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# CONNECTING MULTIDISCIPLINARY

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# Connecting Multidisciplinary Research for Universal Growth

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# **Connecting Multidisciplinary Research for Universal Growth**

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## **PREFACE**

Research can be conducted by professionals such as scientists and researchers but it can also be done by non-professionals such as students . The purpose of all types of research is to obtain new knowledge that was not available before due to lack of resources or because it was not known about previously. This type of inquiry is often seen as an important part in solving problems because it helps people understand complex issues by providing them with evidence based on facts instead of relying on opinions only which cannot prove their validity at all times since they are based on subjective thoughts rather than objective facts that can be proven through evidence at any given time.

Multidisciplinary research is a type of research that involves more than one field or discipline to understand a certain phenomenon or to solve a problem in an effective way .In the 21st century, there is a growing need for interdisciplinary research. This is because different fields of knowledge are becoming increasingly more complex and interrelated. Multidisciplinary collaborations have proven to be an effective way of establishing a new network of scholars and meeting people from different fields. Multidisciplinary projects make it easier to communicate with colleagues from other fields. Multidisciplinary projects significantly broaden one's network of contacts.

This book(Connecting Multidisciplinary Research for Universal Growth) is intended to assist readers in comprehending the numerous national and international studies being conducted in various sectors,this book will inform students, junior researchers, and educators about various research projects that are currently underway in a variety of fields.

## ACKNOWLEDGEMENT

I consider myself fortunate to receive the opportunity to edit and publish the edited collection “**Connecting Multidisciplinary Research for Universal Growth**” First and foremost, I express my gratitude to our researchers, who work diligently in the domains of research and innovation to improve knowledge in all fields, raise people's living conditions, and make the best use of available resources. My father, **Late Shivaji Bhosale**, mother, **Shrimati Gokula Bhosale**, father-in-law, **Babasaheb Shinde**, mother-in-law, **Indubai Shinde**, husband, **Mr Shashikant Shinde**, son, **Prasanna Shashikant Shinde**, and all of my family members are grateful for always being by my side, taking care of all of my responsibilities, and encouraging me to keep pushing my limits. Second, I'd like to express my gratitude to **Mr Sanjay Nahar**, Sarhad's President, **Mrs Sushma Nahar**, Sarhad's Secretary, **Mr. Shailesh Wadekar**, Sarhad's Trustee, and Sarhad's Principal, **Dr Hanumant R Jadhawar**, for their assistance and advice. I'd want to express my gratitude to the Sarhad College of Art, Commerce, and Science's teaching and non-teaching personnel for their unwavering support. I'd also like to express my gratitude to all of the contributors whose chapters have been included in this book; their devotion and hard work have paid off handsomely, as this book has proven to be an engaging and informative read. Thank you everyone again; this would not have been possible without your tireless research efforts.

**Dr. Sangeeta Shashikant Shinde**

## Table of Contents

<b>Preface</b>	<b>IV</b>
<b>Acknowledgement</b>	<b>V</b>
<b>Table of Contents</b>	<b>VI - VII</b>
<b>Title of the chapter</b>	<b>Page No.</b>
<b>A STUDY OF SAVING AND INVESTMENT BEHAVIOR OF INVESTORS</b>	<b>1 – 5</b>
<i>Dr. Renuka Eknath Walunj</i>	
<b>A STUDY ON CUSTOMER PREFERENCE AND SATISFACTION IN THE USE OF FASHION JEWELLERY BY COLLEGE PROFESSORS IN PALAYAMKOTTAI, TIRUNELVELI</b>	<b>6 – 9</b>
<i>Felcita Zahira Fernando and Dr. A. Hamil</i>	
<b>FIBROMYALGIA – FIBRO FOG</b>	<b>10 – 15</b>
<i>Pinky Dutta and Shwetha Sasidharan</i>	
<b>PROCEDURAL ASPECTS OF LAND ACQUISITION IN INDIA</b>	<b>16 – 22</b>
<i>Pratik Gautam and Dr. Arti Sharma</i>	
<b>THE UNDERSTANDING OF DIFFERENT QUALITY ASPECTS OF PRODUCED SALT BY FARMER IN EAST JAWA, INDONESIA BY CONSIDERING HUMAN AND NATURAL RESOURCES</b>	<b>23 – 32</b>
<i>Rahmad Fajar Sidik</i>	
<b>IMPACT OF FIRM SPECIFIC DETERMINANTS ON WORKING CAPITAL BEHAVIOR OF INDIAN PHARMACEUTICAL FIRMS</b>	<b>33 – 51</b>
<i>Satish Chandra Tiwari</i>	
<b>BUSINESS AND HUMAN RIGHTS: NEED FOR A LEGAL REGULATORY FRAMEWORK IN INDIA</b>	<b>52 – 63</b>
<i>Ms. Honey Sharma and Dr. Vinod Kumar</i>	



<b>ELECTRONIC JUDICIAL SYSTEM</b>	64 – 96
<i>Osamah Mohammed Abdulraheb Al-Sakkaf</i>	
<b>DETERMINANTS OF INFLATION IN ETHIOPIA: AN AUTOREGRESSIVE DISTRIBUTED LAG (ARDL) APPROACH</b>	97 – 113
<i>Mustefa Bati and Kedir Jemal</i>	
<b>MACHINE LEARNING-BASED NVIDIA STOCK PRICE PREDICTION USING AUTOTS</b>	114 – 119
<i>Rejuwan Shamim and Dr. Trapti Agarwal</i>	
<b>TEACHER EDUCATION</b>	120 - 128
<i>Dr Annu Tomar</i>	
<b>A STUDY OF THE VIEWS OF B. ED TRAINEES TOWARDS THE SUBJECT OF DRAMATURGY AND ART IN THEIR EDUCATION</b>	129 – 133
<i>Dr. Reena N. Vahora</i>	
<b>METHODS AND PROSPECTS OF STUDYING THE RUSSIAN LEGAL MENTALITY</b>	134 – 139
<i>A.V. Murunova</i>	
<b>ENVIRONMENTAL DEGRADATION AND POLLUTION: EFFECTS ON NATURE AND HUMAN HEALTH</b>	140 - 142
<i>Vishakha Sharma</i>	

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## A STUDY OF SAVING AND INVESTMENT BEHAVIOR OF INVESTORS

**Dr. Renuka Eknath Walunj**

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### ABSTRACT

*India is a developing Country where Per Capita Income is increasing in various sectors like manufacturing, service, export, technology etc. Approaches towards saving and investment have changed due to increase in income. Huge revenue is generated through tax. Tax plays a very effective and efficient role to control and regulate economic activities. Government provides exemptions, deductions, relaxations and even concessions as per requirements. Paying Tax to the government is a painful task for individuals. Every person tries to reduce the tax liability. Saving is the first step towards investment. Savings involves the commitment of resources which have been saved or put away from current consumption in the hope that some benefits will occur in future. The savings in financial form include savings in currency, bank and non-bank deposits, LIC funds, pensions fund, shares and debentures etc.*

*An investment refers to the commitment of funds at present, in anticipation of some positive rate of return in future. The investment pattern and saving habits of investors is determined by their expectations from the various preferred avenues. Preference may vary due to various considerations i.e., Safety, Liquidity, and marketability, returns tax benefits, risk involved etc.*

*The research aims to study and understand the behavioural pattern of investment among the investors working in Pune City with reference to the Vadgaon area.*

**Keywords:** Investment, Saving, Investor.

### 1. INTRODUCTION

Investment may be defined as “a commitment of funds made in the expectation of some positive rate of return.” The money earned is partly spent and the rest saved for meeting future expenses. Instead of keeping the savings idle it may like to use savings in order to get a return on it in the future, which is known as ‘investment’. Thus, Investment involves employment of funds with the aim of achieving additional income or growth in values. The essential quality of an investment is that it involves the commitment of resources which have been saved in the hope that some benefits will accrue in future

#### 1.1 Saving

Savings means to set aside a part of earned income for future purpose. People often save money, to fulfil their unexpected or sudden expenses or urgent money requirements. As compared with investment, saving gets an assured and nominal rate of interest. Individuals can easily access their savings. Savings are highly liquid and flexible.

## 1.2 Investment

Investment is a commitment of an individual to earn future income in the form of interest, dividends, rent, premiums, and pension benefits of appreciation of the value of money. Investments are made from savings. There are many investment avenues available like fixed deposits, post office savings, LIC, Public Provident Fund, Equity, Real Estate, Commodities etc. Investment pattern determined by their expectations from different avenues which vary due to safety, liquidity and marketability, returns, tax benefits, risk involved etc. Investment also depends upon the awareness about investment opportunities and level of knowledge.

## 2. OBJECTIVES

1. To comprehend the concept of Saving and Investment.
2. To study the investment preference of investors
3. To know the factor influencing investment behaviour of investors.

## 3. LITERATURE REVIEW

Sushil Kumar Mehta entitle (2011), After analyzing the data, researchers found that the people in Jammu region are conservative in nature and want their money to be safe. They are not that concerned for the growth of the money or liquidity. There is no association of age, gender, occupation, education with the appropriate investment period, but there is a significant relationship of income with the appropriate investment period.

Sonal Patil & Kalpana Nandawar (2014) examined that investors are aware about investment avenues available in India. Most preferred investment is to invest in bank deposits, metal (Gold) & real estate. Safety is important factor and prefer secured regular income on investment

## 4. RESEARCH METHODOLOGY

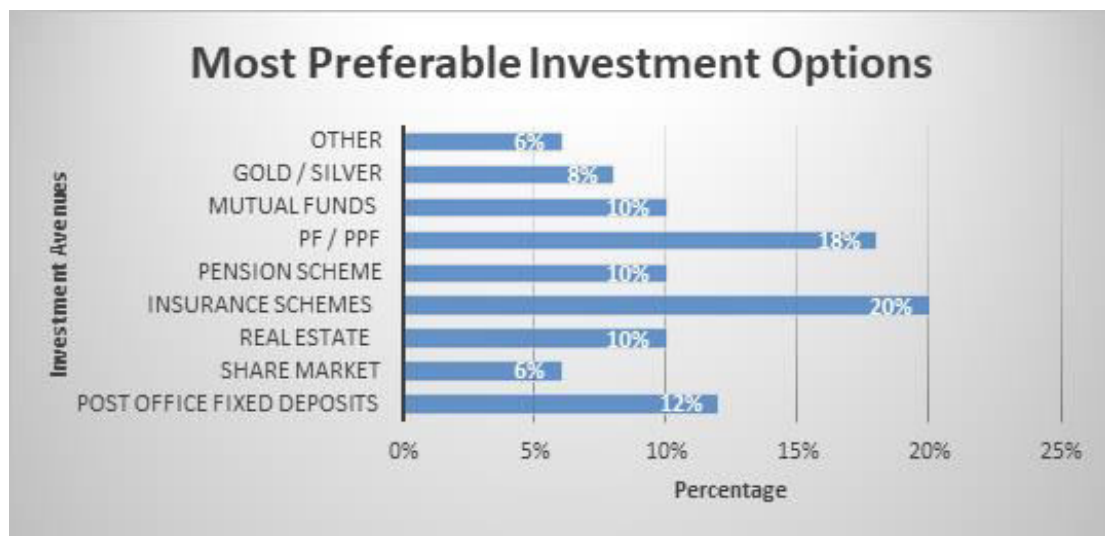
Primary data is collected from 50 respondents through questionnaire methods from Pune city with reference to vadgoan area. A questionnaire covered with investment patterns and awareness of investment avenues of investors working in Pune city. Secondary data is collected from library, published documents, Magazines, books and journals etc

## 5. DATA ANALYSIS

### a. Most Preferable Investment Options

Sr. No	Investment Avenues	No. of Respondents	Percentage (%)
1	Post office Fixed Deposits	6	12%
2	Share Market	3	6%

3	Real Estate	5	10%
4	Insurance Schemes	10	20%
5	Pension Scheme	5	10%
6	PF / PPF	9	18%
7	Mutual Funds	5	10%
8	Gold / Silver	4	8%
9	Other	3	6%
<b>Total</b>		<b>50</b>	<b>100</b>

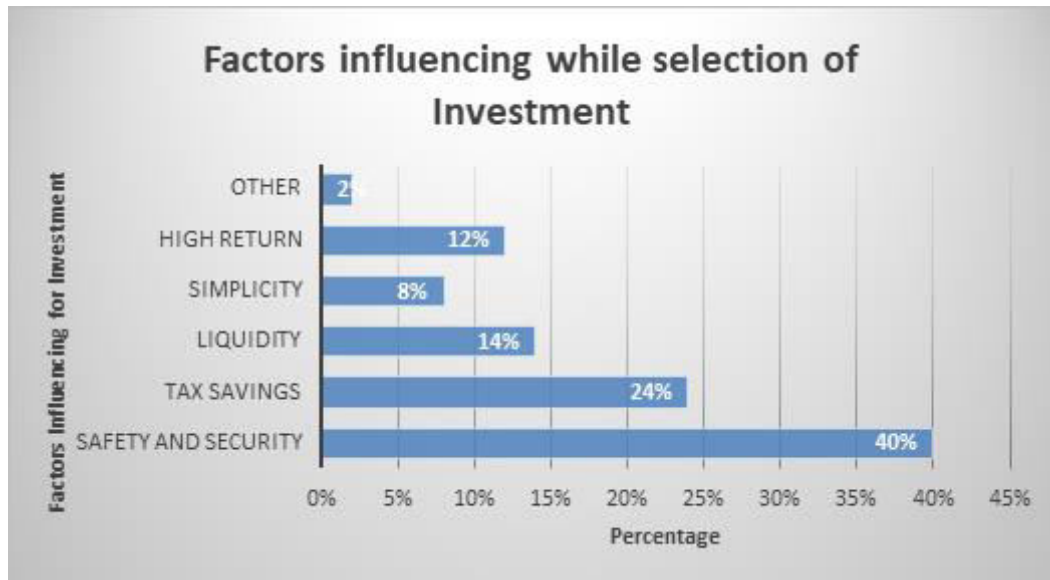


It is observed that 20 investors prefer Insurance Schemes for their first choice of investment. 18 percent investors prefer Provident Fund or Public Provident Fund which attract a high rate of return as compared to insurance and fixed deposits. For Safety and security 12 percent of investors opting Post office and bank fixed deposits option. Below 12 percent investor giving options for share market, real estate, mutual fund, gold / silver etc.

**b. Factors influencing while selection of investment avenues**

Sr. No	Factors	No. of Respondents	Percentage (%)
1	Safety and Security	20	40%
2	Tax savings	12	24%
3	Liquidity	7	14%
4	Simplicity	4	8%

5	High return	6	12%
6	other	1	2%
<b>Total</b>	<b>50</b>	<b>100</b>	



Above table shows the technical factors influenced while selecting the investment avenues. Out of 50 investors first preference is given to public provident fund, bank deposits and post office deposits as a safety and security factor by 40 percent investors. 24 percent of employees invest the money for tax saving purposes. Below 15 percent employees made investment for liquidity, simplicity and high return.

## 6. CONCLUSION

"If you want to get rich, save whatever you get. Even A fool can earn money; but then it takes a wise man to save and to dispose of it to his own advantage." -- Brigham Young

It is essential to save income from earning and to plan for future requirements. Nowadays Mutual Fund is the most favoured option by the youngsters. Systematic Investment Plan (SIP) is a favoured investment option by the youngsters. Senior citizens still are stuck in safety and security objectives while investing the money. They are giving preference to Post office / bank deposits, Pension schemes, Insurance policies etc.

For healthy life requires the right mix of essential nutrients and vitamins likewise the success of a financial plan requires discipline allocation of resources. The investment pattern of investors differs as per their features like safety, security, regular flow of income, tax saving benefits, retirement benefits etc. Research concluded that investors are aware about the various investment options available in the market but they give

priority to safety, security and liquidity while investing the money. investors are keen to invest in long term investment and less risk products and also interested to earn a good return on their investments. The study also identifies that investor's investment decisions are based on various demographic factors like age, gender, marital status, level of income and level of market knowledge.

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## **A STUDY ON CUSTOMER PREFERENCE AND SATISFACTION IN THE USE OF FASHION JEWELLERY BY COLLEGE PROFESSORS IN PALAYAMKOTTAI, TIRUNELVELI**

**<sup>1</sup>Felcita Zahira Fernando and <sup>2</sup>Dr. A. Hamil**

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### **ABSTRACT**

*Costume jewelry receives its fair share of negative press in the jewelry world. Decades ago, costume jewelry was considered as "cheap," pale in comparison to its fine jewelry counterparts, but costume jewelry was incredibly important for many reasons. Women are increasingly aware of their choices and, little by little, many of them have started to work. In today's world, being financially stable is one of the most important determining factors for a respected and happy life. It also gives you the opportunity to make your own decisions. So you don't have to depend on anyone else for money or things. The working classes could afford buying costume jewelry by themselves without having any options to depend on. Boosting their self-confidence and importance, this article highlights the measurement of customer preference and satisfaction of college professors in using costume jewelry. The objective is to define the conceptual framework in which to analyze the factors that influence customer preference and satisfaction.*

*Keywords: Fashion Jewelry, Costume Jewelry, Jewelry*

### **INTRODUCTION**

Success depends on customer satisfaction. Customers are the people who buy goods and services in the market or from businesses that satisfy their needs and wants. Customers purchase products to meet their financial expectations. Satisfaction means feeling satisfied after what the person wanted or wanted. It's hard to know if your customers are happy with it product or service availability. So, making customers happy is not an easy task as you have to take this different factor into consideration. If a customer's satisfaction is earned, rest assured that customer loyalty will go with it as well. In order to increase the number of customers, customer development satisfaction is very important.

### **REVIEW OF LITERATURE**

**Varshney.T. (2018) :** The result of the study revealed that women have discrepancies (because they tend to turn to other options) and convergent approach (women tend to go from different options together) to both types of jewelry. The factors represent the true behavior of the common Indian consumer. It appeared that society is acceptable and

adaptable to changing patterns according to the dynamic demands of changing times. And in the current scenario, women prefer to wear light and elegant adornments rather than heavy and fashionable ones expensive gold.

**Rashid.J.Q. (2022) :** All identified factors are believed to collectively play a positive role in customer purchase intent in the fashion jewelry market. But these factors are by no means mutually exclusive. In several cases, there seemed to be an opposite or a positive relationship between two or more factors. Handmade jewellery, which was supposed to promote differentiation, was considered to be of low quality of workmanship, which is more expected of technology. Respondents believe that an individualistic culture helps shape people's preference for costume jewelry, that they use products that support their personal expression, which is now more easily supported by the availability of a wide variety of products in the case of costume jewelry.

### OBJECTIVES

The objective of this study is to know the level of customer satisfaction, The study is undertaken with the following objectives.

- Know the age group of college professors who use costume jewellery.
- Discover the factors that influence the level of preference and customer satisfaction.

### LIMITATIONS

- The focus of the study was based only on female college professors working in colleges in the Palayamkottai area of Tirunelveli.
- The primary data used in the study was based on information provided by respondents which is subject to inherent bias.
- The sample size was limited to 50.
- This study was carried out only in four colleges located in Palayamkottai, Tirunelveli and it is not applicable to any other area.

### RESEARCH METHODOLOGY

The following research methodology is adopted in the study with a view to carry out a systematic detailed research.

- The number of samples determined for the study is 50.
- These samples were chosen based on simple random sampling method.

**Table 1.1 – Demographic Profile**

Sl.No.	Particulars	No. of the respondents	Percentage %
<b>Age Wise Classification</b>			
1.	20 - 30 years	14	28



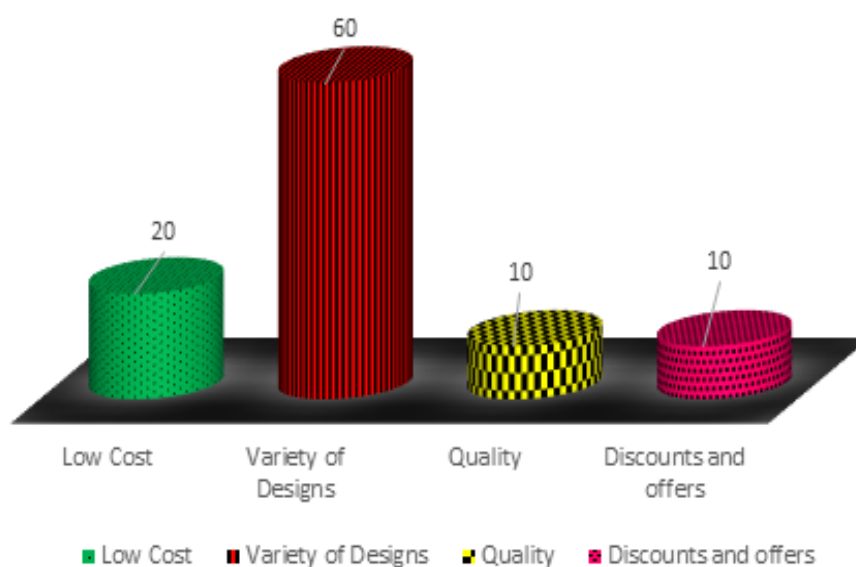
2.	31 – 40 years	22	44
3.	41-50 years	9	18
4.	Above 50 years	5	10
<b>Income</b>			
1.	10,000 - 20,000	25	50
2.	20,001 – 30,000	10	20
3.	30,001 – 40,000	7	14
4.	Above 40,000	8	16

**Table 1.2 :** Factors Influenced in Customer Preference & Satisfaction of Using Fashion Jewelry

1.	Low Cost	10	20
2.	<b>Variety of Designs</b>	<b>30</b>	<b>60</b>
3.	Quality	5	10
4.	Discounts and offers	5	10

**Source:** Primary Data

From the above table it is clear that variety of designs available is one of the important factors that influenced college professors in using fashion jewelry. Other factors that influenced were low cost, quality, discounts and offers.



**Figure 1:** Factors Influenced in Customer Preference & Satisfaction of using Fashion Jewelry

## **FINDINGS**

- The most dominant age group among female college professors is 31-40 years old. A higher percentage of college professors (44%) wear costume jewelry.
- Female college professors who use fashion jewelry in the studio earn an income of Rs 10,000-20,000.
- One of the important factor that influenced women college professors in preferring and using fashion jewelry is due to the enormous designs available in the fashion jewelry market.

## **CONCLUSION**

It appears from the study that female teachers working in the colleges of Palayamkottai, Tirunelveli are mostly influenced and satisfied with using fashion jewelry from the variety of designs available in the market as it is very affordable compared to the purchase of gold jewelry. Since they have their own income, they have the freedom and choice to buy fashion jewelry according to their style and preferences that matches the outfit they are wearing. They are very much satisfied with the cost which is reasonable, the quality is good, everywhere we find a number of offers and discounts available, and we can find a large number of fashion jewelry designs all over the world.

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**FIBROMYALGIA – FIBRO FOG****Pinky Dutta<sup>1</sup> and Shwetha Sasidharan<sup>2</sup>**Associate Professor<sup>1</sup> and Assistant Professor<sup>2</sup>, Garden City University**INTRODUCTION**

Fibromyalgia is a chronic generalized musculoskeletal pain that cannot be referred to have a specific structural or inflammatory cause <sup>[1]</sup>. Fibromyalgia is an unabated, idiopathic and palpated tender sensitive condition at characteristic sites called tender points. The term fibromyalgia is taken from Latin and Greek words: Fibra (Latin) means fibrous tissue, Myos (Greek) means muscle and Algos (Greek) means pain.

In the 1970s, researcher Hench first introduced the term "fibromyalgia." In India the incidence of fibromyalgia was taken under the headings of rural and urban population. Rural population marked 3.77% and urban 1.2%, overall India came out with the prevalence of 0.05%. The prevalence of fibromyalgia, globally the mean came out to be 2.7% (range 0.4%-9.5%) its mean prevalence across Europe came out to be as 2.5%, America 3.1% and Asia 1.7%. Females being predominant <sup>[2]</sup>.

Fibromyalgia constrains hypersensitivity to painful stimuli and exhibit dysfunction of several pain regulatory mechanisms such as conditioned pain modulation and exercise induced hypoalgesia. In 1994, the 10th revision of the International Classification of Diseases (ICD-10) listed FM under "diseases of the musculoskeletal system and connective tissue"<sup>[3]</sup>.

Following incidence certain factors came forward causing Fibromyalgia. Studies have shown that fibromyalgia is associated with immune dysregulation of pro inflammatory biomarkers, which affects the neural function of pain related neuro transmitted. Blood interleukin (IL-8) level is increased in fibromyalgia, suggesting IL-8 to be an inflammatory marker in fibromyalgia syndrome <sup>[4]</sup>.

Neurotransmitters- Neurotransmitters being Serotonin and Dopamine, researches done have found out Serotonin to be lower in patients with fibromyalgia causing slowing down of neurogenesis and mood disorder, whereas other researchers have also concluded that deficiency of dopamine leads to symptoms like anxiety, fatigue and sleep disturbance in a fibromyalgia patient. Other factors like specific gene polymorphism associated with fibromyalgia have also been listed down <sup>[5]</sup>.

These causative factors buttoned down several symptoms that occur altogether Its cardinal symptom being pervasive musculoskeletal pain affecting the muscles, ligament and joint. Other commonly found symptoms in a Fibromyalgia patient were Profound fatigue which can be moderate or severe, occurring in about 85% of patients, reduced pain threshold, Sleep disturbance, irritable bowel syndrome, tingling of extremities, memory loss, cognitive disturbance, altered mood and joint stiffness although

fibromyalgia does not damage the joint but it is known to intensify pain as fibromyalgia is a disease that attacks muscle and tendon that support joints <sup>[6]</sup>. FM can be seen as a continuum disorder similar to other diseases/disorders, such as diabetes, hypertension and depression, rather than a discrete disorder that could be present or absent at a particular time point <sup>[3]</sup>.

The central nervous system is clearly implicated in the pathophysiology of fibromyalgia however a peripheral contribution is likely since muscle tender points are integral to the diagnosis. Investigations reveal that there is muscle fiber pathology in fibromyalgia patients. Another line of investigation has focused on muscle activity with stress exposure. Studies have revealed that muscle activity responses to imposed stress, with trapezius being the most responsive in this respect. An EMG study done on trapezius muscle for subjects having fibromyalgia revealed that trapezius EMG activity was higher in fibromyalgia subjects. It has also been observed in various researches that trapezius is one of the muscles that are mostly affected. A research done recently using micro dialysis technique provides information on metabolic alteration and pain related substances in trapezius muscle in subjects with chronic pain <sup>[7]</sup>. Muscles biopsies taken from trapezius indicate content of substance P in muscle biopsies, which is increased in fibromyalgia muscle. Studies done on normal trapezius have shown relatively poor supply of capillaries and also low mitochondrial volume density when compared with limb muscles. Since the mitochondrial volume density of a muscle is directly related to its endurance capacity, results have indicated a relatively low oxidative capacity of the muscle fibers leading to less ability for endurance work <sup>[8]</sup>.

Researchers studied blood flow with laser Doppler technique in the trapezius muscle in in patient with shoulder pain on one side. On the pain free side there was increase in blood flow as the load increased. On the painful side, however, blood flow did not increase on increasing the load. This indicated disturbed local regulation of the microcirculation. Trapezius involvement is seen mostly on the dominant side of the subject because of its involvement in major activities in our daily living <sup>[9]</sup>.

Gush of symptoms appears and effects, tending the patient to get up with stiffness, irritated, aching and an unpleasant feel. Some suffer with pain at night while others suffer with pain throughout the day, depressing physical activity in a subject with fibromyalgia. These symptoms intensify by fluctuation in psychological and physical stress, making the subject experience impaired quality of life <sup>[10]</sup>.

These symptoms were so varied that in 1990, the American College of Rheumatology established firm criteria for the classification and diagnosis of fibromyalgia. Fibromyalgia was diagnosed with a constant pain which is dull in nature occurring at 9 specific bilateral tender points (insertion of suboccipital muscle, upper midpoint of trapezius muscle, origin of supraspinatus muscle, lower part of sternocleidomastoid muscle, second costochondral junction, 2 cm distal to lateral epicondylitis, upper part of

gluteal region, surface of greater trochanter and medial fat pad of knee) and there must be over 11 out of 18 positive tender points at pre-defined locations of the body.

The 1990 diagnostic criteria for fibromyalgia only diagnosed pain. Other symptoms of fibromyalgia were not being considered therefore these criteria were further revised in 2016, and included the various other symptoms.

The 2016 revised ACR criteria have been recognized as a diagnostic criterion for fibromyalgia.

Following criteria has been set in 2016 by the American college of rheumatology.

- (a) Generalized pain, defined as pain in at least 4 of 5 regions, is present.
- (b) Symptoms have been present at a similar level for at least 3 months.
- (c) Widespread pain index (WPI)  $\geq 7$  and symptom severity scale (SSS) score  $\geq 5$  OR WPI of 4–6 and SSS score  $\geq 9$ .
- (d) A diagnosis of fibromyalgia is valid irrespective of other diagnoses. A diagnosis of fibromyalgia does not exclude the presence of other clinically important illnesses <sup>[11]</sup>.

Alive and getting up with fibromyalgia is an absolute demur.

Therefore in 2016 the European league against rheumatism (EULAR) recommended few pharmacological and non pharmacological treatments for fibromyalgia.

EULAR recommended the following pharmacological treatment on Availability and approval for subjects with fibromyalgia which were Serotonin and Non Adrenergic reuptake inhibitors, Selective Serotonin reuptake inhibitors, Tricyclic antidepressants and Opioids like Tramadol. Melatonin, an agent typically used for sleep disturbance has also been shown to have analgesic properties. Combination therapies were used like Duloxetine in conjugation with Pregabalin and had improved pain score but more side effects came along with the dual therapy.

Each treatment opted was symptom based which was efficient enough and less harmful but limitations arises when there is no single treatment. Therefore, in 2016 European league against rheumatism (EULAR) fibromyalgia management guidelines recommended non pharmacological treatment as first line treatment <sup>[12]</sup>.

Many non pharmacological researches have come forward and various treatment modalities ranging from Multidisciplinary intervention programs typically include educational, cognitive and behavioral strategies, physical training, electrotherapeutic modalities like TENS and acupuncture, but limitation raised up due to lack of follow up, low quality evidence and mild discomfort <sup>[6, 13]</sup>.

Several studies came forward which had moved from pain focused to symptom focused condition. One such study focused on Art therapy. Art therapy, a psychotherapeutic

treatment in which the therapist helps the subject express themselves in the form of art and creative process, which has a clear objective based on the patient's state of health. This study had limitations as subjects were dropping out and however this therapy did not benefit the subjects regarding their pain condition <sup>[14]</sup>.

Other studies which came forward were the acceptance and commitment therapy (ACT) and mindfulness. These treatments were given as the only intervention to subjects with fibromyalgia and had shown a great improvement in pain perception and quality of life in subjects with fibromyalgia, but limitations raised up due to insufficient evidences for the use of mindfulness monotherapy alone <sup>[15]</sup>.

Psychological factors play a major role in the predisposition, triggering and perpetuation of FMS. Therefore, psychological therapies may help to reduce key symptoms and improve daily functioning. Cognitive behavioral therapies (CBTs) another dominant contemporary psychological treatment has been used to manage chronic pain. by making an attempt to change negative thoughts about pain, and to introduce behavior modification, to improve function and cope with pain. CBT is regarded as 'gold-standard' psychological treatment for FM patients according to the Division 12 of the American Psychological Association. Its lack of easily being available and being expensive and difficult to incorporate in daily lives this therapy marked its limitations <sup>[16]</sup>.

Whole body vibration was also one of the proposed studies which was considered a beneficial exercise modality for the treatment of fibromyalgia but limitations were there in the result of the study <sup>[4]</sup>.

Several researches came over which demonstrated that individuals with fibromyalgia should indulge themselves in different types of physical activity in the form of prescribes exercises making exercise an important part of fibromyalgia management. Exercise programs were found to be helpful in subjects with fibromyalgia in various studies. Due to severity of symptoms the sufferer of fibromyalgia tends to be less physically active and become intolerant to physical activity and conduces a torpid life which can directly affect a person's quality of life and persistent pain.

Therefore, the sufferer should take part in some physical activity for pain relief and improving the quality of life. Regular exercise can polar age related loss of muscle, bone mass and functional independence to improve the overall health of patients. Evidence has suggested supervised aerobic training to be beneficial. Exercises primarily the Aerobic Exercise is known to elevate the responsiveness of 'energy' thereby booming the health related quality of life <sup>[17]</sup>. Involving with regularity of aerobic exercise one can improve anxiety, depression, sleep quality and pain. Aerobic exercise alters neurotransmitters neuromodulators and hypothalamic pituitary condition. Aerobic exercise increases circulation in body and also causes hypothalamus to release increased

level of neurotransmitters including endorphin. With the elevation of endorphin level there is a decrease in pain sensation, improvement of mood and quality of sleep. Aerobic exercise leads to decrease in inflammation and oxidative stress in the body causing a reduction in anxiety and stress response. Therefore, researches have recognized aerobic exercise as beneficial for overall health and management of chronic condition like fibromyalgia <sup>[18]</sup>.

In the midst of different exercise modalities, researches have proven good results notably with aerobic exercises, which have been shown to improve physical capacity of subjects with Fibromyalgia along with symptoms and physical function.

Exercise is just a piece to treat fibromyalgia, but the impact of it cannot be treated by just one type of therapy. The patient of fibromyalgia are affected in many ways and tend to disconnect from their body leading to stress, altered mood, decreased flexibility, painful periods and fibro fog.

