

ASSESSING THE IMPACT OF ARTIFICIAL INTELLIGENCE AND CLOUD COMPUTING ON SUPPLY CHAIN MANAGEMENT AND COMMUNICATION DURING COVID-19

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ABSTRACT

Supply chain management is the most important part of international business companies. Therefore, during the covid-19 pant to make the transportation system of India was stopped for a certain time and because of that the supply chain management of the companies has impacted negatively. Furthermore, the use of AI and cloud computing processes in the supply chain management system has increased due to the pandemic. There are some digital platforms that it helped the companies to meet the suppliers through video calls and that is called cloud computing. This study aimed to determine the current and potential AI techniques that can enhance both the study and practice of SCM. The potential AI techniques along with cloud computing system, the current SCM service can be subfield and operated. This paper provides insights through systematic analysis and synthesis.

The purpose of this research article is to investigate the impact of cloud computing and AI on supply chain management systems and communication during the pandemic. The researcher has adopted secondary methods to collect data about the uses of cloud computing and AI during covid-19. Similarly, the resources used qualitative methods to analyses all the data. All the suitable research method has helped the researcher to lead the study towards better outcome. Moreover, the entire study will be helpful for the readers to understand the both advantages along with disadvantages of using AI and cloud computing processes in the supply chain management system

Keywords: *Supply chain management, suppliers, cloud computing, AI, pandemic, development, business growth, flexible supply, data manage, risk control.*

Introduction

Over the years the entire world has been moving towards a digital future and advanced technology is considered as one of the most supportive ways to grow a particular business towards the future. Among the existing modern technologies one of the most prominent technologies is **artificial technology (AI)** that plays an effective role in leading the supply chain management (SCM) process. Though due to COVID-19 pandemic situation the transportation system of India has been stopped for a certain time and it affects the business procedure. During the challenging situation, the product distribution process has suffered a lot and created a severe need for supply chain resiliency.

The SCM system in every business requires innovative development to provide strong support to the business procedure. As the need to improve the service process in SCM was required to bring change in the business market environment during the pandemic, the requirement of technology has become essential. AI has played a powerful role in providing a strong support along with power to the SCM to continue their work procedure. Therefore, this study aims to focus on the factors related to the *impact of artificial intelligence and cloud computing on supply chain management* during the COVID-19 pandemic situation.

Literature Review

Effect of AI and Cloud Computing on Supply Chain Management

Supply chain plays a vital role in holding cost control, influencing customer experiences, and organizational deftness. It is widely known that SCM has played a great role in leading any business procedure by providing required projects and services. Depending on SCM activity, the profit level of a business is estimated and technology has offered a transformational power to implement it properly [1]. Adopting an advanced and new technology system of AI has made it possible to bring change in the supply chain management system by modifying the process. AI technology is simulation related with human intelligence through usage of machines and computer systems while cloud computing is about usage of internet to manage as well as store data through remote servers. The outcomes of the closure relationship of AI and SCM have resulted in the development of strategic buyer supplier relationship. Inventory management under SCM revolves around inside and outside movement of products from warehouse and AI driven tools such as Google AI have been effective in inventory management.

As an individual business depending on the flexibility and suitability of SCM, it is necessary to have a positive flow in the product transferable process. In this context to boost SCM process, cloud computing has successfully delivered the game changing result. Cloud computing has the ability to make resourceful decisions as well as implement tasks automatically without any mistakes [2]. It is known to all that SCM is the main network system of an organization to control the entire productive value and customer reliability. Accompanied with artificial intelligence technology an individual industry can achieve a much more ambitious push to the cloud across the supply chain. It is capable of improving remote access to a wealth of data, collecting data, and improving customers' experience by delivering the required material in time.

Emphasis on implementation of AI and Cloud Computing on SCM during COVID-19

The COVID-19 pandemic situation not only affects world health but also affects the business environment. In India, SCM of different industries has faced strong challenges during this pandemic and even restricted them for a while that affect the revenue of the country. Several disruption events have been observed related to supply chain management due to lack of management risk [3]. In this difficult situation, after many restrictions, AI makes it possible to implement the upgrade management in SCM and help in minimizing risk factors. Utilizing algorithms, AI is capable of quickly identifying the relevant data in order to develop an appropriate model to provide a positive understanding to monitor the SCM process. Thus the negative situation of pandemic affects the business process; AI adoption has driven greater agility into supply chains in order to better manage constantly evolving situations.

AI has the ability to create and develop the thinking units that are able to replace human intelligence to manage the entire organizational work. Thus COVID-19 has challenged the smooth flow of SCM process, and cloud computing beside the AI has assisted in balancing the challenging factors in a proper way [4]. In order to improve the sudden risks and disruptions cloud computing has made changes in the market environment with developing the process. Meeting the commitment and maintaining the flexibility in the work process has become easier with this approach. Accompanied with assistance of AI and cloud computing technology, Indian companies become able to continue working through immediate challenges. All the key elements along with positive ability, AI and cloud computing technology have successfully established its valuable affectability over the Indian business development process to assist and manage the positive growth of revenue.

Methodology

In order to fulfil the objectives of the study, the researcher has adopted specific tools to operate the process of methodology to collect the relevant data, analysis, and answer the research questions. Due to lead the study towards an effective way, the researcher has taken the help of a *positivism research philosophy*. In order

to evaluate the ideology of the collected data and information, the study has been identified as beneficial with this philosophy. Using this philosophy a particular study can successfully develop the research hypothesis to state the factual facts based on the collected data [5]. In addition, justifying the objective the researcher has adopted a **deductive research design** to explain in a proper way. It is known to all that after the justification of research objectives, a deductive research design is the proper tool to understand the relations between the study variables.

Apart from this, a **descriptive research approach** has been selected to lead the research by analysing the data in an effective way that can help readers to understand the main concept of the research. It attempts to establish cause-effect relationships among the research variables. In this research study, the researcher

has used a **secondary qualitative data collection method** to collect the relevant data by depending on the existing sources. The researcher has adopted **secondary methods** to collect data about the uses of cloud computing and AI during covid-19. It has been designed to obtain all the accurate information from graphs, tables from valid resources [6]. The resources used **qualitative methods** to analyses all the data. As compared to the primary data collection process, the secondary qualitative data collection method is a time and cost saving process, the researcher has selected it to conduct the further research procedure. In addition, all the resources have been collected from verified journals and websites regarding the research topic to lead the study process. Along with this, the data and information have been collected from scholars, journals and articles from 2017 to 2021.

