THE IMPACT OF COVID-19 PANDEMIC ON BIODIVERSITY IN INDIA

SUBMITED BY

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TERM PAPER SUBMITED FOR PARTIAL FULFILLMENT OF THE DEGREE OF " BACHELOR OF SCIENCE" IN ENVIRONMANTAL SCIENCE OF SIDHU-KANHO-BIRSHA UNIVERSITY, PURULIA(2021).

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Dr.Moumita Sinha

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Dr.Indrani Deb

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ACKNOWLEDGEMENT

I convey my heartiest thanks to Dr.Indrani Deb ,principal ,Nistarini College ,Purulia for her constant support ,guidance and co-operation.

It's may opportunity to acknowledge the warmest gratitude to my esteemed guide Dr.Moumita Sinha , Department of Environmental Science ,Nistarini College ,Purulia. I am greatly indebted for her untiring guidance , Constructive and meaningful suggestion and inspiration throughout the entire period of my work .

I fervently desire to record my sincere greatfulness to Sri.Priobrata Mukherjee , Dr.Sabyasachi Mukhopadhyay and Smt.Sayantika Dey Department of Environmental Science ,Nistarini College ,Purulia for their Constant encouragement and valuable suggestions without which it would not have been possible to carry out this project.

I am also greatfull to Sri.Debasish Das Karmakar ,Non-teachinng faculty Department of Environmental Science Nistarini College, Purulia .

Finally I am deeply indebted to my parents ,and my friends for their cooperation and good wishes.

Date-_____ Signature_____

Place -Nistarini College ,Purulia .

Abstract

The COVID-19 pandemic has impacted every sphere of human society. The paradigm shift of focus to COVID-related research and management has significantly affected various scientific domains including biodiversity conservation. The Brief outlines how biodiversity loss is a key driver of emerging infectious disease and poses a variety of other growing risks to businesses, society and the global economy. Investing in the conservation, sustainable use and restoration of biodiversity can help to address these risks, while providing jobs, business opportunities and other benefits to society. The Brief then examines how governments are factoring biodiversity into their stimulus measures and recovery plans in practices. The Brief concludes with policy recommendation on how governments can better integrate biodiversity into their COVID-19 stimulus measures and broader recovery efforts.

REVIEW THE IMPACT OF COVID-19 PANDEMIC ON BIODIVERSITY IN INDIA

TERM PAPER SUBMITED FOR PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF " BACHELOR OF SCIENCE" IN ENVIRONMANTAL SCIENCE (HONS).AFFILIATED TO SIDHU-KANHO-BIRSHA UNIVERSITY, PURULIA(2021).

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ACKNOWLEDGEMENT

I would my thanks to DrIndrani Deb, Principal, Nistarini College, Puruliafor her support and guidance.Then Iconvey my thanks to my honourableMadam DrMoumita Sinha, Head of the Department of Environmental Science of PuruliaNistarini College under Sidho-Kanho-BirshaUniversity,who first teaches me about the term paper work. I am very helpful for her constant guidance and valuable helps and I also pay my heartiest respect to the other faculty members of the department of Environmental Science for their inspiring guidance. Without their help it would not have been possible to complete this term paper.

Date-_____ **Signature_____**

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The covid-19 pandemic has impacted every sphere of human society . The paradigm shift of focus to COVID- related research and management has significantly affected various scientific domains including biodiversity conservation. The brief outlines how biodiversity loss is a key driver of emerging infectious disease and poses a variety of other growing risks to businesses , society, and the global economy. Investing in the conservation, sustainable use and restoration of biodiversity can help to address this risks, while providing jobs, business opportunities and other benefits to society. The Brief then examineshow governments are factoring biodiversity into stimulus measures and recovery plans in practices. The Brief concludes with policy recommendations on how governments can better integrate biodiversity into their COVID-19 stimulus measures and broader recovery efforts.

THE IMPACT OF COVID-19 ON DIFFERENT SECTORS OF INDIA

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FOR PARTIAL FULFILLMENT OF THE DEGREE OF B.Sc. IN ENVIRONMENTAL SCIENCE OF SIDHO-KANHO-BIRSHA UNIVERSITY (JULY, 2021)

****

Submitted by

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Abstract

The novel corona virus (COVID-19) has created a worldwide biological disaster. This virus can spread very fast and affects large number of people. During this pandemic period, many people lost their lives. For breaking the chain of spread of corona virus, doctors and government suggested people to strictly follow home quarantine. To keep people safe and prevent the spread of this virus, government declared lockdown. As a result of sudden lockdown, industries, market, transport systems, schools, colleges etc. all became shutdown. Nowadays, pollution is our biggest problem. Developing countries like India face various problems regarding pollution. But lockdown create a difference in pollution level. Many studies shows that in lockdown period air quality improved, water pollution decrease, noise pollution lessen; many polluted rivers like Ganga, Yamuna and other rivers restore themselves and improve the air quality. In this period, environment changes in the good way. It is true that Covid -19 helps to lessen pollution but it also create a huge amount of biomedical waste, plastic waste, municipal wastes, economical losses, effected education system, psychological problems etc. Many people losses their jobs. In this term paper, it has been mainly discussed with the help of secondary data, the effects of Covid-19 pandemic situation and inconsequence of that the long period of lockdown and restrictions on environment in India.