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## PROCEDURAL ASPECTS OF LAND ACQUISITION IN INDIA

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### ABSTRACT

*The difficulties that come in the process of Land Acquisition in India are immense, given the population density and the type of land use in the country. This is evident from the fact that the fundamental issue in a number of top stories in the past few years has been the Process of Land Acquisition; be it Narmada Bachao Andolan or the recent Nandigram issue. With number of State Governments demarcating lands as Special Economic Zones the problem just is going to get worse. The evolution of Law of Land Acquisition as it exists today in various forms in different statutes in India has undergone an evolution in the last decade. Originally the wishes of owners of property were totally irrelevant, but at present, the law tries to provide various provisions for objections and alternative remedies in case of inadequacy of compensation.*

### INTRODUCTION

In English Law the concept is known as the Law of Compulsory Purchase and under the United States Law it is known as the Power of Eminent Domain. This law empowers the state, (as an exception to the general rule) to compel an owner of the property to submit the property to the state or any agency or an entity authorised by the state because the same is required for the use of the state or such an agency or entity of the state. The concept that underlines such an act and the rationale behind such an act lies in the concept of Utilitarianism which emphasis on the fact that community good is paramount to the right of individual to hold property. The underlining principle of Land Acquisition, Power of Eminent Domain or the Law of Compulsory Acquisition whatever it may be called can be summarised by the legal maxim *salus populi est suprema lex*, meaning welfare of the people is paramount in law.

Compulsory acquisition of property involves expropriation of private rights in the property, it is a restraint on the right of private owners to be able to dispose off property according to their wish . The Law of Land Acquisition is intended to legalise the taking up, for public purposes, or for a company, of land which is private property of individuals the owners and occupiers, and pay equitable compensation therefore calculated at market value of land acquired, plus an additional sum on account of compulsory character of acquisition.

### The Constitutional Framework

Originally the Constitution of India consisted of provisions under Article 19(f) and Article 31 which constituted Right to Property. But there were number of difficulties

that the state was confronted with, Right to property, Articles 14, Articles 19 and Article 31 read in tandem by the Courts proved to be anti developmental, as the courts struck down various acts of the state. In a number of cases the courts declared the reforms initiated by the state as being ultra vires, which hampered the development by means of growth of infrastructure which was essential for development soon after the independence. It was because of the difficulties in the functioning of the right to property that had been brought to light by the judicial decisions the Constitution (First) Amendment Act, 1951 was enacted and the Right to Property was done away with. Article 31(A) which was enacted categorically states that no law which provides for acquisition by the state of an estate can be held void as being ultra vires Article 14 or Article 19. It also provided for payment of compensation at a rate not less than market value of the property.

Acquisition and Requisition of property falls in the concurrent list, which means that both the centre and the state government can make laws on the matter. There are a number of local and specific laws which provide for acquisition of land under them but the main law that deals with acquisition is The Land Acquisition Act, 1894. The law was enacted by the British government and by virtue of The Indian independence (Adaptation of Central Acts and Ordinances) Order, 1948 continues to exist as the law of land acquisition in India. Given the fact that Land Acquisition falls under the concurrent list both the State Government and the Central Government have amended the law, evolving it with time and according to the local needs.

Land can be acquired either by the state or the central government for the purposes listed under state and central list respectively unless the central government delegates the task to the state government under article 258(1) of the Constitution. The term appropriate government in the act would imply the government whether centre or state that issues a notification under section 4 to acquire the land.

Constitutionality of various sections of the Land Acquisition Act has been considered as being in violation of Article 19 and 31 of the constitution as being confiscatory in nature and it is sought to deprive appellants of their lands.

### **Public Purpose**

Article 31(2) categorically states that a land can be acquired by the state only for Public Purpose. Broadly speaking, public purpose would include a purpose, in which the general interest of the community, as opposed to a particular interest of the individual, is generally and vitally concerned. In a generic sense the expression public purpose would include a purpose in which where even a fraction of the community would be involved. It has been identified as a work from which public in general would derive benefit or be benefited. Anything which is useful to the public, in the sense that it confers some public benefit, or conduces to some public advantage, is a public purpose. It is the requirement of public purpose that is determining factor on the question whether

or not a particular land should be acquired, and the considerations of hardships to the individuals cannot outweigh the question of public demand.

Section 3(f) of The Land Acquisition Act defines public purpose as the expression public purpose includes-

- (i) The provision of village-sites, or the extension, planned development or improvement of existing village-sites;
- (ii) The provision of land for town or rural planning;
- (iii) The provision of land for planned development of land from public funds in pursuance of any scheme or policy of Government and subsequent disposal thereof in whole or in part by lease, assignment or outright sale with the object of securing further development as planned;
- (iv) The provision of land for a corporation owned or controlled by the State;
- (v) the provision of land for residential purposes to the poor or landless or to persons residing in areas affected by natural calamities, or to persons displaced or affected by reason of the implementation of any scheme undertaken by Government, any local authority or a corporation owned or controlled by the State;
- (vi) the provision of land for carrying out any educational, housing, health or slum clearance scheme sponsored by Government or by any authority established by Government for carrying out any such scheme, or with the prior approval of the appropriate Government, by a local authority, or a society registered under the Societies Registration Act, 1860 (21 of 1860), or under any corresponding law for the time being in force in a state, or a co-operative society within the meaning of any law relating to co-operative societies for the time being in force in any State;
- (vii) the provision of land for any other scheme of development sponsored by Government or with the prior approval of the appropriate Government, by a local authority;
- (viii) The provision of any premises or building for locating a public office, but does not include acquisition of land for companies.

The expression Public Purpose is not to be strictly construed under Section 3(f) of Land Acquisition Act, it is an inclusive definition of public purpose and from time to time the courts have held different purposes to be Public Purpose. It is not possible to give an exact and all-embracing definition of public purpose.

Public Purpose includes the following aims:

1. In which general interest of the community, or a section of the community, as opposed to the particular interests of the individuals, is directly or vitally concerned;

2. Which would preserve or promote public health, comfort or safety of the public, or a section of it, whether or not the individual members of public may make use of the property acquired;
3. Which would promote public interest, or tend to develop the natural resources of the state;
4. Which would enable department of the government to carry on its governmental functions;
5. Which would serve the public, or a section of it, with some necessarily or convenience of life, which may be required by the public as such, provided that the public may enjoy such service as of right; or
6. Which would enable individuals to carry on a business, in a manner in which it could not be otherwise be done, if their success will indirectly enhance public welfare, even if the acquisition is made by a private individual, and the public has no right to any service from him, or to enjoy the property acquired; or
7. If the use to which the property would be put, is one of the widespread general public benefit not involving any right on the part of the general public itself, to use the property or;
8. Which would result in an advantage to the public; it is not necessary that the property, or the work upon it, should be available to the public as such; the acquisition may be in favour of individuals, but, in furtherance of scheme of public utility, which would result in enhancement of public welfare.

One of the test of public purpose is if the purpose would satisfy the expenditure of public funds and in number of judgements courts have said that government is the best judge of public purpose. The declaration of public purpose by the government is final except if there is a colourable exercise of power. To allege mala fide or colourable exercise of power of eminent domain the facts or grounds should be pleaded in support, which would show at least some nexus between the party for whose benefit the power is sought to be exercised and the authorities of the state which could support a reasonable suspicion that there has been an improper exercise, of such power exceeding the ambit of eminent domain as to constitute a fraud . The power to select the lands is left to reasonable discretion of the government and the courts cannot interfere in this regard. The view held by court is that a declaration under Section 6 is a conclusive evidence of public purpose and unless it is shown that there has been a colourable exercise of power courts cannot go on to look whether it is a public purpose or not .

The Final set of collector's proceedings involve an enquiry by the collector into the objections made by the interested persons regarding the proceedings under section 8 and 9 and making an award to persons claiming compensation as to the value of land on the

date of notification under section 4. The enquiry involves hearing parties who appear with respect to the notices, investigate their claims, consider the objections and take all the information necessary for ascertain the value of the land, and such an enquiry can be adjourned from time to time as the collector thinks fit and award is to be made at the end of the enquiry.

The award made must be under the following three heads:

- Correct area of land
- Amount of compensation he thinks should be given
- Apportionment of compensation

Section 11 makes it obligatory on the part of the collector to safeguard the interests of all persons interested, even though they might not have appeared before him. In awarding compensation the Land Acquisition Collector should look into estimate value of land, give due considerations to the other specific factors. Value of the property in the neighbourhood can be used as a criteria . The award should be made within 2 years.

## **CONCLUSION**

The law of Land Acquisition jeopardises private interest for public interest and hence it denies an individual his right to property. It overrides the right of a person to own a property, so the law in general should be strictly construed . The strict construction of the Law of Land Acquisition has been emphasised by the court for the last 60 years as it does not hold the person whose property is being taken and state at par. The owner of the property has no bargaining power with the state in such circumstances nor does he have a say in compensation; so its inevitable in the interest of equity that the law should be strictly construed and the procedure which provides for various checks and balances should be strictly complied with.

Compulsory acquisition can be effective only in accordance with Acquisition because it is an inroad into citizens right to property . On this matter the established law is that if from the purpose for which the land is acquired, it is apparent on the face of it that the purpose is not a public purpose and there can be no two arguments to construe it otherwise, means the act of the government is ultra vires so in this case the public purpose is justifiable i.e. courts can look into the matter . But when the purpose mentioned can be interpreted either ways of being a public purpose or not, it is not justifiable.

With respect to an enquiry or proceedings by the Land Acquisition Collector is just an Administrative act, it is neither Judicial nor a Quasi Judicial act. Though section 14 gives the power to summon and enforce attendance of witness and compel production of documents as in Civil Procedure Code to the Civil Court. The offer made by the Land Acquisition Collector binds the government not the persons interested. If there is an

agreement between the collector and the persons interested as to the compensation, area of land, apportionment (in case of more than one persons interested) no need arises for further proceedings otherwise provisions of Section 18 as to the judicial settlement are invoked. As to the brief outline of the Land Acquisition Act, 1894 sections 1 to 3 give the short title, object and reasons and the important definitions. Sections 4 to 17 deals with the process of acquisition. Then comes sections 18 to 28 which describes the reference to court and procedure thereupon in the off chance of a conflict with respect to compensation. Sections 29 and 30 deal with Apportionment in case of more than one individual interested, and section 31 to 34 lay down the payment of compensation. Sections 35 to 38 deal with temporary acquisition of land and finally sections 39 to 44 deal with the acquisition of land for companies.

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## **THE UNDERSTANDING OF DIFFERENT QUALITY ASPECTS OF PRODUCED SALT BY FARMER IN EAST JAWA, INDONESIA BY CONSIDERING HUMAN AND NATURAL RESOURCES**

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### **INTRODUCTION**

From an area of 2,096.50 Ha of salt pond area, the area of pure land used for salt ponds was 1,868.70 Ha (89.13%) (Efendy, Muhsoni, Sidik, & Heryanto, 2012) . The management of salt ponds in Pamekasan Regency is generally divided into two, namely management by PT Garam and private salt companies and management by individuals known as people's salt lands. The area of salt ponds managed by the company is 980.0 Ha (52.44%), while the remaining 47.56 percent (888.70 Ha) is community salt ponds.

Salt ponds are found in three districts namely Galis, Pademawu and Tlanakan. The largest area of salt ponds in Galis District that has large 353 Ha, while Tlanakan District is the narrowest area of salt ponds in the area of 35 Ha. From the total area of ponds of 888.7 Ha, in the dry season normally able to produce salt of 88-98 thousand tons (Prihantini, Syaukat, & Fariyanti, 2017), (Tall & Issahari, 1992). Pamekasan Regency is one of the main centers of national salt production. Salt production is mostly carried out in ponds along the southern coast of Madura Island by the evaporation method by solar evaporation (Korovessis & Lekkas, 2009), (Liu et al., 2019). More than 50% of the heat of sunlight absorbed by the surface of the earth or the ocean, is free energy from nature for humanity (Sedivy, 2009). The use of solar energy for salt production is supported by the geographical condition of Indonesia, which is almost 60% of its area is sea with irradiation for 6 months during the dry season (Smiechowska, 2018).

Because the production technology relies on solar evaporation, the productivity and quality of the salt produced depends on the sun's irradiating conditions (Sumada, Dewati, & Suprihatin, 2018). In the long dry season it is expected that the productivity and quality of salt in general will increase. Conversely, in uncertain weathers seasons productivity improvements will experience obstacles. It can be said that the speed of salt production is a function of the speed of sea water evaporation which depends entirely on the availability of solar heat as an energy source. Indonesia as one of the tropical countries, could not be interpreted as the country with the largest quantity of heating for high evaporation (Sayer, Al-Hussaini, & Champbell, 2017).

The potential annual salt productivity of an open field is a function of the difference between the rate of evaporation and rainfall. The greater the difference between the rate of evaporation and rainfall in an area the greater the potential for salt productivity in the region (Silva, Coimbra, Barros, Marriott, & Rocha, 2015). The potential for salt



productivity in Indonesia is much lower compared to Australia and France. However, we do not need to give up on these climatological conditions, alternative strategies to increase people's salt productivity could be done by means of additives or membrane isolators.

The main problem in developing people's salt could be classified into two major categories, namely the problem of natural resources and human resources. Natural resources include the quality of sea water used as a material for making salt, the suitability of land resources, as well as the weather (Wu et al., 2020). All of these things could not be changed by humans, however improvements in production technology and infrastructure could fix various major deficiencies from increasing the capacity and quality of natural salt production. To improve people's salt production technology, it is closely related to changes in the way of thinking and acting of salt farming communities. Studies have been conducted to demonstrate these influences of salt on salt production plants.

## **DISCUSSION**

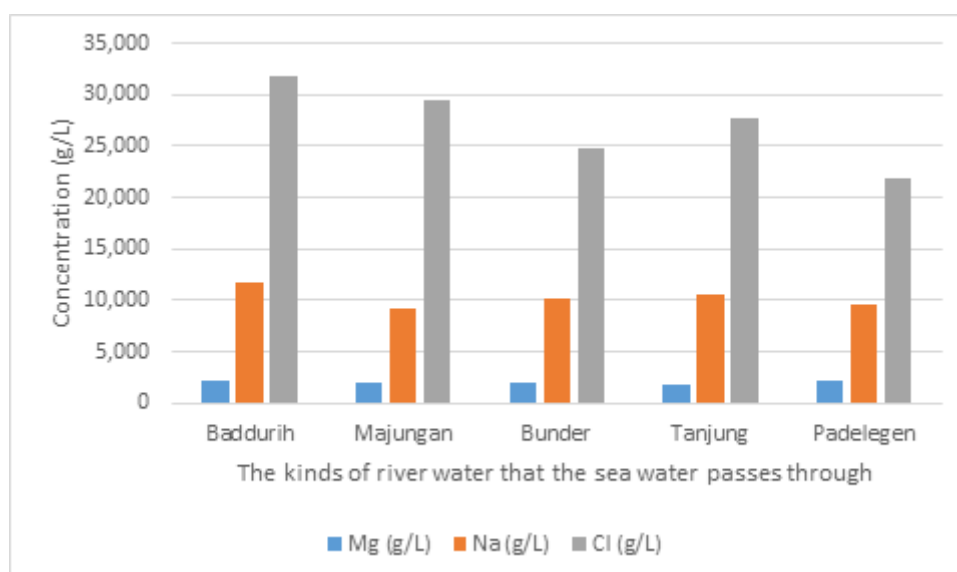
### **Natural Resource Factors**

According to Fernandes-Lozano & Sanvicente (2002) technical factors influence salt production include: seawater, weather conditions, soil or pond conditions, the influence of water and levies techniques.

### **Comparison of quality of seawater sources**

The quality of sea water, especially in terms of its salinity, including contamination with river water, greatly influences the time needed for concentration (evaporation). The values of the metal ions Na, Mg, Ca, K and chloride are the main salinity determining ions of sea water (Korovessis, 2009). Therefore testing of seawater samples from 5 rivers supplying raw water for salt production is focused on the 5 types of ions mentioned above. The rivers in Pamekasan which are the suppliers of salt raw water were tested for the value of the salinity-determining ions included the Baddurih, Majungan, Padelegan, Tanjung and Bunder rivers.

From the sequence of the data above, it appears that the Baddurih river has a higher metal content of Na, Mg and K than other rivers, it is the river which has the highest salinity-determining ions. While the Majungan river contains Na and K metals lower than 4 other rivers but the Mg value is still higher than the Tanjung river.



**Figure 1.** River water quality supplier of raw materials for salt production (2020)

Baddurih River has the highest value of determining salinity ions because the location is very close to the estuary of the sea. While the value of the ions determining the salinity of the Majungan river to be the lowest is possible because the Majungan river has characteristics different from the other 4 rivers. The river is the largest river with a swift flow or water flow greater than 4 other rivers and flows far from upstream. The water in the Majungan river is constantly moving while the others are relatively silent. Therefore the dilution reaction of water to salinity ions is greater than the others.

### Effect of Be water

The regulation of water flow and thickness from one selection to the next in relation to wind direction and air humidity factors is a combination of water evaporation (mass transfer coefficient). The concentration of water that enters the crystallization zone will affect the quality of the results. In salt crystallization the concentration of brine must be between 25-29 ° Be. If the concentration of old water has not reached 25 ° Be, Calcium sulfate will settle a lot, if the concentration of old water is more than 29 ° Be magnesium will settle a lot.

### Light absorption of sun

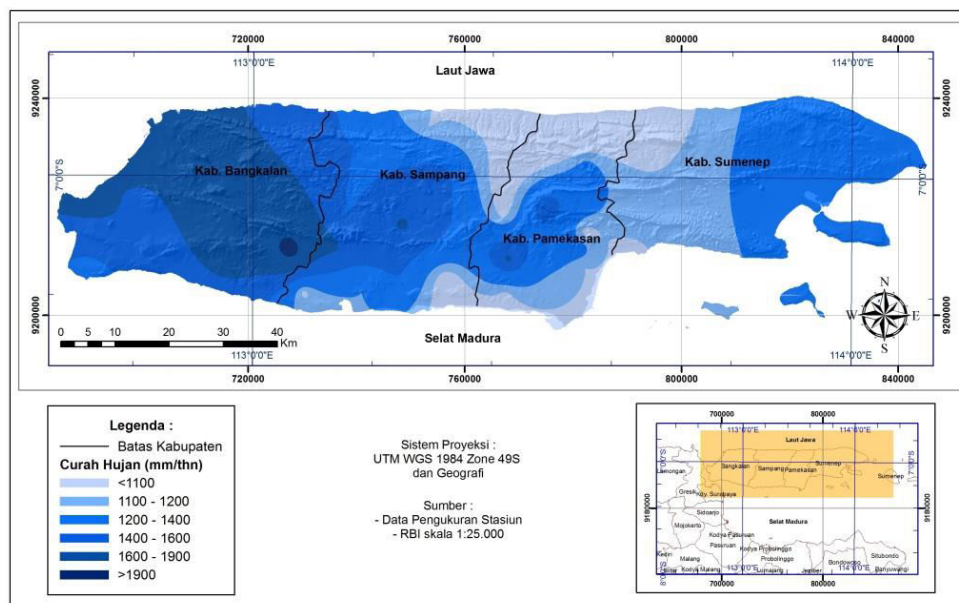
Madura Island is known as the largest salt producing and supplier area for the supply of national consumption salt in Indonesia. National salt needs are quite large each year and almost 70% or around 1 million to 1.2 million tons annually are supplied from East Java Province. The average of natural salt production in Madura is no less than 600.000 tons with an area of 7.785 hectares. This area covers 1.767 hectares in Sumenep Regency, 888 hectares in Pamekasan and 5.130 hectares in Sampang Regency.

The process of salt production in Indonesia is mostly done traditionally, using sea water and sunlight. Sea water which has an average salt content of 2.5%, is evaporated

repeatedly until the conditions are saturated and crystallized. It is strongly influenced by unfavorable or uncertain seasons which can cause the salt production process to be obstructed.

### Weather conditions

The length of the drought directly affects the opportunity given to us to make salt by using sunlight. Rainfall (intensity) and distribution pattern of rainfall in a year is an indicator that is closely related to the length of dry season, all of it affect the evaporation power of sea water. Wind speed, humidity and air temperature greatly affect the rate of evaporation of water, the greater the evaporation, the greater the amount of salt crystals that settles



**Figure 2.** Map of rainfall (mm/year) Madura Island (Mahfud et al, 2012)

The climate in this area is tropical with an average temperature of  $26.9^{\circ}\text{C}$ . The dry season is on average 2-4 months or the long dry season is 4-5 months. The average maximum air temperature is  $30.5^{\circ}\text{C}$ . Average humidity 79%. The minimum rainfall in Madura is 846.18 mm/year and the highest is 2079.31 mm/year. The average annual rainfall is 1346.89 mm/year, with the number of rainy days around 88 days per year. Areas with rainfall 1200-1400 mm/year 31.5%, areas with rainfall 1400-1600 mm/year 23.4%, areas with rainfall 1600 – 1900 mm/year 18% and areas with rainfall 1100 – 1200 mm/year 17%.

### Comparison of soil types

The nature of porosity affects the rate of seepage (leakage) of sea water into the ground in the crystallization zone. If the permeation velocity is greater than the rate of evaporation, especially if there is rain during salt making, salt will not be produced. The type of soil also affects the color and impurity carried by the salt produced

**Table 1.** The levels of NaCl and the salt impurities of the people of Pamekasan

No	Be	Soil pH	Soil	NaCl	CaSO <sub>4</sub>	MgSO <sub>4</sub>	H <sub>2</sub> O
	(°)			(%)	(%)	(%)	(%)
1	21	6.8	Silt	92	0.210	0.201	4.939
2	19	5.9	Silt	93	0.304	0.259	6.703
3	23	5.8	Silt	94	0.133	0.268	8.370
4	24	5.6	Silt	94	0.138	0.244	7.665
5	22	5.8	Silt	99	0.144	0.255	5.570

Primary Data (2020)

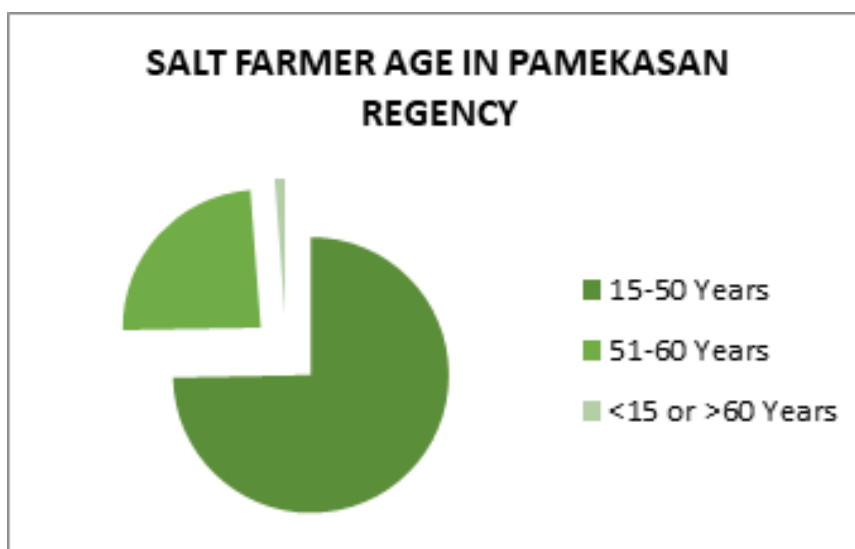
**Human Resources Factors**

The Human Resource Factor is a custom in salt production, greatly influencing the quality of the salt produced. Most farmers mix salt production wastewater with raw material water has known as back mixing. In addition, because of the rush factor to harvest quickly, farmers tend to force crystallize water that is not old enough, there is a lot of crystallized water that has not been sufficiently concentrated but has been crystallized.

**Salt Farmer Age**

Salt farmer age is classified into three groups, namely (a) ages 15-50 years (b) ages 51-60 years and (c) <15 years or> 60 years. Classification considerations are based on physical and mental abilities. Salt production business is a job that requires intensive labor. The age factor has an important role in the success of production. Prodif age is an ideal condition for farmers in pursuing salt business. Productive age is the age of 15-50 years. At this age salt farmers are believed to have physical and mental abilities in good condition. The age of salt farmer range 50-60 years are a group with a reduced physical although as a person has been rich with salt business experience. Whereas salt farmers with age above sixty are described as having decreased their physical and technical abilities (Hatcher, Patriquin, Hanson, & Reade, 1981).

Survey results show that 74.77 percent of salt farmers in Pamekasan Regency are productive workers, in the productive age range (15-50 years). Only 25.3 percent of salt farmers classified as old/non-productive still carry out farming activities. This fact indicates that the people of salt business are personal who have carried out farming activities in terms of technical experience.



**Figure 3.** Salt farmers age in Pamekasan Regency (Source: Primary Data 2020)

Judging from the distribution of its territory, 69.20 percent of the age of salt farmers in Galis District is at the age of 15-50 years. Only 29.60 percent of salt farmers in the District of Galis are in the age range 51-60 years. This condition is similar to the districts of Pademawu and Tlanakan. In Pademawu District, the majority of salt farmers (80.16%) were in productive age. While salt farmers in the age range of 51-60 amounted to 18.62 percent. In general, looking at the age distribution of salt farmers in 3 central districts shows a positive indicator for efforts to increase people's salt production. The age distribution of salt farmers in the salt center sub-district of Pamekasan Regency is shown in the table.

#### **Educational level of salt farmers**

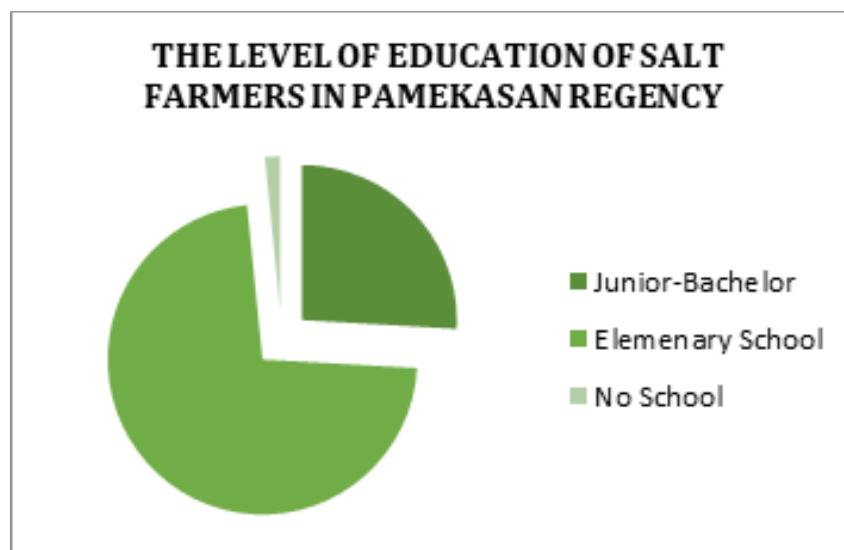
Both formal and non-formal education are closely related to the ability to find and study the information, the acceptability of technological changes and the ability to overcome problems in the field and the ability to build networks and read market opportunities. The level of education also influences the ability to allocate resources efficiently. Nevertheless, education does not stand alone in determining the decisions taken by farmers but is related to other factors (Van Duinen, Filatova, Geurts, & Van Der Veen, 2014), (Seinn Seinn, Ahmad, Thapa, & Shrestha, 2015).

Judging from the level of education, only 25.9 percent of salt farmers have a secondary education. Most salt farmers only have elementary education (75.21 percent). While the percentage of salt farmers who did not attend school or complete their basic education was 1.59%. In general this condition illustrates that the basic quality of salt farmers in Pamekasan Regency is generally still low.

With the average salt farmer only have basic education, on the other hand salt farmers already have the ability to read write and count. But with the distribution of these levels of education and the rapid development of globalization, the general condition of salt

farmers' education is relatively low. The low quality of human resources of salt farmers can affect the low absorption of technological innovation, access to information, and efficiency of the allocation of farming production factors.

This condition causes low productivity and farm value of people's salt products and has low income and welfare of salt farmers. In the long run this condition causes the attractiveness of the salt sector business to be low. The level of education of salt farmers in Pamekasan Regency is shown in the Figure 4.



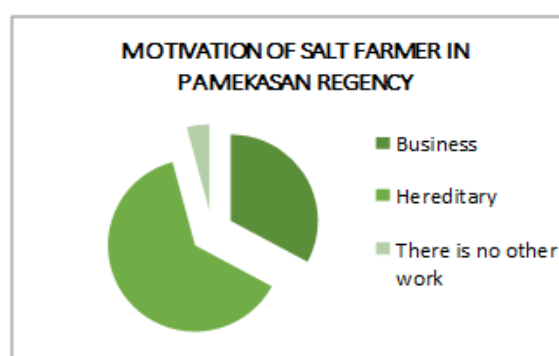
**Figure 4.** The level of education of salt farmers in Pamekasan Regency (Sumber: Data Primer 2020)

Judging from the distribution of the region, 80.40 percent of salt farmers in Galis District have graduated of elementary school, 18.40 percent have graduated of junior-high school and only 1.2 percent of salt farmers do not attend school. Better conditions for salt HR education are in Pademawu District. In Pademawu District, 63.97 percent of salt farmers have graduated of elementary school. While those with secondary education up to undergraduate were 34.01 percent. 100 percent of salt farmers in Tlanakan District only have basic education. In general, looking at the education level of salt farmers in 3 central districts shows a negative indicator (not suitable) for efforts to increase people's salt production. The education level of salt farmers in the salt center district of Pamekasan Regency is shown in the Table 5.

The low level of education of salt farmers confirms that efforts to develop salt farmers in the future still require more intensive assistance and guidance. The assistance and guidance for salt farmers is needed to increase the knowledge of salt farmers in absorbing market information, accelerating technology dissemination, the ability to build cooperation (business networks) and allocating factors for production of salt businesses more efficiently.

### Motives of salt farmer businesses

Based on the type of business orientation, the motives of someone choosing a job as a salt farmer could be grouped in three ways namely business motives, hereditary work and no other work. Salt farmers with business or economic motives have a salt production job because of economic considerations and believe the commodity is profitable and able to provide decent business income. Because of the orientation of the business, the farmer is described in returning his decision to always consider the economic aspects.



**Figure 5.** Motivation of salt farmer in Pamekasan Regency (Sumber: Data Primer 2020)

With regard to technological innovation, farmers with a business orientation are more open and actively seeking access to various sources. The hereditary type of salt farmers do this work due to family environmental factors. Generally, this type of farmer adapts to any changes in the environment. If the environment changes or dynamic, then this type of farmer will also change. But if the environment is stagnant, then the farmer will stagnant too.

Farmers choose salt business because there are no other alternatives, generally tend to be passive, stagnant and not open to innovation and progress. Most (62.95%) of salt farmers in Pamekasan Regency pursue salt business because of hereditary factors. Generally salt farmers inherit the work from their parents. Only 32.87 percent of salt farmers are business oriented. From the results of surveys and interviews with salt farmers, farmers with a business orientation will be expansive (leasing other people's land) when assessing the prospect of a profitable salt business. The survey results show that 4.18 percent of farmers are engaged in the produced salt business because there are no other jobs those are more profitable or as they wish (Singh, Singh, & Sharma, 2019), (Van der Brugge & Roosjen, 2015).

### CONCLUSION

Technical factors that influence salt production include: sea water, weather conditions, soil or pond conditions, the influence of water and levies techniques. The quality of sea water, especially in terms of its salinity, including contamination with river water, greatly influences the time needed for concentration (evaporation).

The river from Baddurih has ions which could settle in an instant and its flow velocity is very slow. The regulation of water flow and thickness from one selection to the next in relation to wind direction and water humidity factors is a combination of water evaporation. The process of salt production in Indonesia is mostly done traditionally, using sea water and sunlight. Rainfall (intensity) and distribution pattern of rainfall in a year is an indicator that is closely related to the length of the dry season, specifically during salt making.

In general, looking at the age distribution of salt farmers in 3 central districts shows a positive indicator for efforts to increase people's salt production. The level of education also influences the ability to allocate resources efficiently. Most (62.95%) of salt farmers in Pamekasan Regency pursue salt business because of hereditary factors. Generally salt farmers inherit the work from their parents.

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## **IMPACT OF FIRM SPECIFIC DETERMINANTS ON WORKING CAPITAL BEHAVIOR OF INDIAN PHARMACEUTICAL FIRMS**

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### **INTRODUCTION**

Working capital management (WCM) is primarily related to all management decisions that influence the working capital's size and effectiveness (Kaur, 2017). The amount invested in the working capital is often high in proportion to the total assets employed, so it is vital to ensure their effective utilization (Padachi, 2006). As per the report published by India brand equity foundation (ibef.org) in 2021, the Indian pharmaceutical sector supplies over 50% of the global demand for different vaccines, 40% of the generic demand for the US, and 25% of all medicines for the UK. India contributes the second-largest share of the pharmaceutical and biotech workforce in the world. The report reveals that India's domestic pharmaceutical market turnover reached \$ 20.03 billion in 2019. In May 2020; pharmaceutical sales grew 9% year-to-year to \$ 1.47 billion.

The EY report (All Tied up India—Working Capital Management report) stated that top 500 Indian firms, including pharmaceutical firms, could have had ₹ 5.3 trillion in cash at their disposal in the last fiscal year if they had efficiently managed their working capital cycle. Moreover, Indian companies appear to be worse-off in working capital cycle management compared with their global counterparts. The image of pharmaceutical companies is not different. The pharmaceutical industry was one of six industries that exhibit a turn down in working-capital performance with a rise in net CCC of 0.3 days. So, It has been found that efficient management of working capital has become a critical challenge before the pharmaceutical industry. Management of working capital has been determined by different factors (Moussa, 2019). So, there is a dire need to expose the factors determining pharmaceutical firms' working capital behavior.