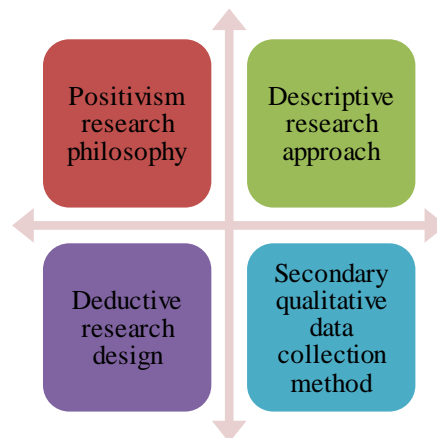


Figure 1: Tools of selective Methodology
(Source: Self-created)

Result and Discussion

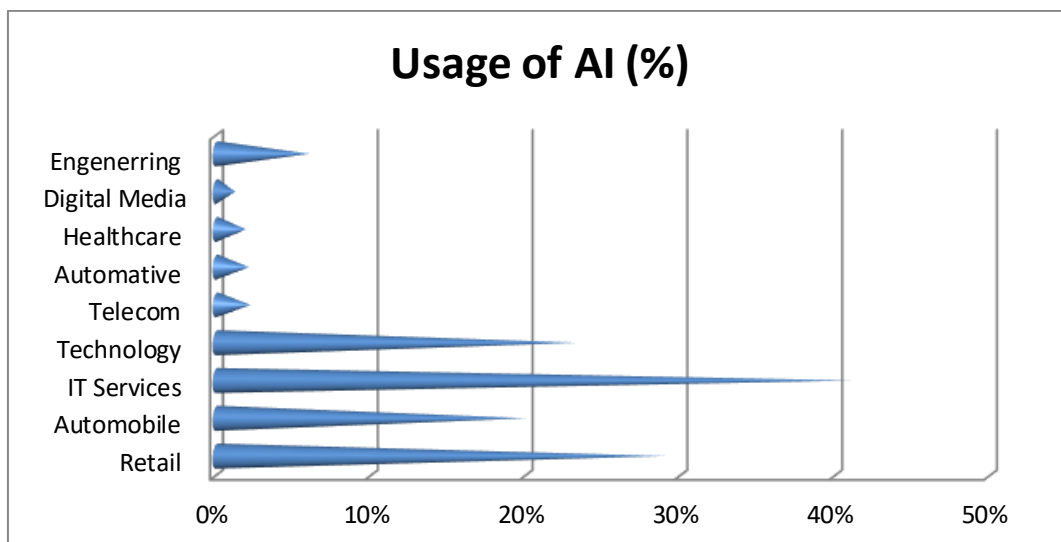


Figure 2: Industry wise AI usage (Source: Excel)

By following the above diagram, it can be analysed that there are different industries in India that are using AI technology to make their work procedure effective and valuable. Most of the IT companies are using AI based technology as it needs to handle big size data and within AI it can be implemented in a proper way [7]. Thus beside the IT services, automobile, technology and retail industries are focusing on the development of their business revenues and because of this all the industries are concentrate on the adoption of AI technology in their working system. In other industries such as engineering, digital media,

telecom, automotive also adopted AI technology in their working system, but the ratio of adoption is quiet low rather than other existing industries in India. Thus COVID-19 pandemic situation has affected the way companies in all sectors and failed to interact with supply chain to keep the flexibility of SCM. In this scenario, AI solution has been successfully met many of the new demands of the consumer by providing the products and services as soon as possible before the crisis. By capable of balancing the cost and time, the profitability of Indian industries can be implemented properly.

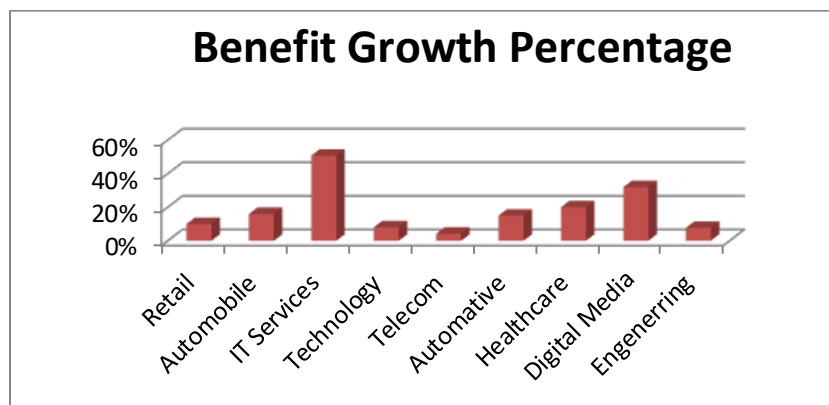


Figure 3: Benefit growth percentage
(Source: Excel)

In India, there are several industries are present in the business procedure to balance the country’s economic part. In order to lead and hold the business process actively, the majority of the business adopted the help of AI and cloud computing. Accompanied with AI application the working quality has ben enhanced in the several industries in India. The stiarge of big size data along with keep secure

the data has been protective and save. It is the IT industry who has achieved a large amount of profit in 2020 as 50.70% with the help of AI technology. As it is able to provide the ability to control big size data, and help the SCM with powerful optimization capabilities, AI has been identified as one of the most effective elements.

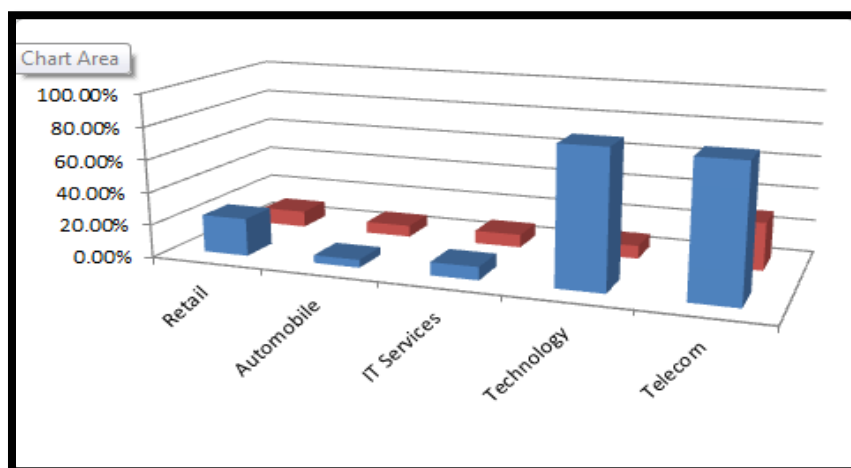


Figure 4: Industry wise Cloud computing usage (Source: Excel)

Based on the above diagram it can be stated that cloud computing allows the companies to process huge amounts of data to manage the huge work process to satisfy the consumers. Cloud is able to provide a vast amount of computing power to control industrial power to supply required products within flexible SCM [8]. Majority industries in India are adopting cloud computing technology in their working process to make the work more valuable and

flexible. There are some digital platforms that help the companies to meet the suppliers through video calls and that is called cloud computing. During COVID-19 also the cloud system has assisted SCM to lead their work in a proper manner to help in managing the industrial activity.

Table 1: Compare of profits between 2019 and 2020 in Mahindra and Mahindra

Mahindra and Mahindra Limited	In 2020	In 2019
Revenue	12,120	12,893
Profit after tax (before EI)	380	1,396
Profit after tax	934	877
Operating Margin	14.8%	13.2%

Limited

It can be stated that Mahindra and Mahindra Limited which is an Indian multinational automotive manufacturing company has gained profit margin during COVID-19 pandemic citation as 14.8% in 2020 with the assistance of AI and cloud computing technology. The company has successfully utilized the advanced technology by following the proper steps one after another and within a flexible supply chain management system.

Table 2: Profits from 2019 to 2021 in Tata Consultancy Services Ltd (TCS)

Tata Consultancy Services Ltd (TCS)	Annual Revenue
2018	1231.04
2019	1464.6
2020	1569.5
2021	1641.8

Tata Consultancy Services Ltd (TCS) is a renowned Information technology consulting company of India. As it is a software and services provider company, it needs to handle huge size data. It has used cloud computing process in its workplace to handle and control huge size of data. It includes engineering, communications and information technology, materials, and consumer products and

chemicals. It has been seen in above table that within cloud computing Infrastructure, the company has able to offer end-to-end quality products as well as services.