Acknowledgement

I convey my heartiest thanks to Dr. Indrani Deb, Principal, Nistarini College, Purulia
for her constant support, guidance and co-operation.
This is a golden opportunity to acknowledge the heartiest gratitude to my honourable
Professor Dr. Moumita Sinha, Head of the Department of Environmental Science of
Purulia Nistarini College under Sidho-Kanho-Birsha University, who first drew my
attention to the dissertation work.
Respected madam, by her wisdom, prudential direction, supervision formative and
meaningful suggestions guided me to complete the present dissertation work.
I would express my gratitude to Prof. Priyabrata Mukherjee, Department of Environmental Science of Purulia Nistarini College, under Sidho-Kanho-Birsha University valuable advice, active suggestions and constant good wishes during the
tenure of the dissertation work. His whole hearted co-operation inspired, encouraged
and full of vividness to complete the dissertation work. I am full of gratitude on him.
I would like to mention the name of my other respected Professors, Dr. Sabyasachi Mukhopadhyay and Smt. Shayantika Dey, without their active co-operations, inspiration, initiative to perform my day-night hard working for perfection,
this dissertation work would not have been completed this hard project. I would also
full of gratitude and respect for my fruitfulness of work.
I am also grateful to our departmental staff like Sri Debasish Das Karmakar, who whole heartedly co-operate me from
their heartiest wishes beside which I could not complete my dissertation work.
I would like to express my psychology from this project work if like such co-operation available from every corner of my college, hostel and also from some
helpful public, I am agreed to take any kind of higher responsibility in my educational
life in future.

TERM PAPER OF COVID-19 IMPACT ON ENVIRONMENT

FOR PARTIAL FULFILLMENT
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Abstract

The novel corona virus (COVID-19) has created a worldwide biological disaster. This virus can spread very fast and affects large number of people. During this pandemic period, many people lost their lives. For breaking the chain of spread of corona virus, doctors and government suggested people to strictly follow home quarantine. To keep people safe and prevent the spread of this virus, government declared lockdown. As a result of sudden lockdown, industries, market, transport systems, schools, colleges etc. all became shutdown. Nowadays, pollution is our biggest problem. Developing countries like India face various problems regarding pollution. But lockdown create a difference in pollution level. Many studies shows that in lockdown period air quality improved, water pollution decrease, noise pollution lessen; many polluted rivers like Ganga, Yamuna and other rivers restore themselves and improve the air quality. In this period, environment changes in the good way. It is true that Covid -19 helps to lessen pollution but it also create a huge amount of biomedical waste, plastic waste, municipal wastes, economical losses, effected education system, psychological problems etc. Many people losses their jobs. In this term paper, it has been mainly discussed with the help of secondary data, the effects of Covid-19 pandemic situation and inconsequence of that the long period of lockdown and restrictions on environment in India.

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their heartiest wishes beside which I could not complete my dissertation work.
I would like to express my psychology from this project work if like such co-operation available from every corner of my college, hostel and also from some
helpful public, I am agreed to take any kind of higher responsibility in my educational
life in future.

ECOLOGICAL RESTORATION AND ENDANGERED SPECIES

Term paper submitted for the partial fulfillment of the requirement for the Degree of Bachelor of Science in Environmental Science (Hons.)

Submitted By

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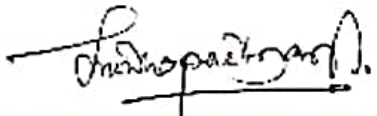

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Acknowledgement

I express my sense of gratitude to Dr Indrani Deb, Principal, Nistarini College, Purulia, for her constant support and cooperation.

I am grateful to my teacher, Dr Moumita Sinha, Department of Environmental Science, Nistarini College, Purulia, for her valuable advice and kind help.

I am thankful to my teachers, Sri Priyabrata Mukherjee, Mrs. Sayantika Dey; Department of Environmental Science, Nistarini College, Purulia, for their valuable advice, cooperation and inspiration.

I convey my heartiest thanks to my teacher and supervisor, Dr Sabyasachi Mukhopadhyay, Department of Environmental Science, Nistarini College, Purulia, for his inspiring guidance and valuable help, without which it would not have been possible to carry out this paper.

I am also thankful to Sri Debashis Das Karmakar for constant support during the course of study.

Finally, I am deeply indebted to my parents for their cooperation and good wishes, which always inspire me to go ahead in life.

Date: 07.07.2021
Place: Purulia

Shiuli Mukherjee

3

ABSTRACT

To assist the recovery of an ecosystem which has been already degraded, damaged, or destroyed; ecological restoration is one of the important process. Endangered species are those animals that face the risk of extinction from the planet altogether conservation of endangered species helps in the preservation of the habitat for most species of animals. Current review conducts text excavation and sensing analysis based on the results of earlier research on endangered species to present practical beginning and conservation methods by identifying endangered species and ecological restoration research trend in India. The ICUN Red Data Book listed 41,415 species, out of which 16,306 are endangered species; this is an increase from 16,118 last year. This includes both endangered fauna and endangered flora. India has 132 species of plants and animals listed as critically endangered. The results indicate that the recovery of endangered species was socially and scientifically strict. It will be helpful to understand the researcher's trends of endangered species in India.