As for the existing literature available to study the WCM behavior of Indian pharmaceutical firms, most research has focused on knowing the association between WCM and profitability. WCM behavior has a significant relationship with the profitability of pharmaceutical firms (Abuzayed, 2012; Axiotis et al., 2019; Bhunia and Das, 2015; Gulia, 2014; Qurashi and Zahoor, 2017; Chowdhury et al., 2018; Sharif and Islam, 2018; Ahmed et al., 2016; Shah et al., 2018; Kaddumi and Ramadan, 2012; Ali, 2020;). A set of 126 research articles based on WCM were published during 1980-2012 (Singh and Kumar; 2013). It was observed that the number of research articles in WCM is increasing, but the quality of articles can be questioned due to the replications of one or two original ideas and low citation count. So, we found that the central focus

of WCM research has been to study the bond between the WCM and the firm's profitability.

Our study's primary aim is to identify and analyze the main characteristics of WCM to contribute a more in-depth understanding of the research domain. It could be carried out by adopting more tools of WCM such as WCR, CCC, and NLB. Thus, the study intended to investigate the determinants of working capital behavior of Indian pharmaceutical companies. Furthermore, it adds to the WCM literature in many ways. First, although India is the fifth-largest economy globally, no available study deals with the determinants of WCM entirely for the Indian pharmaceutical industry. This oversight gives scope to why this research is extensively imperative and unique and why we have been aggravated to get on it. Second, the present research seems to attempt to assess WCM behavior through three unique proxies – working capital requirement (WCR), cash conversion cycle (CCC), and net liquid balance (NLB) – whereas the prevalence of the prior research was strenuous with these proxies separately or combined with two dependent variables. Third, R&D expenses are an essential activity of pharmaceutical firms; so, we have included R&D as an independent variable, probably used first time as an unobserved variable in the pharmaceutical industry. Fourth, this study is likely to add new imminent to the pharmaceutical industry because the outcomes are expected to knock out better different factors determining working capital behavior. Finally, we suggest necessary actions for senior management as well as finance manager in Indian pharmaceutical firms.

To achieve the purpose of the study, this paper is structured as follows. Section 2 analyses the previous literature on WCM and its determinants. Further, section 3 includes a contemplate of variable description and hypotheses development. However, section 4 portrays the research methodology and the analysis of data. Section 5 reports the main findings. Section 6 provides the study conclusion, and finally, Section 7 provides a discussion of research limitations and recommendations for future research.

## **LITERATURE REVIEW**

Working capital is a measure to evaluate a company's liquidity, working efficiency, and current financial health. If a company has considerable upbeat working capital, it should have the imminent to diversify its business. So, study on WCM has become imperative in corporate finance. However, studies on WCM can be divided into three main categories based on WCR, CCC, and NLB. Studies have assessed working capital by one or both CCC and WCR (Akinlo, 2012). Chiou et al. (2006) explored the determinants of WCM using NLB and WCR as proxies of WCM and analyzed that they are affected by only firm-level factors. Our study analyzed working capital behavior in all three components as WCR, CCC, and NLB.

Many researchers have used WCR as a proxy of WCM (Abbadì and Abbadì, 2013; Al-Talab et al., 2010; Çetenak et al., 2017; Cuong and Nhung, 2017; Gill, 2011; Hill et al.,

2010; Nazir and Afza, 2009; Salawu and Alao, 2014; Wasiuzzaman and Arumugam, 2013). Based on data of 166 Canadian firms, Gill (2011) observed that WCR was significantly influenced by firm value, ROA, leverage, firm size, and operating cycle. It is observed that WCR is sanguinely associated with OCF and firm size (Hill *et al.*, 2010). Rehman *et al.* (2017) studied 760 Chinese listed firms to analyze the determinants of WCR. He found that WCR is positively associated with profitability and a firm's growth opportunities, while firm size, OCF, economic conditions, leverage, and asset tangibility are adversely connected with WCR.

The second category of studies has included CCC as a proxy of WCM behavior (Caballero *et al.*, 2009; Şamiloglo and Demirgüneş, 2008, Deloof 2003; Manoori and Muhammad, 2012; Palombini and Nakamura, 2012; Rimo and Panbunyuen, 2010; Valipour *et al.*, 2012; e.g., Zariyawati, *et al.*, 2010 and 2016). Kieschnick *et al.* (2006) explored the determinant of WCM of US firms and found that firm size and growth opportunities effectively control their CCC behavior. Many researchers investigated the determinants using CCC as a proxy of WCM for Asian firms (e.g., Azami and Tabar, 2016; Goel and Sharma, 2015; Haron and Norman, 2016; Iftikhar, 2013). Chauhan and Banerjee (2018) employed a dynamic panel model on a sample of unlisted Indian manufacturing firms. Their results implied that CCC has an impactful positive association with asset tangibility and firm size, whereas OCF, leverage, and growth opportunities negatively associate with CCC behavior.

The shorter CCC predicts less capital investment in operating activities, more effectiveness in WCM, and better cash flows, enhancing firms' financial and operational practices (Banomyong, 2005; Vural *et al.*, 2012). However, longer the CCC may capitulate more opportunity cost and less effectiveness in WCM. Niresh (2012) studied manufacturing firms in Sri Lanka and found no significant association between CCC and firm performance. Nevertheless, CCC is negatively associated with the net profit ratio (Aravind, 2016).

The third category of studies have included in our study is NLB as a proxy of WCM behavior. NLB is a measure of a firm's impending liquidity position, evaluated as liquid assets minus current liabilities. We found significantly less literature to measure WCM based on NLB. Though, NLB cannot be ignored in the context of measuring working capital behavior. Leo *et al.* (2019) studied five East Asian developing countries using balanced panel data for 2005–2014. He observed that NLB and WCR are notably influenced by firm leverage and OCF level. Also, a significant negative link was found between NLB and capital expenditure (Gitau, 2012).

Nevertheless, these studies have abided by contradictory findings due to different ways of measuring working capital. Therefore, in the next section, to develop the research hypotheses, we discuss each explanatory variable separate from supportive literature

and estimate the expected associations between each of these explanatory variables with WCR, CCC, and NLB.

## DATA AND METHODOLOGY

### Data and sample

We composed data for 22 pharmaceutical firms listed on the BSE 500 Index, which executes the 500 most dynamically traded firms on the Indian Stock Exchange. Our research excluded all financial firms because of the distinctive nature of their working capital. Research data were collected covering the period 2010–2020 with 220 observations.

### Methodology

We used WCR, CCC, and NLB to proxy working capital behavior. We projected the following three empirical models, and Table III clarifies the definitions of all dependent and independent variables used in these three models:

$$WCR_{i,t} = \alpha + \beta_1 OCF_{it} + \beta_2 ROA_{it} + \beta_3 GRWTH_{it} + \beta_4 TQ_{it} + \beta_5 AGE_{it} + \beta_6 SIZE_{it} + \beta_7 LEV_{it} + \beta_8 RD_{it} + \beta_9 TAX_{it} + \varepsilon_{it} \text{ -----(1)}$$

$$CCC_{i,t} = \alpha + \beta_1 OCF_{it} + \beta_2 ROA_{it} + \beta_3 GRWTH_{it} + \beta_4 TQ_{it} + \beta_5 AGE_{it} + \beta_6 SIZE_{it} + \beta_7 LEV_{it} + \beta_8 RD_{it} + \beta_9 TAX_{it} + \varepsilon_{it} \text{ -----(2)}$$

$$NLB_{i,t} = \alpha + \beta_1 OCF_{it} + \beta_2 ROA_{it} + \beta_3 GRWTH_{it} + \beta_4 TQ_{it} + \beta_5 AGE_{it} + \beta_6 SIZE_{it} + \beta_7 LEV_{it} + \beta_8 RD_{it} + \beta_9 TAX_{it} + \varepsilon_{it} \text{ ----- (3)}$$

The three empirical models were tested using panel data methodology. The panel data technique has many advantages over other methodologies, including a more significant number of data points, more degrees of freedom, lower collinearity between explanatory variables, and more control for individual heterogeneity (Baltagi, 2005; Hsiao, 2003). Regarding multicollinearity, variable coefficients did not face a multicollinearity problem because the variance inflation factor (VIF) was less than two for all variables.

Moreover, Jarque Bera test for normality was done which showed the data to be non normal and autocorrelation tests in panel data were used to test the employed Quantile estimators' validity.

**Table I. Variables descriptions**

Variables description and calculation	
<i>Dependent variable</i>	
WCR (Working capital requirement)	Networking capital/total assets
CCC (Cash conversion cycle)	Inventory period + accounts receivables period – accounts payable period
NLB (Net liquid balance)	Cash & equivalents + short-term investments - accounts payable

Variables description and calculation	
<i>Independent variable</i>	
OCF (Operating cash flow)	Operating cash flows/total assets
GROWTH (Growth opportunities)	Percentage change in sales over the previous year
ROA (Firm performance)	Net profit after taxes/total assets
TQ (Firm value)	(Market value of equity + book value of total debts)/total assets
AGE (Firm age)	Natural logarithm of firm's age since the date of its incorporation
SIZE (Firm size)	Natural logarithm of total assets
LEV ( Firm leverage)	Total debts/total assets
R&D ( Research and development)	Research and development expense
TAX ( Tax on net income)	Profit after tax
<b>Source:</b> Author's own	

## RESULTS

### *Descriptive and correlation statistics*

Table II shows descriptive statistics for all dependent and explanatory variables. The average proportion of WCR to total assets is 19 percent, which indicates that about 0.19 of each Indian rupee invested in a firm's assets is tied up in its. The average CCC of 64.14 days shows that firms on average take 64 days to recover their cash. The average value of the operating cash flow is 0.09, which shows that operating cash flow on average is less than 10 percent of total assets. The average growth rate is 10% percent. Firm performance measured by ROA has an average of about 0.12 percent with a standard deviation of 0.11, which implies variations in sample performance during the analysis period. As measured by Tobin's Q ratio, firm value has a mean value of 284 percent, which is more than 100 percent of a firm's total assets. Firm age had an average value of 40 years, showing that the sample companies were established ones.

**Table II. Basic summary statistics**

Variables	Mean	Std. Deviation	Minimum	Maximum	Jarque Bera
WCR%	.19	.18	-0.61	.69	0.0001
CCC%	64.14	49.95	-74.87	191.45	0.7708
NLB	2373.15	7887.15	-7198.8	53256	0.0000
OCF%	.09	.086	-.164	.72	0.0000
ROA%	.12	.11	-0.28	0.97	0.0000
TQ%	2.84	2.15	.08	15.05	0.0000
AGEL	40.25	20.58	.00	96.00	0.0000

Variables	Mean	Std. Deviation	Minimum	Maximum	Jarque Bera
SIZE(000Le)	71999.44	81138.18	714	396516.60	0.0000
LEV%	.40	.19	.09	0.91	0.0054
GROWTH%	.10	0.17	-1.05	1.00	0.0000
RD	3121.43	4030.78	.00	23101.3	0.0000
Tax	1639.73	1986.41	-2235.5	10377.3	0.0000

The average value of the total-debt-to-total-assets ratio is 40% of total assets. Thus, firms in the sample are considered to be heavily leveraged. Finally, R&D has a mean of about 3121.43 whereas tax paid by these firms was averaging 1639.73, showing that the Indian economy was doing well during the analysis period. To identify the degree of association among WCR, NLB and CCC as dependent variables and the explanatory variables that affect their behavior, a Pearson's simple correlation matrix was calculated and is reported in Table III. Pearson's correlation matrix indicated that WCR is positively correlated with performance and Tax and negatively correlated with firm size, growth, leverage, and economic condition. Conversely, CCC is negatively associated with all independent variables excluding Tax, Leverage and Size. Also NLB is negatively correlated with all independent variables except growth.

**Table III. Pearson's correlations matrix**

Variables	WCR	CCC	NLB	OCF	ROA	TQ	AGE	SIZE (log)	LEV	GROWTH	RD	TAX
WCR	1											
CCC	0.27*	1										
NLB	0.09	-0.03	1									
OCF	0.05	-0.12	-0.02	1								
ROA	0.36*	-0.01	-0.04	0.56	1							
TQ	-0.23	-0.15	-0.18*	-0.07	-0.14*	1						
AGE	0.23*	-0.14	-0.06	-0.17*	-0.11*	-0.13*	1					
SIZE (log)	-0.13*	0.56*	-0.16*	-0.21*	-0.23*	0.02	0.01	1				
LEV	-0.44*	0.40*	-0.11*	-0.15*	-0.34*	0.14*	-0.01	-0.15*	1			
GROWTH	-0.11	-0.01	0.02	0.14*	0.03	-0.02	-0.18*	-0.02	0.07	1		
RD	-0.33*	-0.03	-0.26*	-0.21*	-0.24*	0.09	0.18*	0.41*	0.24*	0.07	1	
TAX	0.23*	0.37*	-0.15*	0.09*	0.09*	-0.19*	0.24*	0.35*	-0.22*	0.03	0.13*	1
**. Correlation is significant at the 0.05 level (2-tailed).												
*. Correlation is significant at the 0.01 level (2-tailed).												

*Source:* Authors Calculations Correlation values to identify the degree of association among WCR, NLB, and CCC as dependent variables and the explanatory variables

## EMPIRICAL ANALYSIS

### Determinates of WCR

Table IV displays the results of the three empirical models, which are based on WCR that acts as a proxy of WCM. We find a negative association between OCF and WCR at a 1% significant level in all three models; hence,  $H_{1a}$  is accepted. Opposite to the analysis of Al-Talab et al. (2010), Abbadi and Abbadi (2013), Hill et al. (2010), and Wasiuzzaman and Arumugam (2013), this negative result suggests that effective WCM

has increased the level of OCF that speeded up receivables collection. Consequently, cash inflows increased and hence, less demand for WCR.

The results of the Quantile, F.E. and RE regression models have observed a significant negative association between growth opportunities of firms and WCR. Hence,  $H_{2a}$  is accepted, and this result is also supported by previous research conducted by Narender et al. (2008), Hill et al. (2010), and Gill (2011). This result may be anticipated that firms with high growth opportunities manage working capital efficiently and hold minimum net operating working capital (NOWC) and liabilities; thus, the lower levels firms' WCR (Chiou et al., 2006).

The results of the Quantile, F.E., and RE regression models have observed a significant positive association between ROA and WCR at the 1% significance level; hence,  $H_{3a}$  is proven. Noticeably, prior studies have also proved a positive impact of firm performance on WCR (Al-Talab et al., 2010; Chiou et al., 2006; Abbadi and Abbadi, 2013; Narender et al., 2008; Cuong and Nhung, 2017; Nazir and Afza, 2009; Wiguna and Wasistha, 2017; Rehman et al., 2017; Saarani and Shahadan, 2012). These results markedly prove that firms with high profitability would have ample cash and cash equivalent to discharge their short financing requirement, and in turn, they would be less anxious with efficient WCM, and hence, there be high levels of working capital.

The results of the Quantile, F.E., and RE regression models have observed a significant positive relationship between a firm's age and WCR at the 1% significance level; hence,  $H_{5a}$  is proven. This result may be anticipated that older firms may easily approach the capital market and manage their external financing more effortlessly than younger firms (Baos-Caballero et al., 2010).

The results of the Quantile and RE regression models have observed a significant negative association between leverage and WCR at the 1% significance level; Hence,  $H_{7a}$  is accepted. This outcome is akin to those of past researches (Wiguna and Wasistha, 2017; Al-Talab et al., 2010; Raheman and Nasr, 2007; Zariyawati et al., 2010; Erasmus, 2010; Abbadi and Abbadi, 2013; Çetenak et al., 2017; Chiou et al., 2006; Nazir and Afza, 2009; Rehman et al., 2017; Saarani and Shahadan, 2012; Wasiuzzaman and Arumugam, 2013). The result suggested that patronizing degree of leverage causes high levels of debt, and hence, firms have to pay more interest payments, consequently; low cash availability for daily operations and further investment opportunities.

The results of the Quantile and F.E. regression models found a significant negative relationship between firm size and WCR at the 1% significance level; Hence,  $H_{7a}$  is accepted. These results are confirmed by previous studies (Cuong and Nhung, 2017; Rehman et al., 2017; Wasiuzzaman and Arumugam, 2013; Abbadi and Abbadi, 2013; Gill, 2011). The positive link of firm size and WCR indicates that big firms have easy



excess to capital markets and more influential bargaining power as compared to small firms hence; requires less working capital.

The results of the Quantile regression model have found a significant negative association between R&D and WCR at the 1% significance level; hence,  $H_{5a}$  is proven. Hostile working might be possible because of higher R&D (Aktas, 2015). This result may be anticipated that R&D expenses of pharmaceutical industries do not increase their profit, and hence, R&D investment of the sampled firms could not generate considerable internal cash inflows. This was probably because the pharmaceutical firms were still young and so had not enough time to generate cash flows (Borisova & Brown, 2013; Del Canto & Gonzalez, 1999).

The Quantile and RE regression model results found a significant positive association between R&D and WCR at the 1% significance level; hence,  $H_{5a}$  is proven. Hostile working might be possible because of higher R&D (Aktas, 2015).

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The results of the Quantile and RE regression models find a significant positive link between tax and WCR at the 1% significance level; Hence,  $H_{7a}$  is accepted. As tax has not been considered a determinant of WCR in previous studies, we assume the tax and WCR might be influenced by pharmaceutical firms' profitability (ROA). Also, in our current study, we have proved that more profit (ROA) increases the WCR, and hence, excess profit will cause more tax payments. Simultaneously, we anticipate that increasing tax grounds for more WCR.

When we see the results at different quantile level, OCF, ROA, Age, Leverage, Size, and R&D was found to be significant at Q1, Q2, and Q3. However, for growth, it was significant for Q2 and Q3 whereas for TQ it is significant for Q3. The Tax was significant at Q1 and Q2 quantile levels.

### **Determinates of CCC**

Table VI exhibits the results of three empirical models based on CCC that act as a proxy of WCM. The results of the Quantile, F.E., and RE regression models find a significant negative link between OCF and CCC at the 1% significance level; Hence,  $H_{7a}$  is accepted. This result is similar to previous studies (Palombini and Nakamura, 2012; Valipour et al., 2012; Rimo and Panbunyuen, 2010;). This result may be interpreted as a pharmaceutical firm that generates higher cash flow and increases net liquidity, and does not permit a long-term credit period; hence, the consequence is working capital and shorter CCC (Chiou et al. 2006).

**Table V.** Determinates of CCC

Model		Quantile (1)		Fixed (2)	Random (3)
CCC	25%	50%	75%		
OCF	(-2.11)* 0.036	(-3.93)* 0.000	(-5.23)* 0.000	(-2.53)* 0.012	(-2.82)* 0.005
GROWTH	(1.73) 0.085	(-0.29) 0.770	(0.21) 0.832	(-0.21) 0.831	(-0.25) 0.800
ROA	(-0.63) 0.529	(0.03) 0.975	(0.07) 0.943	(0.73) 0.464	(0.84) 0.402
TQ	(-2.06)* 0.041	(-2.78)* 0.006	(-3.06)* 0.002	(-0.58) 0.562	(-1.09) 0.275
AGE	(-3.83)* 0.000	(-4.52)* 0.000	(-4.13)* 0.000	(-0.45) 0.655	(-1.56) 0.120
LEV	(-3.30)* 0.001	(-4.07)* 0.000	(-5.73)* 0.000	(-2.76)* 0.006	(-3.42)* 0.001
SIZE	(10.36)* 0.000	(13.04)* 0.000	(19.98)* 0.000	(2.79)* 0.006	(4.37)* 0.000
RD	(-5.14)* 0.000	(-7.95)* 0.000	(-6.43)* 0.000	(-0.70) 0.482	(-2.25)* 0.032
TAX	(2.38)* 0.018	(2.44)* 0.015	(5.89)* 0.000	(1.11) 0.268	(1.64) 0.101
No. of observations	220	220	220	220	220
Adjusted $R^2$	.3160	.3878	.4184	.5036	.5137
Notes: Column (1), column (2), and column (3) presents Quantile, F.E., and RE regression model, and t- values are parentheses after coefficients. *, **, ***significant at 0.01, 0.05 and 0.10 levels, respectively.					

Our finding shows a significant negative association between firm value and CCC in model 1 at a 1% significance level; thus, H4b is not proven. The result is opposite to the finding of Azami and Tabar (2016), who reported a positive relationship between CCC and firm value. However, our observation concludes that working capital can be managed efficiently with increasing liquid cash by shorter CCC to achieve higher firm value (Fazzari *et al.*, 1993; Ubbard 1997). Therefore, shorter CCC of Indian pharmaceutical companies enhances their firm value.

The result exhibits that the Indian pharmaceutical firm's age has a significant negative impact on CCC; thus, H5b is not proven. This result supports past studies (Goel and Sharma, 2015; Wasiuzzaman and Arumugam, 2013; Ding *et al.*, 2013). We believe that younger firms have intricacy to access capital markets compared to old firms, and hence, they are expected to depend more on trade credit, resulting in longer CCC.

We found a significant negative association between leverage and CCC in all models at a 1% significance level; thus, H4 is not proven. This result is opposite to previous literature stated a positive association between debt ratio and CCC (Goel and Sharma, 2015; Valipour et al., 2012; Naser et al., 2013). The result may be interpreted as firms with high debt financing would efficiently run their business operations with fewer credit sales and reap out more profit. As a result, these firms will have ample cash balance and shorter CCC.

The finding shows a significant positive connection between firm size and CCC in all models at a 1% significance level; thus, H4b is not proven. This study contradicts the observations that firm size harms CCC (Haron and Norman, 2016; Manoori and Muhammad, 2012; Rimo and Panbunyuen, 2010). A significant positive relationship was observed between size and CCC (Moss and Stine, 1993). The result may be anticipated that small pharmaceutical firms hold inventory for a longer time and take more time to collect payments from their customers, and hence, the result is longer CCC.

The result displays that R&D has a significant negative impact on CCC in model 1 at a 1% significance level; thus, H8b is not proven. As we have no past research based on this observation, we assume that older pharma firms might have spent more on R&D due to better cash flow and efficient WCM skills (Rimo and Panbunyuen, 2010; Ding et al., 2013), so the result is shorter CCC.

When we see the results at different quantile level, OCF, Age, TQ, Leverage, Size, Tax and R&D was found to be significant at Q1, Q2, and Q3. The Growth and ROA were not significant at all quantile levels for the quantile regression run at 25<sup>th</sup>, 50<sup>th</sup> and 75<sup>th</sup> quantiles.

### Determinates of NLB

Table VII displays the results of the three empirical models, which are based on NLB that acts as a proxy of WCM. Our regression model 2 and 3 suggests that OCF has a significant negative impact on NLB at a 1% significance level; thus, H5b is not proven. Our finding suggests that the firms with more OCF tend to keep more capital. In the case of sufficient working capital supply, excessive capital is kept as cash and in its high liquid so as firms can meet its capital demand for any future investment ventures. This medium shows that in case of an increase in OCF, the business may be likely to instantly invest in for more return (Narender et al., 2008). So, higher OCF will result from shorter NLB.

**Table VI.** Determinates of NLB

Model		Quantile (1)		Fixed (2)	Random (3)
NLB	25 percentile	50 percentile	75 percentile	-	-
OCF	(0.08)	(-1.23)	(-0.23)	(-2.14)*	(-2.23)*

	0.933	0.219	0.816	0.034	0.026
GROWTH	(-0.03) 0.975	(-0.37) 0.715	(0.78) 0.434	(0.35) 0.726	(0.08) 0.935
ROA	(-0.41) 0.682	(-1.03) 0.305	(-0.90) 0.368	(-2.37)* 0.019	(-2.55)* 0.011
TQ	(-1.16) 0.247	(-1.50) 0.135	(-1.61) 0.109	(0.43) 0.669	(0.21) 0.836
AGE	(-1.72) 0.086	(-1.33) 0.187	(-0.22) 0.830	(2.27) 0.061	(0.87) 0.384
LEV	(-1.07) 0.286	(-1.51) 0.132	(-0.70) 0.483	(1.13) 0.260	(0.23) 0.820
SIZE	(-0.48) 0.631	(-0.64) 0.520	(-0.19) 0.849	(-1.00) 0.318	(-0.43) 0.665
RD	(-4.46)* 0.000	(-2.55)* 0.011	(-1.39) 0.166	(-2.48)* 0.014	(-2.16)* 0.030
TAX	(1.52) 0.131	(1.14) 0.255	(-1.18) 0.238	(0.48) 0.631	(0.52) 0.600
No. of observations	220	220	220	220	220
Adjusted $R^2$	0.0765	0.0311	0.0826	0.0005	0.0216
Notes: Column (1), column (2), and column (3) presents Quantile, F.E., and RE regression model, and t- values are parentheses after coefficients. *, **, ***significant at 0.01, 0.05 and 0.10 levels, respectively.					

Also, the finding shows that ROA has a significant negative impact on NLB in model 1 and model 2 at a 1% significance level; thus, H3c is not proven. This result is similar to the observations of the previous researcher (e.g., Eljelly, 2004; Lairodi et al., 1999; J.A., 2012). The result may be interpreted that excess in liquid cash due to increasing ROA will allow firms to deploy funds in potential investment avenues hence decreasing NLB.

We found a significant negative association between R&D and NLB in model 1 and model 2 at a 1% significance level; thus, H8c is accepted. The result can be predicted considering descriptive statistics in Table II. We find that R&D is positively correlated with the growth of pharmaceutical firms, i.e., growing firms might be spending more on R&D that caused a decrease in NLB.

When we see the results at different quantile level, R&D was found to be significant at Q1 and Q2 quantile levels.

## CONCLUSION

Our study aimed to investigate the impact of different financial and economic dynamics on the working capital behavior of Indian pharmaceutical firms. We used WCR, CCC

and NLB as proxies to working capital behavior. We included nine main factors discussed in earlier kinds of literature and who might affect working capital behavior: operating cash flow (OCF), growth opportunities, firm performance (ROA), the value of the firm, firm age, firm size, debt ratio (leverage), research and development (R&D) and tax. We analyzed the effect of these determinants on working capital behavior using Quantile, fixed effect (FE) and random effect (RE) regression models for a sample of 22 Indian pharmaceutical firms listed on the Bombay Stock Exchange (BSE) for the 2010–2020 periods.

Table V specified that WCR is positively affected by firm performance, age and tax, whereas operating cash flow, firm value, leverage, firm size, growth opportunities and research and development activities are negatively associated with WCR. As per Table VI, empirical model discloses an impactful negative association of CCC with operating cash flow, value of firm, firm's age, leverage and research and development. On the contrary, size of firm is positively associated with CCC. Table VII exhibits the result of NLB with WCM determinants. We find a negative association of NLB with operating cash flow, firm performance and research and development.

The findings divulge that the well-organized management of working capital and its components by lowering WCR and shortening CCC will facilitate firms to produce more operating cash flow. We have seen that increasing performance of pharmaceutical firms have increased the level of working capital and, growing pharmaceutical firms manage working capital efficiently and less depends on working capital. At the same time, low NLB indicates that pharmaceutical firms will use excessive cash at different investment opportunities. Furthermore, our result found that older pharmaceutical firms may approach the capital market easily and manage their external financing while younger firms have difficulties to access capital which increases their trade credit in hence; longer CCC. The results indicated that debt financing is adversely linked with WCR and CCC. It has been observed that firms with high levels of debts be likely to grasp lower levels of WCR and shorter CCC. Our regression result predicted that big pharmaceutical firms may tend to less WCR with longer CCC. Viewing our regression result, we may predict that research and development expenses were spent by larger and growing pharmaceutical firms compared to younger one.

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## **BUSINESS AND HUMAN RIGHTS: NEED FOR A LEGAL REGULATORY FRAMEWORK IN INDIA**

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### **ABSTRACT**

*The United Nations' (UN) "Guiding Principles on Business and Human Rights (GPs)" were approved by the "Human Rights Council (HRC)" in June 2011. Three pillars serve as the foundation for the GPs: access to effective remedies, business responsibility to respect human rights, and the duty of nations to preserve such rights. "States are required to adopt a variety of steps under all three pillars of the GPs, particularly Pillar 1 and Pillar 3, to ensure that commercial enterprises do not violate human rights and that appropriate remedies are available in cases of infringement." According to the UN Working Group on the Issue of "Human Rights and Transnational Corporations and Other Business Enterprises," all states are required to develop, adopt, and update a "National Action Plan (NAP) on "Business and Human Rights (BHR)" as part of their duty to disseminate and implement the GPs. In June 2014, the HRC passed a resolution urging governments to develop NAPs. As of February 29th, 2016, ten states had NAPs in place, and several more were in the process of doing so. This article examines two key issues in light of this: first, whether India needs a national BHR framework to implement the GPs; and second, if so, what should the framework's content be and what rules should be followed to guarantee the process is transparent, inclusive, and legal.*

*Keywords: Business and Human Rights, National Action Plan, Guiding Principles on Business and Human Rights, United Nations, India.*

### **INTRODUCTION**

Businesses have made positive contributions to society, but there is mounting evidence of their detrimental effects as well. These effects are frequently recognised as being intergenerational in nature, particularly when it comes to the degradation of natural resources like air and water, which affects the rights of future generations. "In 2011, the UN Human Rights Council endorsed the UNGP<sup>1</sup> on Business and Human Rights, which explicitly stated that corporations must refrain from negatively affecting rights even when governments are unable or unwilling to enforce the relevant laws." It also stated that victims of corporate abuses must have access to remedies.

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<sup>1</sup>"Human Rights Council, 'Guiding Principles on Business and Human Rights: Implementing the United Nations "Protect, Respect and Remedy" Framework', A/HRC/17/31 (21 March 2011)"

In the form of Fundamental Rights and the Directive Principles of State Policy, human rights are inscribed in the Indian Constitution. India has also ratified a number of UN conventions, demonstrating its support for human rights. “National Voluntary Guidelines(NVG)”<sup>2</sup> were announced by the Indian government's “Ministry of Corporate Affairs (MCA)” at the same time that the UNGP framework was launched in 2011. “Business should promote and respect human rights,” according to NVG Principle 5. Therefore, a human rights perspective is at the heart of the conversation about ethical business activity in India. An new version of the NVG, known as the “National Guidelines on Responsible Business Conduct (NGRBC)”<sup>3</sup>, was published in 2019. “The Sustainability Development Goals (SDG) (2015), UNGPs, Paris Climate Change Agreement (2015), India's ratification of the ILO Core Convention on Minimum Age and Worst Forms of Child Labor (2017), SEBI's mandate on Business Responsibility Reporting (2012), and the Companies Act are all in line with the NGRBC (2013)”. The NGRBC also gives any business, regardless of size, ownership, industry, or location, the chance to declare on their corporate social responsibility. By saying that "human rights are rights inherent to all human beings, and that everyone, individually or collectively, is entitled to these rights, without discrimination," NGRBC expressly recognises the importance of Principle 5. It also acknowledges the fundamental, unalienable, connectedness, interdependence, and indivisibility of human rights. It acknowledges the supremacy of the State's responsibility to safeguard and uphold human rights and is inspired, informed, and guided by the Indian Constitution and the International Bill of Rights.

The challenge has grown more difficult in light of two interrelated factors: (i) the growth of corporations' power, influence, and range of activities; and (ii) the expansion of multinational corporations (MNCs), which conduct business on a global scale and through supply chains. Despite the fact that both of these issues together highlight the shortcomings of the state-centric approach to international human rights realisation, states continue to play a crucial role in ensuring that businesses abide by human rights standards for legitimate reasons. Additionally, there is growing consensus that businesses themselves should be accountable for respecting human rights. Both of these components are included in the GPs<sup>4</sup>, which were approved by the HRC in June 2011. The three pillars of the GPs are access to effective remedies, corporate responsibility to

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<sup>2</sup> “Guidelines on Corporate Governance for Central Public Sector Enterprises Issued by the Ministry of Heavy Industries and Public Enterprises in May 2010”

<sup>3</sup> “National Guidelines on Responsible Business Conduct(2011)”

<sup>4</sup> “Human Rights Council, ‘Guiding Principles on Business and Human Rights: Implementing the United Nations “Protect, Respect and Remedy” Framework’, A/HRC/17/31 (21 March 2011).”

uphold human rights, and the role of nations to protect such rights. “The GPs' three pillars, particularly Pillars 1 and 3, call for states to implement a range of measures to protect human rights in an era of free-market capitalism and liberalised society.” As a component of the state obligation to disseminate and put into practise the GPs, the UNWG “strongly encourages all states to develop, enact and update a NAP” on BHR. The UNWG has created a guide providing several recommendations for states and other stakeholders to help direct this process<sup>5</sup>. To implement the GPs, several states have created or are creating NAPs<sup>6</sup>. States in the Global North initially took the initiative to introduce NAPs<sup>7</sup>, but now nations in the Global South are being urged to do the same. In light of this, this study investigates two major issues: In order to implement the GPs, India must first determine whether it requires a new national BHR framework. If so, what should the framework's content be, and what procedures should be followed to ensure that it is transparent, inclusive, and legitimate<sup>8</sup>?

### **NHRC and its function in India's Business and Human Rights**

The NHRC has had a significant impact on highlighting the obligation of the state to uphold rights and ensure access to remedies in the event that they are violated. The NHRC is essential in ensuring that labour law enforcement is carried out. It also organises training and workshops for public employees and officers to familiarise them with current laws and equip them as duty bearers. It is a crucial part of protecting environmental rights and ensuring that infractions by industries are dealt with appropriately because it is a quasi-judicial body. The NHRC has also played a key role in drawing attention to problems with government policies and taking action in response to complaints against business practises and socially detrimental procedures. An

<sup>5</sup> “OHCHR, ‘State National Action Plans’, <http://www.ohchr.org/EN/Issues/Business/Pages/NationalActionPlans.aspx>.”