Recommendations and Conclusion

Analysing the entire study it can be recommended that understanding the basic instrument and procedure of new technology is highly crucial to be able to operate the system in an appropriate way. Many people believe that artificial intelligence is still a thing of the future, which creates a limitation in using cloud computing systems [9]. In addition, modifying the data mining application AI along with cloud computing can sustain a long term issue in the business market to increase the growth. Implementing AI in the cloud can ensure promising profits for analytics which indicates a positive approach of modern technology. In the moment development and things change fast, technological up-gradation need to be modified within the need of the improve resilience in supply chain management system. In addition, Oracle Fusion Cloud SCM which is a connection process between an individual organization and supply chain network, it need to be modified and developed in business applications desiggs to draw the attention the users.

Supply chain management is the most important part of international business companies. Therefore, during the covid-19 pandemic to make the transportation system of India was stopped for a certain time and because of that the supply chain management of the companies has impacted negatively. There has been a growing interest among researchers to examine the SCM procedure in order to overcome the risk factor during COVID-19 pandemic

situation with the adoption of AI and cloud computing to achieve successful project management. Furthermore, the use of AI and cloud computing processes in the supply chain management system has increased due to the pandemic. This study has provided all kinds of insights through systematic analysis and synthesis. Moreover, this study will help the readers to identify the effectiveness of AI in leading the SCM process.

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ASSESSING THE IMPACT OF INTEGRATED MARKETING COMMUNICATION ON CONSUMER IMPULSIVE BUYING BEHAVIOR

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ABSTRACT

The particular research study sheds light on the "integrated marketing communication" process and its impact on customers' buying behavior. Social factors are also important such as several groups, people, family and others. On the other hand, cultural factors also influence the buying behavior of the customers. After economic and functional aspects, cultural factors are most important because different people follow different types of culture, and according to their culture, they have to purchase some products.

Thus, the mentioned process supports the unity of all the communication tools of a company. The companies use different types of communication tools such as advertising, public relations, and others, which follow different strategies.

The researcher has adopted several methods and techniques for understanding and analysing the concept of the particular research topic. The researcher has used the positivism research philosophy and descriptive research design to understand the topic's basic idea. Therefore, according to the "integrated marketing communication" process, all the communication tools must follow the same strategy. After that, the behavior of customers influenced by factors is called the buying behavior of the customers. Thus, the concept of "impulsive buying behaviour" is analysed in this particular research study properly. Sometimes customers buy some goods and products suddenly, influenced by some factors and that is the "impulsive buying behavior" of the customers.

Keywords: IMC, Behavior, Customers, Profitability, Affordability, Productivity

Introduction

“Integrated marketing communication” is a process that supports the unity of all the elements of marketing communication. The elements of marketing communication such as social media, public relations, advertising and others are very important for the development of the economic condition of the companies. Therefore, the purpose of this “integrated marketing communication” process is to ensure that all the elements of communication are maintaining the same strategy. Apart from that, when a customer purchases a product without any planning that is called the “impulsive buying behavior” of the customers. There are several factors that influence the “impulsive buying behavior” of the customers and all the factors are analysed briefly in this particular research study.

IMC blends various promotional tools and communication/marketing/advertising services and techniques to maximize profit. IMC is ultimately achieved through concise and consistent messaging that fosters familiarity

and consumer affinity. Effective IMC messages and images are meaningful and useful to consumers, messaging and branding consistency - a proven IMC concept - yield customer satisfaction and loyalty. Integrated marketing communication [IMC] plays an integral role in communicating brand message to a larger audience. It goes a long way in creating brand awareness among customers at a minimal cost. The ultimate goal of IMC is to setup customer-oriented sensibilities, help in resource allocation, achieve competitive advantage and develop business process in all direction of organization and its operations that add value for its customer and also influence the behavior target audience. Pothys is one of the best apparel retail show rooms in South India having the vision and mission to provide customer satisfaction and to reach more customers.

Literature review

“Integrated marketing communication”

Table 1: Components of IMC

Components of IMC	Includes
The foundation	It includes the attitude of the buyers, the behavior of the customers and others
Corporate culture	It includes capabilities, vision, culture and corporation
The focus of the brand	It includes the logo, identity of the corporate, tagline of the brand
Experience of the customer	It includes the design of the products, quality of the products and service
Tools of communication	It includes direct marketing, advertising, online communication and others
Promotional tools	It includes trade promotions, database marketing, sponsorship programs and others
Integration tools	It includes CRM, marketing automation and others

(Source: [1])

"Integrated marketing communication" or IMC is an innovative way or process to unify all the marketing communication tools. Therefore, the mentioned process helps to enhance the number of customers for the companies [1]. Apart from that, the said process impacts the customers' buying behavior, which is essential for any business company. Thus, the tools that make the IMC process are advertising, public relations, personal selling, direct marketing and sales promotion. On the other hand, the "integrated marketing communication" process significantly influences the "impulsive buying behavior" of the customers. Thus, the purpose of this particular research study is to analyse the impacts of "integrated marketing communication" on the "impulsive buying behavior" of the customers. Therefore, a good strategy of IMC is essential to convince the

customers to purchase a product. Furthermore, the researcher has used secondary and qualitative methods to collect and analyse data in this particular research study.

Apart from that, some components are essential, and there are several types of factors of those components that influence the customers' buying behavior. Corporate culture, such as capabilities of the corporation, vision and culture of the corporation, are the main factors of this component [2]. After that, they focus on the brand as another component and logo, tagline and identity if the brand is the main factor. Similarly, the customers' experience, all the communication tools, promotional tools and integration tools are equally essential components in integrated marketing communication.

