly developed in terms of modern infrastructure was thrown into great confusion. Besides the engineers and other allied professionals are not motivated in any way to prepare for such a national/global emergency. These professionals must be adequately in terms of remunerations to give their all in the development of basic infrastructure so as to frog-leap Nigeria out of etrenal dependence on foreign assistance and debious external aids. In this paper, a study is carried out on the special engineers' salary structure/scale with a view to encouraging massive infrastructural design, construction and development in post-covid-19 regime.

KEYWORDS: Covid-19, Engineering Practitioner, Employee, Salary Scale.

1. INTRODUCTION

Sowing is a pre-condition for reaping, and reaping depends on what is sown. As long as reaping remains the essence of sowing, salary will remain the essence of working since a man works to get paid in the desired and deserved way. Relating this to pay scale in any system/country should be a tool to know how much an employee is to be paid as a wage or salary, based on one or more factors such as experience, skill and educational attainment. On the other hand is a pandemic which broke out all over the world taking every country unaware but the advanced countries were able to curtail the pandemic due to the high infrastructural development already in place but Nigeria, being a country that is dependent of developed technology was apparently helpless due to poor state of her basic infrastructure. The engineering professionals must be adequately motivated in terms of remuneration to get the best from them so as to make the nation less dependent on foreign expertise. In this paper a look at special engineering practitioners' salary scale (SESS), as an aid to Nigeria's post-covid-19 infrastructural development is considered.

2. LITERATURE REVIEW

A cuneiform inscribed clay tablet dated about 3100 BCE provides a record of the daily beer rations for workers in Mesopotamia; which is represented in an upright jar with a pointed base (British Museum 'BBC history of the world 100 Objects' (2010). The wordSalary came from the Latin word 'salarium' ('sal' being salt) which is a word tied to the payments made to soldiers in the early Roman salt trade. In those days salt (regular ordinary table salt) was the medium of payment for the Roman soldiers. From 1870-1930 the second industrial revolution gave rise to the modern business corporation powered by railroads, electricity, the telegraph and telephone. This era saw the widespread emergence of a class of salaried executives and administrators who served the new scale enterprises being created. In the 20th century, Japan coined another word out called salaryman, this made salary employment more common. Today, the concept of salary has continued to evolve as part of a growing system helping Engineers to enjoy special status in those nations that appreciate the work Engineers engineering profession. Prime Minister Margaret Thatcher in 1985 reiterated that the success of the engineering profession and the industry is the key to our future and prosperity.

She was highly committed to the development of engineering in Britain; and this was proved with superb infrastructural development based by the Engineers (Ajibola, 2010). The immediate past president of the United State of America (USA), Mr Barrack Obama believed that engineering is the core language in to technological development, when he said ‘‘I wish the country had fewer lawyers and more Engineers’’ (Ajibola, 2010).

Chiwala (2015) reiterated during the engineering week in Lusaka that engineering professionals are the forerunner for the development and progress of any country; and that it is a known fact that there is no single aspect of life which has not been influenced by engineering”. It should be noted that engineers build and sustain civilization. In a nutshell, they are creators, designers, fashioners and builders. For this cause, it is highly required that in this nation called Nigeria, engineering professionals require a special salary scale.

3. METHODOLOGY

This section deals with the procedures employed in carrying out this research work. The steps used for data collection, the problems involved and the reliability of the results of the data collected. A thematic approach of analysis of site and research journals were adopted for the study and data collection in order to achieve the aim of this work.

3.1 Area of the study

The study was based on the pay scale/salary statistics sites, where competitive engineering practitioners’ salaries were analysed.

3.2 Nigeria and national development

Nigeria is currently under-developed due to the high level of infrastructural deficiency and economic turbulence (Rabiu 2018). Nigeria, though the giant of Africa, ranked 93rd in the world Millennium Development Goal (MDG) progress ranking, tying with Congo Republic and behind African countries such as Malawi, Ghana, Gambia, Burkina Faso and Egypt.