<sup>6</sup> “UNWG on Business and Human Rights, Guidance on National Action Plans on Business and Human Rights, Version 1.0 (December 2014). Version 2.0 was released in November 2015.”

<sup>7</sup> “As of 20 February 2016, ten states (the UK, the Netherlands, Italy, Denmark, Spain, Finland, Lithuania, Sweden, Norway and Columbia) have launched the NAPs. Several other states are in the process of developing a NAP or have committed of doing so. OHCHR, ‘State National Action Plans’, <http://www.ohchr.org/EN/Issues/Business/Pages/NationalActionPlans.aspx>.”

<sup>8</sup> “The UNWG states that one of the four essential criteria for NAPs is their development in ‘inclusive and transparent processes’. UNWG on Business and Human Rights, Guidance on National Action Plans on Business and Human Rights, Version 2.0 (November 2015)”

international network of National Human Rights Institutions (NHRIs) exists under the name “Global Alliance of National Human Rights Institutions (GANHRI)”. GANHRI, a non-UN organisation, works to coordinate activities among NHRIs all around the world and the UN system. The protect-respect-remedy framework of the UNHRC recognises the importance of NHRIs and encourages them to increase their capacity to deal with pressing problems in the area of business and human rights<sup>9</sup>. The NHRC of India has taken a leading role in advancing this agenda. It has been routinely hosting conferences and workshops with business organisations like CII to discuss regional, national, and global developments. In order for Indian enterprises to freely employ a self-assessment tool with regard to their responsible conduct, the NHRC prepared a draught of the tool in 2017<sup>10</sup>. The corporate landscape has seen a number of changes in the previous ten years that are related to governance and social responsibility. The relationship between business and society has evolved into a responsible business agenda as a result of Section 166 of the 2013 Firms Act clearly acknowledging the board's fiduciary obligation to its stakeholders and SEBI implementing BRR for a certain class of companies. “The NGRBC acknowledges the growing consensus that the SDG commitments must be upheld through collaborations between various actors and the explicit role those businesses may play as a force for good.”

### Importance Of Human Rights to Business

Businesses are becoming more and more concerned with how their actions affect people, communities, and the environment. It is obvious that respect for human rights is one of the key indicators of a company's social responsibility. “And while the majority of businesses acknowledge the moral obligation to conduct themselves in accordance with human rights principles, awareness is emerging that respect for human rights may also be a strategy for enhancing corporate performance.” Business is concerned about human rights for a variety of reasons, including:

- **Adherence to both domestic and foreign laws:** Principles relating to human rights are incorporated into both domestic and foreign law. Companies can avoid legal issues with their international operations by making sure that their operations follow certain legal guidelines. “In recent years, courts in the United States and other countries have heard claims that multinational corporations, frequently through their business partners, have contributed to human rights violations through their global operations.”

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<sup>9</sup>OHCHR, ‘State National Action Plans’, <http://www.ohchr.org/EN/Issues/Business/Pages/NationalActionPlans.aspx>

<sup>10</sup> “NHRCAnnualReportEng(2016-2017)-27022019”



- **Addressing Consumer Concerns:** Consumer awareness of how employees who manufacture items for the global market are treated has increased due to the media's growing attention on business's role to the protection of human rights, prompting requests for greater openness. "Some companies have been chosen as the targets of campaigns by human rights, labour rights, religious, or consumer organisations alleging violations of human rights. Such campaigns can be avoided, their effects on the business can be mitigated if they do occur, and the reputation of the organisation as a whole can be protected by establishing and enforcing a sincere approach to human rights."
- **Promoting the Rule of Law:** The creation of an orderly society, which is necessary for business to function properly, is one of many ideals outlined in the Universal Declaration of Human Rights. By applying human rights principles thoroughly, consistently, and impartially, "a company's global operations can contribute to the development of legal systems where contracts are fairly enforced, bribery and corruption are less frequent, and all business entities have equal access to the legal system and equal protection under the law."
- **Fostering Community Goodwill:** A global company's presence may be viewed favourably or unfavourably in a particular locale. Human rights violations must be prevented in order to foster good neighbourliness and a more steady and efficient economic environment.
- **Supply Chain Management (SCM):** Many businesses want to encourage their international business partners to abide by labour and human rights laws, so they have human rights policies. These recommendations can also be used by companies to help them choose reliable, moral, and well-run business partners.
- **Improving risk management :** Predictability is essential for stable and efficient business operations. The denial of basic human rights frequently leads to social or political unrest. "Possible outcomes of this include labour unrest, a restriction on access to goods and services, or a pause in the flow of finished goods." Additionally, avoiding public controversy reduces the initial costs of resolving well-known disputes.
- **Maintaining Open Markets:** The "United Nations Secretary-General, Kofi Annan", claims that fostering social values "can assist in ensuring that markets remain open." The most recent WTO Ministerial demonstrated how widespread worries about, among other things, how business and human rights interact hinder the advancement of international trade agreements. "For a number of countries that are believed to have widespread human rights violations in the United States, both nationally and at the state level, as well as in the European Union, trade sanctions have been imposed or proposed." Businesses can ensure that sanctions don't limit

their ability to conduct business abroad by pushing for greater respect for human rights in these nations.

- **Increasing Productivity and Retention of Employees:** Workers who receive fair treatment, respect, and dignity are more likely to be productive. Greater productivity results from defending the human and labour rights of employees and those employed by business partners. Businesses that adhere to labour laws and human rights standards also have lower employee turnover rates and produce better-quality goods.
- **Applying Corporate Principles:** When basic human rights are denied in ways that make it difficult for a company to run its operations in a way that is consistent with its declared values, employees and other stakeholders may lose faith in the company's integrity.

### **India's Need for BHR Framework**

The Indian government should start the process of establishing a national BHR framework for a number of reasons. In order to ensure that commercial firms operating inside its borders or under its authority do not violate human rights, India has ratified a number of international human rights instruments. These international obligations are only restated by the GPs. The creation of a BHR framework would also be in line with the constitutional duty included in Article 51, which states that the state “should endeavour to... promote respect for international law.” Even if a legally binding international instrument to require companies to uphold human rights commitments is developed in the future, a national BHR framework would be helpful.

“The process of creating a BHR framework would give the government the opportunity to evaluate the current legal and regulatory environment in order to determine what is and is not effective in ensuring that businesses respect human rights.” India already has a sizable legal system that applies (though inconsistently) human rights standards to corporations.

“The National Voluntary Guidelines on Social, Environmental, and Economic Responsibilities of Business, which were adopted by the Indian government in 2011, as well as CSR provisions in the Companies Act of 2013 and the Model Bilateral Investment Treaty (BIT) of 2015 are just a few of the significant corporate social responsibility (CSR) initiatives that have been adopted by the Indian government in recent years. The government should expand on these programmes and inspire all kinds of businesses to include respect for human rights into their commercial operations by creating a BHR framework.”

Numerous case studies have demonstrated that when businesses operating in India violate human rights, the impacted communities' resistance significantly slows down development initiatives. Conversely, “since some of these nations may not have

sufficient regulatory frameworks in place to safeguard the human rights of their communities, Indian businesses, including public sector undertakings (PSUs), that operate abroad risk being accused of violating human rights.” As a result, India requires a BHR framework for both Indian businesses operating within its borders as well as those doing so through subsidiaries or joint ventures. In fact, implementing a BHR framework would benefit both India's long-term development goals and its domestic and foreign-operating businesses.

A BHR framework should aid in creating an inclusive and sustainable economic development model. The burdens and benefits of development must be distributed equally and proportionately among all societal groups in order to prevent social conflicts.

### **Does India Require a New National Framework on BHR?**

A comprehensive analysis that considers the human rights implications of building an environment conducive to private investment-driven development may be preferable than taking a piecemeal approach to assessing various legal framework components.

Second, as was already said, the Indian Supreme Court has expanded the scope of various FRs under the Indian Constitution to include businesses. Even while these constitutional changes are beneficial, they cannot guarantee complete human rights protection in a free market economy where the private sector plays a ubiquitous role. “A discussion of the BHR framework would make it possible to decide with knowledge whether it would be preferable to alter the constitution to extend the protection of FRs against corporations, comparable to the constitutional stance in South Africa.”

Third, India has undertaken a number of CSR measures in recent years, the most significant of which being the requirement that large corporations dedicate 2% of their annual net profit over the previous three years to CSR.<sup>11</sup> By creating a BHR framework, the government would be able to build on these initiatives and inspire all kinds of businesses to include respect for human rights into their daily operations.

Fourth, given India's role as one of the major supporting states for the GPs, it makes sense for the government to implement the GPs domestically. The Constitution's Article 51, which states that the state must "promote respect for international law," as well as the HRC's resolution from June 2014 urging governments to adopt NAPs, give this mandate.<sup>12</sup> Making a national BHR framework would be advantageous even if a legally binding international instrument requiring businesses to uphold human rights commitments is later approved.

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<sup>11</sup> See Deva, “Socially Responsible Business in India”, note 159.

<sup>12</sup> “Human Rights Council, A/HRC/26/L.1 (27 June 2014).”

Fifth, India is no longer solely a destination for MNCs' international investments. Indian businesses, including PSUs, have operations and investments in a number of other countries. However, due to the possibility that some of these nations do not have sufficient regulatory frameworks in place to protect the human rights of their citizens, Indian businesses may be accused of committing human rights violations while conducting business abroad. As a result, India requires a BHR framework for both Indian businesses operating within its borders as well as those doing so through subsidiaries or joint ventures. In reality, it would be in the long run for Indian businesses doing business abroad to adopt a proactive, strategic, and responsible attitude to human rights; a BHR framework may inspire them to do so.

### **Suggestions for the Content of the Proposed Indian Framework**

Instead of being pre-defined, the content of India's national BHR framework should be developed bottom-up through an open, transparent consultation process with all stakeholders. Nevertheless, some thematic ideas are presented below to open the discussion.<sup>13</sup>

- **Stating a Clear Commitment to Protecting Human Rights:** Fundamental problems about the connection between human rights and development are essentially raised by BHR issues. Could (economic) progress be achieved without jeopardising the rights of workers, the environment, or people? “Any workable BHR framework should present a vision for how human rights and development would coexist, or alternatively, what position in the normative hierarchy human rights would occupy in the process of achieving development.” The Indian government should make it clear that everyone's human rights matter while advancing the development agenda through its national BHR framework. This might entail shifting the mentality that puts "growth first" and the idea that other social groups' human rights are less important. Reiterating its commitment to preserve FRs under the Constitution, carry out the tripartite obligations under international human rights law, and seriously consider the obligation to "guard" human rights under the GPs are all things the government should do. The requirements for respecting human rights for companies conducting business on Indian government property and under its authority (including extraterritorial economic activity) should be made explicit. This might be achieved, for instance, by requiring businesses to carry out due diligence in accordance with Pillar 2 of the GPs.
- **Creating Coordination Committees:** The proposed framework should work to reduce, if not completely eliminate, the lack of coherence among (i) various central

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<sup>13</sup> “The UNWG has provided useful guidance on the substance of NAPs. UNWG, Guidance on National Action Plans, note 5, 11–33.”

ministries, (ii) the central government and the state and Gram Sabhas, and (iii) the domestic legal system and India's international obligations. The formation of coordination committees, where a variety of viewpoints are discussed, disagreements are settled amicably, and a broad consensus is developed, is one method for achieving better coherence. "The BHR framework would be relevant to the following Indian government ministries and departments: External Affairs, Corporate Affairs, Housing and Urban Poverty Alleviation, Road Transport and Highways, Law and Justice, Commerce and Industry, Water Resources, Environment, Forest and Climate Change, Drinking Water and Sanitation, Consumer Affairs, Food and Public Distribution, Women and Child Development, Health and Family Welfare, Chemicals and Fertilizers, and Tribal Affairs." These several ministries' interests don't always align. Additionally, not every department or ministry is aware of the activities of other departments and ministries. It would therefore be advisable to establish a nodal committee, headed by the prime minister, and composed of particular cabinet ministers. The categories (i) and (iii) mentioned in the preceding paragraph are the two levels on which this committee should attempt to create coherence. As the majority of the BHR concerns should fall within the existing scope of this Council, the Inter-State Council envisioned under Article 263 of the Constitution should be used to achieve type (ii) coherence as outlined above.

- **Examining the Regulatory Framework Currently in Place:** India already has a sophisticated legal system to address the junction of business and human rights. However, a key component of the proposed BHR framework should be to examine the current legal system in order to make it more responsive to prevent and address human rights violations by private companies. Numerous changes to various areas of law could be made in light of a thorough analysis. For example, expanding the definition of "state" in Article 12 of the Constitution to include at least some FRs filed by corporations and other non-state actors would increase the Supreme Court's authority. This outcome can also be achieved by developing a test to determine whether a private non-state actor is a "state instrumentality" that emphasises the non-state actor's roles more. "Alternately, the High Court's operating procedures could be altered to permit the High Courts to hear cases in which corporations violate the FRs in accordance with Article 226 of the Constitution. A special bench could be created by each High Court to hear these cases. Instead of viewing state regulation as inevitably an adversarial or hierarchical process, it may be necessary to replace fragmented, out-of-date, or onerous regulations in some legal areas (such as labour rights, social security, land acquisition, and environmental rights) with a coherent framework that relies on a combination of mandatory and voluntary strategies to encourage compliance." Any such reforms must also ensure that the goal of streamlining rules is not primarily driven by a desire to promote an

environment that is conducive to investment; rather, the human rights interests of the impacted communities should be at the centre of such reforms. Areas like corporation law could be used to promote ethical business practises across all types of organizations, even though new laws may be required to encourage non-financial information disclosure by businesses and protect human rights advocates from retaliation. The Indian government is justified in attempting to obtain the regulatory space required to uphold human rights when dealing with investment- or trade-related disputes with businesses. States may be able to hold major corporations accountable for human rights violations under a legally binding international agreement.

- **Giving Particular Attention to Vulnerable Groups and Particular Sectors:** India's BHR framework should give particular consideration to the special situations and experiences of marginalised or vulnerable groups within society, such as women, children, migrant workers, minorities, individuals with disabilities, SCs, and STs. For instance, a toolkit created in collaboration by the DIHR, ICAR, and UNICEF demonstrates the necessity and significance of giving children's rights extra special consideration throughout the NAP process.<sup>14</sup> The same might be said for those with impairments, tribal people, and women. They ought to be involved in the creation of the BHR framework because India currently has specific human rights institutions to safeguard the interests of different societal groups. It would be a related problem worth considering to build sector-specific standards under the general framework as businesses operating in diverse sectors face (at least some) uniquely different sets of human rights challenges. One national framework might not be able to meet the unique requirements of so many different businesses. Giving incentives and penalties to businesses "The BHR framework will outline the rewards and sanctions the Indian government will offer businesses to encourage them to uphold human rights as required by the GPs and local legal system."<sup>15</sup> In addition to tax incentives, the government may also establish recognition programmes for responsible citizenship, sector-specific labelling initiatives, favourable loan conditions for companies that support human rights, and standards for the observance of human rights in public tenders and procurement." In order to deter future violations of human rights, a variety of civil, criminal, and administrative penalties for the firm and its executives should be considered. The government should also establish the conditions necessary for "social punishments" to work. This might be accomplished, for instance, by mandating that businesses

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<sup>14</sup> "DIHR, ICAR and UNICEF, Children's Rights in National Action Plans (NAPs) on Business and Human Rights (2015)."

<sup>15</sup> See Deva, "Humanizing Business, note 12, 220–31"

disclose non-financial information. Companies can also be required to post information about prior sanctions against them for violating human rights on their websites.

- **Strengthening Redress Mechanisms:** Since it is unavoidable that some corporations won't respond to (dis)incentives, the government should offer a variety of channels through which those who have been the victims of corporate human rights violations can access the court system. Making existing judicial and non-judicial processes more approachable and capable of handling human rights violations committed by the corporate sector should be the top focus. "Reforms may entail easing constitutional or statutory restrictions on the Supreme Court, the High Courts, and the NHRC's authority; consolidating courts that handle labour disputes (such as Labour Courts and Labour Tribunals); and respecting decisions made by the NGT and Gram Panchayats." The administration should also outline its strategy for promoting the creation of nonstate, non judicial remedial procedures. These tools ought to be used in addition to, not in place of, state-based judicial remedies. To resolve BHR issues, the possibilities of arbitration, mediation, and conciliation should be taken use of while giving appropriate consideration to the efficacy standards established by the GPs.<sup>16</sup> The role of CSOs may be institutionalised in order to resolve the disparity in power between corporations and victims through extralegal grievance channels, whether involving corporations alone or a variety of stakeholders.
- **Removing Obstacles to Remedy Access:** The GPs list a number of substantive, procedural, and practical obstacles that obstruct the use of judicial remedies.<sup>17</sup> Specific steps that should be taken to lower each of these barriers should be specified in the proposed BHR framework.<sup>18</sup> "The Indian government should think about ways to get around issues like limited liability and separate personality from corporate law. Consider recognising a direct duty of care or requiring parent companies to perform due diligence so that victims can hold a parent company accountable when necessary." Although the existence of class actions and the well-established PIL system facilitate easier access to courts in cases involving numerous victims, the expense of litigation and pervasive delays continue to function as significant barriers. Another area that would need remedial care is the enforcement of court orders, whether they be for the payment of restitution or an injunction prohibiting a particular dangerous activity. This is especially true if the defendants were located overseas.

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<sup>16</sup> "Guiding Principles, note 1, Principle 31."

<sup>17</sup> Ibid, "Commentary on Principle 26."

<sup>18</sup> See "Amnesty International, Injustice Incorporated, note 187"

- **Increasing the Capacity of Different Stakeholders:** Measures to boost the ability of various stakeholders should also be part of the BHR framework for a developing country like India. For both government officials and corporate leaders, workshops on how to handle human rights challenges and factor the findings of impact analyses into decisions would be beneficial. It would be wise to solicit the assistance of law schools and business schools on this front. Numerous currently operating institutions might possibly be able to help firms. “For instance, the Institute of Chartered Accountants of India has published a guidance note to assist Indian companies in properly recording their CSR expenses as part of the 2% required spending mandated by the Companies Act.<sup>19</sup> Communities that are harmed by corporate activity might benefit from sharing knowledge about legal rights and available remedies to seek relief in cases of human rights breaches.” The necessary government agencies and departments might collaborate with CSOs and law students in a way that would be advantageous to all parties concerned in order to empower communities.
- **Regular Monitoring and Periodic Update of the Framework:** “If NAPs end up turning into “planning” documents with lofty aspirational goals, they will hardly serve their intended purpose.” Therefore, the Indian framework should not only specify the specific means by which the stated goals would be implemented, but it should also specify the procedures for evaluating the effectiveness of implementation and outlining potential improvements. Furthermore, because BHR issues are dynamic in nature, any framework addressing them needs to be updated and revised to reflect shifting needs. Thus, it might be advisable to set up a system for routinely reviewing the adopted framework (every three to five years).

## CONCLUSION

The GPs give the Indian government a chance to evaluate the laws and policies that affect BHR and consider taking the necessary corrective action. By doing this, it would be made sure that India's economic development is not only inclusive and sustainable but also devoid of social unrest. One important tool that should help in achieving this goal is the transparent and consultative development of a cogent BHR framework. “India already has the fundamental elements required to create and maintain a BHR framework at the national level thanks to its stable political-economic system, vibrant democracy, free media, strong civil society, independent judiciary, and rule of law.”

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<sup>19</sup> “Lubna Kably, ‘ICAI issues norms for CSR accounting by cos’, Times of India (20 May 2015), [http:// timesofindia.indiatimes.com/business/india-business/ICAI-issues-norms-for-CSR-accounting-by-cos/ articleshow/47349754.cms](http://timesofindia.indiatimes.com/business/india-business/ICAI-issues-norms-for-CSR-accounting-by-cos/articleshow/47349754.cms).”



**ELECTRONIC JUDICIAL SYSTEM****Osamah Mohammed Abdulraqueb Al-Sakkaf**

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**ABSTRACT**

*The study seek to creating a legal framework that regulates the establishment of the establishment of the administration of the electronic judicial system, where the legislator obliges this administration to prove the license applicant his ability to provide the services of verifying the personality of the parties to the integrated lawsuit or obtaining a power of attorney from a major global company in the field of providing verification services from the personality of the lawsuit and has a precedent experience in this field, suspending, restarting, and canceling them. The system for verifying persons who have , and verify their distinctive qualities. And the presence of specialists with experience who have the necessary qualifications to perform the licensed services. , and according to the type of certificate issued.*

*Results: We note that the addressee does not have the ability to reach the information system for the provider of the judicial system services, and therefore the sender will not be able to establish the evidence for the service provider's mistake directly and accurately, and therefore the Yemeni legislator must make the burden of proof on the electronic system controlling.*

*Keywords: Certificate of the judicial system, electronic judicial system, the safety of mutual data*

**1. INTRODUCTION:****1.1. Subject of the research**

The role that the electronic judicial system management plays in spreading confidence and safety in electronic litigation procedures. The administration of the electronic judicial system is the authority that confirms the validity of the electronic procedures that took place through the system, as it is the practical step in which the validity of legal actions issued by electronic methods and these actions are verified. From the personality of the parties to the lawsuit, electronic transfers, electronic agency and electronic actions, all of these actions must be a party that the law legislates to be the authority in issuing a law that regulates its work and ensuring the integrity of the electronically mutual data, which is confirmed that verifying the personality of the parties of the case issued by the person who owns it.

The problem of the electronic judicial system may face many legal difficulties that we will answer through this study, which are the following questions:

**2. The search problem**

What is the legality of the electronic judicial system?

What are the obligations to manage the electronic judicial system?

How responsibility is the management of the electronic judicial system?

The extent of the possibility of applying the electronic judicial system in the Republic of Yemen?

How can I return to ensure the safety of mutual data in litigation procedures?

### **3. Main Heading of the First Analysis or Discussion**

**3.1. Electronic litigation provisions, d. Tariq bin Abdullah, a thesis submitted to obtain a doctorate degree, Imam Muhammad bin Saud Islamic University, Riyadh (1432 AH).**

**The objectives of this study are as follows:**

A - A statement of the jurisprudential ruling on emerging issues in the case and its pillars.

B - The judiciary's view of the electronic court.

C- The extent of the authority of the methods of proof arising from electronic means, and the position of the judiciary regarding them.

D - Assisting the makers of regulations in setting them in accordance with Islamic Sharia.

E- Helping individuals dealing with these means to know their rights and obligations.

Among the most important findings of the researcher:

A- The use of electronic means as a specific means for the judicial facility entails technical and security difficulties facing the electronic litigation process, but it does not prevent the use of such technical means while taking the necessary precautions.

b- The disputed rights do not change with the change of the means of filing the case, the way it is considered, or the mechanisms used in that.

This study agrees with the researcher's study in their dealing with the subject of the provisions of electronic litigation procedures, and they differ in that our study dealt with the legal system in electronic pleadings procedures since filing the lawsuit electronically until the issuance of the judicial ruling electronically.

**3.2. The legal framework for civil litigation via the Internet, Dadiar Hamid Suleiman, Ph.D. thesis, Iraq, Erbil, Salah al-Din University, Jumada al-Thani 1433 A.H.**

**This study is summarized as:**

A- Defining a clear framework for electronic litigation and clarifying its concept, definition, characteristics and applications in comparative legislation.

b- Indicating the real extent of the electronic systems' understanding of the civil litigation system and its stages.

C- Attempting to justify the use of technology in the judicial sphere from the time of filing the lawsuit until the issuance of an electronic judicial ruling via the Internet, written by electronic supports through computer technologies, using electronic writing, electronic signature, and appeal through electronic means.

Results:

A - The widespread use of information and communication technologies in the completion of legal work from the conclusion and implementation of contracts has helped to think about settling their disputes using those same technologies so that the settlement is electronic.

B- Electronic litigation is a modern term that appeared as a means or an electronic method for managing cases remotely via the Internet for the purpose of reaching the quick resolution of cases, facilitating the litigants' affairs and managing the justice facility by taking advantage of the technological developments of the information age through computer networks and the Internet to keep pace with the requirements of the times and avoid the phenomenon of very slow litigation procedures .

C- Although the majority of civil procedures and pleadings laws in Arab countries do not regulate electronic litigation, its manifestations have reached most of them through the establishment of the electronic portal for courts via the Internet, working on computerizing the courts and providing electronic services in the field of litigation.

D - Since the judicial declaration - in its traditional form - represents the impenetrable barrier that prevents the start of the litigation process with the due speed so that disputes can be resolved in a timely manner with an appropriate effort and with little expenses in order to achieve the meaning of complete justice.

#### **4. CONCLUSION**

Praise be to Allah, thank you for his blessings and grace in completing this research, in which we worked hard to communicate the scientific and practical benefit of the legislator in our Yemeni country and its judiciary and for the contractors in the field of the electronic judicial system, which was stipulated in international agreements and the comparative laws that organized the electronic judicial system, in the absence of explicit legal texts in Our country rules and shows the procedures of the electronic judicial system, it was necessary to research the applicable legal texts, and its gaps and exceptions, perhaps they respond to these global developments, and this is what we have reached from the results and recommendations in this study, for the following-:

**4.1. Results:**

**4.1.1.** The Yemeni legislator did not organize the conditions for practicing the activity of issuing the certificates of the electronic judicial system.

**4.1.2.** The sender faces many difficulties, until the error of the provider of the judicial system services is made, due to the complexity of the emerging relations to verify the personality of the parties to the case and implement it in an information system, which may be clarified through the management of the judicial system as the authority monitoring the process of the electronic judicial system.

**4.1.3.** The Yemeni legislator did not regulate the procedures for accrediting the providers of the electronic judicial system services, and therefore it must issue laws as organized by the comparative laws that meet the state's desire to identify and monitor the systematic policy in adopting the providers of the judicial system services.

**4.2. Recommendations**

**4.2.1.** We recommend the Yemeni legislator to issue a law regulating the process of the electronic judicial system

**4.2.2.** We recommend the Yemeni legislator to make amendments to Yemeni Law No. (40) of 2006 AD regarding payment systems and electronic financial and banking operations that regulate the process of ensuring the integrity of the automated procedures in the process of electronic judicial system technically and its safety.

**4.2.3.** We recommend the Yemeni legislator with the help of programmers and other technical specialists by setting a simplified system that facilitates the users of the procedures of the judicial system.

**4.2.4.** We recommend the Yemeni legislator that there is a party that is to monitor the procedures of the electronic judicial system system until it is clear from all the procedures that were carried out in the contract and verifying the personality of the parties to the case.

**4.2.5.** We recommend the Yemeni legislator to make the burden of proof on the electronic system controlling.

We recommend the Yemeni legislator to make the electronic judicial system within the jurisdiction of the judicial system in the courts as the authority specialized in the judicial system on paper edifices.

**Third: The importance of research**

The scientific importance of the electronic judicial system, which is the mediator through which the contracting parties can ensure the integrity of mutual data electronically, as well as the validity of verifying the personality of the lawsuit issued by a person sent the editor itself, through which it is possible to ensure the integrity of

the electronic editor and the possibility of recovering the procedures that The electronic editor, or any amendments or manipulation of the editor, occurred after the release, a resurrection, or the impersonation of the personality of the sender.

As for the practical point of view, the presence of the authorities of the electronic judicial system will be reflected in our practical reality to keep pace with global developments in introducing electronic means to all stages of transactions that contribute to facilitating electronic contracting procedures as well as in receiving and sending the documents signed electronically easily and in seconds via the Internet.

## **6. Study objectives**

One of the objectives of this study is the guidance of the legislator to set a legal framework that regulates the process of the electronic judicial system and verify the personality of the parties to the lawsuit, where the authority that issued the certificates of the judicial system becomes the ratification of the validity of the data on the electronic editor and signed electronically, so these documents become credible and reliable for those dealers, so what is He prompted me to choose this study is an attempt to solve the problem of the electronic judicial system, which will help this mechanism to find confidence for customers through the electronic mediator and to verify the personality of the parties to the case.

## **7. Research Approach**

Our study is focused on the reliability of electronic transactions such as verifying the personality of the parties to the case and the integrity of the mutual data between the parties to the electronic case in the relationships that are based on the reliability issued by the entity legally authorized to issue it, and the law of payment systems and banking transactions for the year 2006 AD, where the researcher will follow in this study the analytical approach to analyze texts Legal in comparative laws

## **8. The research plan**

In order to preserve the proper methodology, the researcher will depend to divide the study as follows:-

The first topic: the legislative basis for the establishment of the administration of the electronic judicial system

The first requirement: the rules for practicing the services of the electronic judicial system in France and Egypt

The second requirement: the possibility of applying the rules for practicing the services of the French and Egyptian electronic judicial system in Yemen

The second topic: Conditions for the issuance of the license

The first requirement: the conditions that must be met at the presenter of the same judicial system services:

The second requirement: the obligations of the electronic judicial system service provider

The third requirement: the responsibility of the electronic judicial system services provider in accordance with the general rules of civil responsibility

### **The first topic**

### **The legislative basis for establishing the administration of the electronic judicial system**

#### **Division:-**

The issuance of the legislation to establish the administration of the judicial system to adopt the authorities of the electronic judicial system is at the heart of the need required by the Yemeni legislator in our time, which can be implemented through the penal system in the courts present throughout the Republic of Yemen, through its review of the legislation pursued by the comparative laws, and to make them In his calculation, at the year of legislation organizes the establishment of this administration, and this is what made us suppress in our demand in the first topic (the rules for practicing electronic mediator services), they are permissible in the second item (conditions for issuing the license) and in the second topic: we show what (the obligations of the electronic mediator service provider) This research concluded in determining (the responsibility of the electronic mediator service provider in accordance with the general rules of civil responsibility).

### **The first requirement**

#### **The rules for practicing electronic mediator services in France and Egypt**

The French legislator organized procedures and rules for the adoption of the provider of the electronic judicial system, through the following procedures:

**First- The procedures for adopting electronic mediator service providers:** The decree in France justifies the state's desire to identify and monitor the systematic policy in adopting the providers of the judicial system services; Where the decree determines the procedure for evaluating the safety level provided by information technology products and systems, with the intention of the judicial system for this safety. It is worth noting that the system of creating verification from the personality of the parties to the insured case, as well as the system of verification of the validity of the verification of the personality of the parties to the case, falls within the framework of these products and systems that are subject - next - to conduct the evaluation and the judicial system

referred to in the decree issued on April 18, 2002, according to the text of Articles 3 Second, 4 of the decree issued on March 30, 2000<sup>(20)</sup>.

The evaluation of information technology products and systems begins with the initiative from the Colmanditaire who wants the judicial system on its products. It is possible that the financier is the provider of the electronic judicial system services who is in charge of preparing the system of creating verification from the personality of the parties to the insured case and the system of verification of the validity of that sign Security Cible De Sècuritè<sup>(21)</sup>, that is, the degree of reliability that is intended to reach, in addition to the nature and intensity of the notification or threats that the system of creating the verification of the personality of the parties to the lawsuit (or information technology products and systems) must be resistant to its resistance as information technology products and systems include all associated mechanisms and technologies With electronic signatures.

The financier must submit a request to the Central Administration for Information Systems Security (DCSSI), then the taxpayer chooses one or several evaluation administration approved by the committee called (CESTI) in order to conduct the evaluation of its products<sup>(22)</sup>.

**Second: Accepting the Evaluation Management: AGRRRIRENT Des Centers Dèvaluatio:** The evaluation department concerned with the evaluation of the safety of information products and systems is approved in accordance with the conditions stipulated in Chapter Three of Decree issued on April 18, 2002<sup>(23)</sup>, and an application is submitted to the Central Administration for Information Systems Security (Information Systems Security ( DCSSI), and this request determines the field in which the requesting body is intended to practice its activities.

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<sup>(20)</sup> Domiaty, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, pg. 467.

(21) In this regard, Article 2 of Decree No. 535-2002 issued on April 18, 2002 AD states that the file prepared by the financier includes in particular a description of the product or system to be evaluated, the mechanisms it maintains to achieve safety objectives, as well as the expected work program to make an evaluation.

(22) Al-Shoura, Mahmoud, (2019), Electronic Insurance, Seventh International Conference on Insurance, Aqaba Conference, p. 5. Domyati, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 468.

(23) See Articles 10 to 14 of Decree No. 535-2002 issued on April 18, 2002.

The body wishing to approve it as an agency or evaluation center must evaluate the evidence for the proper performance of this authority<sup>(24)</sup> and its compliance with quality standards in accordance with the rules and controls of applicable accreditation and its ability to apply the valid evaluation criteria and the identical methodology as well as ensuring the confidentiality required regarding the evaluation.

We note the conformity mentioned in the first item and also the capacity in the second item, which are confirmed by the approval issued by a recognized authority in accordance with the conditions mentioned in Article 6-115 .(25) From the legalization of French consumption or issued by a corresponding foreign authority) in addition to its technical competence to carry out evaluation work(26) in that competence by the Central Administration for Information Systems Security (DCSSI), in particular, based on the means, resources and expertise of the evaluation center(27).

**Third: Le Rapport Devality:** The evaluation of information technology products and systems (including the system of creating verification from the personality of the lawsuit and verification of its validity) is achieved by a center or several accredited department - according to the previous procedures - chosen by the fund The bodies before the start of the evaluation work, the following issues<sup>(28)</sup>: A-product or system that is subject to evaluation as well as safety objectives, b- Conditions for protecting the information that will be used in the framework of evaluation, C-costs related to paying the value of the evaluation and the methods used in this regard, d The Délais Labor Program stipulated in the evaluation.