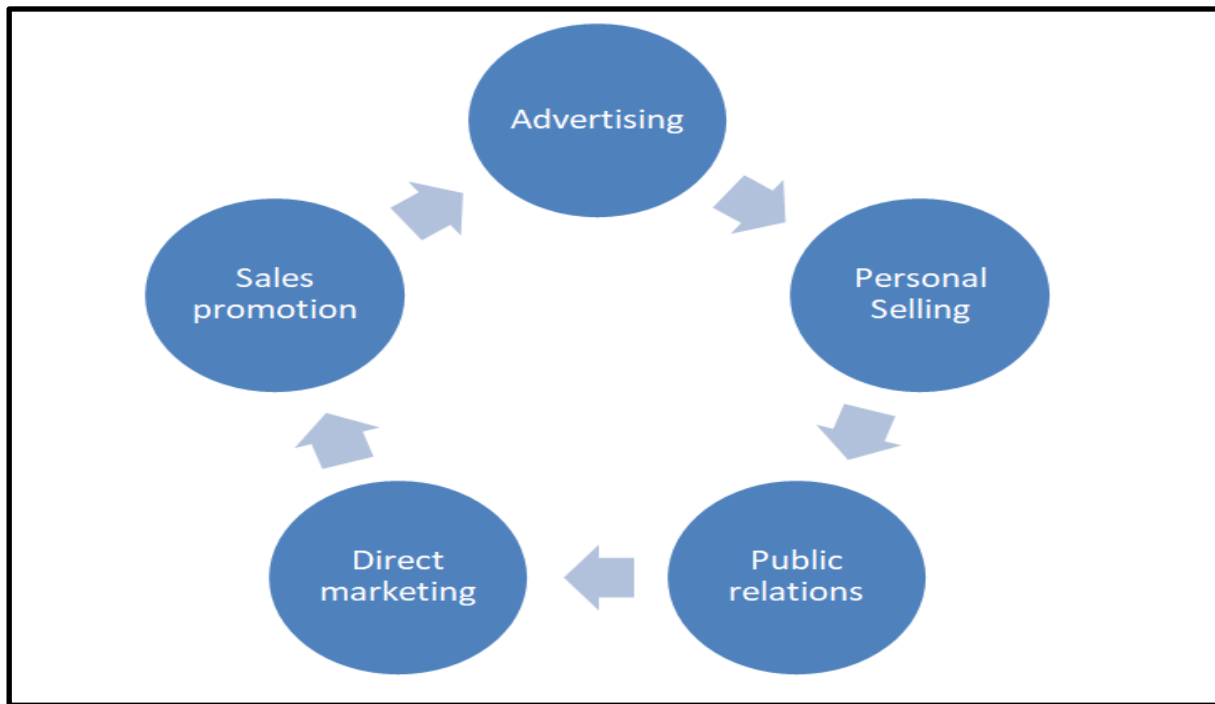


Figure 1: “Integrated marketing communication” tools
(Source: [2])

Impulsive buying behavior

Table 2: factors that impact impulsive buying of customers and their reason

Factors that affect impulsive buying	Reasons
Economic factors	Affordability of people influence the purchasing of people
Functional factors	This includes the needs of the customers
Psychological factors	Psychological factors such as learning, motivation, beliefs, perception and others influence the purchasing of people
Social factors	Social factors such as family, groups and others influence the purchasing of people
Cultural factors	Cultural factors influence the buying decisions of people as different people are from different culture

(Source: [3])

Buying behavior of the customers is significant for business companies. Therefore, different customers have different types of buying behavior. Among them, "impulsive buying behavior" is when the customers purchase some goods and products without any planning. Sometimes customers buy some products when some factors suddenly influence them, called the "impulsive buying behavior" [3]. Therefore, several factors influence the

customers during the "impulsive buying behavior"; among them, the most critical five factors are analyzed in the table. After that, the financial factors are the most important factors that influence the customers' buying behavior. Thus, it can be said that the economic factor is the most critical because sometimes people buy some products because of their stable financial condition.

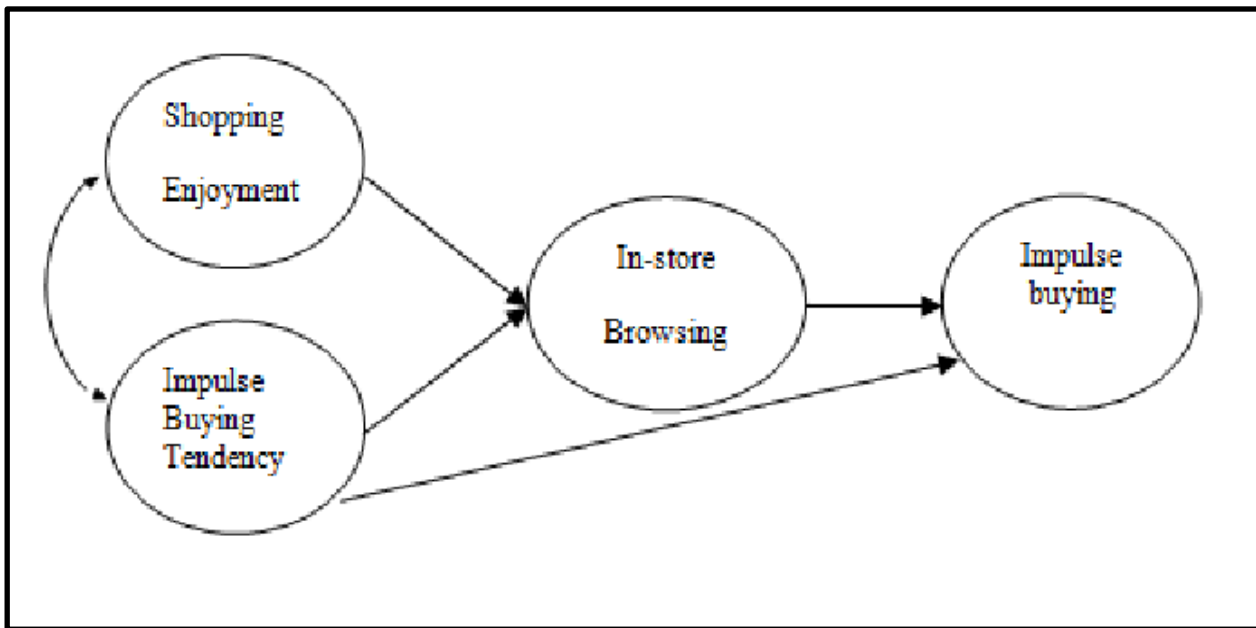


Figure 2: Impulsive buying

(Source: [4])

Apart from that, functional factors are also important that support the needs of the customers. Sometimes the customers buy something for completing their needs, but that is not planned previously, and that is also called the "impulsive buying behavior" of the customers. There are some psychological factors such as beliefs, perception, learning and others [4].

Objective

The main objective is to analyse the "integrated marketing communication" in this particular research study.

Methods and Techniques

The research approach is quantitative. The research is based upon secondary data. Literature derived from journals, publications, magazines, central and state government websites and newspaper articles are contacted for the study.

Results and Discussions

Effect of "integrated marketing communication" on impulsive buying behavior

The major factors of "integrated marketing communication" are analysed in this particular research study properly. Several factors influence the "impulsive buying behavior" of the customers, but some specific aspects of "integrated marketing communication" affect the customers' buying behavior. Therefore, there are mainly five factors of IMC that affect the "impulsive buying behavior" [10]. Thus, advertising, sales promotion, public relations, internet marketing, and direct marketing are the five factors. After that, advertising is one of the most used marketing communication tools that help gain the customers' attention.

Furthermore, business companies make some advertising about their product specifications, and that helps them to attract the customers. Therefore, advertising sometimes influences the "impulsive buying behavior" of the customers largely.

