PREPARED BY

OGAH JOSHUA IMHOAGENE

17/ENG02/063

A TERM PAPER SUBMITTED TO THE

COMPUTER ENGINEERING DEPARTMENT,

AFE BABALOLA UNIVERSITY.

IN PARTIAL FULFILLMENT OF ENG384:

ENGINEERING LAW AND MANAGARIAL ECONOMICS.

11th APRIL, 2020.

# CERTIFICATION

This is to certify that this term paper was written by OGAH JOSHUA IMHOAGENE with matric number 17/ENG02/063 in the department of Computer Engineering in AFE BABALOLA UNIVERSITY, ADO-EKITI.

# DEDICATION

First of all, I want to thank God Almighty for giving me the opportunity to write and complete this term paper and I also dedicate this term paper to my lecturer.

# ABSTRACT

Technology is a basic element in our everyday lives and one of the biggest challenges is the conservation of the environment to achieve sustainable development. The purpose of this is to layout the recent developments and guides in sustainable computer engineering. A systematic mapping was conducted which focuses on practices and models that are used in this regard. These results show various types of models and different criteria for evaluating sustainability properties. Also, this study indicates an increase of interests in this field whereas the results rather suggest a handful of prominent authors and venues publishing research within the scope of computer engineering sustainability.

Table of Contents

[CERTIFICATION 1](#_Toc37677213)

[DEDICATION 2](#_Toc37677214)

[ABSTRACT 3](#_Toc37677215)

[INTRODUCTION 4](#_Toc37677216)

[ENGINEERING STRATEGIES FOR HANDLING COVID-19 FOR ENVIRONMENTAL HEALTH AND ECONOMIC SUSTAINABILITY. 5](#_Toc37677217)

[Methodology 6](#_Toc37677218)

[**Websites for further reading** 6](#_Toc37677219)

[Conclusion 7](#_Toc37677220)

# INTRODUCTION

In this report, the various engineering strategies for handling the covid-19 pandemic for environmental health and economic sustainability will be discussed but before that, we need to understand what environmental health and economic sustainability are. There are various diseases in our environment which need three things to spread which are host, agent and an environment which make up the disease causation triad.

An agent is a chemical, germ or physical cause of diseases like bacteria, viruses, radiation, etc.

A host is a person or an animal that gets diseases, for example children, adults, wild animals etc.

An environment is the surrounding that an agent must move through to reach the host like the air, water, food, etc.

When an outbreak occurs, the laboratories, epidemiology and environmental health team up to stop the disease. Epidemiologists focus on the host, laboratorians focus on the health and environmental health specialists focus on the environment. Together, epidemiology, laboratory and environmental health services control diseases. Environmental health services are so important because they answer the how and why a disease occurs, recommended actions to stop outbreaks and to prevent any future ones and shield hosts from harmful agents through environmental controls.

Economic sustainability is the practice that supports long term economic growth without negatively impacting social, environmental and cultural aspects of the economy. Now that we have looked at what economic sustainability and environmental health is, we will look at ways of handling covid-19 for environmental health and economic sustainability.

# ENGINEERING STRATEGIES FOR HANDLING COVID-19 FOR ENVIRONMENTAL HEALTH AND ECONOMIC SUSTAINABILITY.

Engineers have technologies that can help with responses to COVID-19 (Coronavirus) effects, and includes a section with updates on coronavirus impacts on engineers and a related newsletter. On March 12, the sites also launched a survey to learn more about impact on business, company responses, remote work and operations, supply chain, travel, user group and trade show impacts, future impacts of similar challenges and government strategies by country. As an engineering-minded observer, I’m aware of and concerned about wide-spread lack of appreciation for fact-based information. A lot of new information is available daily. Some of it, from sources that should be credible, turn out to be incorrect or misleading. I believe engineers are highly discerning consumers of information, with carefully tuned abilities to seek and encourage use of multiple, credible sources to validate what’s presented without falling prey to clickbait that can increase cybersecurity risk.

1. Companies, governments, and groups should employed policies and technologies for remote monitoring, meetings, measurements, learning, and controls to promote social distancing needed to slow the spread and not overload healthcare facilities. No one wants to hear that their ill or elderly loved ones were on the wrong end of a triage decision where healthcare is beyond capacity. We can all do our part to change the infection curve and explain to others the irrefutable math behind it.
2. Maximize use of engineering controls, such as barriers and maintained ventilation systems, and administrative controls, such as altering work practices to minimize patient contacts.
3. Cancel elective and non-urgent procedures/appointments.
4. Reserve PPE for HCP and replace PPE normally used for source control with other barrier precautions such as tissues.
5. Use re-usable PPE that can be reprocessed.
6. Use PPE beyond the manufacturer-designated shelf life for training.
7. Consider allowing HCP to extend use of respirators, facemasks, and eye protection, beyond a single patient contact.

Important strategies for preventing the transmission of covid-19

1. Ensuring triage, early recognition, and source control (isolating) of patients with suspected SARS-CoV-2 (COVID-19) infections.

2. Application of standard precautions for all patients at all times

3. Implementation of empiric additional precautions – droplet and contact precautions in the care of suspected and confirmed cases of COVID-19 and airborne precautions (in certain situations when aerosol generating procedures are carried out on COVID-19 patients).

4. Implementing administrative controls.

5. Use of environmental and engineering controls such as adequate spatial separation of patients, appropriate ventilation and appropriate cleaning of the environment.

# Methodology

We all need to think very deeply about how technologies and engineering strategies can spread compassion and wisdom more quickly than hysteria and misinformation.

[www.controleng.com/manufacturer-health-wellness/](http://www.controleng.com/manufacturer-health-wellness/)

[www.coronavirus.gov](http://www.coronavirus.gov/)

**Websites for further reading**

* [*Coronavirus phishing attacks rising*](https://www.controleng.com/articles/coronavirus-phising-attacks-on-rise-report/)
* [*Signs of hope for manufacturing amid COVID-19*](https://www.controleng.com/articles/signs-of-hope-for-manufacturing-amid-covid-19/)
* [*University details process for using robotics, AI to produce polymers for advanced materials*](https://www.controleng.com/articles/university-details-process-for-using-robotics-ai-to-produce-polymers-for-advanced-materials/)

-https://www.canada.ca/en/publichealth/services/diseases/2019-novel-coronavirus-infection/health-professionals/interimguidance-acute-healthcare-settings.html

# Conclusion

We have discussed various engineering strategies for preventing covid-19 and these strategies can be accomplished by everyone if they are willing to work together and stop this pandemic so that we can live a happy life and create a safe environment for our children. Stay safe!