Decree No. 535-2002 issued on April 18, 2002 refers to the commitment to the financier to provide the center that he chose with the total necessary data he needs to complete the evaluation tasks, but the financier maintains control of procedures so that at every moment he can stop its course<sup>(29)</sup>.

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(24) See Articles 11 of Decree No. 535-2002 issued on April 18, 2002.

(25) Report of Article 6-115.R of the French consumption rationing, added in Article One of Decree No. 298-97 issued on March 27, 1997 AD relating to the rationing of consumption.

(26) See M/11 II - Paragraph Two of Decree No. 535-2002, issued on April 18, 2002.

(27) See M/11 II - Paragraph Three of Decree No. 535-2002, issued on April 18, 2002.

(28) See Article 3 of Decree No. 535-2002 issued on April 18, 2002.

(29) )Article 4 of Decree No. 535-2002 issued on April 18, 2002 adds that this suspension of work by the financier may open the way for the evaluation department to obtain compensation.



In this regard, the central administration for the safety of information systems must be keen to implement the evaluation work well, and it may ask the financier to send her a copy of the documents in which he searches to the evaluation department, and its employees may attend when the evaluation <sup>(30)</sup>.

**Fourth: procedure for the judicial system: procedures of the judicial system:** The electronic judicial system must be confirmed before the issuance of the electronic judicial system, as Article (7) of Decree No. (535-2002 AD) issued on (April 18, 2002). After the financier authorized the Central Administration for Information Systems Security for the evaluation report, the central administration must prepare within one month of one month, the report of the judicial system that determines the characteristics of the proposed safety goals, and in the meantime the Central Administration for Information Systems Affairs decides either by delivering a certificate for the financier by matching its products And its systems for the required safety conditions, or by rejecting the judicial system <sup>(31)</sup>.

A certificate is issued by this conformity by the Prime Minister for a period of two years, which testifies that the information products and systems subject to evaluation meet the specific safety characteristics, as well as the testimony that the evaluation was proceeding according to the secret rules and standards, with the required competence and integrity <sup>(32)</sup>.

In addition, <sup>(33)</sup>, the decree issued on April 18, 2002 - established the mutual recognition of certificates issued within the European Union, according to the texts of the European guidance on electronic signatures <sup>(34)</sup>, and in this context it is worth distinguishing between certificates issued within the framework of the European Union and those issued outside it, in the The first assumption: This certificate acknowledges the same value granted to certificates in accordance with this decree, and in the other assumption: the central administration for security systems affairs can conclude agreements in this regard, after seeking the opinion of the main committee for ratification <sup>(35)</sup>.

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(30) Domiaty, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 471.

(31) See Article 7 of Decree No. 535-2002 issued on April 18, 2002.

(32) See Article 8 of Decree No. 535-2002 issued on April 18, 2002.

(33) Al-Damiati, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 472

(34) Moghadam, Zaid, (August 2014 AD), The Legal System of Electronic Documentation, Journal of Sharia, Law and Islamic Studies, Cairo, Issue (24), pg. 159.

(35) See Article 9 of Decree No. 535-2002 issued on April 18, 2002.

The second requirement

### **The possibility of applying the rules for practicing the services of the French and Egyptian electronic mediators in Yemen**

#### **First: The authority to grant licenses to practice the activity of electronic mediator services in Yemen**

Article (36) stipulates that: the regulations determine the procedures of the judicial system and the data that the certificate of the judicial system issued by the competent authority must contain. Article (43) also stipulated that no party may submit documentation certificates to the public or provide services related to electronic signatures unless they obtain a license to do so in accordance with the conditions and procedures determined by the regulations <sup>(36)</sup>. Article (44) of the same law also stated that: the bank's governor issues the regulations, instructions and decisions related to payment systems and procedures, in particular, the following: -1- Establishing the appropriate infrastructure for payment systems and working to update them continuously. The specialist in setting and marketing computer programs in a manner that ensures setting controls that save confidentiality of the use of the code for verifying the personality of the lawsuit from the person concerned and taking appropriate guarantees for that, and the responsibility of the aforementioned authority is subject to the general rules in civil responsibility or criminal responsibility<sup>(37)</sup>.

#### **Second: The authorization of the license to practice the electronic judicial system services in Egypt:**

As for Egypt, it was approved in Law No. 15 of 2004 AD and its executive regulations, the establishment of a public body with a legal personality that follows the Minister of Communications and Information Technology, and the Information Technology Industry Development Authority is called, and the authority works to manage, organize and determine the criteria for verifying the personality of the parties to the case, with its technical controls. Technical, financial and security conditions must be adhered to, as well as the bodies mainly to issue and renew the necessary licenses to carry out the activity of verification services from the personality of the lawsuit and other activities in the field of electronic transactions.

In general, the law gave this body the right to manage and regulate the electronic transactions sector, and even to the supervision of those who are licensed to work in this

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(36 )Law No. (40) for the year 2006 AD regarding payment systems and electronic financial and banking operations, see m (44,43,36), of the Yemeni law.

(37)Moghadam, Zaid, (August 2014 AD), The Legal System for Electronic Documentation, Journal of Sharia, Law and Islamic Studies, Issue (24), p.149.

sector, and to take the necessary measures towards ensuring the progress of this sector in line with the public interest and state policy in this regard <sup>(38)</sup>.

**Third: The role of the main committee for ratification regarding the safety of information technology and its powers:**

**1- The role of the committee:** The study showed that the main committee for ratification plays a major role <sup>(39)</sup> in the process of evaluating and certifying the level of safety provided by information products and technologies. Show on the screen of the service provider's website in the form of positive points, the reliability of the electronic judicial system service provider or negative signs of reliability, the provider of the electronic judicial system services that provide the sure guarantee of the electronic consumer or the electronic document <sup>(40)</sup>. On the other hand, the certificates of conformity of information technology devices and products are issued For the specific safety characteristics after taking the opinion of the aforementioned committee <sup>(41)</sup>, in addition to the scope of this task, it also issues recommendations and views about the evaluation procedures and the judicial system and with regard to the delivery and withdrawal of certificates, and it can also be separated by mutual consent in disputes related to the policy of the judicial system followed <sup>(42)</sup>.

**2-The Committee's competencies:** This committee meets at least once a year at least providing an account statement of its work <sup>(43)</sup> and undertakes the following tasks: <sup>(44)</sup> A- Formulating opinions and suggestions on the policy of the judicial system, and expressing an opinion on the rules and standards used regarding the evaluation procedures and the judicial system, as well as instructions The technique placed at the disposal of the public. B- It issues an opinion regarding the issuance or withdrawal of the evaluation center. C- Examination of every dispute that the parties offer to the

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(38) Al-Damiati, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 479.

(39) Domiaty, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 472.

(40) Al-Hasani, Muhammad, (2013 AD), Electronic Consumer Protection in Private International Law, Dar Al-Nahda Al-Arabiya, p. 205.

(41) Al-Damiati, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 472.

(42) Al-Damiati, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 472.

(43) ()See Article 17 of Decree No. 535-2002 issued on April 18, 2002.

(44) ()See Article 15 of Decree No. 535-2002 issued on April 18, 2002.

evaluation procedures organized by the decree, in order to separate it. D- Show an opinion regarding mutual acknowledgment (certificates) agreements concluded with foreign bodies.

**3- Committee formation:** Article 16 of Decree No. 535-2002 issued on April 18, 2002 regarding assessing the level of safety provided by information and technology and judicial system provides it, that the main committee to address the security technology safety is established by the Secretary-General of the National Defense or its representative, In addition to its president, it includes in its membership representatives from the various parties<sup>(45)</sup>.

In the event that the Presidential Committee is approved to discuss issues related to the systems of creating the verification of the personality of the parties to the case and verifying its validity - the grammar mentioned in the first article of the decree issued on March 30, 2001 referred to () a nose - it also includes the twelve qualified personalities appointed for a period of three years by a decision of the president Ministers. In addition to the fact that the external representation in the membership of the committee is only required in two cases: with regard to the means associated with verifying the personality of the parties to the case, or regarding another issue decided by the head of the committee.()

Moreover, it is necessary to recognize the merit of the electronic judicial system service providers and the adoption of the designated bodies to evaluate them.

## **The second topic**

### **Conditions for issuing requirements for license**

Article (44/2) of the Law of Promotion Systems and Financial and Banking Operations provides in regulating the issuance of the certificates of the judicial system from the competent authority to set and market the computer programs in a manner that ensures the status of controls for the confidentiality of using the code for verifying the personality of the parties of the case from the person concerned and taking the

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(45) Domiaty, Tamer. (2009 AD), Proof of Electronic Contracting via the Internet, First Edition, Cairo, previous reference, pg. 473. Reference 1: The committee includes in its membership: a representative of the Minister of Justice, a representative of the Minister of Interior, a representative of the Minister of Foreign Affairs, a representative of the Minister of Defense, a representative The Minister of Industry, a representative of the Minister of Economy, a representative of the Minister of Labor, a representative of the Minister of Health, a representative of the Minister of National Education, a representative of the Minister of Communications, a representative of the Minister of State Reform Affairs, a representative of the Minister of Transport, a representative of the Minister of Research.

appropriate guarantees for that , And the responsibility of the aforementioned authority is subject to the general rules of civil responsibility or criminal responsibility <sup>(46)</sup>.

### **The first requirement**

#### **Conditions to be met at the introduction to the services of the mediator itself**

##### **First: The regulatory and administrative rules for issuing licenses to the electronic broker authorities:**

**1-Conditions for practicing the activity of issuing certificates of the judicial system of the electronic mediator:** The Yemeni legislator was not exposed to these conditions explicitly, except that it referred them to the executive regulations, in Article (43). Thus, according to the conditions and procedures specified by the regulation<sup>(47)</sup>. Consequently, there is no text for the lack of issuance of the executive regulations of the law of payment systems, as well as the legislator in the Egyptian law, also did not present the conditions due to carrying out the activity of issuing the electronic judicial system certificate, whether in the law verifying the personality of the parties to the case or its executive regulations for these conditions and contrary to some of the legislations issued in this regard <sup>(48)</sup> Like the Tunisian legislator.

This is as a condition of the availability of citizenship in the applicant and the condition of residence, and that he is not deprived of his civil and political rights, and these conditions are considered necessary for the service provider to perform a course without any obstacles that prevent his practice of it, whether in Yemen or Egypt. And their rights, which is a severe risk if its sides are not organized <sup>(49)</sup>.

On the other hand, if any natural or moral person has offers to obtain a license to carry out the activity of the judicial system services, but besides the previous conditions, it should be met in the full natural person to conclude legal actions <sup>(50)</sup>, because he does

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(46) Law No. (40) of 2006 regarding payment systems and electronic financial and banking operations, M 44/2.

(47) Law No. (40) for the year 2006 AD regarding payment systems and electronic financial and banking operations, Article 43.

(48) For example, we find that the Tunisian legislator stipulated in the Electronic Information Law issued in 2002 AD that the service provider must meet several conditions: such as the condition of Tunisian nationality, and the condition of residence in Tunisia, otherwise he will be deprived of his civil and political rights.

(49) Al-Damiati, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, pg. 487,486.

(50) Legal capacity - and what is meant here the capacity to perform - is defined as the person's capacity to conclude legal actions that result in the acquisition of rights and

not imagine granting the license to those who have not been The age of adulthood is also not imagined, as well as the granting of the license to those who have a defect from the will or the barrier of its contraindications, given that the actions of the service provider entails extremely important legal effects, while the legal person - whether it is general such as the state or the province or the bodies and institutions or was private such as companies and associations \_ The electronic judicial system service by a natural person is the legal representative of this moral person <sup>(51)</sup>.

**2- Special procedures for obtaining licenses:** The applying for companies in offers to obtain the license is a preliminary stage in which companies study the conditions and requirements qualifying for the license, and the companies that accept their offers must

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obligations with duties, "which are graded and affected according to the age stages that the person goes through, and they are three stages: The first stage: the undistinguished boy (without capacity) Which starts from the moment of his birth until he reaches the age of ten according to the text of Article 51 of the Yemeni Civil Code, which is seven years according to most Arab laws, as is the case in the UAE Civil Code Article 86, and the ruling on the boy's behavior at this stage is that it is absolutely void, whether it is beneficial. purely harmful or purely harmful, or that circuit between benefit and harm and may not be corrected by the guardian or the boy after he reaches puberty, in accordance with the explicit Article 60 of the Yemeni Civil Code. The second stage: the distinguished boy (minus eligibility) and this stage starts from reaching the age of ten until the age of fifteen, which is The age of majority in accordance with the text of Article 51 previously referred to, and in Arab laws this stage begins from the age of seven to twenty-one, as is the case in Article 87 of the UAE Civil Code, and the rule of his actions is in accordance with the law. Curse the type of behavior that he concludes in accordance with the explicit article 60 of the Yemeni Civil Code. Dispositions that are purely beneficial are valid, such as accepting a gift. As for actions that are purely harmful, they are void, such as giving a gift to others, and may not be corrected by the guardian or incompetent after attaining it. As for the actions between benefit and harm, such as selling. And the rent, it is dependent on the parental leave or the boy after puberty. The third stage: a rational adult, with full legal capacity, which starts from the age of 15 years above, unless the law requires an older age according to the explicit article 50 of the Yemeni Civil Code. As for commercial capacity, it is 18 years according to the Yemeni commercial law, and most legislation is 21 years old The text of Article 85 of the UAE Civil Code. See the margin: Al-Hasani, Muhammad, (2013 AD), Electronic Consumer Protection in Private International Law, Dar Al-Nahda Al-Arabiya, p. 204.

(51) Al-Domiaty, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, 487.

take as the scourge of procedures to implement the conditions and requirements mentioned in the Egyptian electronic law or its executive regulations <sup>(52)</sup>.

**3- Financial guarantees and insurance:** Article (44) of the Payment Systems Law stipulates that: the bank's portfolio issues the regulations, instructions and decisions related to payments and procedures for payments, especially the following:-

A- Establishing the appropriate infrastructure for payment systems and working to update them constantly.

B- Organizing the issuance of the certificates of the judicial system from the competent authority to put and marketing the computer programs in order to ensure the setting controls that save the secret of the use of the code for verifying the personality of the parties to the case from the person concerned and taking appropriate guarantees for that, and the responsibility of the aforementioned authority is subject to the general rules of civil responsibility or criminal responsibility <sup>(53)</sup>.

Article (14) of the executive regulations of the Law of verification of the personality of the parties to the Egyptian lawsuit stipulates that: the applicant for licensing must issue the certificates of the electronic judicial system to provide the financial and procedural guarantees and insurance determined by the <sup>54</sup> administration center to cover any damage or related to the concerned people, in the event of an end to the license for any The reason, or to cover any violations on his part for its obligations in the license <sup>(55)</sup>.

**4-Inspection on the authorities of the electronic judicial system:** The authority shall inspect the authorities authorized to verify the extent of its commitment to the license issued by the authority to carry out activities and provide verification services from the personality of the lawsuit.

**5-The obligations of the licensee:** The laws stipulated some of the conditions that must be met in the pretext of the services of the judicial system itself, as Article (17) of the

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(52) Al-Domiaty, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 489. Reference 1: The Authority reserves the right to refuse a license to any of these companies without giving reasons. See: brochure terms and requirements of licenses to provide identity verification services to the parties to the case, p. 5.

(53) Law of Payment Systems for Financial and Banking Operations for the year 2006 AD.

(55) AL-Domiaty, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, pg. 490.

executive regulations of the Law of verification of the personality of the parties to the Egyptian law The management of the authority in this regard <sup>(56)</sup> The most important obligations of the student of obtaining licenses are to provide various services issued the certificates of the electronic judicial system and the electronic signatures to be contracted with the beneficiaries in accordance with the rules and procedures established in this regard, as the licensee in all cases is obligated to not conclude any contract with Customers except after the approval of the form of this contract from the competent authority <sup>(57)</sup>.

In addition to the requirement of some technical and technical requirements to issue licenses for the electronic judicial system, where the law of payment systems for financial and banking operations stipulated in Article (44/3) to define the specifications and technical conditions that must be met in the devices and machines used in financial and banking technologies and the formation of the technical committees necessary to do so the mission.

Article (12) of the executive regulations of the Law of verification of the personality of the Egyptian lawsuit stipulated the requirements for issuing the license that the applicant must have the license to issue the certificates of the electronic judicial system. The requirements that confirmed the existence of an insurance system for information and data protection and its specificity at a level of protection of no less than the mentioned level In the standards and rules referred to in paragraph (d) of the technical and technical attaché of the executive regulations of the Achieving Law of the Parties of the Egyptian Case, in addition to the existence of a guide that includes the issuance of certificates of the electronic judicial system, the coding keys, the internal business administration, and the insurance and disaster management. And that is according to the technical and technical standards mentioned in paragraph (e) of the technical and technical attaché of the executive regulations of the Law of verification of the personality of the parties to the Egyptian lawsuit that the system of forming data for the

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(56) ()AL-Domiaty, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 491, he referred in reference 2: The period for granting the license is five years, subject to renewal, in return it will be determined by bidding a minimum of half a million Egyptian pounds, in addition to 3% of the The total revenue of services and works related to verifying the identity of the parties to the case. See: brochure of conditions and requirements for granting licenses to provide identity verification services to the parties to the case, previously mentioned, p. 8.

(57) Al-Damiati, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 491.



creation of verification from the personality of the parties to the insured case, according to the technical and technical controls stipulated in Articles 4,3,2 From this list <sup>(58)</sup>.

In this regard, the brochure of the requirements of the requirements for granting a license to provide verification services from the personality of the lawsuit indicates the necessity of proving the applicant for the license his ability to provide verification services from the personality of the integrated lawsuit with the clarification of a precedent of experience and local and international customers if they find, or obtaining a power of attorney from a major global company In the field of providing verification services from the personality of the parties to the case and it has a precedent experience in this field, and proving the possibility of integration between technical components and the possibility of development in the future, with the attachment of illustrations for devices, systems, and applications used as well as managing and operating method, providing services, and feasibility measurements <sup>(59)</sup>.

With the existence of a system for determining the date and time of issuing certificates, stopping them, suspending them, restarting them, and canceling them. The system for verifying the persons for whom the certificates of the electronic judicial system are issued, and verifying their distinctive characteristics. The presence of experienced specialists who have the necessary qualifications to perform the licensed services. And the system for saving the data of establishing the verification of the identity of the parties to the lawsuit and the certificates of the electronic judicial system for the period specified by the authority in the license, and according to the type of the certificate issued, with the exception of the private code keys that you issue to the site, which are not saved except at the request of the site and according to an independent contract concluded between the licensee and the signer and in accordance with the technical and technical rules for keeping these keys set by the authority's board of directors. And a system for maintaining complete confidentiality of the work related to the licensed services, and the data of customers. The applicant for a license is obligated to fully maintain the confidentiality and security of data, information and intellectual property

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(58) Domiaty, Tamer. (2009 AD), Proof of Electronic Contracting via the Internet, First Edition, Cairo, previous reference, p. 492, referred to in Reference 2: Article 2 of the Regulations is related to the conditions for considering the system for creating data to verify the identity of the parties to the case is insured, and Article 3 is for the technical and technical controls for those The system, and Article 4 indicates that the authority's board of directors can set other systems and rules for the system of creating data to verify the identity of the parties to the lawsuit, as well as technical and technological developments.

(59) Domiaty, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, pg. 492.

rights, and the authority has the right to refer to the licensee for appropriate compensation in case of violation<sup>(60)</sup>.

**I- Certificate stopping system: In the event that there is a case of following the following cases:**

A- Tampering with certificate data or the expiration of its validity period. B- The theft or loss of the private opaque key or the smart card, or when suspicious of this happens. C- The Egyptian person does not adhere to the electronic judicial system certificate with the terms of the contract concluded with the licensee. D- The system for stopping certificates is according to the rules and controls set by the Authority's Board of Directors. K- A system that allows Ways to verify the validity of the data for the verification of the personality of the parties to the lawsuit, especially in the context of the examination and verification of the authority.

Those who apply for a license must carry out the activities and services of verification of the personality of the parties to the lawsuit to adhere to the technical and technical conditions mentioned in the executive regulations of the Law of verification of the personality of the parties to the Egyptian lawsuit No. 15 of 2004 and its technical and technical attaché, and the brochure of conditions and requirements and in the case of breaching any of these conditions and specifications for the right to the right In refusing to offer to obtain the license, and if it is proven to be disturbed after the license for it, the authority has the right to <sup>(61)</sup>cancel the license immediately and obligate the licensed with all technical, technical and financial guarantees to fulfill its obligations before the authority and the relevant authorities and beneficiaries, and the offer submitted by the company must contain a request to obtain the license to the description Detailed and executive plan and the timetable for all technical requirements (mentioned in the executive regulations of the Law of verification of the personality of the parties to the Egyptian lawsuit) that the system is based on the technique of public and private key blade and to the root code key of the licensee that the authority issued to it, all according

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(60) Domiaty, Tamer. (2009 AD), Proof of Electronic Contracting via the Internet, First Edition, Cairo, op. cit., p. 493, Reference 1: In view of the nature of the work entrusted to the licensee under which he establishes, manages and operates highly confidential electronic information systems, which requires the availability of a reputation policeman and technical competencies - Starting and continuing - the length of the license period, and then the authority has the right to request to obtain any data related to performance

(<sup>61</sup>) Domiaty, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 493. He indicated in reference 2: It is the same conditions necessary to consider the system of creating data to verify the identity of the parties to the lawsuit insured.

to the criteria Technical and technology mentioned in the technical and technical attaché<sup>(62)</sup>. B- that the technique used in Inch be The root code keys for the electronic judicial system are those that use encryption keys of at least 2048 electronic letters. C- that the Hardware Security Modules used according to the technical and technical controls mentioned in the technical and technical attachment<sup>(63)</sup>. D- Smart Cards is used as a believing electronic medium used in the process of creating and installing verification of the personality parties 'personality on the electronic editor, which is not cloning and protected with a secret code, which contains unique elements of the site, which is the data of the verification of the personality of the case parties and a certificate The electronic judicial system, and the specifications and systems of the smart card are determined according to what was stated in the technical technical attaché of the regulation<sup>(64)</sup>, in which case the service provider is obligated not to contract with the suppliers of smart cards and the devices used to create and install electronic signatures from the prohibited authorities dealing with them for Egyptian national security considerations. F- Systems and other rules for the formation system for forming data verification data from the personality of the lawsuit that the authority sets in Egypt to keep pace with technical and technological developments.

## **The second requirement**

### **Electronic Judicial System Observations Offers**

#### **First:- Commitment to providing checking services from the personality of the lawsuit:**

The commitment to providing the service of verifying the personality of the lawsuit is one of the most important services provided by the electronic judicial system center due to the important role that it plays in providing confidence among the parties to dealing. Article (11) 1- The record is considered The electronic is a legal record and has the characteristic of the original copy if the conditions are met: B- The ability to keep the electronic record in the way in which it was created, sent, received, or in any way that

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<sup>(62)</sup> Refer to Paragraph (A) of the Technical Appendix of the Executive Regulations of the Law of Verifying the Personality of the Parties to the Egyptian Case.

<sup>(63)</sup> Refer to paragraph (b) of the Technical and Technical Appendix (Hardware Security Modules) of the Executive Regulations of the Egyptian Law of Verifying the Personality of the Parties to the Case.

<sup>(64)</sup> Refer to Paragraph (C) of the Technical and Technical Appendix (Smart Cards) of the Executive Regulations of the Law of Verifying the Personality of the Parties to the Egyptian Case.

facilitates the accuracy of the data and the information that was mentioned when it was established, sent, or received <sup>(65)</sup>.

### **1- Services registration and issuance of the electronic judicial system certificates:** The

judicial system certificate is issued in the form of an electronic record linking the identity specified website (or the name of the site) on the one hand and a public key on the other hand, and the expected and specific site may confirm its identity in the certificate is the holder of the private key . In order, it is possible for a recipient of the certificate (who is willing to rely on an electronic signature created by the site called the certificate), to use the public key shown in the certificate in order to verify that verifying the personality of the parties to the case was created using the private key, so if it is done The achievement of that verification successfully, provides a level of certainty that proves that verifying the personality of the parties to the case was established by the site and that the electronic fingerprint is its fingerprint, and therefore the message of the debate has not been modified since it signed it electronically<sup>(66)</sup>.

### **The two conditions of the eligibility and the adjective in the electronic case:**

in which the plaintiff or the defendant, are not attended to the court headquarters, but rather are circulated by electronic means through the electronic portal of the court through his digital or electronic signature that shows the identity of the plaintiff or the defendant; As the digital site is granted a certificate that shows these matters, and the provider of the donor service for the digital certificate guarantees the validity of the information contained therein, and it is accepted in the field of electronic litigation except the digital certificate whose issuance requires full verification of the certificate and his qualification<sup>(67)</sup>.

**2- Service to issue tools for creating and installing electronic signatures:** The electronic judicial system service provider licensed to issue tools for creating and installing electronic signatures \_ represented in smart cards- to the final users, is obligated, according to the rules and controls mentioned in the Law on verification of the personality of the parties to the Egyptian case No. 15 of 2004 and its regulations The executive, and these tools are a group of interconnected and integrated elements, which

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<sup>(65)</sup> Moghadam, Zaid, (August 2014 AD), The Legal System of Electronic Documentation, Journal of Sharia, Law and Islamic Studies, Cairo, Issue (24), p.139.

<sup>(66)</sup> Al-Damiati, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, pg. 497.

<sup>(67)</sup> Swilam, Muhammad, (Deposit No. 28411/2019 AD), Economic Court through electronic means, Dar Al-Nahda Al-Arabiya, p. 521.

contain electronic media and computer programs, through which the signature is signed electronically on the electronic editor, using the verification data of the personality of the parties to the case and the electronic certificate of charity, as well as the mode and installation of the editor website electronically on an electronic pillar<sup>(68)</sup>.

**3- Special services to save special code keys for the site:** The code keys for the use of the service are not saved, not at the request of the beneficiary, according to an independent contract that is built between the licensee and the service user and according to the technical and technical rules to save these keys set by the authority's board of directors that The provider of the judicial system is obliged to keep the user's blade key in a way that does not allow the key to the key to the key, and not to disclose any information that may lead to reaching the private blade key, otherwise it is kept or copying the private blade key or any information that leads to it except with the service provider<sup>(69)</sup>.

**4-The service of examination and verification of the validity of the data for the verification of the personality of the parties to the lawsuit:** According to Articles (7.6) of the executive regulations of the Law of verification of the personality of the Egyptian lawsuit. The lawsuit, based on a request for a peer in exchange for its categories specifying the Board of Directors, and Article (7) of the regulations adds that the commission will verify in order to do so from the following: A- The safety of the electronic judicial system certificate and its compatibility with data for the establishment of verification from the personality of the parties to the case, b- It is possible to determine the content of the electronic editor of the site accurately, c- Ease of knowledge of the person of the site, whether in the event that the original name is used or used for a pseudonym or the name of a fame<sup>(70)</sup>. The authority may pledge to others to provide this service under its supervision, and in all cases the authority issues certificates of checking the verification of the personality of the parties to the case, which means that the authority may grant the provider of the judicial system a license to practice that service, and the authority issues certificates of checking the verification of the personality of the lawsuit.

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<sup>(68)</sup> (Article 1, Paragraph 19 of the Regulations), for more see: Al-Damiati, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 499.

<sup>(69)</sup> Domiaty, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, pg. 499.

<sup>(70)</sup> Article 7 of the executive regulations of the Egyptian Law on Verifying the Personality of the Parties to the Case of 2004.

It is worth noting <sup>(71)</sup> in this regard that the Egyptian Information Technology Industry Development Authority has a license grant for four companies to provide verification services from the personality of the lawsuit, which means that this service is limited to the authority that has not been granted a license to practice until now <sup>(72)</sup>.

**Second:- Commitment to preserving confidentiality:** Article (27) of the Law of Payment Systems stipulates that every financial institution that practices electronic transfer of funds in accordance with the provisions of this law and the regulations issued in which to adhere to the following: -1- Adherence to the provisions of the Bank's Law, the Banking Law and the laws of them The relationship, regulations and instructions issued according to it. 2- Taking measures to provide safe services to customers and maintain banking confidentiality<sup>(73)</sup>.

It is also the same as the text of Article (21) of the Law of verification of the personality of the Egyptian lawsuit, on the commitment of the electronic judicial system service to preserve the confidentiality of information and the secret messages sent <sup>(74)</sup>, by saying that verification data from the personality of the parties to the lawsuit, electronic media and information provided to the authorized authority to issue certificates The electronic judicial system is confidential, and it is not permissible for those who submitted or contacted it by virtue of their work to disclose it to others or use it in the other than the purpose for which it was presented <sup>(75)</sup>. As a result, the violation of the principle of

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<sup>(71)</sup> Moghadam, Zaid, (August 2014 AD), The Legal System of Electronic Documentation, Journal of Sharia, Law and Islamic Studies, Issue (24), pg. 136, and also: Al-Damiati, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 500.

<sup>(72)</sup> See the website of the Information Technology Industry Development Authority, [www.itida.gov.eg/csp](http://www.itida.gov.eg/csp)

<sup>(73)</sup> Law No. (40) of 2006 regarding payment systems and electronic financial and banking operations.

<sup>(74)</sup> Dr. Reda Metwally Wahdan, The Legal System of Electronic Contract and Responsibility for Electronic Attacks, Dar Al-Fikr and Law, Mansoura, 2008 AD, First Edition, p. , p. 139.

<sup>(75)</sup> The Egyptian Law of Verifying the Personality of the Parties to the Case, No. 15 of 2004.

confidentiality is a violation of the conditions of the license issued to the service provider arranges civil responsibility towards the violator <sup>(76)</sup>.

**Third- Commitment to preserve personal data:** The service provider adheres to the purpose for which personal data is collected, so it is prohibited to give his hand to collect the required data and information about the owner of the certificate and only what is consistent with the type of certificate required, as the certificate to obtain it may be related to obtaining Check the personality of the parties to the same case, a certificate of his health, or a certificate of making a system for encrypting and deciphering that signature, and then the personal data required for each certificate differs from that required for another certificate <sup>(77)</sup>.

This commitment corresponds to the necessity for the service provider to obtain personal information directly from the same person concerned with the testimony, because it is more capable of providing information that determines his status and legal status, in addition to that the provider of the judicial system services must take all precautions and measures necessary to prevent any state interference in the rules Its data will compromise the personal data of users <sup>(78)</sup>.

**Fourth:- Commitment to providing the necessary guarantees and insurance:** Article (44/2) of the Yemeni electronic payment systems law indicates: and take appropriate guarantees for that, and also meets them and Article (14) of the executive regulations of the law verification of the personality of the lawsuit that the license applicant must issue The certificates of the electronic judicial system must provide the guarantees and insurance determined by the authority's board of directors to cover any damages or dangers related to the concerned people, in the event that they (or cancel) the license for any reason, or to cover any violation on its part of its obligations in the license <sup>(79)</sup>.

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(76) Al-Tamimi, Alaa, (2012), the legal regulation of the electronic bank on the Internet, New University House, p. 187, and also: Al-Damiati, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference,, p. 501.

(77) Moghadam, Zaid, (August 2014 AD), The Legal System of Electronic Documentation, Journal of Sharia, Law and Islamic Studies, Issue (24), p. 143, also: Al-Damiati, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 502. And also: Al-Tamimi, Alaa, (2012), the legal regulation of the electronic bank on the Internet, New University House, p. 173.

(78) Al-Damiati, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, see reference 1, p. 502.

(79) See Article 11 of the Executive Regulations of the Egyptian Law of Verifying the Identity of the Parties to the Case, No. 15 of 2004.

According to the requirements for granting a license to provide verification services from the personality of the lawsuit, the most important guarantees and insurance needed to be submitted by the service provider are to cover the damages or dangers related to those concerned in his commitment to work comprehensive insurance against all dangers on the main and reserve center to provide the licensed services (with no less than ten millions of millions An Egyptian fairy), and with insurance for the benefit of the certificates users in order to cover any damages to provide the necessary technical insurance to ensure the employment, and that includes the reserve site that ensures the continuity of work without stopping<sup>(80)</sup>, and finally the service provider must submit at the start of the license the necessary guarantee to implement all the obligations received. With it, by that the authority's treasury deposits a cash amount (of five hundred thousand pounds of Egypt) as insurance for its implementation of all the provisions contained in the license, and in the event that the provider of the judicial system's services licensed to his obligations in the license granted to him is not obligated, the amount of insurance is the right of the authority.

**Fifth:- Commitment to continuing to provide services:** The service provider is committed to continuing to provide verification services from the personality parties 'licensed to the service users, and he is also obligated to preserve the existing infrastructure at the time of the license issuance, and the licensed service provider in no case has the right to prejudice verification services. From the personality of the parties to the lawsuit that he previously submitted or reducing<sup>(81)</sup>

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(80) Domiaty, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 502, referred to in reference 2: This included, for example: the list of suspended and revoked certificates, data for establishing the identity verification of the parties to the lawsuit, networks of communication with users and the authority of the system The Supreme Judicial Council for the main website, and the additions requested by the authority.

(81) Domiaty, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 503. Referred to in reference 2: Where the service provider may not do so, except after the authority's approval of this in writing. In all cases, the authority shall consult with the licensed service provider in the economic and technical aspects related to this before issuing the aforementioned approval or not issuing it to it. View: The license to provide identity verification services for the parties to the Egyptian lawsuit issued by the Information Technology Industry Development Authority for the year 2006 AD (No. 103/2006).