Keywords: Ecological restoration, endangered species, IUCN Red Data Book

AVOID PLASTIC TO RESTORE ECOSYSTEM

Term paper submitted for the partial fulfillment of the requirement for the Degree of Bachelor of Science in Environmental Science (Hons.)

Submitted By

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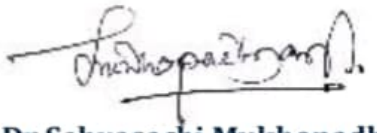
This certifies that Miss Bidisha Singha, bearing Roll- 118641 No. 1813885, Registration number-009859 of 2018-19 carried out the term paper entitled "Avoid plastic to restore ecosystem" in her B.Sc. (Hons.) course in Environmental Science under my constant supervision and guidance. She has fulfilled all the basic requirements and followed the work and regulations as lay down by the Institution.



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I express my sense of gratitude to Dr Indrani Deb, Principal, Nistarini College, Purulia, for her constant support and cooperation.

I am grateful to my teacher, Dr Moumita Sinha, Department of Environmental Science, Nistarini College, Purulia, for her valuable advice and kind help.

I am thankful to my teachers, Sri Priyabrata Mukherjee, Mrs. Sayantika Dey; Department of Environmental Science, Nistarini College, Purulia, for their valuable advice, cooperation and inspiration.

I convey my heartiest thanks to my teacher and supervisor, Dr Sabyasachi Mukhopadhyay, Department of Environmental Science, Nistarini College, Purulia, for his inspiring guidance and valuable help, without which it would not have been possible to carry out this paper.

I am also thankful to Sri Debashis Das Karmakar for constant support during the course of study.

Finally, I am deeply indebted to my parents for their cooperation and good wishes, which always inspire me to go ahead in life.

Date: 07.07.2021
Place: Purulia

Bidisha Singha

Dedicated To
My Parents
&
Teachers

ABSTRACT

Amassing of plastic on the environment adversely affects wildlife or human. Plastic pollution occurs in many forms and not limited to littering, marine debris, plastic particles water pollution, plastic netting and friendly floaters. A huge percentage of plastic production each year is used to make single use, disposal, packaging items or products which will get percentage thrown out within one year. The marine environment is unlikely to return to the condition it was in before to the condition it was in before the 'plastic era', it is an example of an environmental restoration challenge where successful governance and environmental stewardship would likely result in a healthier global oceanic ecosystem. Animal can be significantly harmed or killed by plastic pollution has potential to poison animals, which can then affect human food supplies. Plastic pollution has been described or the types of plastics. The addition of chemical is the main reason why these plastic have become so multipurpose, however this has problems associated with it. Some of the chemicals used in plastic production have the potential to be absorbed by human beings through skin absorption. Chlorinate plastic can released harmful chemical into the surrounding soil, which can then seep into ground water or other surrounding water sources .This can cause serious harm to the species that drink this water. Polystyrene is the most common types of ocean debris. The accumulation of plastic and products made of plastic in the environment lead to plastic pollution. This imposes a hazardous effect on wildlife and human food

chain. The vulnerable ecosystems are demanding to stop the use of plastics. To restore the environment as a whole, the advance human beings need to think about the alternate, just not to stop pollution but to commit our next generation also.

Keywords: Plastic pollution, disposal, vulnerable ecosystem.

MICRO-PLASTIC.....A HIDDEN THREAT

Term paper submitted for the partial fulfillment of the requirement for the Degree of Bachelor of Science in Environmental Science (Hons.)

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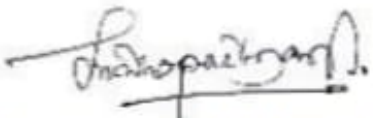

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Acknowledgement

I express my sense of gratitude to Dr Indrani Deb, Principal, Nistarini College, Purulia, for her constant support and cooperation.

I am grateful to my teacher, Dr Moumita Sinha, Department of Environmental Science, Nistarini College, Purulia, for her valuable advice and kind help.

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I am also thankful to Sri Debashis Das Karmakar for constant support during the course of study.

Finally, I am deeply indebted to my parents for their cooperation and good wishes, which always inspire me to go ahead in life.

Date: 07.07.2021
Place: Purulia

Susmita Haldar

ABSTRACT

Plastic debris can come in all shapes and sizes but those that are less than 5mm in length, or about the size of a season seed are called, "microplastic". Human inhabitants are using ocean as their household dustbins, and it is one of the components which are not only polluting shorelines but also freshwater bodies globally. Microplastic contamination within the marine environment poses a severe threat, not only to marine biota, but to human via food webs and bio-amplification. Microplastics are an emerging global environmental contamination that is affecting multiple spheres. Despite their ubiquity in all spheres of life and ecology, little is known about the health effects of microplastic exposure to human. Microplastics exposure can affect toxicity through oxidation stress, inflammatory lesions and increased uptake or translocation. Several studies have demonstrated the potentially, neurotoxicity and increased cancer risk. Microplastics are universally found in terrestrial ecosystems and are increasingly recognized as a factor of global change.

Key words: Micro-plastic, pollution, environmental contamination.

OVERPOPULATION-THE ALARM

Term paper submitted for the partial fulfillment of the requirement for the Degree of Bachelor of Science in Environmental Science (Hons.)