The oil-rich nation has been be-deviled by epileptic power supply, lack of infrastructure, unfriendly business environment, and high unemployment index (Rabiu 2016). All these have been due to failure on the part of the nation builders, since no tangible encouragement isbeing put in place by the leaders. This has contributed to her immense under development which has really caused her inability to withstand emergent problems such as the effect of the COVID-19 pandemic. Nigeria rather than rising up to the challenges of the COVID-19, is busy looking for help from other developed economies of the world. Some of the roles of Engineers in Nigeria are mentioned below.

3.3 Infrastructural development

The development of any country is a correlate of her infrastructural development. Therefore, for Nigeria to follow the path of true development, good infrastructural development must be put in place especially by her professional engineers.

3.4 Development of educational system

Education is one major sector which lightens up a society, this sector requires good infrastructure to be in place for the acquisition of the required skill.

3.5 National food security

Any nation that cannot feed her populace could be regarded as a torn in the flesh of those nationalities. Energy to work for any development comes from the food intake otherwise, the body becomes totally dead. Food security in this context means enough food for the populace to feed on and this cannot be achieved with the approach being taken by Nigeria at present, where you see mainly the old farming even with crude implements. It is the engineers that produce equipment for mechanised farming.

3.6 Backbone of any firm

The backbone of any firm is the production line, and this production line is a function of engineering. For production to take place, the machineries must be intact and functional. But the funny aspect of it all is that non- engineers such as managers and directors are the ones living in opulence to the detriment of the engineers.

3.7 The Need for Engineering Practitioners Salary Scale in Nigeria

- **Time as underlining factor**

One of the needs for SESS is to compensate for the social life of Engineers/Engineering practitioners taken up by a rigorous job schedule. Some studies carried out recently show the way engineering practitioners spend their time. In his research, (Robinson, 2012) suggests that there are several key themes present in engineering/engineers' work. These are categorized as;

- technical work (i.e., the application of science to product development)
- social work (i.e., interactive communication between people)
- computer-based work
- Information behaviours

Recently, a work sampling study shows that engineers spend 62.92% of their time on technical work, 40.37% on social work 49.66% on computer-based work. Furthermore, there was considerable overlap between these different types of work, with engineers spending 24.96% of their time engaged in technical and social work, 37.97% in technical and non-social, 15.42% in non-technical and social, and 21.66% in non-technical and non-social (Robinson, 2012).
It was also found that engineering is an information-intensive field, with research showing that engineers spend 55.8% of their time on different information behaviours, including 14.2% actively seeking information from other people (7.8%) and information repositories such as documents and databases (6.4%) (Robinson, 2010). All these analysis show that engineers are non-social mainly due to the nature of their jobs and hence, the need for appropriate remuneration.

Other reasons for SESS in Nigeria are:

i. Morale booster as a nation builder
ii. Gives a sense of belonging

- **SESS and COVID-19**

There is no nation that neglects her Engineers/Engineering practitioners that will ever experience the required growth in her infrastructure since they are national builders. Infrastructural development is a key to withstand any sudden calamity just like COVID-19. To achieve this, the engineer must be well motivated through the SESS. According to Loughlin (2012), "It actually has never been a better time to be an engineer. Engineers are core and central to innovation and improving the quality of life in this country and the world.
In November 2011, we surpassed 7 billion people on the planet and it's going to be engineers who create an environment that we can all live on this planet and share resources in an effective and meaningful way. The exciting thing is that we are starting to see the results of the need of engineers showing up in things like this salary survey."

Increase in population could also amount to increase in the susceptibility to worldwide pandemic outbreak which may even be worse than COVID-19. As stipulated by Loughlin "Engineers are core and central to innovation and improving the quality of life in this country and the world". So, for high quality of life of the people to be achieved and to be able to fight any future pandemic, engineers must be well motivated by remunerating them well in order to utilise their Potential. This would also prevent engineers from involving in corrupt practices because they will no longer they will no longer feel unduly exploited. Although, some people may argue that money may not be the ultimate motivating factor this can only apply in places like USA, UK and Canada where there are good facilities and enabling environment to work. The Medical doctors in Nigeria are well respected, they are also well

remunerated compared to engineering professionals. Even during NYSC, they are well treated compared to the Engineering professionals sent to classrooms for some awkward work.