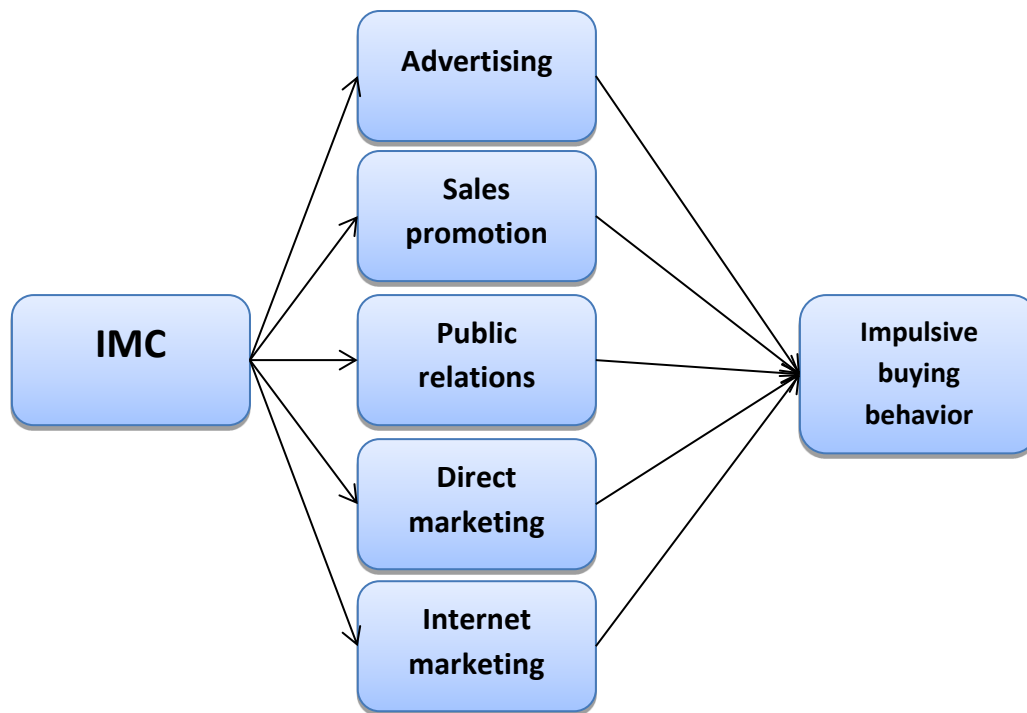


Figure 4: Effect of “integrated marketing communication” on impulsive buying behavior

(Source: [11])

On the other hand, public relations with the companies are also important because sometimes good ties influence the "impulsive buying behavior". Apart from that, sales promotion and direct marketing are other essential components of "integrated marketing communication" that also affect the impulsive behavior of the customers [11]. Thus, sales promotion is when a company promotes their sales and the customers' feedback towards their products. Therefore, this process is effective to attract customers to purchase some products. In addition, internet marketing is another crucial factor because the usage of the internet and digital applications has increased. Hence, by using the internet marketing process, the companies can provide the specifications of their products to people at the same time [12]. Thus, the usage of internet marketing is not expensive and helps to enhance the number of customers. Furthermore, the process is efficient and effective to influence "impulsive buying behavior".

Persuasive communication is considered to be important in the context of integrated marketing. It is necessary to influence consumer buying behavior through the scenario of communication messages. Communication message is believed to have a good effect on the impulsive buying behavior of the consumer. The capitalization of integrated

marketing communication plays the most vital role in forming purchasing decision-making for the consumer. Relevance and quality of decision are also significant, as it helps in the capitalization of purchasing capacity.

Furthermore, the value of goods and services need to be better for influencing the mindset of impulsive consumers. Sociological variables can play a significant role in the perspective of communication campaigns. Generation of economic effects in both short-term and long-term are required to be involved in the scenario of better profitability. The capitalization of an integrated marketing campaign is significant as it facilitates the transmission of messages in marketing communication.

Conclusion

It is identified that "integrated marketing communication" is an efficient and effective process to influence the customer for purchasing the products. Therefore, the "impulsive buying behavior" of the customers is affected or controlled by several factors. Therefore, all the elements are analyzed and equally important to influence the customers for buying some products. Thus, "integrated marketing communication" increases the communication skills of the companies, and they become capable of convincing the customers to purchase some products.

Therefore, the process of "integrated marketing communication" plays a vital role in "impulsive buying behavior".

Challenges and managerial implications

To implement integrated marketing communication, understanding the buying behaviour of consumers becomes difficult. There have been frequent changes in consumers' buying behaviour, which can impact decision-making in the long term. Management of an organization has to evaluate

the market continually for understanding buying behavior of impulsive consumers.

Limitations and future scope

The study has been conducted in limited time and budget. The availability of more time and budget are necessary for making the study more effective. The study outcome will be beneficial in the context of making business decision-making. To implement initiatives of digital marketing, understating buying behavior of consumers gets essential.

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CHALLENGES FACED BY THE RURAL TEACHER IN ONLINE TEACHING DURING COVID-19. A SITUATIONAL ANALYSIS

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ABSTRACT

During the Covid-19 pandemic situation, the teachers has adopted the online method of teaching. In which many rural teachers have faced the different psychological and technical challenges. Due to the closure of Educational Institutions and to continue the classes most of the teachers all around the world have adopted the online method to teach the students. Because of that methodology of teaching and learning have changed from Traditional to Online method. Which has created difficulties for many teachers. In the present study, the investigator aims to study the challenges faced by the rural secondary school teachers during the Covid-19 Pandemic. The study was conducted with 200 rural secondary school teachers of both Government and Private Secondary School teachers. To collect the data closed ended questionnaire was constructed by the investigator and also interview was conducted to collect the qualitative data. The study found that, teacher have to faced multiple challenges related to their forced to change the conventional habit of teaching, changing routine, methodology of teaching, technical problem such as poor internet connectivity, poor knowledge of ICT, presentation of lesson. And also, problems related to students such as motivation, maintaining discipline, monitoring students' progress etc. The study also found that all the rural secondary school teacher used only smartphone to teach online.

Keyword: Covid-19, Challenges, Online Teaching, Rural Teacher.

Introduction

The Covid-19 changes the scenario of educational institutions. The classroom environment and the classroom climate have totally changed. The outbreak of Coronavirus forced all the educational institutions to adopt the virtual classroom which is unexpectedly become challenge for all the teachers, students and educational administrators, especially rural teachers and rural students. The online survey conducted by Learning Spiral showed that while children face issues in accessing education digitally, teachers face issues in delivering education through digital mediums (India Today, 2021). The sudden changes in the method of teaching affected the teachers in many ways. Teaching itself a very challenging task. For successful teaching teacher have to access students all the time through face-to-face interaction as well as through other mean also. The teacher has to understand the students' psychological conditions to facilitate learning to each student which must requires the face-to-face interaction. But the pandemic situation stopped the face-to-face teaching learning process.

The online classroom with its flexibility comes with many limitations especially for the rural teachers. It requires expertise and familiarity with the teaching learning technology, good

network connection, basic devices like smartphone, laptop or computer. A staggering 84% of teachers reported facing challenges in delivering education digitally with close to half the teachers facing issues related to the internet both signal issues and data expenses (India Today, 2021). Likewise, Dr. Seema Sareen and Dr. Anita Nangia found that 61.66% teachers to some extent experiencing problem due to lack of appropriate materials and resources. The India Today (2021) also highlighted that two out of every five teachers lack the necessary devices to deliver education digitally; the situation is particularly grave in UP and Chhattisgarh where 80% and 67% of teachers respectively lack the requisite devices to deliver education online. Apart from that the teacher have to go through the different psychological pressure related to their management of teaching time, sequencing of activities, testing and evaluation of students, managing the routine etc. Apart from that, there is lack trained teacher to provide education digitally, the Bihar and Jharkhand, the figure was less than 5%. (India Today,2021)

The working system of educational institutions forced to change totally, it has changed the time table, working system, teaching methodology, classroom environment and

classroom climate. Based on the previous evidence the present study purpose is to study the challenges faced by the teacher in online teaching during Covid-19 pandemic.

Objectives

1. To study the application and platform used by the teacher in online mode of teaching during Covid-19 pandemic.
2. To study the form and method used by the teacher in teaching during Covid-19 pandemic
3. To study the different challenges faced by the rural secondary school teacher in online teaching during Covid-19 pandemic

Research questions

1. What devices teachers have used to teach online during Covid-19 pandemic?
2. What teaching App or Software teachers have used in online teaching?
3. What method and form used by the teacher in online teaching during Covid-19 pandemic?
4. What challenges faced by the teacher in online teaching during Covid-19 pandemic?