Submitted By

SUTAPA PATRA

ROLL – 118641 NO. – 1814019

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This certifies that Miss Sutapa Patra, bearing Roll- 118641 No. 1814019, Registration number-009991 of 2018-19 carried out the term paper entitled "Overpopulation-the alarm" in her B.Sc. (Hons.) course in Environmental Science under my constant supervision and guidance. She has fulfilled all the basic requirements and followed the work and regulations as lay down by the Institution.

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Acknowledgement

I express my sense of gratitude to Dr Indrani Deb, Principal, Nistarini College, Purulia, for her constant support and cooperation.

I am grateful to my teacher, Dr Moumita Sinha, Department of Environmental Science, Nistarini College, Purulia, for her valuable advice and kind help.

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Finally, I am deeply indebted to my parents for their cooperation and good wishes, which always inspire me to go ahead in life.

Date: 07.07.2021
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Sutapa Patra

ABSTRACT

Overpopulation refers to an uninvited condition in which the number of existing human being exceeds the actual capacity of the Earth. It has many causes which range from a decline in the death rate and early marriages and many more. In this term paper the main focus is on the issue of over population and its impact on the environment. The growing size of the global population is not an issue that appeared within the past couple of decades, but its origin come from the prehistoric time and extent to the very present day. Throughout the history, acknowledged scientist introduced the concept of ''overpopulation'' and predicted the future consequences if the world follows the same behavioural pattern. Modern medical facilities and illiteracy in some interior regions of developing countries are the major reasons for development of this inverted pyramid demographic structure. Migration is one of the components that encouraged population rise, which imposes severe threats to the environment. Over population has resulted in a series of catastrophic consequences by causing increased pressure on existing natural resources. Urbanization destroys natural habitats and reinforces carbon dioxide emission, which causes climate change and global warming. Species becoming extinct and humanity is at threat that it set up for itself. Food scarcity shortages of water as well as lack of opportunities and inadequate education are the results of global inequality. Uneven distribution of natural resources, financial means, individual rights give rise to poverty and definite global culture as greedy, despite

the aid of international organization and agencies. Solution to overpopulation lie in the effort of national institutions to implement policies that will correspond to the guidelines given by international institution that work for the best of global community.

The current population of World is almost 7.7 billion. According to highest estimate it may lift upto 16 billion and according to lowest estimate it may decline to 6 billion. Some steps have to be taken immediately, such as we should educated our people, we can concern people how much effective is this topic for upcoming future, make new policies and impartial sharing of resources must be ensured so that population could be controlled.

Keywords: Overpopulation, urbanization, migration, global inequality.

THE IMPACT OF COVID-19 ALL OVER THE WORLD

Term paper submitted for the partial fulfillment of the requirement for the Degree of Bachelor of Science in Environmental Science (Hons.)

Submitted By

KRISHNA MAHATO

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REGISTRATION NO. – 009882 of 2018–19

Supervised by

Dr Sabyasachi Mukhopadhyay

State Aided College Teacher (Category-I)

DEPARTMENT OF ENVIRONMENTAL SCIENCE

NISTARINI COLLEGE, PURULIA

SIDHO – KANHO – BIRSHA UNIVERSITY

PURULIA

2021

DEPARTMENT OF ENVIRONMENTAL SCIENCE

NISTARINI COLLEGE, PURULIA

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Date: 07.07.2021

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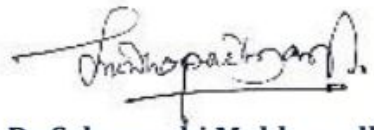
This certifies that Miss Krishna Mahato, bearing Roll- 118641 No. 1813908, Registration number-009882 of 2018-19 carried out the term paper entitled "Micro-plastic…..a hidden threat" in her B.Sc. (Hons.) course in Environmental Science under my constant supervision and guidance. She has fulfilled all the basic requirements and followed the work and regulations as lay down by the Institution.



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ABSTRACT

The corona virus is an ongoing pandemic situation. The outbreak of covid-19 leads to emergency of the Global pandemic. More than 216 countries are struggling against the transmission of the disease. More than 30.369 million confirm cases and more than 0.948 million deaths. Everything has been impacted. Most of the Nations adopted partial or complete ‘lockdown' and imposed ‘social distancing’ to control rapid transmission of covid-19 and its consequences. Though global economic growth declined due to nationwide lockdown, there are certain positive impact on environment. The effects of nationwide lockdown aiming to community transmission COVID-19 on animal life behavior and atmospheric environment in different aspects. In the lockdown period, the levels of Nitrogen dioxide and carbon emission remarkably decrease in atmosphere due to restricted consumption of fossil fuel by industries, thermal power stations and air transportations. The concentration of Nitrogen dioxide dropped by 45-54 percent in the atmosphere. The intensities of particulate matters PM2.5 and PM10 decreased by 43 percent and 31 percent respectively, at lower atmosphere indicating improvement in air qualities in different parts of world caused by less

traffic and construction activities. SPM reduced up to 15.9 percent ,showing improvement in surface water quality. Noise pollution remarkably dropped below 60 dB. The behavioural changes of wild animals, birds, butterfly, pets and Street animals that reflect on ecosystem indicate the non-interference of human activities on lives of natural creatures during lockdown period. Lockdowns and loss of tourism revenue also create challenges for protecting wildlife.