4. RESULTS

The results obtained from research in this field show some engineering practitioners' salary in some selected countries such as the United Kingdom, United States of America and Canada in comparison with that of Nigeria as shown below:

Nigeria: Shown in the table 1 below is a summary of certain engineering profession and their average salary in Nigeria.

Table 1: Engineering salary scale in Nigeria

Job Title	Average Salary
Acoustic Engineer	275,000NGN
Automation Engineer	311,000NGN
Avionic System support Engineer	274,000NGN
Control Engineer	296,000NGN
Electrical Engineer	316,000NGN
Safety Engineer	310,000NGN
Technical Engineer	256,000NGN

United Kingdom (UK): Engineering average salaries in the UK is £36,164. Converting this to Naira at the rate of £1 = ₦ 510.1343 gives *₦18448496.83* (£36,164) per year. Analysis of this is shown in Table 1.

Table 2: Engineering Salary Scale in UK (Source: (Reed, 2017)

Engineering Average Salary – UK

Average salary	£36,164
▲ £947 more than last year	

	Role	£.	since 2016
1	Human Factors	£60,000	£60,000 ▲
2	Operations Management	£49,154	£1,173 ▲
3	Research & Development	£48,140	£3,566 ▲
4	Micro Electronics	£47,444	£11,194 ▲
5	Systems	£46,677	£3,152 ▲
6	Project/Programme Manager	£46,450	£336 ▲
7	Shipbuilding	£45,775	-£5,725 ▼
8	Structural	£45,545	£2,124 ▲
9	Chemical/Process	£44,733	£477 ▲
10	Mathematical Modelling	£44,476	-£9,953 ▼
11	Civil	£44,456	-£775 ▼
12	Semiconductors	£43,699	-£6,101 ▼
13	Military/Defence	£42,732	-£4,039 ▼
14	Technical Management	£42,599	-£551 ▼
15	Fluid Systems	£42,500	£8,227 ▲
16	Materials	£42,320	£9,153 ▲
17	Avionics	£42,098	-£9,902 ▼
18	Design	£40,759	£4,088 ▲
19	ARM	£40,443	£5,218 ▲
20	Marine	£40,416	£3,768 ▲

Number of Jobs	14,353
▲ 1,958 more than last year	view jobs

	Role	no.	since 2016
1	Electrical	1,562	198 ▲
2	Maintenance	1,560	189 ▲
3	Other Engineering	1,305	117 ▲
4	Manufacturing	1,086	238 ▲
5	Electronic	1,065	144 ▲
6	Mechanical	1,009	34 ▲
7	Automotive	925	-25 ▼
8	Field	809	179 ▲
9	Design	761	166 ▲
10	Civil	459	62 ▲
11	CNC Programming	430	183 ▲
12	Welding/Plating /Pipefitting	349	33 ▲
13	Project/Programme Manager	347	74 ▲
14	Quality Control	297	53 ▲
15	Aeronautical / Aerospace	254	69 ▲
16	Technical Sales	196	13 ▲
17	Environmental	159	66 ▲
18	Technical Support	143	-1 ▼
19	Structural	140	-41 ▼
20	Systems	130	33 ▲