Methods

In the present study the researcher used descriptive survey method. Considering the present situation, the online survey was conducted to collect the data. Total 200 teachers who have taken online classes during Covid-19 pandemic were only selected from both the Government and Private Secondary Schools of Dhemaji District of Assam, India as a sample of study. The sample were selected

purposively as per the convenient of the investigator.

Materials

To collect the require data, the closed-ended questionnaire was constructed by the Investigator and for the qualitative data online Interview was scheduled. In the present study only, the primary data was used. The data was collected from all the 200 secondary school teachers both the Government and Private secondary school teachers. The data were collected by using closed ended questionnaire prepared by the investigator. And to collect the qualitative data 30 teachers were interviewed by calling them. After the data collection the responses of the teachers were converted into percentage in order to find out the percentage of teachers facing challenges during online teaching.

Result

The Covid-19 protocol has changed the teaching methodology. The conventional classroom has shifted to the virtual classroom, teaching methodology has changed to the online due to the Covid-19 pandemic. To teach virtually, both the teacher and students need devices. It is basic requirement to conduct classes. In the study, it was found that all the rural teacher used smartphone for online teaching. The 100% of the rural secondary school teacher used smartphone as a medium of online teaching, which was 200 out of 200 rural secondary school teachers. (See Table No-1).

Table No-1: Devices used by the Rural Secondary Teacher in Online Teaching

Devices	No. of Responce	Percentage
Mobile/ Smartphone	200	100%
Laptop	-	-
Computer	-	-
Total	200	100%

After the outbreak of coronavirus most of the education institutions have conducted the classes online. There are many free teaching learning software/ applications in the internet. And there are different categories of application with the features of real time audio-video chatting, documents sharing, group

massaging, recorded video sharing, etc. In the present study, it was found that total 160 rural secondary school teacher used WhatsApp which is 80% of the total sample. And 40% rural secondary school teacher used Google Meet as a medium of online teaching

Table No-2: Application and Platform used by the Rural Teacher in Online Teaching

Application/Platform	No. of Responce	Percentage
WhatsApp	160	80%
Zoom	-	-
Google Meet	40	20%
Google Classroom	-	-
YouTube	-	-
Total	200	100%

The form and method used by the rural secondary school teacher in online teaching during Covid-19 pandemic was, 20% teacher audio-video conferencing and 80% of the

teacher used only audio conferencing. And it was found that 100% teacher used PDF file to teach and only 20% teachers used Google Slide to teach online.

Table No-3: Form and Method used by the Rural Teacher in Online Teaching

Form/ Method	No. of Respondents	Percentage
Audio-Video Conferencing	40	20%
Only Audio Conferencing	180	80%
Word Files	-	-
PDF	200	100%
PPT	-	-
Google Slides	40	20%

Challenges faced by the Rural Secondary School Teachers in Online Teaching:

Teaching is a very challenging task, the changed educational scenario made it more difficult for the teacher. The teacher has to change their habit, attitude, mode and routine of teaching due to the Covid-19 pandemic. The result of the present study is discussed as follows-

To teach online it is very important of have knowledge of Application/Software. Because online teaching requires use of application, such as use of Google Meet, Zoom, WhatsApp etc. In the present study it was found that 23% of rural secondary school teacher have poor knowledge of ICT, 45% were average and 31.5% rural secondary school teachers have good level knowledge of ICT.

Table No-4: Knowledge of ICT

Challenge	Good		Average		Poor		Total	
	No.	%	No.	%	No.	%	No.	%
Knowledge of ICT	63	31.5%	90	45%	47	23.5%	200	100%

Teaching requires mental preparedness, during the time of coronavirus, teachers have to prepare mentally as well as technically. Preparedness to teach digitally means familiar with teaching technology and confidence to teach with technology. In the present study, it

was found 64% of the rural secondary school teachers were not prepared, 24% of the rural teacher was neutral, and only 12% of the teachers were confident to teach digitally (See the following Table).

Table No-5: Preparedness to Teach Digitally

Challenge	Yes		Neutral		No		Total	
	No.	%	No.	%	No.	%	No.	%
Preparedness to Teach Digitally	24	12%	48	24%	128	64%	200	100

Good Internet connection is must to teach online. But the good internet connection in the rural areas of India is still improving. The high-speed internet connection such as Wi-Fi, broadband is still not installed in the village areas. In the present study, it was found that,

the 47% of the rural secondary school teachers having poor internet connectivity, 30% of the teachers have average internet connection and 21% of the rural secondary school teachers have good internet.

Table No- 6: Internet Connectivity of Teachers

Challenge	Good		Average		Poor		Total	
	No.	%	No.	%	No.	%	No.	%
Internet Connectivity of teachers	42	21%	61	30.5%	97	48.5%	200	100

In the classroom whether it is online or offline discipline is very important for successful teaching, the amount of student learning, attention, equality in the class only be ensured with the discipline. In the present study, it was

found that, 93% teachers always faced challenges in maintaining discipline in online teaching, 7% teachers sometimes faced challenges in maintaining discipline in online teaching.

Table No-7: Maintaining Discipline

Challenge	Always		Sometimes		Never		Total	
	No.	%	No.	%	No.	%	No.	%
Maintaining Discipline in the class	186	93%	14	7%			200	100

The presentation of the lesson in the class is key to have student's attention and interest, hence it is very important element of teaching. In the present study it was found that, 80% of

the rural secondary school teacher faced challenges always and 20% of the rural secondary school teachers sometimes faced challenges.

Table No-8: Presentation of Lesson

Challenge	Always		Sometimes		Never		Total	
	No.	%	No.	%	No.	%	No.	%
Presentation of lesson	160	80%	40	20%			200	100

In the classroom, the students need motivation to learn. It is everyday function of a teacher. In the present study, it was found that 87% of the rural secondary school teachers always have to

face the challenge of motivation of students, 12.5% of the rural secondary school teachers sometimes faced challenge of motivation of students.

Table No-9: Motivation of Students

Challenge	Always		Sometimes		Never		Total	
	No.	%	No.	%	No.	%	No.	%
Motivation of students in the class	175	87.5%	25	12.5%			200	100

The teachers have to conduct examination to measure the knowledge acquired by the students after the completion of a lesson or

course. The teachers have to access continuously to know the students acquired knowledge. The present study found that, 65%

of the rural secondary school teacher always faced the challenge in evaluating the students, 17% of the teachers sometimes faced challenge

in evaluation of students and 18% of the rural secondary school teachers never faced challenge in evaluation of students.

Table No-10: Evaluation and Testing

Challenge	Always		Sometimes		Never		Total	
	No.	%	No.	%	No.	%	No.	%
Evaluation of the students	130	65%	34	17%	36	18%	200	100

The continuous monitoring the students' progress is very important, it allow to know the student's direction of progression, whether the students doing daily academic activities or not. In the present study, 91% of the rural

secondary school teachers always faced the challenge in monitoring the students, 9% of the rural secondary school teacher sometimes faced challenge in monitoring students.