Key words: Covid-19, pandemic, Lockdown.

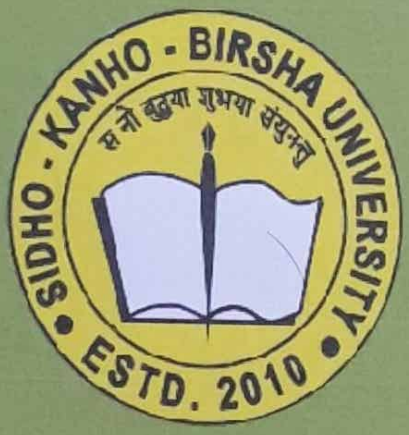
A LITERATURE REVIEW ON ORGANIC FARMING AS SUSTAINABLE AGRICULTURE

Submitted by

MANTU BHANDARY

ROLL –118641 NO - 1813922

REGISTRATION NO – 009896 OF 2018-2019



ENVIRONMENTAL SCIENCE

NISTARINI COLLEGE, PURULIA

LITERATURE REVIEW SUBMITTED FOR PARTIAL FULFILLMENT OF THE DEGREE OF 'BACHELOR OF SCIENCENVIRONMENTAL SCIENCE OF SIDHO-KANHO-BIRSHA UNIVERSITY (2021)

A LITERATURE REVIEW ON

ORGANIC FARMING

AS SUSTAINABLE AGRICULTURE

FOR PARTIAL FULFILLMENT OF THE DEGREE OF B.Sc. IN ENVIRONMENTAL SCIENCE OF SIDHO-KANHO-BIRSHA UNIVERSITY (2021)

Submitted by

MANTU BHANDARY

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REGISTRATION NO - 009896 OF 2018-2019

ENVIRONMENTAL SCIENCE

NISTARINI COLLEGE, PURULIA

DEPARTMENT OF ENVIRONMENTAL SCIENCE

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TO WHOM IT MAY CONCERN

This is to certify that Miss. **Mantu Bhandary** bearing Roll - 118641 No-1813922, Registration No - 009896 OF 2018-2019 has worked out the literature review entitled **"ORGANIC FARMING AS SUSTAINABLE AGRICULTURE"** under my supervision for submission to the Purulia Nistarini College under Sidho-Kanho-Birsha University for the achievement of Bachelor Degree with Hons. in Environmental Science.

.....

Prof. Priyabrata Mukherjee

Department of Environmental Science

Nistarini College, Purulia

.....

Principal's Signature

ACKNOWLEDGEMENT

I convey to my heartiest thanks to Dr. Indrani Deb, Principal, Nistarini College, Purulia, for her constant support, guidance and co-operation.

I would express my gratitude to Dr. Moumita Sinha, Head of the Department of Environmental Science of Purulia Nistarini College under Sidho- Kanho-Birsha-University, for her valuable advice and kind help, encouraged, active suggestion,co-operation inspired, good wishes during this work.

This is a golden opportunity to acknowledge the heartiest gratitude to my honourable professor, supervisor, Priyabrata Mukherjee, Department of Environmental Science of Purulia Nistarini College, under Sidho- Kanho- Birsha-University, who first drew my attention to the literature review work. Respected sir, by his wisdom, prudential direction, supervision formative and meaningful suggestions guided me to complete the present review literature work.

I would like to mention the name of my other Respected Professors, Dr. Sabyasachi Mukhopadhyay and Mrs. Shayantika Dey, without their active co-operations, inspiration, initiative to perform my work would not have been completed this project. I would also full of gratitude and respect for my fruitfulness of work.

I am also thankful to our departmental staff Sri Debasish Das Karmakar.

I am also thankful to Dr.Mohinder Slariya, Associate Professor Govt.College , Chamba, Himachal Pradesh and Professionally Sociologist but working on the aspects of Environmental Sociology with Climate Change issues in Himalayan (Western).

I am thankful to Dr. Jayanta Choudhary, Associate Professor, NIPRD-NERC, Chairman of Global Forum for sustainable rural development.

And also I am thankful to Dr. Pratap Toppo, Head of the Department of Forestry, Indian Gandhi National Agricultural University, Raipur, C.G.

Finally, I am deeply indebted to my parents for their co-operation and good wishes, which always inspire me to go ahead in life. And also I am thankful to some helpful public of my neighbours who helped for complete this work.

ABSTRACT

Modern agriculture used with modern techniques and tools to maximize productivity of food products with the high use of chemical fertilizers and pesticides created negative impacts on the environment by affecting soil fertility, water hardness, genetic variation in plants, increase in toxic residue through food chain and animal feed thus increasing health problems and degradation of environment. To solve the above problems many scientists and research scholar researched on **'organic farming as sustainable agriculture'** and I also have selected on it as a literature review to provide aware to people about the harmful effect of chemical on human health, soil and environment. In which, as a alternative way, organic farming can provide healthy, safe good quality food without adversely affecting soil health and the environment. In this review literature, I have collected data from many sources like other review literature, many research papers and many websites etc.