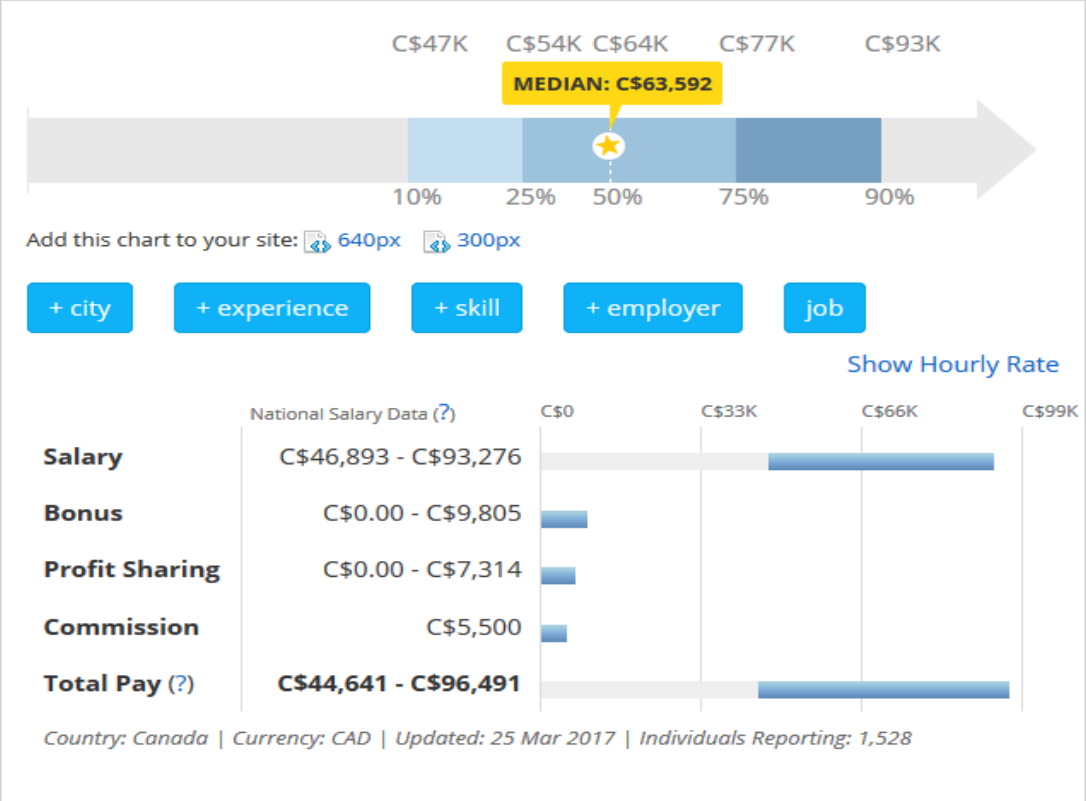
United States of America (USA): The average salary for engineers in the USA and its Naira equivalent is given in Table 3.

Table 3: USA Average Salary in Dollar and its Naira Equivalent (US*$1 = ₦387.5)*
Source: Loughlin, 2012.

DESCRIPTION	AMOUT IN DOLAR	AMOUNT IN NAIRA
Average total income for an engineer in US	103,497	37,258,920
Pacific Southwest States average Salary	104061	37,461,960
South Central State average salary	101000	36,360,000
Middle Atlantic States	95000	40,105,087.5
Upper Mountain States	80878	32,149,005
Great Lakes States	86067	33,350,962.5
Central Plains States	88000	34,100,000

Canada: The average salary for mechanical engineers in Canada and its Naira equivalent (C$1 = 282.78) is given in Table 4. From this Table, the average salary for a Mechanical Engineer is C$63,592 (₦17982545.76) per year in Canada.

Table3: Popular Employer Salary for Mechanical Engineer in Canada
Source: (www.payscale/machanicalengineersalary(canada).html, 2017)