**The third requirement****The responsibility of the electronic judicial system services provider in accordance with the general rules of civil responsibility**

And based on the obligations that are based on the provider of the electronic judicial system service, it is not sufficient, but its responsibility must be determined according to the general rules of civil responsibility, and what is the relationship of the site with the management of the judicial system is a contractual responsibility or a negligent responsibility and what is its relationship to the provider of the judicial system and the licensed authority for it is it Here is a default or contractual responsibility?

This is what the studies indicated that the provider of the electronic judicial system services plays a very important role within the framework of electronic transactions, as it issues tools for creating electronic signatures and verifying their validity and issuing approved electronic certificates from him that indicate the validity of electronic signatures, which broadcasts confidence in the contracting parties and in an attribute Especially for others who wish to deal with another person who does not know or does not have the ability to verify his personality <sup>(82)</sup>.

Article (44/2) stipulates that: Organizing the issuance of the certificates of the judicial system from the competent authority to set and market the computer programs in a manner that ensures the status of controls that are kept using the use of the code for verifying the personality of the parties to the case from the person concerned and taking appropriate guarantees for that, and subject to the responsibility of the aforementioned authority according to For the general rules of civil responsibility or criminal responsibility<sup>(83)</sup>. Therefore, the Yemeni legislator referred it to civil law, according to the general rules of civil responsibility, which is based on three pillars: error, damage, and the relationship of causation between them <sup>(84)</sup>, and it is the responsibility of those who claim to have caused harm (the victim ) The burden of proving these three elements \_ according to the original - unless the legislator in some cases assumes any of these elements to facilitate the victim in proving it for responsibility and obtaining compensation, and civil responsibility varies between contractual responsibility and negligence, and if he arises between the victim and the official, then the responsibility

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(82) Domiaty, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 503.

(83) Law of Payment Systems for Financial and Banking Operations for the year 2006 AD.

(84) Al-Tamimi, Alaa, (2011 AD), electronic document, Dar Al-Nahda Al-Arabiya, Cairo, p. 210.

will be Then a contractual responsibility is concerned with some of the rules that distinguish it from the non -contractual responsibility that is called default <sup>(85)</sup>.

**-Discrimination between contractual responsibility and negligent responsibility:**

**First: The contractual responsibility of the provider of the electronic judicial system services:** If we exceed the basic obstacle to the establishment of contractual responsibility and we have reached a contract between the judicial system and the non - dependent on electronic certificate data, then we move to another obstacle, which is to determine the content of the commitment imposed by the contract on the judicial system in favor of The third party that relies on the certificate issued by the validity of the signature and other information included in the certificate <sup>(86)</sup>.

If the contract obliges the judicial system to ensure the validity of the information contained in the certificate, then it is committed to a strict commitment, i.e. commitment to a result, and thus bear the responsibility of its strict (Strict Liability), it is sufficient for it to prove that the certificate information is not valid to be responsible, and it is necessary to compensate for the damage caused by this certificate to others In this case, we are actually closer to the guarantee of responsibility <sup>(87)</sup>.

**1- Conditions for the establishment of the contractual responsibility of the provider of the electronic judicial system:** According to the general rules, the contractual responsibility is as a part for the violation of one of the contractors to implement the contract. To force him to implement in -kind implementation as long as it is possible, with certain conditions, but if the in -kind implementation is not possible or is in exhaustion of the debtor, then the creditor has no choice except to resort to the judiciary, asking for the implementation of compensation for not fulfilling <sup>(88)</sup>, and on

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(85)Moghadam, Zaid, (August 2014 AD), The Legal System of Electronic Documentation, Journal of Sharia, Law and Islamic Studies, Issue (24), pg. 149, Al-Damiati, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 504.

(86) Al-Tamimi, Alaa, (2012), the legal regulation of the electronic bank on the Internet, Dar Al-Jadeeda, p. 128 and beyond, and also: Al-Tamimi, Alaa, (2011), the electronic document, Dar Al-Nahda Al-Arabiya, Cairo, p. 213.

(87) Moghadam, Zaid, (August 2014 AD), The Legal System of Electronic Documentation, Journal of Sharia, Law and Islamic Studies, Issue (24), p. 164.

(88) Domiaty, Tamer. (2009 AD), Proof of Electronic Contracting via the Internet, First Edition, Cairo, op. reference, p. 506, indicated in Reference 1: It is evident that there is no place for a judgment for compensation if the debtor proves that the impossibility of implementation was due to a foreign reason that he has no control over; Where the

this, the contractual responsibility assumes that there is a valid contract. Implementation. In this context, it is required for the responsibility of the provider of the contractual judicial system the necessity of the pillars of this responsibility, and it only provides three conditions, namely: error, harm, and the relationship of causation between them <sup>(89)</sup>.

Le Fugness Contractuelle is that the provider of the judicial system services is not implemented with agreed obligations, the most important of which is to provide verification services from the personality of the lawsuit, or delay in implementing or implementing it partially (defective or late), then the error makes once that and if the contract does not specify who is received on The burden of proving the error, according to the general rules, who claims the existence of the error is the proof of the validity of his claim.

On the other hand, the error must result in prejudice, and the user of the verification services of the parties to the lawsuit bears the burden of proving the damage that is claimed that the mistakes attributed to the provider of the judicial system services may cause it, and the damage is not assumed just because the service provider did not fulfill his contractual commitment That is because a breach of the provider of the judicial system can occur with any of his obligations, and the user of the service or non -harm may occur, and finally, the error attributed to the service provider must be the reason for the harm, that is, there is a causal relationship between error and harm <sup>(90)</sup>.

Article (28) stipulates that: The customer is not responsible for any illegal registration that is made on his account by electronic transfer after the bank or the financial institution informs about the possibility of entering his account, losing his card, or the possibility of knowing others for the definition symbol related to him and requesting them to stop the work By electronic conversion <sup>(91)</sup>.

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obligation lapses in this case and it is impossible to recourse to the debtor for compensation (Article 215 Egyptian Civil

(89) Moghadam, Zaid, (August 2014 AD), The Legal System of Electronic Documentation, Journal of Sharia, Law and Islamic Studies, Issue (24), p. 150.

(90) Moghadam, Zaid, (August 2014 AD), The Legal System of Electronic Documentation, Journal of Sharia, Law and Islamic Studies, Issue (24), pg. 152, Al-Damiati, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 507.

(91) Yemeni Law No. (40) of 2006 regarding payment systems and electronic financial and banking operations.

**2- The content of the commitment of the provider of the electronic judicial system:**

The contract concluded between the service provider and the service user (the site) may determine the nature of the commitment of the electronic judicial system's services, is it a commitment to achieve an end, a result, or an obligation to take care or a means, in order to determine who falls He has the burden of proof of error, but the matter beats in the event that the contract is not specified for the nature of the obligations on the service provider, as the question arises in this case, which is about the consideration of adherence to the achievement of a result of or a care.

A part of the jurisprudence <sup>(92)</sup> goes, that the commitment of the service provider is obligated to achieve the result that it is obligated to provide the services of verify the personality of the lawsuit and maintain the confidentiality of the data written in the certificates of the judicial system and other obligations that fall on the responsibility. A contract related to the provision of services to verify the personality of the parties to the case, and when it can be said that the commitment of the service provider is an obligation to a result and not an obligation to exert care or a means, it is sufficient for the service user to evaluate the evidence not to achieve the result until the provider of the judicial system services finds the same demands to compensate if he cannot Proof of the return of non -implementation to the force of a Cairo, a foreign reason, or the mistake of the other contractor (the user of the service), and on the other hand, it is not sufficient for a service provider to prove that he has made a certain or reasonable degree from caring for a resurrection in performing his obligations related to providing checking services from the personality of the lawsuit <sup>(93)</sup>.

Another aspect <sup>(94)</sup> goes, that the commitment of the provider of the judicial system services is an obligation to take the care of Obligation De Moyen, and this means that the contractual responsibility of the service provider does not prove when he proves that he has done due care, according to the principles of his profession, while he was committed to his commitment regardless of the achieved result, The site (the service user) bears the burden of proving the error of the provider of the judicial system in this case, in other words, it should prove that the service provider should not do the

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(92)Al-Damiati, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 507, indicated in reference 1: In particular, see: Abdel Fattah Bayoumi Hegazy, Verifying the identity of the parties to the lawsuit in comparative legal systems, p. 219.

(93) Al-Damiati, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 507.

(94 )Al-Damiati, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 508, indicated in reference 1: See Ayman Saad Selim, verifying the identity of the parties to the case, p. 86.

necessary care according to the principles of his profession during his commitment to his commitment<sup>(95)</sup>.

A third aspect <sup>(96)</sup> is supported by the last opinion that the commitment of the service provider is often an obligation to pay the usual man's care, and his responsibility is not based unless he proves his neglect and shortening in taking reasonable care, and the victim falls on proving this.

**3- Agreement to amend the rules of contractual responsibility for the provider of the electronic judicial system:** The responsibility agreements mean those agreements that aim to regulate the effects of responsibility in a non-face that was organized in the law, and thus assumes the availability of all its elements towards the above mentioned<sup>(97)</sup>, and the original is the freedom of the contractors in Amending the effects of the responsibility arising on the violation of the contract that is within the limits of law, public order and morals, either by tightening responsibility, mitigation or exemption from it, but sometimes to define them <sup>(98)</sup>.

**A- Agreement to exempt the service provider from responsibility:** according to the general rules, it is permissible to agree to exempt the provider of the judicial system from his responsibility for the damages caused to the service user, so its effects are

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(95 )Moghadam, Zaid, (August 2014 AD), The Legal System of Electronic Documentation, Journal of Sharia, Law and Islamic Studies, Issue (24), p. 153.

(96) The seer al-Damiati, Tamer, returns. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 508.

(97 )Domiaty, Tamer. (2009 AD), Proof of Electronic Contracting via the Internet, First Edition, Cairo, op.cit., p. 508.: It is worth noting that the agreements subsequent to the occurrence of damage are considered as reconciliation contracts, and therefore the agreements we mean are the agreements prior to the occurrence of the damage. For more details, see: Zaki, Mahmoud, (1990 AD), Problems of Civil Liability, Part Two, Cairo University Press, p. 10 and beyond.

(98 )In this it is possible to be guided by the unified rules of conduct for the electronic exchange of commercial data using electronic transmission, and the most important of these elements are: 1- Risk distribution, which means determining who bears the burden of risks of using the electronic exchange system. 2- Limits of liability in the event of damage. 3- Signing, encryption and proof rules. 4- Data storage and record-keeping rules. 5- Conditions for maintaining data confidentiality. 6- Provisions related to resolving potential disputes such as arbitration clause. 7- Choosing the law governing an agreement. Electronic exchange in the event of a dispute between the parties. For more, see: Mamdouh Ibrahim, Khaled, (2006 AD) Conclusion of the electronic contract, Dar Al-Fikr Al-Jami, Alexandria, p. 133.

arranged in his disclosure despite the availability of all its elements, and therefore the service provider does not commit to compensating the user for what he commits. Follow it intentionally or serious mistakes in implementing the contract.

**B- Agreement on tightening the responsibility of the service provider:** The contractors may agree to tighten the contractual responsibility, for example, that the service provider and the site (the service user) agree on the first commitment to bear compensation for his failure to implement it even if it is due to a foreign reason.

**C- Agreement reduces the responsibility of the service provider:** The service provider may agree with the user to alleviate his responsibility, while remaining on the responsibility, so its impact is diminished before him and he is not obligated- according to that- except for partial compensation, and for example the agreement on the lack of responsibility of the service provider for the easy or trivial error, but it is. It remains responsible for the deliberate act and the grave error.

**D- Agreement to determine the responsibility of the service provider:** Agreement between the site (the user of the service) and the provider of the electronic judicial system can be determined to determine the responsibility of the latter. One of the value of the transaction in which the certificate of the judicial system is used and verify the personality of the parties to the case <sup>(99)</sup>.

**4- Cases of exemption of the provider of the judicial system from responsibility:** There are cases in which the judicial system's bodies usually require the exemption from the responsibility they bear in relation to certain cases, or this responsibility is required with specific restrictions, and the conditions for exemption from responsibility take or restrict several forms, including:- A- Restricting responsibility for a specific amount for each accident or for a set of accidents. By- the requirement of a higher ceiling for responsibility that does not exceed it, whether by determining it in a specific amount or a specific percentage. C- Excluding responsibility in the event of damage represented in the last gain, directly or indirectly. D- Excluding responsibility for accidental damage. E- Restricting responsibility to a certain limit of the value of the transaction in which the certificate of the judicial system is used. And- shortening responsibility for certain cases in which the certificate <sup>(100)</sup> is used, and its exclusion in other unaccounted cases.

It is worth noting that the English courts are accustomed - in cases of exemption from responsibility or restricting them - with the position of both parties to the contract on the

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(99) Domiaty, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 509.

(100) Al-Tamimi, Alaa, (2011 AD), electronic document, Dar Al-Nahda Al-Arabiya, Cairo, p. 214.

insurance against responsibility, taking into account that the judicial system is usually in a better position in terms of financial ability to insurance<sup>(101)</sup>, so insurance in the judiciary The English has a major role in the responsibility report and its extent<sup>(102)</sup>.

**Second: The negligent responsibility of the provider of the electronic judicial system services:** It is known that the responsibility is implemented towards those who violated the responsibility assigned to him. Any error that causes it, without this damage being caused by a breach of a contract commitment between the service provider and the unjust<sup>(103)</sup>. The French legal organization, and the Egyptian as well as the Yemeni, sets a general standard that governs the failure responsibility, which is the criterion of the error, which is considered to be the responsibility of that responsibility. Accordingly, the negligent responsibility is based on three elements: the error, the damage and the relationship of causation, and the burden of proving those elements falls on the responsibility of others who claim that the service provider's mistake has caused him harm, while the first pillar, which is the error and means deviation from the familiar behavior of the ordinary person in the same External conditions with the realization of the truth of this deviation, and as for the damage, which is the second pillar, it does not exist to deny the establishment of responsibility, which means that if there is no harm to others, the responsibility of the provider of the services of the deficient electronic judicial system is not established, and the burden of proving the occurrence of that damage is the responsibility of the victim, That is, the occurrence of the damage is a material incident, it is permissible to prove it in all methods of evidence, and finally the cause of causality between error and damage should be available, as it determines the verb the cause of the damage amid the various actions surrounding the accident and for this if it was proven that the illegal act that occurred by the defendant had no effect In the damage, the defendant is exempt from this responsibility.

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(101)Moghadam, Zaid, (August 2014 AD), The Legal System of Electronic Documentation, Journal of Sharia, Law and Islamic Studies, Issue (24), pg. 157, Al-Tamimi, Alaa, (2011), electronic document, Dar Al-Nahda Al-Arabiya, Cairo, p. 214.

(102) Al-Tamimi, Alaa, (2011 AD), electronic document, Dar Al-Nahda Al-Arabiya, Cairo, p. 214.

(103 )Law No. (40) of 2006 regarding payment systems and electronic financial and banking operations

,Domiaty, Tamer. (2009 AD), Proof of electronic contracting via the Internet, first edition, Cairo, previous reference, p. 511, reference 1: This responsibility is governed by the French civil code Article 1382, and it is governed by the Egyptian Civil Code 163, and the Yemeni Civil Law No. (14) for the year 2002 AD, Part Three, Chapter One, Tort Liability Article 304 and what follows.

However, the sender (others) will face many difficulties, until the error of the provider of the judicial system services is proven, due to the complexity of the emerging relationships to verify the personality of the parties to the case and its implementation in a information system, in addition to that, the addressee does not have the ability to reach the information system For the provider of the judicial system services, and therefore the sender will not be able to establish the evidence of the service provider's mistake directly and accurately<sup>(104)</sup>.

Consequently, there must be a party, which is to monitor the procedures of the electronic judicial system system in order to be shown on all the procedures that were carried out in the contract and verification of the personality of the parties to the case, in addition to making the burden of proof on the electronic system controlling.

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## DETERMINANTS OF INFLATION IN ETHIOPIA: AN AUTOREGRESSIVE DISTRIBUTED LAG (ARDL) APPROACH

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### ABSTRACT

*Inflation brings an economic instability and aggravates the level of poverty for any country if not controlled properly. However, although the average rate of inflation is higher in Ethiopia, due attention is not given yet now. Thus, this paper aimed at analyzing the major determinants that affect inflation in Ethiopia by using a 41 years' time series secondary data over the period 1980 to 2020. The paper used an Auto-Regressive Distributed lag (ARDL) model in order to analyze the long run and short run determinants of inflation. The finding of the study revealed that in the long run, gross domestic product, broad money supply and terms of trade are positively determining inflation while government expenditures determine it negatively and significantly. Similarly in short run, money supply and exchange rate determine inflation positively and significantly while government expenditures, interest rate and terms of trade determine it negatively and significantly. On the other hand, the speed of adjustment has a value of 0.719531 with negative sign, which indicates the convergence of inflation model towards long run equilibrium. Hence, besides, to have a birds eyes view on the above mentioned determinants of inflation, enhancing the volume and diversity of export and ensuring appropriate fiscal and monetary policies are the major policy recommendations.*

**Keywords:** Consumer price index, Auto-Regressive distributed lag model (ARDL), Ethiopia.

## 1. INTRODUCTION

### 1.1. Background

Inflation is a sustained and persistent rise in general price levels of goods and services. It has been emanated with the time of the use of money as a medium of transaction (Tadesse, 2020). It has been increased at an alarming rate during and after World War II since governments financed the war. Classical economists assumed three main theories on causes of inflation. The first theory was demand pull theory. According to this theory, the main source of inflation is the raise in aggregate demand over that of supply (Totonchi, 2015). The second theory was cost push theory. According to this theory,

inflation rises due to an increase in costs of production. The final type of theory is quantity theory of money. According to this theory, inflation rises due to an increase in money supply. Thus, if not controlled properly, an increase in average rate of inflation leads to an economic instability. Although an increase in inflation reduce economic growth, the average rate of inflation is still higher in Ethiopia due to the rise in money supply (Teamrat, 2017; Mebtu, 2020; Tadesse, 2020), real exchange rate (Mebtu, 2020; Tadesse, 2020) and gross domestic product (Teamrat, 2017; Mebtu, 2020). Thus, price stability and sustainable economic growth are considered as an essential macroeconomic goals.

The average rate of inflation in Ethiopia over the past 41 years (1980-2020) has been found at 9.7 percent with a maximum and minimum of 44.37% and -9.15% respectively. The maximum average rate of inflation was occurred in the year 2008 mainly due to a rise in food and non-food prices, international prices of oil and emergency of worst droughts. However, the minimum average rate of inflation was happened during 1987 mainly due to the presence of command economic systems. Besides, in the year 2020, the average rate of inflation in Ethiopia is 20.16 percent (WB, 2020). This figure is very high compared to the world and African average rate of inflation in the same year which was 5 and 9.32 percent respectively (IMF, 2020). Thus, double digit inflation has become troublesome for policy makers as well as the society and hence need to be reduced.

In Ethiopia, recently some researchers and scholars likes; Teamrat (2017), Tekeber *et al.* (2019), Mebtu (2020) and Tadesse (2020) were conducted their study on determinants of inflation. Specifically, study by Teamrat (2017) tried to identify the major determinants of inflation in Ethiopia by using a 39 years' time series data covering the period from 1975 to 2014. Similarly, study by Tekeber *et al.* (2019) tried to identify the supply and demand side determinant of inflation in Ethiopia by using only a 32 years' data spanning from 1985 to 2016. Hence, both studies cover a shorter time span and don't reflect the current situations on determinants of inflation in Ethiopia. Besides, Mebtu (2020) and Tadesse (2020) were also conducted their study on determinants and macroeconomic determinants of inflation in Ethiopia, respectively. However, study by Mebtu (2020) used only a 30 years' time series data covering the period between 1986 and 2016, which still doesn't reflect the current situation. Besides, his study does not take into account the importance of variables likes; terms of trade and interest rate in determining inflation in Ethiopia. Moreover, study by Tadesse (2020) also tried to identify the macroeconomic determinants of recent inflation covering only a 33 years data ranging from the year 1985 to 2018. Likewise, his study ignores the importance of terms of trade and government expenditure in determining inflation in Ethiopia. Hence, to fill this gap, this paper try to incorporate the consequences of important variables likes; terms of trade, government expenditure and interest rate on inflation.

Furthermore, to understand the trend of inflation over a period of time, this paper used a 41 years' time series data covering the period from the year 1980 to 2020 G.C. Besides, majority of the study conducted so far in Ethiopia were tried to analyze the impacts of inflation on other economic variables than determining the major determinants of inflation. Thus, to fill these gaps, this paper aimed to identify the major determinants of inflation in Ethiopia by using a more recent data and variables. The major research questions of the study were; what are the major determinants of inflation in Ethiopia? Is there a long run relationship between inflation and its determinants? and If so, how long does it take to adjust itself toward the long run equilibrium?

### 1.2. Objectives of the Study

The general objective of this study was to identify the major determinants of inflation in Ethiopia. The specific objectives of the study were:

1. To identify the determinants of inflation in Ethiopia and
2. To determine the long run relationship between inflation and its determinants

## 2. MATERIALS AND METHODS

### 2.1. Types and Sources of data

This paper has used a forty one years' time series secondary data that was collected from four different sources covering the period from 1980 to 2020 G.C. Specifically, the data for consumer price index (CPI), gross domestic product (GDP) and broad money supply (BMS) were obtained from National Bank of Ethiopia (NBE) while the annual data for exchange rate (ER) and terms of trade (TOT) were collected from World Bank (WB). Finally, the data for interest rate (IR) and government expenditure (TGE) were collected from International Financial Statistics (IFS) and Ministry of Finance and Economic development (MOFED), respectively.

### 2.2. Descriptions of Variables and their Hypothesis

After a thorough a review of the work of previous researchers and scholars on determinants of inflation, the following variables were hypothesized to affect inflation in Ethiopia.

#### Dependent variable

**Consumer Price Index (LnCPI):** It is proxy for inflation and a dependant variable for the model. It is also refers to the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services.

#### Independent Variables

**Gross Domestic Product (LnGDP):** It is proxy for market size. It is the log-value of nominal GDP in millions of birr. It is also used to capture the aggregate demand conditions in the economy. In another way, although there is a need to increase production to meet an increase in demand, an increase in production further cause to lowers unemployment rate and higher inflation. Similar arguments were made by

Teamrat (2017) and Jonse (2018). Hence the expected sign of GDP on inflation was positive (+).

**Broad Money Supply (LnBMS):** It is the sum of currency outside banks, narrow money, net demand deposit and quasi money in millions of birr. Quantity theory assumed that an increase in money supply leads to a rise in price levels due to a simultaneous increase in investment, the level of employment and an aggregate demand. Similar arguments were also made by scholars and researchers likes; Neumann and Ssozi (2016), Teamrat(2017), Jonse(2018) and Tekeber *et al.*(2019). Hence, with an increase in money supply, the people will have much money to pay for higher prices which further leads to higher inflation. Thus, the expected sign of money supply on inflation was positive (+).

**Exchange rate (LnER):** It is the value of domestic currency needed to buy a unit of foreign currency. The volatility of exchange rate affects price level of aggregate demand and supply. The increase in exchange rate push up foreign demand for domestic goods and services, causing volume of export and aggregate demand to move up. The increased in aggregate demand further made the domestic price to bid up. Similarly, it also raises a cost of imported inputs which will raise marginal cost and domestic price. Thus, due to this fact the effect of exchange rate on inflation was argued positively (Monfared and Akin, 2017; Tekeber *et al.*, 2019). Hence, exchange rate was expected to have a positive (+) effect on inflation.

**Government Expenditure (LnTGE):** It is the value of total government expenditure in millions of birr. Hence, an increase in government expenditures raises the volume of money injected to the public, which leads to higher inflation. Similar argument was made by the study of Mebtu(2020). Thus, for this paper, the government expenditure hypothesized to determine inflation positively.

**Interest rate (LnIR):-** It is the Proxy for cost of capital. Since interest rate is a measures of the opportunity cost of capital, inflation would expected to increase with a decline in interest rate. Besides, as interest rates are increased, consumers tend to save more because returns from savings are higher. Hence inflation decline with an increase in interest rate due to the slowdown in the economy. Similar argument was made by Tadesse(2020). Thus, interest rate would have expected to affect inflation negatively.

**Terms of trade (LnTOT):-** It is proxy for economic openness. It is obtained by dividing the export price index by the import price index. According to Prebisch-Singer hypothesis, emerging market and developing countries experienced a decline in terms of trade due to a decline in price of export relative to price of manufactured goods. Similarly, in most developing countries due to currency devaluation and scarcity of exports, more capital is leaving the country than entering to the country and hence, reduces terms of trade. Hence, exchange rate response to a change in the terms of trade

is crucial to the inflation outcome. Besides, inflation decreases with an increase in terms of trade due to rise in export price over that of import. Hence, terms of trade would have expected to affect inflation negatively.

### 2.3. Methods of Data Analysis

In this paper, prior to estimate Bound Tests for Co-integration, a unit root test were conducted by using Augmented Dickey- Fuller (ADF) test in order to identify order of integration. Then, an Auto-Regressive Distributed Lag (ARDL) bounds testing approach developed by Pesran *et al.* (2001) to modeling the long run determinants of inflation were used. This model is selected mainly since it does not require pre-testing of the series, correct for serial correlation and endogeneity problems (Pesaran and Shin, 1999; Jalil *et al.*, 2008), due to its sample properties (Nayaran, 2004), its possibility to capture different optimum number of length for different variables and its appropriateness for different level of integration as opposed to Engle and Granger (1987) and maximum likelihood based approach of Johansen and Juselius (1990) and Johansen (1991) co-integration techniques.

Therefore, an ARDL model can be specified as follows:

$$\begin{aligned} \Delta \text{LnCPI}_t = & \alpha_0 + \sum_{i=1}^p \alpha_1 \Delta \text{LnCPI}_{t-i} + \sum_{i=1}^q \alpha_2 \Delta \text{LnGDP}_{t-i} \\ & + \sum_{i=1}^q \alpha_3 \Delta \text{LnBMS}_{t-i} + \sum_{i=1}^q \alpha_4 \Delta \text{LnER}_{t-i} + \sum_{i=1}^q \alpha_5 \Delta \text{LnTGE}_{t-i} \\ & + \sum_{i=1}^q \alpha_6 \Delta \text{LnIR}_{t-i} + \sum_{i=1}^q \alpha_7 \Delta \text{LnTOT}_{t-i} + \gamma_1 \text{LnCPI}_{t-1} + \gamma_2 \text{LnGDP}_{t-1} \\ & + \gamma_3 \text{LnBMS}_{t-1} + \gamma_4 \text{LnER}_{t-1} + \gamma_5 \text{LnTGE}_{t-1} \\ & + \gamma_6 \text{LnIR}_{t-1} + \gamma_7 \text{LnTOT}_{t-1} + \mu_t \end{aligned} \quad (1)$$

Where,  $\Delta$  refers the first difference of a variable, Ln is the natural logarithms,  $\alpha_0$  is a constant p and q are the maximum lag order for dependent and independent variables,  $\alpha_1, \dots, \alpha_7$  refers the short run coefficient,  $\gamma_1, \dots, \gamma_7$  correspond to the long-run relationship, i refers time trend, and  $\mu_t$  is the white noise error.

The short run error correction form of the series can be specified as follows:

$$\begin{aligned}
\Delta \text{LnCPI}_t = & \alpha_0 + \sum_{i=1}^p \alpha_1 \Delta \text{LnCPI}_{t-i} + \sum_{i=1}^q \alpha_2 \Delta \text{LnGDP}_{t-i} \\
& + \sum_{i=1}^q \alpha_3 \Delta \text{LnBMS}_{t-i} + \sum_{i=1}^q \alpha_4 \Delta \text{LnER}_{t-i} + \sum_{i=1}^q \alpha_5 \Delta \text{LnTGE}_{t-i} \\
& + \sum_{i=1}^q \alpha_6 \Delta \text{LnIR}_{t-i} + \sum_{i=1}^q \alpha_7 \Delta \text{LnTOT}_{t-i} + \partial \text{ECM}_{t-1} \\
& + \mu_t
\end{aligned} \quad (2)$$

Where  $\partial$  the speed of adjustment process and ECM is the residuals obtained from equation (1) while other variables remain as defined above. The coefficient of the lagged error term is expected to be negative and statistically significant to further support the existence of a co-integrating relationship.

### 3. RESULTS AND DISCUSSIONS

#### 3.1. Trends of Inflation in Ethiopia

The trends of inflation in Ethiopia from the year 1980 to 2020 are presented in the following figure1.

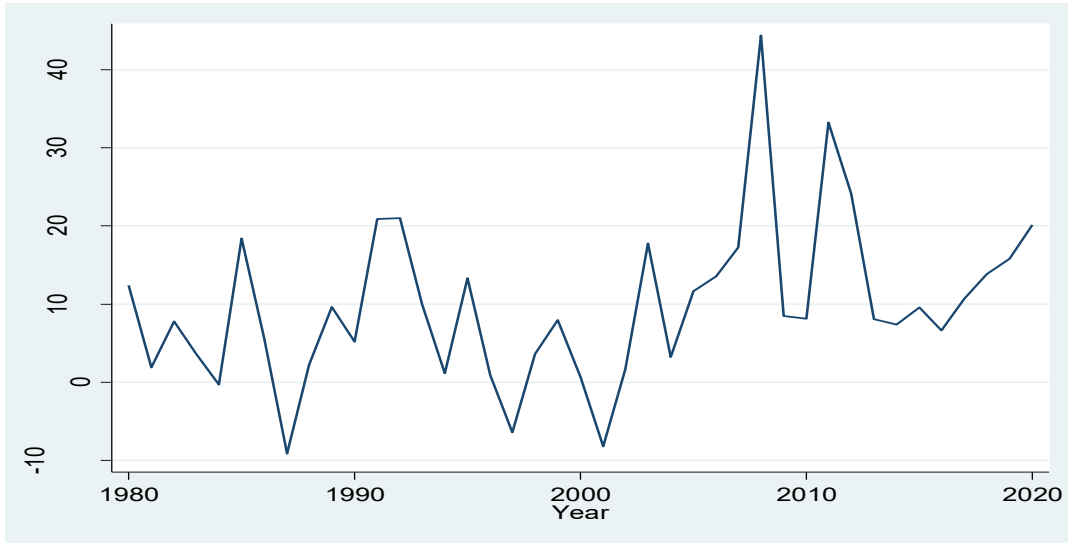


Figure 1: Trends of average Inflation rate

Source: Model Output, 2020

Inflation in Ethiopia is distinguished by the successive ups and down circumstances (Fig.1). The minimum and maximum average rates of inflation during the year 1980 to 2020 are negative 9.15 and positive 44.37 percent, respectively. The maximum level of inflation occurred in the year 2008 mainly due to a rise in food and non-food prices, international prices of oil and emergency of worst droughts. However, the minimum

average rate of inflation was happened during 1987 mainly due to the presence of command economic systems that possess a direct control of the monetary authorities.

### 3.2. Tests and their results

Prior to estimation of the model to be used for the final analysis, a unit root, co-integration, diagnostic and parameter stability tests were conducted.

#### 3.2.1. Unit root tests

It is essential to determine the optimal lag length of each variable included in the model before conducting a unit root tests. Hence, an optimal number of lags were estimated and summarized in the following Table 1.

**Table 1. Optimal lag length selected by AIC**

Variables	Optimal Lag Length
LnCPI	1
LnGDP	1
LnBMS	2
LnER	2
LnGE	2
LnIR	1
LnTOT	1

Source: Model Output, 2020

According to Lutkepohl (2006) the dynamic link among the series can be captured if proper lags are identified and used. In this paper, the optimal lag length for each variable is determined by using the Akaike information criterion (AIC) so that the selected model is ARDL (1, 1, 2, 2, 2,1,1). Thus, for unit root test and ARDL approach, a maximum lag of order one were used for the analysis.

**Table 2. Result of unit root test using ADF**

Variables	ADF results at their level form		ADF results at the first difference form		Order of integration
	With constant only	With constant and trend	With constant only	With constant and trend	
LnCPI	0.0198887	-0.0723011	-0.759091***	-0.9151027***	I(1)
LnGDP	0.0408616**	-0.0201733	-0.4835091**	-0.8883033***	I(1)
LnBMS	0.0081238	-0.026763	-0.2825768**	-0.4897719**	I(0)
LnER	0.0075916	-0.2196165**	-0.6074165**	-0.6308369***	I(1)
LnGE	-0.031908	-0.5070445**	-0.8302391***	-0.9963459***	I(1)
LnIR	-0.2458451**	-0.2841852**	-1.03411***	-1.038715***	I(1)
LnTOT	-0.3514834**	-0.3608049**	-1.432922***	-1.432336***	I(1)

Note:\*\* and \*\*\* represents significance at 5% and 1% level of significance respectively

Source: Model Output



The result of Augmented Dickey-Fuller(ADF) test in Tables 2 above revealed that except LnBMS, all variables are found to be non-stationary at level and stationary at first difference at the conventional 1% and 5% level of significance. Thus, while LnBMS is found to be  $I(0)$ , the others variables are found to be  $I(1)$ . Hence, an ARDL bounds testing approach, which do not require same order of integration for all variables, were used as opposed to Johansen co-integration test.

### 3.2.2. Bound Tests for Co-integration

Co-integration test is applied to examine the existence of long run equilibrium relationship among variables included in the model. Results of bound test procedure for co-integration analysis between inflation and its determinants are presented in table 3 below. The test under ARDL involves the comparison of the F-statistics against its critical values.