- **Keywords ---- Sustainable Agriculture, Soil Productivity, Food security, Organic Farming, Modern Agriculture.**

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CERTIFICATE

This certifies that Doyel Banerjee,bearing Roll- 118641No. 1813899,Registration No- 009873 Carried out the investigation in her B.Sc.(Hons) Course in Environmental science. She has incorporated the Term paper works in this project Entitled " LITERATURE REVIEW OF ORGANIC FARMING AND SUSTAINABLE AGRICULTURE, THE ENVIRONMENT" Under her constant supervision and guidance he has work fulfilled all the basic requirements and followed the work and regulations relating to of investigation. This Term Paper work "Organic Farming and sustainable agriculture"Is summited in practical fulfilment of the degree of B.Sc.(Hons) in Environmental science of the Sidho-Kanho-Birsha University purulia.

Mr.Priyabrata Mukherjee

Department of Environmental Science

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Dr.Indrani Dev

Principal

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ACKNOWLEDGEMENT

I would like to express my special thanks of gratitude to my teacher "Mr Priyabrata Mukherjee" for their able guidance and support in completing my project.

I would also like to extend my gratitude to the principal Ma'am " Dr. Indrani Deb"for providing me with all facility that was required.

This is a golden opportunity to acknowledge the heartiest gratitude to my honorable professor Dr Moumita sinha, Head of the Department of Environmental science of Purulia Nistarini college under Sidhu-kanho-Birsa University.

ABSTRACT

Organic farming is a from of agriculture in which agriculture land is cultivated with out the use of artificial fertilizers or artificial pesticides, growth, regulators and livestock feed additives. Sustainable agriculture is the practice of farming using principle of ecology. It enhances the Microbiol activities and increase soil health organic farming is an efficiance and promising agriculture opproch for environmental sustainability as it provides yield stability, improved soil health.

To find out the relationship between sustainable agriculture and organic farming and the control the pollution of water and soil, conserves energy and reduces greenhouse gas emissions.

During my study time I visit different web sides and consult with different paper and books and from there taking the all types of information about the sustainable development agriculture and organic farming and also food security which is very helpful to environmental protection like soil conservation,water pollution control, so in the reviews . I find that a sustainable agriculture organic farming of the complement. Each other and both are beneficial for the Sustainable development farmers.

Key words-Food security, sustainable agriculture, Warmer , climate change, nutrition and health effects

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CERTIFICATE

This certifies that Mamata Gorain ,bearing Roll- 118641No. 1813919,Registration No- 009893 Carried out the investigation in her B.Sc.(Hons) Course in Environmental science. She has incorporated the Term paper works in this project Entitled " LITERATURE REVIEW OF ORGANIC FARMING AND SUSTAINABLE AGRICULTURE, THE ENVIRONMENT" Under her constant supervision and guidance he has work fulfilled all the basic requirements and followed the work and regulations relating to of investigation. This Term Paper work "Organic Farming and sustainable agriculture"Is summited in practical fulfilment of the degree of B.Sc.(Hons) in Environmental science of the Sidho-Kanho-Birsha University purulia.

Mr.Priyabrata Mukherjee

Department of Environmental Science

Nistarini College, Purulia

Dr.Indrani Dev

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ACKNOWLEDGEMENT

I would like to express my special thanks of gratitude to my teacher "Mr Priyabrata Mukherjee" for their able guidance and support in completing my project.

I would also like to extend my gratitude to the principal Ma'am " Dr. Indrani Deb"for providing me with all facility that was required.

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Key words-Food security, sustainable agriculture, Warmer , climate change, nutrition and health effects

LITERATURE REVIEW OF ORGANIC FARMING, AND SUSTAINABLE AGRICULTURE

SUBMITTED BY

ARCHANA GORAIN

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This certifies that Archana Gorain ,bearing Roll- 118641No. 1813874,Registration No- 009849 Carried out the investigation in her B.Sc.(Hons) Course in Environmental science. She has incorporated the Term paper works in this project entitled " LITERATURE REVIEW OF ORGANIC FARMING AND SUSTAINABLE AGRICULTURE, THE ENVIRONMENT" Under her constant supervision and guidance he has work fulfilled all the basic requirements and followed the work and regulations relating to nature of investigation. This Term Paper work "Organic Farming and sustainable agriculture" is summited in practical fulfilment

Of the degree of B.Sc.(Hons) in Environmental science of the Sidho-Kanho-Birsha University purulia.

Mr.Priyabrata Mukherjee

Department of Environmental Science

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Dr.Indrani Dev

Principal

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Nistarini college Purulia

ACKNOWLEDGEMENT

I would like to express my special thanks of gratitude to my teacher "Mr Priyabrata Mukherjee" for their able guidance and support in completing my project.

I would also like to extend my gratitude to the principal Ma'am " Dr. Indrani Deb"for providing me with all facility that was required.

This is a golden opportunity to acknowledge the heartiest gratitude to my honorable professor Dr Moumita sinha, Head of the Department of Environmental science of Purulia Nistarini college under Sidhu-kanho-Birsa University.

ABSTRACT

Organic farming is a from of agriculture in which agriculture land is cultivated with out the use of artificial fertilizers or artificial pesticides, growth, regulators and livestock feed additives. Sustainable agriculture is the practice of farming using principle of ecology. It enhances the Microbiol activities and increase soil health organic farming is an efficiance and promising agriculture opproch for environmental sustainability as it provides yield stability, improved soil health.