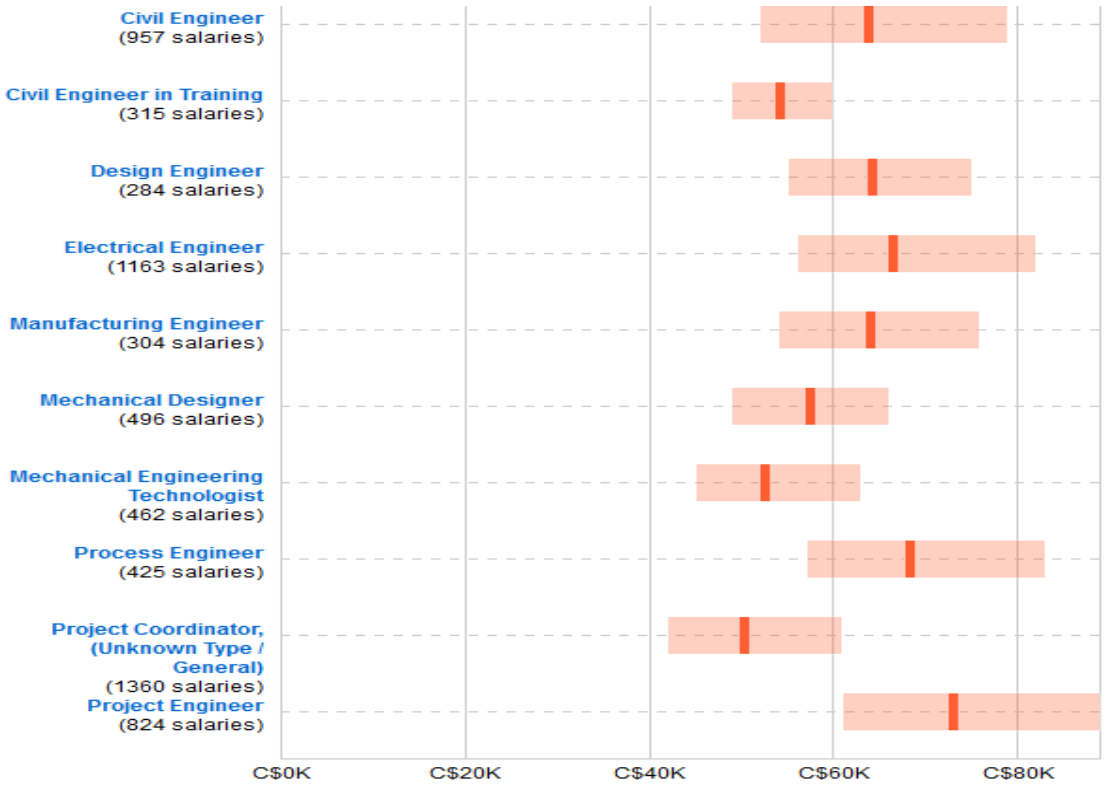


Figure 1: Engineer Related Salaries in Canada

4.1 Analysis of Results

Referring to Table 1, the average salary of £36,164 (₦18448496.83) per annum in UK was a derivative of the addition of the total number of Engineers' related job salaries versus the number of the related jobs considered. The survey data in Table 2 reveals that the average total annual income, including commissions and fees, for an engineer in the U.S. in 2012 was $103,497. In 2011, Pacific Southwest States continued to have the highest median salary of $104,061, followed by the South Central States ($101,000) and the Middle Atlantic States ($95,000). The lowest full-time salaried median incomes are found in the Upper Mountain States ($80,878), the Great Lakes States ($86,067) and the Central Plains States ($88,000). This finding shows its Naira equivalent. The Mechanical Engineers average salary was also depicted in Table 3 for the case of Canada, which is C$63819 (₦17982545.76). While Figure 1 shows the salary for engineer in Canada. The average salary could be got by dividing the total of the multiple of salaries and the related engineers' job by the total of the salaries as shown in Figure 1.

5. CONCLUSION

Engineering continues to be one of the most robust professions in any system worldwide. It dictates the development, growth and stability of any nation, as shown in the advanced world where engineering has moved into being a master class of their own in relation to their infrastructural development. This success in development can simply be adduced to motivation of this group by their various determined leaders to make engineering the required pivot to their development; rather than playing mere politics. If this salary scale can be looked into by governments in Nigeria, that will give engineering practitioners the necessary courage, as in UK, Canada, USA where the least average salary is $103,497/£36,164 = ₦37,258,920/₦18,448,496.83 per annum.

Finally, the Council for the Regulation of Engineering in Nigeria (COREN), which is the body responsible to all engineering professionals in Nigeria, should rise up for the actualization of the said salary scale as was done for the Medical Practitioners in Nigeria. This should act as a pivot to Nigeria's post-COVID-19 infrastructural development.

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