**Table 3. ARDL bounds test for Co-integration**

Test statistic	Value	Critical value bounds			Inferences
		I(0) bound	I(1) bound	Significance (%)	
	4.659	2.12	3.23	10	Exist Relationship
		2.45	3.61	5	Exist Relationship
		2.75	3.99	2.5	Exist Relationship
		3.15	4.43	1	Exist Relationship

Note:  $H_0$ : No long run relationships exist

Source: Model Output, 2020

The null of no co-integration is tested against the alternative using the F-test with critical values tabulated by Pesaran *et al.* (2001). Hence, since the calculated F-static (4.659) is greater than the upper bound critical values 4.43 at 1% level of significance, the null hypothesis of no co-integration is rejected (Table 3). Therefore, there is a long run co-integration relationship between inflation and its determinants.

### 3.2.3. Diagnostic Test

The selected model is well specified if it pass the diagnostic tests. Hence, prior to estimate long run and short run model, the following diagnostic tests were conducted.

**Table 4. Diagnostic tests of the ARDL inflation model**

Tests	Statistics	P-value
Ramsey RESET test (F-statistic)	1.60	0.2104
Breusch-Godfrey LM test for autocorrelation	1.572	0.2099

White's test	40.00	0.4256
Normality test of the residual-Jarque-Bera test	0.8796	0.6442
Durbin Watson d-statistic		2.214242

Source: Model Output

The results of diagnostic tests in Tables 4 above indicate that there is no problem of omitted variables, autocorrelation and heteroskedasticity. Besides, the value of Jarque-Bera test indicates as errors are normally distributed. Thus, all the assumptions are satisfied indicating that the models are reliable.

### 3.2.4. Test for Parameter Stability

The parameter stability of the model for long run and short run relationship is detected by using the cumulative sum of recursive residuals (CUSUM) and Cumulative sum of square (CUSUMSQ) tests.

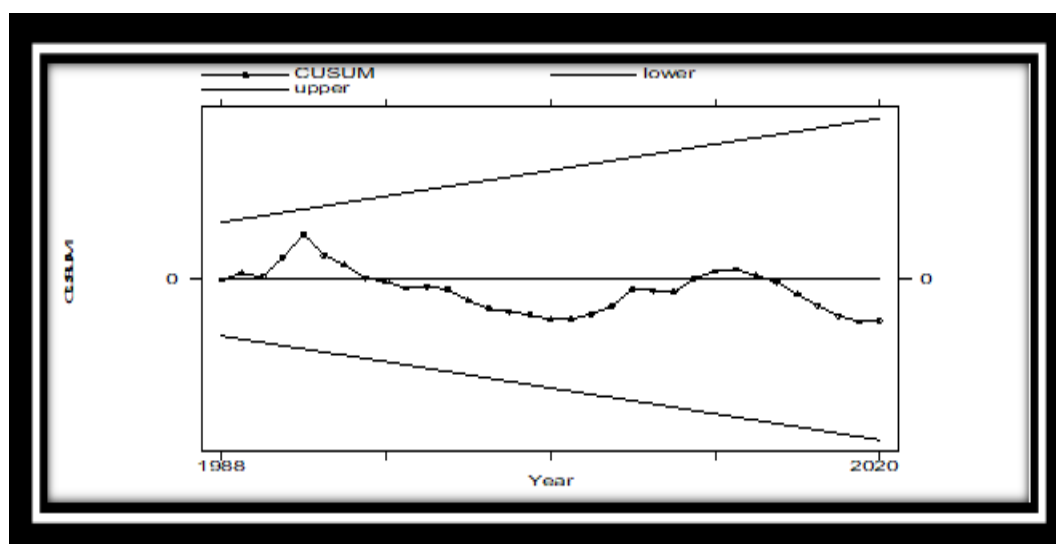


Figure 2: Cumulative Sum of Recursive Residuals

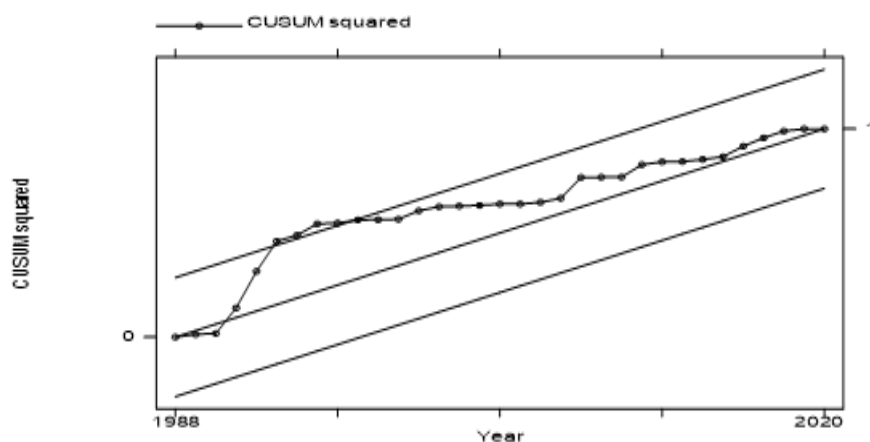


Figure 3: Cumulative Sum of Squared test

As it has been seen from the above two figures, the plot of CUSUM test did not cross the critical limits. Similarly, the CUSUM squared test also shows that the graphs don't cross the lower and upper critical limits. Hence, the parameters of the model are stable in long-run estimates and there is no any structural break.

### 3.3. Econometric model Results

#### 3.3.1. Long run ARDL model

Having established long run co-integration relationships between inflation and its determinants, the long-run parameters of the ARDL are estimated and the results are presented in the following table 5 below.

**Table 5. Estimated result of Long Run ARDL Model**

ARDL(1, 1, 1, 1, 1, 1) selected based on AIC				
Variables	Coefficient	Std. Err.	t-statistics	P-value
LnGDP	0.2238341**	0.110571	2.02	0.053
LnBMS	0.4573016**	0.13695	3.34	0.003
LnER	-0.062193	0.095785	-0.65	0.522
LnTGE	-0.111131**	0.053481	-2.08	0.048
LnIR	-0.044321	0.058116	-0.76	0.453
LnTOT	0.4740198**	0.210616	2.25	0.033

Where \*\* represents level of significance at 5%

#### Source: Model Output

From table 5 above, except LnER and LnIR, all explanatory variables are statistically significant in the long run. Thus, the discussions of each significant variable are presented as follows:

**GDP(LNGDP):** The coefficient on nominal GDP is statistically significant at 5% level of significance suggesting that if nominal gross domestic product is increased on average by 1%, consumer price index will also increased by 0.22% in long run. The result is in line with the hypothesis made. Hence, even though there is a need to increase production to meet an increased demand, an increased in production further cause higher spending in order to reduce the level of unemployment and hence, higher inflation. This result is also consistent with the finding of Shahadudheen (2012), Teamrat(2017) and Jonse(2018). However, it contradicts with the finding of Almahdi *et al.* (2018) and Mebtu (2020).

**Broad Money supply (LnBMS):** The coefficient for broad money supply is also positive and statistically significant at 5% level in the long run. Hence, an increase in broad money supply by one percent ceteris paribus will increase consumer price index by 0.457 percent on average in the long-run. It inline with the hypothesis made. This result is also in line with classical economists' view of quantity theory of money.

Accordingly, an increase in money supply leads to a rise in price levels. Consequently, a higher money supply will lead to more investment in the economy, which further raises the level of employment and an aggregate demand. Thus, as a result of increased employment and aggregate demand, consumer price index will also rise. Similarly, with an increase in money supply, the people will have much money to pay for higher prices which further leads to higher inflation. This result is also consistent with the finding of Alemayehu and Kibrom(2011), Durevall and Sjo(2012), Nguyen *et al.*(2012), Shahadudheen (2012), Assefa(2013), Durevall *et al.*(2013), Uddin *et al.*(2014), Jiang *et al.*(2015), Nguyen *et al.* (2015), Ojede(2015), Neumann and Ssozi(2016), Teamrat(2017), Jonse(2018), Almahdi *et al.*(2018), Mohamed and Hatem(2019), Tekeber *et al.*(2019), Mebtu (2020), Syed and Akhtar (2020) and Tadesse(2020). However, it contradicts with the finding of Sasmal(2015).

**Government Expenditure (LNTGE):** The coefficient for government expenditure is negative and statistically significant at 5% level in the long run. Hence, an increase in government expenditure by one percent *ceteris paribus* will decrease consumer price index by 0.11 percent on average in the long-run. However, it is contradicted with hypothesis made may be due to demand pull inflation theory. Thus, an increase in government expenditure on developmental project leads to more investments which further cause a rise in production of goods and services and hence lower inflation rate. This result is also consistent with the finding of Narayan *et al.* (2011), Lin and Chu (2013), Solomon(2013), Almahdi *et al.*(2018) and Jonse(2018). However, it contradicts with the finding of Tekeber *et al.*(2019), Syed and Akhtar(2020) and Mebtu (2020).

**Terms of Trade (LNTOT):** The coefficient for terms of trade which refers to the ratio of export price to import price at time  $t$ , is also positive and statistically significant at 5% level in the long run. This indicates that, in the long run, holding other factors constant, a one percent increase in terms of trade leads to a 0.47 percent increase in consumer price index. It is against the hypothesis made may be due to devaluation of domestic currency as a result of increase in exchange rate. This result is also consistent with the finding of David and Jacqueline(1996) which demonstrates a threshold for exchange rate response. According to their finding, the rise in terms of trade raises inflation if the rise in exchange rate is less than about  $1/3-1/2$  of the rise in the terms of trade. Therefore, in long run a rise in terms of trade, *ceteris paribus*, raises consumer price index on goods and services.

### 3.3.2. Short run ARDL model of Inflation in Ethiopia

The results of error correction of the ARDL model and the short-run relationships of the variables were presented in table 6 below. The first difference of LNTGE and LnTOT are negative and statistically significant at 5% level of significance in short run. Besides, in level form similar to long run, four variables out of six explanatory variables

are also statistically significant in the short run. Among them, LnTOT are negative and statistically significant both at level and first difference form.

The result of lagged error term ECT (-1) is also negative and statistically significant at 1% level of significance confirms the existence of long run relationship between the variables. The value of the coefficient for the error correction term is found to be negative 0.719531. Hence, the deviation from the long-run equilibrium is corrected at the speed of 71.95 percent over each year implies that there is “an over correction” toward long run equilibrium after a short run shock.

**Table 6. Result of Short Run Model using the ARDL Approach**

ARDL(1, 1, 1, 1, 1, 1, 1) selected based on AIC				
Variables	Coefficient	Std.Err.	t-statistic	P-value
D(LnGDP)	0.1503221	0.134133	1.12	0.273
D(LnGDP(-1))	0.0594453	0.161203	0.37	0.715
D(LnBMS)	0.460039*	0.262753	1.75	0.092
D(LnBMS(-1))	0.043577	0.335697	0.13	0.898
D(LnER)	0.259798*	0.144452	1.8	0.084
D(LnER(-1))	-0.064805	0.2063	-0.31	0.756
D(LnTGE)	0.036552	0.023656	1.55	0.134
D(LnTGE(-1))	-0.313302**	0.148641	-2.11	0.045
D(LnIR)	-0.115063*	0.058677	-1.96	0.061
D(LnIR(-1))	-0.053312	0.058512	-0.91	0.371
D(LnTOT)	-0.261629*	0.153485	-1.7	0.100
D(LnTOT(-1))	-0.294774**	0.160618	-1.84	0.078
C	-4.442954**	2.007193	-2.21	0.036
ECT(-1)	<b>-0.719531***</b>	<b>0.201567</b>	<b>-3.5</b>	<b>0.001</b>

**Source: Model Output**

The discussions of each significant variables are presented as follows:

**Money Supply(LNBMS):** Like in long run, in short run the coefficient of money supply is positive and statistically significant at 10% level of significance. Hence, assuming other factors remain constant, an increase in money supply by one percent will increase consumer price index by 0.46 percent on average in the short run. The short run result also supports the arguments of quantity theory of money which stated that an increase in money supply always raises price levels. Hence, increased in money supply, increased the average rate of inflation in Ethiopia. This result is also consistent with the finding of Solomon (2013), Nguyen *et al.* (2015), Ojede(2015), Teamrat(2017) and Jonse(2018). However, it is contradict with the finding of Sasmal(2015).

**Exchange Rate (LnER):** The coefficient for exchange rate is also positive and statistically significant at 10% level of significance in the short run. Hence, keeping

other factor constant, an increase in exchange rate by one percent will increase consumer price index by 0.259 percent on average in the short-run. Since the volatility of exchange rate affects price level of aggregate demand and supply, the raise in exchange rate raises the level of inflation. In another words, a raise in exchange rate push up foreign demand for domestic goods and services, causing volume of export and aggregate demand to raise. The increased in aggregate demand further made the domestic price to bid up. Similarly, exchange rates could also affect prices paid by the domestic buyers for imported goods. Hence, it brought higher cost of imported inputs which will raise marginal cost and domestic price. This result is also consistent with the finding of Monfared and Akin (2017), Tekeber *et al.*(2019), Tadesse(2020) and Mebtu(2020). However, it contradict with the finding of Almahdi *et al.*(2018).

**Government Expenditure (LNGE):** The coefficient for government expenditure is negative and statistically significant at 5% level at first difference in the short run. Negative and statistical significant result reveals that keeping other factors remain constant, an increase in government expenditure by one percent will decrease consumer price index by 0.31 percent on average in the short run. It is also against that of the hypothesis made. This is may be due to the fact that an increase in government expenditure on developmental projects may generate more investment and production of goods and services and hence, lower inflation rate. This result is also consistent with the finding of Narayan *et al.*(2011), Lin and Chu(2013), Solomon(2013) and Jonse(2018). However, it contradicts with the finding of Tekeber *et al.* (2019), Mebtu (2020) and Syed and Akhtar (2020).

**Interest Rate (LnIR):** The coefficient for interest rate is also negative and statistically significant at 10% level of significance in the short run suggesting that keeping other factors remain constant, an increase in interest rate by one percent, on average, will decrease consumer price index by 0.11 percent. It is also in line with the hypothesis made. Hence, as interest rates are increased, consumers tend to save more because returns from savings are higher. Hence inflation declines with an increase in interest rate due to the slowdown in the economy. This result is also consistent with the finding of Syed and Akhtar(2020) and Tadesse(2020). However, it contradict with the finding of Solomon (2013) and Jonse(2018).

**Terms of trade (LnTOT):** In short run, the coefficient for terms of trade is also negative and statistically significant at 10% and 5% level of significance both at level form and first difference respectively. It is consistent with the hypothesis made. This may be due to the rise in export price index which may happen because of an increase in the volume and diversity of exported commodity over that of import price index. Similarly, according to David and Jacqueline (1996), the rise in terms of trade reduces inflation if the rise in exchange rate is greater than about 1/3–1/2 of the rise in the terms

of trade at least in the short run. Hence, in short run, keeping other factors remain constant, an increase in terms of trade reduces inflation.

#### **4. CONCLUSION AND POLICY IMPLICATIONS**

The rises in inflation bring an economic instability in many countries including Ethiopia. Thus, price stability and sustainable economic growth are considered as an essential macroeconomic goal of any country. However, in Ethiopia, even though an increase in inflation reduces economic growth and aggravates the level of poverty, its average rate is still higher and hence, necessitates an identification of the root causes of inflation. Therefore, this paper aimed to identify the major determinants of inflation in Ethiopia using a 41 years' time series data that has been collected from 1980 to 2020 G.C.

An Auto-Regressive Distributed Lag (ARDL) bounds testing approach was employed in order to identify the long run and short run determinants of inflation,. The finding of the study revealed that in the long run, gross domestic product, broad money supply and terms of trade are positive and statistically significant factors in determining average rate of inflation in Ethiopia while government expenditures determine it negatively and significantly. Hence, in long run, an increase in gross domestic product, money supply and terms of trade raises the level of inflation whereas an increase in government expenditures on valuable developmental projects decreases the level of inflation in Ethiopia. Similarly, in the short run, money supply and exchange rate determine inflation positively and significantly while government expenditures, interest rate and terms of trade determine it negatively and significantly. Hence, in short run, an increase in money supply and exchange rate increases the level of inflation in Ethiopia. Conversely, a rise in government expenditure, interest rate and terms of trade reduces the average rate of inflation in Ethiopia. Moreover, money supply, terms of trade and government expenditure affect inflation both in the long run and short run. Hence, inflation is a monetary phenomenon in Ethiopia. However, even though terms of trade determine inflation positively in the long run, it determines negatively both at level form and first difference in short run.

The result of lagged error term ECT (-1) is also negative and statistically significant as expected. Hence, it confirms the existence of long run relationship between the variables. Moreover, the value of its coefficient is found to be negative 0.719531. Thus, the deviation from the long-run equilibrium is corrected at the speed of 71.95 percent over each year implies that there is “an over correction” toward long run equilibrium after a short run shock.

To reduce the level of inflation in Ethiopia, the following policy implications that were emanated from the results of the study are forwarded.

- ✓ The positive and significant coefficients of GDP in the long run, suggests the need for macroeconomic policy reforms through enhancing the volume of export to foreign countries.
- ✓ Money supply determine inflation positively both in short run and long run. Hence, it is required from the government to reduce the volume of money supply without influencing economic growth through appropriate monetary policy.
- ✓ Exchange rate determines inflation positively and significantly. Hence, it is advisable to the National bank of Ethiopia to focus on exchange market which adds value to the real sector. Besides, in order to control inflation due to currency devaluation, it is expected from the NBE to work on fixing the exchange rate in collaboration with its trading partner.
- ✓ Interest rate has also negative and significant coefficient in the short run. Hence, in order to reduce inflation, the rate of interest has to be increased through appropriate fiscal policy.
- ✓ Finally, in order to fully exploit from the benefits of terms of trade and promote economic growth, the government should attempt to diversify and promotes exports through community participations.

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## MACHINE LEARNING-BASED NVIDIA STOCK PRICE PREDICTION USING AUTOTS

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### ABSTRACT

*The stock market's inconsistency makes the decision essential and the investment dangerous. In this study, we propose a machine learning-based technique for forecasting NVIDIA Corporation stock prices using historical stock data and financial factors. Autots is a Python time series tool that generates financial market forecasts using AI and deep learning techniques. The main objective of this research is to demonstrate the utilization of Autots in examining Nvidia stock prices and forecasting future performance. Experiments are done out using historical NVIDIA Corporation stock prices, and the effectiveness of the proposed approach is analyzed. This work can be used as a reference for investors and traders making investment decisions, as well as a basic model for stock forecasts.*

*Keywords: Machine Learning, Stock market, forecasting, python*

### INTRODUCTION:

NVIDIA Corporation is a leading chipmaker in the world and its stock price is highly influenced by the demand for its products. The company manufactures computer chips that can be found in nearly every device made by the world's biggest names, including Apple, Dell, and Google. To predict stock prices with effective information has always been a problem of great significance in the field of behavioral finance.

The field of stock market prediction has seen significant advancements in recent years, with the integration of advanced machine learning techniques. One such technique that has been gaining popularity is the use of Automated Time Series models, also known as Autots. The library is constructed on top of well-known Python libraries like pandas, NumPy, and sci-kit-learn, which offer the essential capability for feature engineering and data manipulation. In order to create and train neural networks for forecasting, Autots also uses deep learning frameworks like TensorFlow and Keras.

Due to the frequent and significant fluctuations in the share market, these machine learning algorithms for price prediction are also, regrettably, not entirely reliable. The Random Walk hypothesis, put out by French mathematician Louise Bachelier, asserts that stock price actions have the same distribution and are impartial toward one another. Therefore, it is difficult to make predictions about future charge moments using historical data. The researcher is accessible to obtain the way to detect the trends and

patterns for share market forecasting, even if it is impossible to obtain a result that is 100 percent correct. In order to produce the most accurate outcomes, the Autots model is designed to understand and learn how the stock market operates.

The accuracy of stock price prediction has significantly increased with the introduction of cutting-edge technology like artificial intelligence and machine learning. In this study, we'll concentrate on utilizing Autots, a cutting-edge AI tool, to forecast how Nvidia stock prices will fare in the future. The study's purpose is to analyze how successfully Autots examines previous stock prices and provides credible projections for future stock values. Through this research, we hope to elucidate on the potential of Autots in the domain of stock price prediction and its potential applications in the financial industry.

### **LITERATURE REVIEW:**

Mohammad et al paper[1], investigate the link between dividend policy and share price volatility in consumer goods businesses. The main regression model was expanded by introducing control variables like as size, earnings volatility, leverage, debt, and growth. The study's empirical findings revealed a substantial negative association between share price volatility and two key measures of dividend policy: dividend yield and dividend payout. Furthermore, a substantial inverse link between share price volatility and size is seen.

Chun-Hung et al paper[2], discusses three techniques—LSTM, Seq2seq, and WaveNet—that are used. The author evaluates how well various deep-learning techniques predict stock prices. As a performance indicator, the author compares the correlation between the anticipated price and the actual price to assess how well the strategies work. They conclude WaveNet outperforms the other two methods. In addition, contrary to the common perception that stock prices are difficult to predict, the author finds that some stocks actually can be predicted with a certain level of accuracy.

Bate et al paper[3], employed the hybrid sequential GANs model, which used several recurrent neural networks in the generator and discriminator parts of the GANs (RNN, LSTM, and GRU). They created three training methods and used the S&P 500 data to train them. The study uses two assessment techniques: classification accuracy for the buy, hold and sell strategies, and various loss functions (RMSE, MAE). Through trials, it has been demonstrated that hybrid sequential GANs outperform single algorithm prediction research in terms of stock prediction.

The author, Dou Wei's paper[4] study investigated and assessed a number of neural network prediction approaches before settling on the LSTM (Long Short-Term Memory) neural network based on the demand for stock price prediction and the practical issues it encounters. It has been shown that investors heavily rely on previous data when making investing decisions. Opening and closing prices have traditionally

been utilized as important new financial market indicators, but severe maxima and minima may offer further insight into future price behavior. The findings demonstrate that even though the LSTM neural network model has several drawbacks, such as the temporal lag of prediction, it is still capable of forecasting stock values when using an attention layer. Its core idea is to determine the function of time series by examining historical stock market data and to thoroughly investigate its underlying rules using the sophisticated deep learning selective memory feature of the LSTM neural network model in order to anticipate stock price trends.

Liu keyan et al paper[5] created daily social networks using data collected from EastyMoney, China's largest social media site, on individuals and the stocks they followed. After that, they added the network variable for each stock to the conventional variables and used the LSTM model to forecast the close prices of the SSE 50 member stocks. The empirical findings demonstrate that the social network variable may significantly raise the accuracy of predictions. Our findings can aid investors in increasing forecasting precision. Their findings can aid investors in better comprehending how social networks and stock values are related.

### METHODOLOGY:

The share price of Nvidia may be predicted using a variety of machine-learning techniques. However, in this research, the author utilized Python's autots package to estimate Nvidia Corporation share prices using machine learning.

To forecast future stock prices, the author first obtained a collection of historical Nvidia stock price data from Yahoo Finance. The procedure is started by the author importing the dataset into the Jupyter notebook together with the essential libraries, including NumPy, Pandas, Matplotlib, Seaborn, and Autots.

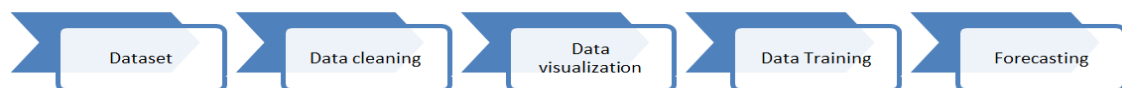


Fig 1. Architecture of model

The values in the dataset that we want to forecast the future values of are those in the "close" column.

	Date	Open	High	Low	Close	Adj Close \
0	2022-01-20	253.039993	255.789993	240.779999	241.500000	241.274384
1	2022-01-21	235.070007	248.229996	232.630005	233.740005	233.521637
2	2022-01-24	223.300003	233.800003	208.880005	233.720001	233.501648
3	2022-01-25	225.460007	229.429993	220.000000	223.240005	223.031464
4	2022-01-26	232.399994	240.570007	223.000000	227.720001	227.507278
5	2022-01-27	235.679993	239.949997	216.750000	219.440002	219.235001
6	2022-01-28	220.119995	228.580002	212.960007	228.399994	228.186615
7	2022-01-31	231.820007	245.089996	230.520004	244.860001	244.631241
8	2022-02-01	251.039993	251.449997	238.899994	246.380005	246.149826
9	2022-02-02	257.940002	258.170013	245.529999	252.419998	252.184174

Fig 2. Nvidia stock data



Fig 3. Current stock price chart

**Result outcome:**

Nvidia_Stock_Price_Prediction	
	Close
2023-01-20	167.649994
2023-01-23	168.934982
2023-01-24	169.359686
2023-01-25	169.782331
2023-01-26	170.202770
2023-01-27	170.620856
2023-01-30	171.859553
2023-01-31	172.266785
2023-02-01	172.670948
2023-02-02	173.071900
2023-02-03	173.469503
2023-02-06	174.640835
2023-02-07	175.023669
2023-02-08	175.402474
2023-02-09	175.777119

Fig 4. Forecasting Stock price

After the training and forecasting process, the result has been obtained which is shown in fig 4. The solution includes future dates and close prices which can be used by many businessmen and novice traders to trade an enormous amount of profit in the stock. But this model is not capable to calculate unforeseen events (such as natural disasters, political events, wars, and economic recessions), data availability, non-stationarity, and noise in the data.

## CONCLUSION

In conclusion, this research aimed to examine the effectiveness of machine learning models in predicting Nvidia stock prices. Through the use of the Autots library in Python, we trained and tested a variety of models on historical Nvidia stock prices and evaluated their performance using a number of evaluation metrics.

The results showed that machine learning models can provide almost accurate predictions of future Nvidia stock prices, with deep learning models performing better than traditional statistical models. However, it is important to note that stock price prediction is a challenging task that is affected by a wide range of factors, such as data availability, non-stationarity, overfitting, noise in the data, real-time prediction, and unforeseen events.

Despite these limitations, the results of this research demonstrate the potential of machine learning models in the field of stock price prediction. The use of machine learning models can aid investors in making informed decisions and can be used in the financial industry.

Future research can be focused on improving the performance of machine learning models by incorporating more data, feature engineering, and new techniques. Additionally, the integration of real-time news and sentiment analysis can be a great addition to stock price prediction models as it may help to capture the impact of unforeseen events on stock prices.

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### INTRODUCTION

It is well recognized that the excellence and degree of beginner attainment are gritty above all by educator ability, compassion and teacher inspiration. The National Council for Teacher Education has distinct teacher learning as a programme of tutoring, do research and instruction of people to instruct from pre primary to privileged edification level. Meaning Teacher education refers to the policy and events designed to equip prospective teachers with the knowledge, attitudes, behaviors and skill they need to do their everyday jobs efficiently in the classroom, school and wider group of people. Teacher education is a programme that is connected to the growth of teacher skill and capability that would enable and authorize the teacher to meet the supplies of the line of work and face the challenge there in.

According to Goods Dictionary of Education Teacher education means, all the official and non official behavior and experience that help to meet the criteria a being to take for granted everyday jobs of a member of the instructive profession or to free his everyday jobs more efficiently. In 1906-1956, the agenda of teacher training was called teacher training. It ready teachers as workings or technicians. It had narrower goals with its center being only on skill preparation. The viewpoint of teacher teaching was therefore very fine and its scope was imperfect.

As W.H. Kilpatrick put it, —Teaching is given to flora and fauna and circus performers, while teaching is to person beings. Teacher tutoring includes teaching talents, sound educational theory and specialized skills.

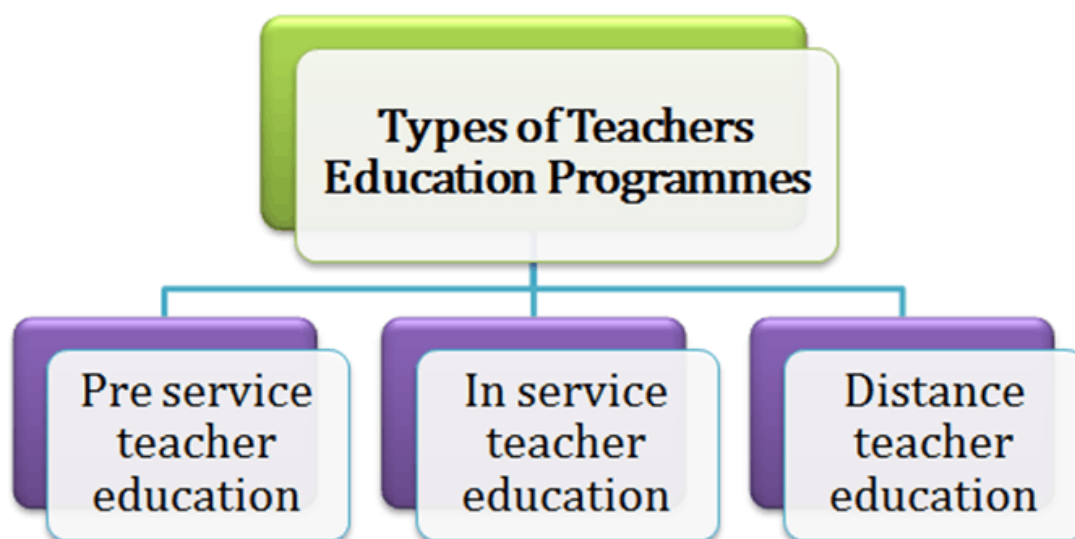
**Teacher Education = Teaching Skills + Pedagogical theory + Professional skills.**

Teaching skills would contain as long as guidance and live out in the diverse practice, come near and approach that would help the trainer to chart and convey coaching, provide apposite underpinning and carry out helpful review. It includes effectual classroom organization ability, grounding and use of instructional materials and statement skills educational theory comprises the theoretical, sociological and mental consideration that would allow the teachers to have a sound foundation for working the teaching skill in the classroom. The hypothesis is stage exact and is based on the wants and supplies that are trait of that stage. Specialized skills take in the technique, strategy and approach that would aid teachers to raise in the vocation and also work towards the

development of the job. It includes soft skill, psychotherapy skills, interpersonal skills, computer skills, in order retrieve and organization skill and on top of all lifelong learning skills. An amalgamation of teaching skills, pedagogical theory and expert skills would serve to create the right data, attitude and skill in teachers, thus promote holistic development Nature of Teacher Education

1) Teacher education is a continuous process and its pre service and in service components are complimentary to each other. According to the International Encyclopedia of Teaching and Teacher education (1987), —Teacher education can be considered in three phases:

Preservice, Induction and Inservice. The three phases are considered as parts of a continuous process.



2) Teacher teaching is based on the conjecture that —Teachers are complete, not born in differing to the postulation; —Teachers are natural, not completed. Since teaching is measured an skill and a discipline, the coach has to gain not only awareness, but also skill that are call —tricks of the trade.

3) Teacher education is broad and comprehensive. Besides pre service and in- service programmes for tutor, it is destined to be concerned in various group of people programmes and additional room behavior, viz adult teaching and non formal teaching programmes, literacy and growth behavior of the civilization.

4) It is ever developing and lively. In order to get ready tutor who are capable to face the challenge of the lively civilization, Teacher teaching has to stay side by side of fresh developments and trends.

5) The crux of the entire process of teacher teaching lies in its syllabus, plan, organization, club and deal modes, as well as the amount of its suitability.

6) As in other proficient education programmes the coach instruction syllabus has a familiarity base which is insightful e to the needs of field application and comprise important, theoretical amalgamation of theoretical understanding available in several cognate disciplines.

7) Teacher tutoring has become makes different into stage- definite programmes. This imply that the understanding base is satisfactorily expert and diversified across phase, which should be used for rising effectual process of preparing applicant educator for the purpose which a educator is predictable to do at each phase.

8) It is schemes that engages an interdependence e of its contributions, Processes and productions. Definition and denotation of Teacher Education Good"s dictionary of schooling defines Teacher schooling as "All recognized and recognized behavior and practices that help to meet the requirements to a person to presuppose the job as a member of the instructive occupation or to liberation his dependability most successfully".



**Objectives of Teacher Education at Elementary stage**

The objectives of teacher learning at basic period are such that it helps the person to possess information of first and second verbal communication, mathematics, topics connected to social and natural sciences.

Enlarge skills to make out, decide on and organize education understanding pertaining to subjects declared more than and also the skills to carry out them.

Hold academic and no-nonsense acquaintance in deference of the kid health, corporeal and creational behavior, work understanding, play games, inventive art, music and the skills to conduct these activities.

Develops sympathetic of the main mental principles pertaining to enlargement and development of children beneath his /her care. Have hypothetical and sensible information in respect of childhood teaching including included teacher.

**Objectives of Teacher Education at Secondary stage**

Aims and objectives –

To have capability to educate subject of area of conventional main beliefs of teaching and knowledge in the background of new school core curriculum.

Terminal Behaviour:

- Intensity of their sympathetic of the idea pertaining to the anxiety regulation.
- Makes an outside and inner decision of the quality of an article from end to end the principles next to decisive factor.
- Locate the lack, short falls and watch deficiencies and pit waterfall.
- Be acquainted with the ways from end to end which youth be trained.
- Make out the perception of work and practice.
- Appreciates the normal of program
- Acquire the skills to instruct
- Expand understanding, skills, wellbeing and approach which would allow them to promote the alround enlargement of the youngster.

**Objectives of Teacher Education at Higher Secondary stage**

Aims and objectives-

- To develop surrounded by teachers an up to standard desired perception about educational watercourse and sympathetic of its nature, reason and attitude.
- To make them conscious of the attitude, purpose and education knowledge strategies of the subjects they have to educate.