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Key words-Food security, sustainable agriculture, Warmer , climate change, nutrition and health effects

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This certifies that Punam Gorain , bearing Roll-118641 No. 1813969, Registration No- 009942 Carried out the investigation in her B.Sc.(Hons)Course in Environmental science. She has incorporated the Term paper works in this project entitled "LITERATURE REVIEW OF ORGANIC FARMING FOOD SECURITY, AND THE ENVIRONMENT" Under her constant supervision and guidance he has work fulfilled all the basic requirements and followed the work and regulations relating to nature of investigation. This Term Paper work "Organic Farming food security and the environment"is summited in practical fulfilment of the degree of B.Sc.(Hons)in Environmental science of the Sidho-Kanho-Birsha University ,Purulia.

Mr. Priyabrata Mukherjee

Department of Environmental Science

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Dr. Indrani Deb

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Acknowledgement

I convey my heartiest thanks to Dr Indrani Deb, Principal, Nistarini College, Purulia for her constant support, guidance and co-operation.

This is a golden opportunity to acknowledge the heartiest gratitude to my honourable Professor Mr. Priyabrata Mukherjee , Department of Environmental Science of Purulia Nistarini College under Sidhu-Kanho-Birsha University, who first drew my attention to the Term paper work.

I would like to mention the name of my other respected Professors, Dr.Moumita Sinha, Dr. Sabyasachi Mukhopadhyay and Smt. Shayantika Dey, without their active co-operations, inspiration, initiative to perform my day-night hard working for perfection, this Term paper work would not have been completed this hard project. I would also full of gratitude and respect for my fruitfulness of work.

PUMAM GORAIN

ABSTRACT

This paper presents a methodological framework for the systematic literature review of organic farming food security and environment. Organic farming is a modern and sustainable form of agriculture that provides consumers fresh natural farm product. Organic farming works in synchronisation with nature rather than against. A convergence of factors has made food security one of the most important global issue. Organic farming is more. Sustainable than conventional organic farming is a modern and sustainable way for consumers to combine natural farm products with nature rather than organic farming .

Organic farming foods are rich in nutrients. There is no damage to soil as no chemical fertilizers are used in the organic farming. Organic farming is not the paradigm for sustainable agriculture and food security, but smart combinations of organic and conventional methods could contribute toward sustainable productivity increases in global agriculture.

Keywords:

Food security, sustainable agriculture, Environment effect, Economic, Nutrition and health effect , climate change .

IMPACT ON BIODIVERSITY FOR FOREST FIRES IN THE AMAZON RAIN FOREST, 2019

Submitted by

PALLABI MAHATO

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GUIDED BY

SMT. SHAYANTIKA DEY

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DEPARTMENT OF ENVIRONMENTAL SCIENCE,

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TO WHOM IT MAY CONCERN.

This is to certifies that Miss Pallabi Mahato, bearing Roll: 118641 No: 1813941, Registration No: 009914 of 2018-2019 carried out the investigation in her B.Sc (HONS.) course in Environmental Science. She has worked out the Dissertation entitled **"IMPACT ON BIODIVERSITY FOR FOREST FIRES IN THE AMAZON RAINFOREST"**, for submission to the Purulia Nistarini College under SIDHO-KANHO-BIRSHA UNIVERSITY for the achievement of **Bachelor Degree with Hon's, In Environmental Science**. The work has not been submitted formerly.

Smt. Shayantika Dey

Dept. of Environmental Science **Principal**

Nistarini College, Purulia.

ACKNOWLEDGEMENT

I convey my heartiest thanks to Dr. Indrani Deb, Principal, Nistarini College,Purulia for her constant support,guidance and co-operation.

This is my opportunity to acknowledge the warmest gratitude to my esteemed guide Smt. Sayantika Dey, Department of Environmental Science, Nistarini College, Purulia. Her whole heated co-operation inspired, encouraged me to complete the dissertation work. I am full of gratitude on her.

I would express my gratitude to Dr. Moumita Sinha, Head of the Department of Environmental Science,Nistarini College, Purulia , for her valuable advice,active suggestions and constant good wishes.

I would like to mention the name of the other respected professors, Dr. Sabyasachi Mukhopadhyay and Prof. Priyabrata mukherjee, without their active co-operations, inspiration, initiative to perform my day-night hard working for perfection. This dissertation work would not have been completed without them.

In this dissertation paper I will discuss the "Impact on Biodiversity for Forest Fires in the Amazon Rainforest 2019", followed by an analysis of forest fire data from previous years as well as new information from published research about the 2019 forest fires and future ramifications.

Before I discuss about my topic, it is necessary to get some information about the Amazon Rainforest.

The Amazon rainforest is the world's largest rainforest is at the risk of getting burned out completely. The rainforest, which contributes about 20% of the earth's oxygen .This basin encompasses 700,000 km square (2700,000 sq mi) of which 5500000 km square (2100000 sq mi) are covered by the rain forest.

The majority of the forest is contained within Brazil with 60% of the rain forest, followed by Peru with 13%, Colombia with 10%, and with minor amounts in Bolivia, Ecuador, French, Guiana, Guyana, Suriname and Venezuela. Amazon rain forest is the largest and most biodiverse tract of tropical rain forest in the World, with an estimated 390 billion individual trees devided into 16000 species. More than 30 million people of 350 different ethnics groups live in the Amazon, which are subdivided in 9 different national political system .