Table No-11: Monitoring students' progress

Challenge	Always		Sometimes		Never		Total	
	No.	%	No.	%	No.	%	No.	%
Monitoring Students Progress	182	91%	18	9%			200	100

The response of the students in the class is very important to know whether the students are able to understand or not and whether the students are paying attention or not. In the present it was found that, 62% of the rural secondary school teachers always faced challenge of students' responses, 26% of the

rural secondary school teacher sometimes faced challenge of student's responses in online teaching, and 11,5% of the rural secondary school teachers never faced challenge of student's responses in online teaching

Table No-12: Students Response in the class

Challenge	Always		Sometimes		Never		Total	
	No.	%	No.	%	No.	%	No.	%
Students' response in the class	125	62.5%	52	26%	23	11.5%	200	100

After the outbreak of the Covid-19 pandemic, the school attendance of the students is no more compulsory, which is not only affecting the students but also worrying the teachers. In the present study, 87.5% of the rural secondary

school teacher always faced challenge of attendance of students in online teaching, 12.5% of rural secondary school teachers sometimes faced challenge of student's attendance in online teaching.

Table No-13: Attendance of the Students

Challenge	Always		Sometimes		Never		Total	
	No.	%	No.	%	No.	%	No.	%
Attendance of the students	175	87.5	25	12.5%			200	100

The effective communication between the teachers and students determined the effectiveness of the class. The two-way communication is very important in the class.

But the online teaching created the communication gap between the teachers and students. In the present study it was found that, 90% of the teachers always faced

communication gap in online teaching, 10% of the rural secondary school teachers never communication in online teaching.

Table No-14: Communication Gap

Challenge	Always		Sometimes		Never		Total	
	No.	%	No.	%	No.	%	No-	%
Communication Gaps	180	90%			20	10%	200	100

Analysis of Open-Ended Research Questions

Total 30 teachers were interviewed through telephone by the investigator to know collect more detail description about the how the teachers have conducted the online classes, what methods they have used and what challenges they have faced in online teaching.

Regarding the first question on concern, teachers have mentioned that they only used smartphone to teach because it is easier to use than laptop and computer. Some of the teachers also mentioned that they do not know how used computer.

Regarding the second question, most of the teachers mentioned that they find WhatsApp easier to use because they were more familiar with the app and they have used it as medium of chatting with friends and family before online teaching. And after the closure of educational institutions, they used WhatsApp for teaching students. Some of their comments were-

“I mostly used WhatsApp because it is very easy to use”

“I used WhatsApp before also but after the closure of educational institution, now I used it for teaching, I don’t have to use other app for teaching”

“I am using Google Meet to teach; it is very comfortable and I can share slide to teach which is very helpful for presenting and explanation of my lesson”

Regarding the third question, the most of the teachers have mentioned that they only used audio conferencing and share file after that in the WhatsApp because they find it difficult to use other Apps and few were used Google Meet to teach online.

Regarding the four questions, about the difficulties in teaching online, the teacher has mentioned different challenges, most of them mentioned that online teaching itself a

challenging task for them after the years of experience in face-to-face teaching. The online method was completely new for all the teacher, they have never taught online before. Hence, most of the teachers mentioned about the lack of confidence to teach online. The most of the teacher also strongly mentioned about the poor internet connectivity. They also concern about the poor internet connectivity of the students. Because of the poor internet connection, it made their teaching difficult. Some of their comments about the challenges faced by them are as follows-

“It is my first time; I have never taught online. So, it is very difficult for me, sometimes I get nervous”

“The internet connection is very bad in our area, sometimes in-between the class it buffer, it makes so difficult to explain the topic”

“It is very difficult to teach online, I never know whether students paying attention or not. Sometimes students joined the class and then leave the class and joined again that makes me really angry”

Some of the challenges faced by the teachers, which they mentioned are summaries as follows-

- Poor Internet Connection.
- Lack of Confidence.
- Less familiar with ICT.
- Problem in communication.
- Lack of parental involvement.
- Uncertainty of what students are doing while teaching.
- Problem in Evaluation.
- Problem in monitoring students’ progress.
- Problem of student’s responses while teaching.
- Problem of student’s attendance.
- Financial problem.

Discussion and finding

The pandemic situation brought the educational system at the stake. All the educational institutions have to closed, but at the time of stake online method emerged globally. It is one the advantage that online teaching method was emerge strongly during the pandemic situation and teachers have to use online method to teach. Though the online method has many advantages, but many teachers have to face challenges in online teaching during Covid-19 pandemic. It has totally shifted the face-to-face teaching method to completely online mode, because of which the teachers have to adopt new habit, new routine and new methodology which was very challenging for the teachers. Along with that the teachers have faced multiple challenges related to technical, financial and students related problems. The study has found the various challenges that teachers have faced in the online teaching.

The study found that 60% secondary school teacher used WhatsApp and 20% secondary teachers used Google meet to teach online. It was also found that most of the teacher used only audio conferencing to teach online that is 80% and only 20% of teacher used Audio-Video Conferencing to teach online. Again, it can be seen that 100% teacher used pdf to provides materials to students and 20% teacher used google slides along with the pdf to provide study materials to the students. Again, the present study finds out the numbers of challenges that the secondary rural teachers have faced during the online teaching. The main Finding of the present study are as follow-

- It was found that only 31% of teachers has good level of knowledge of ICT, 45% teachers have average level of knowledge of ICT and 23.5% teacher has poor level of knowledge of ICT.
- It was found that only 12% teachers were prepared to teach digitally, 24% were neutral

and 64% of teachers were not prepared to teach digitally

- It was found that 21% of teacher's Internet Connectivity was good, 30.5% was Average and 48.5% teacher's Internet Connectivity was poor.
- Again, it was also found that 93% teachers have always faced problem in maintaining discipline during the class and only 7% teacher have faced problem sometimes in maintaining discipline during the class.
- It was found that 80% of teacher always facing problem in presentation of lesson and 20 % teacher have sometimes faced problem in presentation of lesson during online teaching.
- It was found that 87.5% teachers always faced problem in motivating the students in online class and 12.5% teachers sometimes faced problem in motivating students in online teaching.
- It was found that 65% of teachers always faced challenges in evaluating and testing of the students, 17% teachers sometimes and 18% of teachers never faced challenges in testing and evaluating of the during the online teaching.
- It was also found that 91% of teachers have always faced challenges in monitoring the students during online teaching and only 9% of teachers have sometimes faced challenges in monitoring the students during online teaching.
- It was found that 62.5% of teachers have always faced problem of student's responses, 26% teachers sometimes and 11.5% teachers never faced problem of student's responses in online teaching.
- It was also found that 87.5% teacher have always faced problem of student's attendance, 12.5% teachers sometimes faced problem of student's attendance in online teaching.
- Again, it was found that 90% of teacher always faced communication gap and 10 % of teacher never faced communication gap in online teaching.