- To allow them to direct learners and get ready them for self – study, self-governing scholarship, to widen point out skills, carry out group culture, significant thoughts, conceptualization, self – evaluation of their own presentation and derive information in order from ICT, & mass media.
- To expand in the middle of them the competencies to converse theoretical and multifaceted thoughts and idea in easy terms.
- To expand in the middle of them the abilities for promoting loyal feeling nationwide awareness, social unity, shared agreement and worldwide brotherhood.
- •To allow them to familiarize and sensitize the students about HIV / AIDS, defensive teaching and to bring attitudinal change in considerate numerous evils relating to strong life, life skill progress, shame and prejudice etc.

### **Objectives of Teacher Education at College Level**

Aims and objectives – higher teaching is the prospect teachers for cloistered stage should possess ability to teach.

- Subjects of occupation on the basis of acknowledged ideology of coaching and culture also by pushy to keep himself side by side with the most up-to-date information in subjects of area in the style of teaching.
- Higher education in exacting and also conscious of his role in structure up a self-governing, secular and socialistic civilization in Indian competition. Develops skills to create employ of instructive skill in the education of topic of his area i.e. vocational and/or educational subjects.
- Problems happen out of the infulfilment of these wants and expand skill to assist the teenager to solve educational and individual problems. Understand examination study project, action study, new research.
- Research scheme to solve troubles pertaining to pupil manners adaptation in and outside the classroom.
- To communicate enriched vocational education which is essential for success in competitive and open market economy?
- To allow them to intend courses and competencies needed for self – employment.
- To enable the prospective teachers to inculcate dignity and morality of work and development of Teacher Education in India. The past of teacher teaching in India is as old as the times past of Indian schooling itself. India has one of the largest systems of teacher education in the world. Tutoring of teachers must have been born in India in 2500 B.C. The times gone by of Indian teacher teaching may be divided into five parts:
  - Ancient and Medieval Period (2500 B.C. to 500 B.C.)
  - Buddhist Period (500 B.C. to 1200 A.D.)
  - MuslimPeriod (1200 A.D. to 1700 A.D)

- British Period (1700 A.D. to 1947 A.D.)
- Teacher education in independent India (1947 up to this date)
- Ancient and Medieval Period (2500 B.C. to 500 B.C.)
- In the beginning of Hindu civilization teaching was concerned with teaching of „Vedas“.

Out of four program of Hindu society, Brahmins served as teacher of the group of people devoting themselves to the work of gaining, protection and endorsement of information and its transmission to posterity. In the Vedic India, the teacher enjoys a particular status and place. He was held in high look upon by the civilization and this was due not only to information and learning, but also to character of head, heart and hand. The Guru or the educator was a personification of good character, a spout of knowledge and an abode of spirituality. The selection and preparation of a teacher was done with much rigor. Manu comment that the son of the teacher from time to time helped his father, by teaching in his father's position. The teacher was from time to time assisted in his labor by some of the big and abler pupil who acted as monitors. This monitorial system, which was a way of induct pupils to the position of teachers, was the giving of the early education classification. Teaching in the Upanishad era was recognized for the individual notice paid to the student. There was a dear relationship between the teacher and the follower. The liberty to accept a follower rested with the educator, but once he conventional a believer it became his ethical duty to see that the believer grew. Similarly, a disciple or student had the freedom to choose his teacher. Knowledge was broadcasted orally (since writing developed later) and enlightenment was one of the important methods of teaching. The 17 methods used by teachers were emulate and adopted by the disciples and handed over from one generation of teachers to another. The program of method through start and repetition sustained. Good teachers devised their own methods and made the matter interesting and meaningful to students by day to day examples. Listening to the spoken words, understanding of meaning, reasoning leading to sweeping statement, corroboration by a friend or a educator and claim were the five steps to realize the meaning of a spiritual truth skillful in ancient India.

### **Buddhist Period (500 B.C. to 1200 A.D.):**

The proper system of teachers teaching comes out during this period. As the weight of teacher learning was recognized it got a development. The Spartan system which was a central feature of Buddhism compulsory that every novice on his admission should place himself under the control and regulation of a preceptor Upajjhaya). The follower would decide an upajjhaya with much care and showed him the utmost respect. The upajjhaya, on his fraction, had much blame to the novice, the Saddhiviharika. He was to present religious help and promote learning through religion among the disciples by education, by putting question to him, by catchphrase, by instruction. The teacher was

to look after the follower fully. The teachers in a job other methods besides oral recitation such as exposition, debate, discussion, question answer, use of stories and parables. In Vihars and monastic schools, HetuVidya or the inductive technique was adopted and the intelligence of the disciple was trained through it. The subject Logic was introduced which helped in grinding the intelligence of the learner.

**Muslim Period (1200 A.D. to 1700 A.D.):**

During this epoch there was no prescribed arrangement of teacher guidance. In the holy Koran, instruction is urging as a duty and in Muslim countries, tutoring was held in high appreciate. Education was public affair. The Mohammedan rulers in India founded schools (Maktab), Colleges (Madrassahs) and libraries in their dominions. In the Maktab, often fond of to a mosque, the students received teaching in the Koran which they had to recite, and understanding, writing and simple arithmetic was also trained. The medium of "instruction was Persian but the study of Arabic was compulsory. In Madrassahs the route included grammar, logic, theology, metaphysics, literature, jurisprudence and sciences. The teachers teaching in the Maktab were regularly moulvis, but in the Madrassahs intellectual persons were employed. The method of teacher preparation was mostly initiation of what the old teachers practiced. Good and experienced 18 teachers with a discerning eye identified able students and appointed them tutors to look after and teach the junior students in their absence. Thus the monitorial system was in vogue during the medieval times too and was the method of preparing the future teachers. The teachers were held in high esteem and were respected by the society and their students. Cramming and memorizing were prevalent during this period. The technique of teaching was oral. The teachers accepted the lecture method. Students were encouraged to consult books. Practical were also mannered in realistic subjects like drug. Logical and inductive methods were also used to each subject like religion, logic, philosophy and politics.

**British Period (1700 A.D to 1947 A.D.):**

The Britishers altered the above instructive scheme according to their own scheme, their call for and attitude. Advanced organization of teaching was included. Before the entrance of the Britishers in India the European Missionaries first started scholars and later initiated teacher training institutions. The Danish Missionaries established a normal school for the training of teachers at Serampur near Calcutta. In Madras Dr. Andrew Bell started the experiment of Monitorial System which formed the basis of teacher training programme for the time being. It was used in England and known as Bell Lancaster system. Mr. Campbell, Collector of Bellary, in his Minute dated 17th August 1823, praised this scheme by which the more advanced scholars are asked to teach the less advanced and this was well conventional in England. Sir Munro, in his Minute dated 13 December 1823, gave some ideas for the advance of the instruction of teachers. He suggested an raise in their payment and dissimilar types of syllabi for

Hindu and Muslim teachers. In June 1826, the first normal school was started in Madras under the management and with the finances of the British administration at first it prepared teachers for the district schools. Later, this normal school developed into the Presidency College. In 1847, in Bombay a normal school was started in the Elphinstone Institution and in 1849, Calcutta too had a normal school. Teacher training in Pre Independent India: Monitorial System(1880) In India, the plan of official training originated out of a native technique, called „Monitorial System“. It was based on the principle of mutual instruction. The whole class was split into a number of small groups and by insertion each cluster under the dictation of a radiant pupil, called monitor teacher's training schools. The first formal teachers training School in India was set up at Serampur in Bengal in the name of "Normal School" by Carey, Marshman and Ward in 1793. In Bombay, the Native Education Society trained a number of teachers for the advance of teaching in primary schools. In Bengal the Calcutta School civilization did ground-breaking labor for the training of teachers for indigenous schools. The Ladies Society of Calcutta started a preparation class for training women teachers in the Calcutta Central School for girls. A number of administration preparation schools were also set up in the first half of the nineteenth century.

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## A STUDY OF THE VIEWS OF B. ED TRAINEES TOWARDS THE SUBJECT OF DRAMATURGY AND ART IN THEIR EDUCATION

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### ABSTRACT

*Pedagogy requires a new perspective in future teachers for society. How useful will the subject "Dramaturgy and Art in Education" be for the trainees to be included in the two-year curriculum to get teachers capable of fresh perspectives, the researcher conducted the present study out of curiosity to know how beneficial dramaturgy and art would be in view of the current need in education and as the researcher himself works as a teacher in a B. Ed college, his observation, experiences and dialogues with the trainees and the topic of interest of the researcher. Also the study question what will be the opinions of B. Ed trainees regarding dramaturgy and art subject in education? They remained like that. The present study was practical in nature. The present study further touches on areas such as education and training, value education, practical education as well as primary and secondary education. The present study was limited to B. Ed trainees affiliated to Sardar Patel University, Vallabh Vidyanagar, Anand District. An opinion scale was finalized as the tool of the present study. In order to obtain information, information was collected from the trainees in response to these survey questions. Thus the present study followed a survey type study design. In the present study survey method will be used to get the opinions of the trainees. The present study was limited to B. Ed trainees affiliated to Sardar Patel University, Vallabh Vidyanagar, Anand District. In the present study, in order to study the opinions of B. Ed trainees regarding dramaturgy and art subject in education, 625 trainees were sent an opinion form in Google form. Out of them, 550 trainees filled the questionnaire completely on time. In the present study statistical analysis of the collected data was done on the basis of percentage and category wise. Based on that conclusions were drawn.*

### ❖ INTRODUCTION

Change is the law of the world. The use of technology in education has increased progressively in the current times. Due to this, innovative teaching activities, techniques and methods have come into existence and teaching-learning work based on them has also started to take place. New horizons of knowledge are developing. Knowledge has increased progressively. Education is the focal point of every change in society. There have been many changes over time to achieve the fixed goals of improving the quality of education. Education policies are also changing.

As per the new education policy, it is envisaged that the curriculum will also include new subject options. Moreover, new dimensions are being introduced into the curriculum. The lines of chalk and talk method that have been going on for years have

been ploughed through the journey of theatrical method and online method. But art is a special, elegant language. By which even a fickle child, a wandering youth and an uneducated person can gain knowledge.

#### ❖ **Statement of the Problem**

The title of the present study was as follows.

A study of the views of B. Ed trainees towards the subject of Dramaturgy and Art in their education.

#### ❖ **Key Words**

- Opinion
- Dramaturgy and art
- Study

#### ❖ **Objectives of the Study**

The objectives of the present study were as follows.

- To design a survey to find out the opinions of B. Ed trainees regarding the subject of drama and art in their education.
- To know the views of B. Ed trainees regarding Dramaturgy and Art subject in education.

#### ❖ **Study Question**

The questions of the present study were as follows.

- What would be the views of B. Ed trainees on the subject of dramaturgy and art in education?

#### ❖ **Scope of the Study**

The present study further touches on areas such as education and training, value education, practical education as well as primary and secondary education.

#### ❖ **Nature of the Study**

The present study was practical in nature.

#### ❖ **Importance of the Study**

The significance of the present study is as follows.

- The feedback obtained will be useful for the preparation of future teachers of the study for classroom teaching.
- Persons involved in education will gain an understanding of the urgent need of the topic “Dramaturgy and Art in Education”.
- One can learn about the benefits in teaching work by adopting the topic “Drama and Art in Education”.

- To know about the relevance of the topic “Drama and Art in Education” for prospective teachers.
- How useful is the topic “Dramaturgy and Art in Education” for improving the academic outcomes of students? I will be known.
- To include the subject “Dramaturgy and Art in Education” in the curriculum at the Bachelor's level in Education or not? Understanding about it will be clear.

#### ❖ **Limitation of the Study**

The present study was limited to B. Ed trainees affiliated to Sardar Patel University, Vallabh Vidyanagar, Anand District.

#### ❖ **Scope of the Study**

Since the present study contains the opinions of the B. Ed trainees, the B. Ed trainees affiliated to Sardar Patel University, Vallabh Vidyanagar of Anand District form the scope of this study.

In the present study, 550 trainees of B. Ed colleges affiliated to Sardar Patel University, Vallabh Vidyanagar of Anand district were selected as a sample.

#### ❖ **Method of Study**

In the present study survey method will be used to get the opinions of the trainees.

#### ❖ **Tools**

In the present study, the questionnaire was designed based on the views and opinions of the professors working in B. Ed colleges and also based on the student's own observations and experiences. After that, the questionnaire was verified by the research experts working in the institution along with the researcher, taking into consideration their guidance and corrective suggestions, finally the questionnaire was finalized as a tool for the present study. In order to obtain information, information was collected from the trainees in response to these survey questions. Thus the present study followed a survey type study design.

#### ❖ **DATA ANALYSIS**

In the present study, in order to study the opinions of B. Ed trainees regarding Dramaturgy and art subject in education, 625 trainees were sent an opinion form in Google form. Out of them, 550 trainees filled the questionnaire completely on time. In the present study statistical analysis of the collected data was done on the basis of percentage and category wise.

#### **FINDINGS OF THE STUDY**

Based on the present study the conclusions were drawn according to the opinions of the topic “Dramaturgy and Art in Education”.

- Among the B. Ed trainees, the opinions towards “Dramaturgy and Art subject” showed a positive trend, and according to personal views of the trainees, there was an urgent need for dramaturgy and art in education.
- According to the trainees, “Dramaturgy and Art” will lead the traditional education system to a new approach, solving the education problem. But education drama and art through the study of the subject develops creative, conceptual, expression in the trainees.
- Equivalent changes were observed in self-development of drama and art appropriation in education.

Looking at the study and its findings, it is seen that teaching in the mother tongue through dramatization method makes the content easier and more interesting and the combination of dramaturgy and art becomes effective in teaching than the lecture method. “The use of dramaturgy and art in education will enhance the skills of other subjects and the trainees will acquire a professional image of themselves, thereby inspiring a self-reliant life. If education does not have the necessary skills for dramaturgy and art, it acquires it through self-study. Appropriation of the “dramaturgy and art subject” is key for trainees to keep the classroom alive in self-study and pedagogy. Also it is evident from the study that the study of “Dramaturgy and Art Subject” will lead to the discovery of a new educational approach. Academically, this subject will be a burden as the perception of time and effort is difficult. This subject can create interest in education among teachers, trainees and there is an urgent need for this subject in B. Ed curriculum to produce competent future teachers. This subject will prove to be a landmark for future teachers to bring about changes in the existing education system. Talented teachers will be produced from the future teachers, which will be an integral part of the college curriculum. The most effective educational material is dramatization. The trainees have given full agreement to this statement. Personal development of the individual will be possible with the development of skills like leadership, self-confidence, teamwork, unity, to increase the academic achievement of the students, to bring social awareness.

Regarding the workload of Dramaturgy and Art subject in education and this subject is only useful for enthusiastic trainees. Moreover, teacher appropriation is a labour-intensive process for trainees, so utilization is negligible. There is no positive or negative inclination of the trainees regarding this.

#### ❖ REVIEW OF FINDINGS

The study is for the preparation of future teachers and this subject becomes an urgent need in the education world. Appropriation of dramaturgy and art in education will be useful throughout. Also, this subject can be given priority in the B. Ed curriculum, so that new dimensions will be accelerated in the world of education. The trainees are of

the opinion that since modern pedagogy technology is supreme, it will be difficult to arouse interest. Academic workload will increase from this subject. But the future teachers will be the backbone of the education system.

❖ **Educational outcome of the study**

In the present study, the opinions of B. Ed trainees about dramaturgy and art were obtained with the help of the questionnaire. Based on the above conclusion, it can be suggested that “Dramaturgy and Art in Education” will be key and very useful in the world of education.

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## METHODS AND PROSPECTS OF STUDYING THE RUSSIAN LEGAL MENTALITY

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### ABSTRACT

*At the present time in connection with the crisis of international law and the search for new legal concepts in Russia has intensified scientific interest in the question of the choice of the vector of further legal development. This article analyzes the reasons of actualization of problems of legal mentality in Russia, the revival of interest in law to the instrumentation of a mental approach. The concept of legal mentality quite recently received "citizenship" in modern legal theory. However, modern researchers use it widely, using as a tool for research. This work can be used for further research on the state of the Russian legal system and prospects of its modernization.*

*Keywords: the law mentality, the legal mindset, the legal culture, the law enforcement, the methodology of law*

The mental approach to law arose within the framework of comparative jurisprudence. The shoots of this approach have been developing since the end of the XIX century. Currently, this is a "methodology" or a method that makes an integral contribution to jurisprudence. [2; 164 ]

Modern trends in legal understanding show that the main vector of development of legal thought, at least in the first half of the XXI century, will be directed towards the creation of an integrative concept of law based on a communicative approach. In this regard, the issues of legal mentality, legal mindset and their communicative function become relevant.

These problems mainstreaming is also noticeable in legislative and law enforcement practice. In the Russian Federation, the number of normative legal acts and court decisions is growing, where reference is made to these concepts, which make it possible to try to regulate social relations, in which national peculiarities of legal behavior and legal thought are manifested. However, there is a lack of understanding by the legislator and law enforcement officer of the essence of legal mentality and legal mindset, their specifics and differences from other legal categories. [4; 11-13]

The concepts of legal mentality and legal mindset can help to solve such controversial problems in modern Russian jurisprudence as the definition of the nature of human rights, the future of case law in Russia. However, in the conditions of the dominance of the classical legal understanding, modern jurists try to avoid the use of these concepts in their research, although they surely use the tools of a mental approach. Therefore, there

is a need for a comprehensive analysis of the Russian legal mentality in the context of globalization, identifying its features by building a model of an internally closed system, as well as in interaction with other foreign legal phenomena.

The study of the legal mentality, in our opinion, will serve as an incentive for the development of legal methodology, since this category expands the horizons of legal analysis and forecasting, enriches the categorical apparatus and discovers new facets in the legal matter, allows us to better study the mechanism of interaction of the ideal sphere of social existence with the normative system of society.

Thus, the problem of legal mentality in the conditions of accelerating the pace of life and the complication of public relations and relations is especially relevant and significant. Its study requires the construction of not only a logically complete system of concepts, but also conceptual approaches, clarification of its content in the system of legal concepts of formal dogmatic jurisprudence. The mental approach makes it possible to identify patterns of political and legal reality and thereby participates in the creation of a law cognition methodology. The legal norms of the legal system cannot be clearly defined outside of the specific circumstances of time and place, their mental dimension. The category of mentality allows to reveal the complexity of understanding law, especially because this phenomenon is social, and, consequently, evaluative, it also reflects the existing social order in normative legal acts. The study is also important for the analysis of the conceptual foundations of the development of the processes of universal application of law and the universalization of state in the context of globalization. As this is based on a certain type of legal understanding, conceptual and legal perception and interpretation of the essence of the state.

The problems of legal mindset are relevant and, until recently, poorly studied by legal science. If we turn to history, the concept of "mentality" was introduced into the scientific apparatus by Western European historians. The initiators of the study of mentality were French historians, representatives of the school of "Annals", who introduced the concept of mentality in 1929, paying attention to the layer of consciousness, which, being insufficiently understood, was not directly reflected in the source, and therefore constantly escapes the field of view of historians. Many foreign scientists agreed that religion plays a primary role in the mentality. In their opinion, it largely determines a person's behavior, views, and assessments, including legal ones. In the future, the problem of mentality and mindset was investigated by historians of various schools and trends in the USA, England, Italy, Germany and Poland.

In Russia, this problem was considered at scientific conferences in Lutsk (1994), Smolensk (1993, 1996) – "Socio-psychological problems of mentality", Samara (1994) – "Provincial mentality of Russia in the past and present" and discussed again in Samara (1997). Russian researchers emphasize the active, regulating role of mentality, in contrast to the French understanding of mentality as a "worldview" (passive). Domestic



researchers have come to the conclusion that mentality integrates society, creating a semantic field of culture, filling the environmental reality of a person with sense and meanings that exist only within this community.

Since the mid-90s, the theory of legal mentality has begun to form in Russian jurisprudence. For the first time, as it seems to us, various problems of legal mentality were raised in 1996 at the conference "Legal Culture: Problems of interrelation", held in Rostov-on-Don. Such problems as regulation of public relations and mentality, legal culture in the structure of mentality and others were identified at the conference. During this period, V.N. Sinyukov has also examined law in the context of cultural and legal mentality ("The Russian Legal System: an Introduction to General Theory". – Saratov: Polygraphist, 1994), who sees the origins of law in the Russian folk spirit, Slavic identity. The Russian legal system is characterized by him as a cultural and historical phenomenon with its spiritual organization, typological specificity, symbolic and archetypal nature. [3; 269-272]

Separately, we should highlight the classic works of Russian jurists and philosophers of the second half of the XIX – early XX centuries – N.N. Alekseev, A.D. Gradovsky, I.A. Ilyin, K.D. Kavelin, B.A. Kistyakovsky, P.I. Novgorodtsev, L.I. Petrazhitsky, I.L. Solonevich, L.A. Tikhomirov and others, the content and meaning of which, apparently, have yet to be comprehended, perhaps rediscovered and evaluated by more than one generation of Russian lawyers and political scientists.

Among legal scholars, R.S. Bayniyazov was one of the first to consider the theoretical and methodological issues of legal consciousness and legal mentality, the typology of legal consciousness, its principles, axioms, structure. R.S. Bayniyazov posed the urgent problem of forming an integral scientific concept of the domestic legal mentality, stating the relevance and weak elaboration of this problem.[1; 24]

At the present stage, the problems of legal mentality in various branches of law are being highlighted. The mental approach is particularly in demand in criminal law in the field of human rights, as well as in fundamental theoretical and legal research. However, the essence and legal mechanisms of Russia's legal mentality in the context of globalization and sovereignization processes, as well as the problems of applying legal mentality in practice within the framework of a unified legal concept of the mental approach have not been analyzed.

When studying the legal mentality, it is advisable to use a civilizational mental approach and a dialectical method. This made it possible to conceptualize the issues of national specifics of the Russian legal system in the content of the work. The civilizational approach is of particular importance both in solving the debatable problems of the nature of law and the state, and in analyzing the legal mindset, which makes it possible

to find out the degree of interdependence, mutual influence of various aspects of natural and positive law.

The civilizational approach actually denies the understanding of universal law and considers it as a conglomerate of legal systems, each of which lives according to its own socio-regulatory regulators, developing in its growth in a closed circle, or in a spiral, but never linearly. The introduction of the category of legal mindset into legal science will reveal both the universal components of legal systems and the unique features of all elements in a legal culture. Moreover, the identification of common and special features in the law of various ethnic groups and nations does not contradict the formal approach, which has never denied the peculiarities of the development of their statehood, law and culture.

When studying the legal mentality and legal mindset, the methodology of comparative jurisprudence can also be useful, which allows to more clearly identify the cognitive, analytical, integrative functions of the legal mentality. Comparative-historical and comparative-legal research methods play an important role in this. The historical method makes it possible to understand the general laws of social and legal development and those historical conditions that have left an imprint on the formation of the legal mindset. It allows to search for the reasons for the formation and development of the Russian legal system in the totality of ethnic, political, economic, religious, psychological conditions of society. To determine the legal mindset, we apply a sociological method that allows us to make a scientific generalization, to know, explain and evaluate the legal mindset, to reveal the constancy in the coexistence of phenomena and elements of the legal mindset, their sequence, interaction and interdependence. The knowledge gained by other sciences is used using the integrative method. The systematic method allowed to consider the legal mentality on the basis of integrity, interconnection and self-organization. The structural and functional method makes it possible to determine the essence of its elements and their functions in regulating social relations.

When analyzing the legal mindset, a synergetic approach was used, based on the ideas of joint action of legal subjects, interrelated and interdependent approaches in its study, taking into account the principles of self-organization, the use of interdisciplinary techniques and taking into account the interrelations, interaction between the elements of law. The synergetic approach is especially important in the approach to law, since it is based on the ideas of openness, non-linearity of legal systems, joint action of legal norms and other legal phenomena. It allows to strengthen the generalizing, synthesizing part of the study, helps to explain that the legal mindset is a systemic phenomenon and has various ways of functioning, that it is closely related to the needs of legal reality. The category of legal chaos is especially productive, which can act as a mechanism for self-organization and self-adjustment of law. The synergetic approach allows to involve

the assumption that it is not the linear nature of legal progress that matters, but that we are to take into account the action of synergetic mechanisms (means, techniques, principles, methods) that operate in the processes of scientific legal activity regardless of the aspirations of a jurist. It gives an opportunity to take a fresh look at the operation of legal mechanisms of legal mindset, to use a group of methods in the analysis of legal mindset, including such elements of system analysis as logical-legal, comparative-legal, structural-systemic, sociological, etc. Synergetics is a methodology that studies the mechanisms of self-organization, which is especially important when analyzing the collapse of old legal systems and the creation of new ones or their modernization in conditions of crisis, fracture, etc. Therefore, a synergetic approach to the legal mindset opens up opportunities not only to clarify the patterns of origin, development and operation of the mechanisms of the legal system, but also to detect contradictions in their development under the influence of changing details of the legal regulation of public relations.

In addition, the study of the legal mindset in the context of globalization makes it possible to reveal the positive, axiological and ontological essence of national law and, most importantly, its regulating socio-legal and cultural-legal functions and determinants.

The author's approach to the development of the category of legal mindset helps to overcome the emerging trend of reducing the authority of national law in the public legal consciousness and underestimating its socio-regulatory potential. This will make it possible in the future to find adequate ways of knowing the law, the methodological foundations of its functioning and expression. After all, it is the category of legal mindset that makes it possible to better understand and comprehend legal existence, attitude to law and actions, thoughts, values, ideas, feelings, sensations, experiences, etc. arising in connection with it. It allows to take into account and solve the main problem of preserving both legal equilibrium and social equilibrium, maintaining public order, and a stable state of legal society. For the first time in domestic legal science, the mental aspects of legal reforms in Russia in the context of globalization are considered. At the same time, the introduction of the category of legal mindset to characterize and evaluate a particular legal civilization does not lead to abstraction from material production as a secondary factor.

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## **ENVIRONMENTAL DEGRADATION AND POLLUTION: EFFECTS ON NATURE AND HUMAN HEALTH**

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### **ABSTRACT**

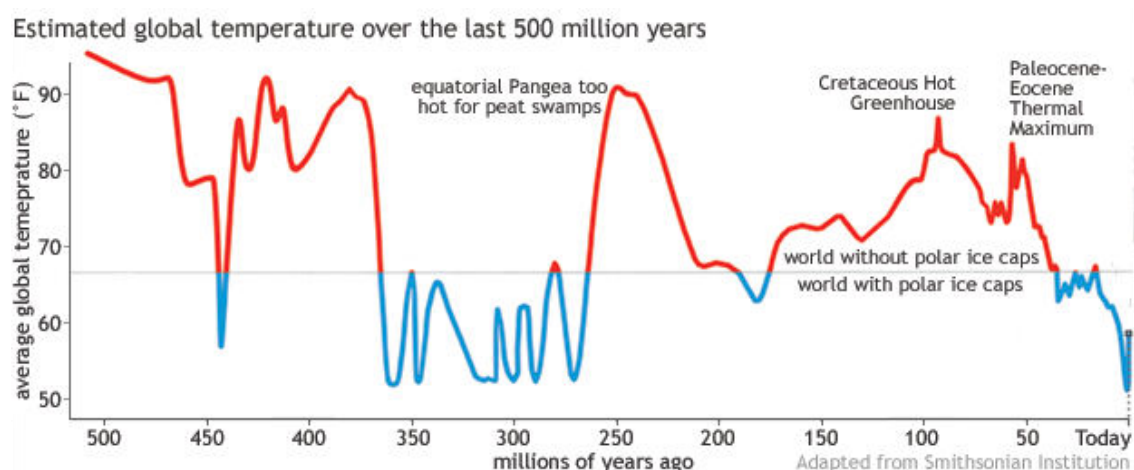
The main aim of the article is just not to focus on the hazards and effects but to create an awareness among people and to awaken ourselves against the cruelty happening in the world towards the nature. The threatening is alarming now where everyone has to be monitor themselves for all the insensitive steps that they have taken or taking. This study is just to put a sensitive thought in our mind for the well-being of each and every organism present on this earth. We will discuss about the causes, effects and solutions in this paper, wherein, we will find some facts and studies related to the hazards that happened in the last few years.

### **INTRODUCTION**

Earth, our planet, has all that which a human needs to get nourished and nurtured. There is no other planet yet in this entire universe that has all those qualities and quantities that could be sufficient to fulfill man's desire. As we have grown up in this beautiful world and taken up each advantage of this mother nature, though that is becoming an undue advantage, it's the responsibility to strictly mind ourselves and to monitor ourselves against the harm that we are causing to the environment. In each and every way, take it as use of plastics, use of carbon emission vehicles, use of air conditioners and many more. Environment is not a thing to be taken for granted. It requires as much care as a family as a person we need. Take it from plants, soil, air, water, everything needs care and a sensitive kind of aspect from us. They do not ask for extra care but just a little attention. Its important to think for a while and just be kind and responsible for saving earth's environment.

Increase in global warming and their disastrous effects, deforestation, melting of glaciers, decrease in many species of flora and fauna, increased health hazards, increased natural calamities, etc. has raised an alarm for all of us. There is a huge enhancement in air and water pollution. Marine life is affected, air quality is affected. Man is facing his karma. There are certain diseases which have been evolved that never existed. The need and greed is to be differentiated. The patience is now nowhere. All the time people use air conditioners and fuel vehicles. Scientists examined pollution data from air monitoring stations in 6,475 cities and 117 countries, regions, and territories to see how many places had average PM<sub>2.5</sub> levels in 2021 that fell below 5 microgram per cubic meter (mcg/m<sup>3</sup>) — the air quality standard set that year by the World Health Organization (WHO). Not one country measured up to this standard and just 222 cities about 3.4 percent made the grade. There are also many indexes that illustrate various

drinking and source water graphs by WHO and other well known reputed organizations, that indicates the pollution and health hazards in the last few years due to increase in water pollution. Below there is a graph showing global temperature estimate. Although there has been many estimates and graphs showing different sorts of pollution and their effects but one has been illustrated below in order to get an idea of the harmful risks at an alarming rate that needs to be monitored.



**Fig.1:** Global temperature over past years<sup>1</sup>

There has been many instances. Lets take it step by step. First, when we have other options of using herbal, organic and natural fertilizers then why we go for chemically synthesized harmful pesticides and insecticides for yielding high yielding variety of seeds. Like, for example, in place of pesticides and chemicals we can use 'Panchagavya', a preparation made from cow's products. Its just not a formulation but a remedy for also treating many diseases. In definite proportions, cow's ghee, milk, curd, urine and dung are mixed and kept for few days. This remedy helps a lot in farming, growing crops and also protects human body from dreadful diseases like swine flu, etc. Second, talking about the wastage of water where people wash their cars daily for hours and open their taps unnecessarily, its important to go for sustainable development. Use of plastics when we go to buy fruits, vegetables and other grocery items where we can take our own jute, paper or cloth bags should become in practice. Another way, where we can go by walk or through bicycle by electric vehicles, we always prefer by going through car, bike , etc. which is itself contributing to air pollution. Also, when there is no use of air conditioners or where in place of air conditioners, we can use coolers or only fans, we are contributing to global warming. Minimalism is a word that can be used where we can minimize the usage of harmful stuffs.

Human activities have an adverse effect on the environment by polluting the water we drink, the air we breathe, and the soil in which plants grow. Although the industrial revolution was a great success in terms of technology, society, and the provision of multiple services, it also introduced the production of huge quantities of pollutants

emitted into the air that are harmful to human health. Without any doubt, the global environmental pollution is considered an international public health issue with multiple facets. Social, economic, and legislative concerns and lifestyle habits are related to this major problem. Urbanization and industrialization are reaching unprecedented and upsetting proportions worldwide. Anthropogenic air pollution is one of the biggest public health hazards worldwide, given that it accounts for about 9 million deaths per year.<sup>2</sup>

Without a doubt, all of the aforementioned are closely associated with climate change, and in the event of danger, the consequences can be severe for mankind.<sup>3</sup> Climate changes and the effects of global planetary warming seriously affect multiple ecosystems, causing problems such as food safety issues, ice and iceberg melting, animal extinction, and damage to plants.<sup>4,5</sup>

Contribution is a great thing but where we are contributing whether to worst or for good that is to be checked. The points that we have discussed in this article are just not to be read out thoroughly but needs to be practised daily until and unless it become our habit. We also should take interest in gardening, farming, plantation habits. Though, we cannot ignore the usage of cosmetics and toiletry items but instead of buying hundred of items, there is a need of only five items, we must check out if our need is not turning into greed.

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## ABOUT THE EDITOR



**Dr. Sangeeta Shashikant Shinde** has vast teaching experience of over 22 years to her name. She is a well-qualified faculty with MA, B.Ed., SET, M.Phil, and Ph.D. in Economics. Currently working as the Vice Principal at Sarhad College of Arts, Commerce, and Science. She has published and presented 28 research papers in national and international conferences, and international and UGC Care-listed journals.

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Her rigorous hard work has been appreciated by the Best Teacher Award by Vishwa Jagruti Mission in 2006, and Aadarsh Shishak Samman by Himakshara in 2019. Vishesh Sanman for the contribution in the education sector by Satya and Janeev foundation in Feb 2021, Received Vinoba Bhave Outstanding vice Principal award in September 2021 for Outstanding Individual Achievement & Distinguished Services in the field of Education and Administration by Srjana Vangmaya Parishad, Bhopal and Received “The Best Faculty” award at “The League of the Erudite” an Education Meet for the year 2022 conducted on 19th March 2022 and also received Maharashtra Ideol award for her contribution in Education field.

## ABOUT THE BOOK

This book on multidisciplinary research would provide an in-depth exploration of the concept and practice of combining multiple disciplines to solve complex problems and advance knowledge in various fields.

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