The 2019 Amazon rain wild fires season saw a year to year surge in fires occurring in the Amazon rain forest and Amazon biome with in Brazil, Bolivia, Paraguay and Peru during that years Amazonian tropical dry season as slash and burn method are used to clear the forest to make way for agriculture, livestock, logging and mining, leading to deforestation of the Amazon rain forest. The increased rates of fires counts in 2019 lead to international concern about the fate of the Amazon rain forest, which is the world largest terrestrial carbon dioxide sink and plays a significant role in mitigation global warming.

IMPACT ON BIODIVERSITY FOR FOREST FIRE IN THE AMAZON RAINFOREST

Submitted by

MITHU MAHATO

ROLL: 118641 NO: 1813923

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TERM PAPER SUBMITTED FOR PARTIAL FULFILLMENT OF THE DEGREE OF " BACHELOR OF SCIENCE " IN ENVIRONMENTAL SCIENCE OF SIDHO-KANHO-BIRSHA UNIVERSITY , PURULIA (2021).

DEPERTMENT OF ENVIRONMENTAL SCIENCE.

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CERTIFICATE

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This certifies that Mithu Mahato bearing Roll–118641 No-1813923, Registration Number – 009897 of 2018-2019 carried out the investigation in her B.Sc. (Hons.) course in Environmental Science. She has incorporated the term paper works in this project entitled "IMPACT ON BIODIVERSITY FOR FOREST FIRE IN THE AMAZON RAINFOREST", under my constant supervision and guidance. She has fulfilled all the basic requirements and followed the work and regulations relating to nature of investigation as lay down by the institution. This work embodied some results of original observations made by her and is submitted in partial fulfilment of the degree B.Sc.(Hons.) in Environmental Science of the Sidho- Kanho- Birsha University , Purulia .

Smt Shayantika Dey
Department of Env. Science
Nistarini College,Purulia

Dr. Indrani Deb
Principal
Nistarini College,Purulia

ACKNOWLEDGMENT

I convey heartiest thanks to Dr. Indrani Deb, Principal, Nistarini College, Purulia for her constant support, guidance and co-operation.

It's my opportunity to acknowledge the warmest gratitude to my esteemed guide Smt. Shayantika Dey, Department of Environmental science, Nistarini College, Purulia. I am greatly indebted for her untiring and guidance,constructive and meaningful suggestion and inspiration throughout the entire period of my work .

I fervently desire to record my sincere gratefulness to Dr. Moumita Sinha , Dr. Sabyasachi Mukhopadhyay and Sri Priyabrata Mukherjee Department of Environmental Science, Nistarini College, Purulia for their constant encouragement and valuable suggestions without which it would not have been possible to carry out this project .

I am also grateful to Sri Debasish Das Karmakar , Non teaching faculty Department of Environmental Science Nistarini College, Purulia .

Finally I am deeply indebted to my parents and my Friends for their co-operation and good wishes .

Date ....

Place: NistariniCollege ,Purulia Signature

ABSTRACT

The Amazon rainforest, covering much of north-western Brazil and extending into Colombia, Peru and other South American countries . It is the world's largest tropical rainforest, famed for its biodiversity. Amazon rainforest is situated in 3°27'55.1" South and 62°12'57.17" West. The area of Amazon forest is 5.5 million km². Over 3 million species and over 2500 trees species found across the Amazon rainforest biome .

The Amazon forest fire was started in September 2019 and it was end July 2020. This fires normally occur around the dry season as Slash and burn methods are used to clear the forest to make way for agriculture, livestock, logging and mining, leading to deforestation of the Amazon rainforest.

Forest fire in the Amazon have had a devastating effect on biodiversity. The burned area is 906,000 Hectares of forest within the Amazon biome has been to fires in 2019 . And many animals, small plants, large trees, and various species have been burned to death.

THE EFFECT OF THE TROPICAL CYCLONE "YAAS" TO THE SOUTH-EASTERN COASTAL AREAS OF INDIA 2021

SUBMITTED BY

NIBEDITA MAHATO

ROLL 118641 NO 1813936

REGISTRATION NO : 009909 OF 2018-19

GUIDED BY

SMT SHAYANTIKA DEY

ENVIRONMENTAL SCIENCE

NISTARINI COLLEGE, PURULIA

DISSERTATION SUBMITTED FOR PARTIAL FULFILLMENT OF THE DEGREE OF B.SC IN ENVIRONMENTAL SCIENCE (HONS) AFFILIATED TO SIDHO-KANHO- BIRSHA UNIVERSITY, PURULIA, W.B

Cyclone Yaas is about to hit India's East coast and forecasts have predicted that the cyclone will turn into a severe storm on May 25, before making landfall near Odisha's Balasore coast. While this is a good time to get supplies and stay ready for the incoming storm, it is equally important to be ready with up-to-date information on the cyclone's path and other developments.

Users can track Cyclone Yaas live with Esri India GIS map by simply using a browser .

Cyclone Yaas that made landfal in Odisha May 26, 2021, damaged large tracts of crops, affecting betel–vine farmers, paddy farmers and vegetable growers in Kendrapara, Balasore, Mayurbhanj and Bhadrak districts.