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SINGLE BUTTON GESTURE KEYBOARD USING MACHINE LEARNING**S.V. Priya¹, Dr. Nalini Joseph², R. Uma Maheshwari³, S. Jayapriya⁴, S. Kowsalya⁵**^{1,2,3,4,5} Department Of ECE, Loyola Institute of Technology, Palanchur, Chennai¹srisvpriya@gmail.com, ²nalinijoseph23@gmail.com**ABSTRACT**

In this project proposed a Gesture keyboard it is used to type in character by recognizing hand gesture keyboard are currently the most universally accepted computer input device. They may be wired, wireless, or virtual, but the chance is that you are within a few centimeters of a keyboard right now. In this project, we describe aptly named the gesture keyboard which as the name suggest converts gesture into keystrokes. We construct a prototype from an Arduino and an accelerometer which conceptually resembles writing in Palm's old Graffiti, though this version is performed in mid-air with a handheld instead of a small square at the bottom of an LCD screen. We can easy to operate wireless with a Bluetooth module. Gesture keyboard sending signals to the laptop, together with a python library using scikit-learns SVM (support vector machine) algorithm the system captures motion and transform them into character that appear on screen.

Keyword: Arduino, keyboard, Gesture, Internet of things (IOT)

Introduction

The keyboard plays a vibrant role in the computer system for the entry of data by pressing the number of keys. In today's generation screen touch keyboards are mostly used and gesture keyboards also used only for physically disabled people and for special use. There is plenty of variation in layouts of the physical keyboard such as AZERTY, QWERTY, Dvorak Colemak, Maltron, and JCUKEN. Not only this virtual keyboard also gets eminent and this is the era of mobile and networking devices generally people use speech to text technology but many times it does not provide the precise outcome. Remote based gesture keyboard is one of the electronic devices organized by python programming language and based on machine learning algorithms. It is a system that transforms gesture motion into text defined by the accelerometer in the air. It is being deliberate to help the user for entering text without using a specific layout. This model will also support multi linguistics functionality so the user doesn't need to use the different keyboards for entering text. It is similar to writing in a notebook using a pen where a remote act as a pen and notebook will be a text editor. The advantage of this project is users don't prerequisite for using the remote. The user also doesn't need to use various functional keys for different languages. The Arduino serial monitor is configured and set the baud rate to 38400 at Arduino IDE, now the overall

module will work on sci-kit learn's a library that converts signals into letters through accelerometer and every single character and digit will store in data set. When the data set is ready it will train the module through a machine learning algorithm.

Existing System

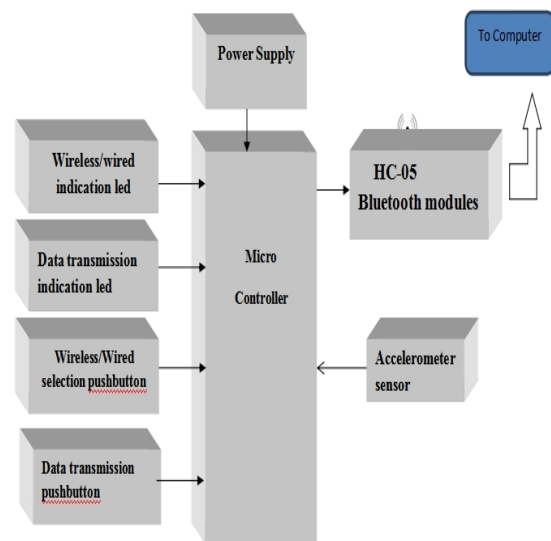
The term keyboard is not new in the world of computer, as the time changes computer and other related devices also changes. User comes from the typewriter to touch screen keyboard and not only these, but keyboard functionalities also change as per customer requirements such as layout, technology, and special-use. The Tap Gesture keyboard is a device through it is typing on any surface is possible. The term keyboard is not new in the world of computer, as the time changes computer and other related devices also changes. User comes from the typewriter to touch screen keyboard and not only these, but keyboard functionalities also change as per customer requirements such as layout, technology, and special-use. The Tap Gesture keyboard is a device through it is typing on any surface is possible. The device contains five extensions for each finger and a sensor is used to sense the value is used to movement of the hand. At the starting stage, the user will be provided with the typology application. Due to this application, the user can learn all the values necessary for typing. Once a user is familiar, it will be easy to use this device. This device is

also flexible which means the user can set the values according to his ease. Motion plays major part in this device as the values are to be fetched by sensors through the movement of fingers. This allows the user to type on any surface. It proves convenient and comfortable for the user to use this device. An air mouse system is a wireless gadget manufactured by protokart, worked by a rechargeable lithium battery. This device can easily connect by PC, TV, and smartphones via USB and Wi-Fi. This nondirection gadget uses an anti-shake algorithm, it provides accurate and smooth mouse experience and also supports motion gestures. It can be used as a remote for playing a game. This system has inbuilt physical keyboard can be easily connected to televisions, smartphone, and PCs for entering text. The working distance from the screen is 10 meters. It is compatible with Windows, MAC OS, Android, and Linux.

Proposed System

Different Gesture keyboards are available in the market, with size may be change, layouts, programs, and functionalities. Recently, the keyboards are is use but for every single keyboard, the user should remember the arrangement of keys in order to enter different characters. Remote-based gesture keyboard is a system that serves on the Internet of Things [IoT] architecture and embedded C software with Arduino as well as the accelerometer and machine learning process that the system to perform in the desired direction. The remote-based gesture keyboard is the model, where the user can enter text and number in a text editor by moving a hand to the particular motion of characters in the air using Arduino. Arduino operates as a remote where gestures keyboard relocate into the air, translating to the letters, and shows the laptop of the screen.

BLOCK DIAGRAM:



HARDWARE REQUIREMENTS:

- ARDUINO UNO
- ACCELEROMETER SENSOR
- HC-05 BLUETOOTH
- PUSHBUTTON
- LED

SOFTWARE REQUIREMENTS:

- PYTHON IDE 2.7
- ARDUINO COMPILE

V. MODULE DESCRIPTION

ARDUINO:

Arduino is an open source microcontroller board based on the microchip and user community. This boards are able to read inputs – light on a sensor, a touch on a screen, or a Twitter message – and turn it into an output – starting a motor, switch on the LED, telecasting something Arduino Uno is a microcontroller board amongst the ATmega328 (datasheet). Arduino have 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a crystal oscillator 16MHz, USB connection, power jack, an ICSP header, and a reset button .



Fig 1. Arduino UNO

BLUETOOTH:

Bluetooth is a telecommunications industry specification that express how mobile phones, computers, and personal digital assistants (PDAs) can be easily interconnected using a short range wireless connection. Each and every device has a unique 48-bit address from the IEEE 802 standard. Connections can be point-to-point or multipoint.



Fig 2. Bluetooth module

The maximum range is 10 meters. Data can be interchanged at a rate of 1 mega bit per second. A frequency hop scheme permit devices to communicate even in areas with a great deal of electromagnetic interference. Bluetooth works by the simple principle of transmitting and receiving data in the form of radio waves. Every Bluetooth allow device has a card-like attachment known as the Bluetooth adapter. It is this Bluetooth adapter that transmit and receives data.

ACCELEROMETER SENSOR:

It is a device that measures proper acceleration. Proper acceleration is the rate of change of velocity of a body in its own instantaneous rest frame;

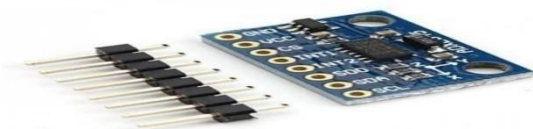


Fig 3. Accelerometer

Single- and multi-axis accelerometers can detect both the magnitude and the direction of the correct acceleration, as a vector quantity, and can be used to sense orientation. Micromachined micro electro mechanical systems (MEMS) accelerometers are increasingly the present time in portable electronic devices and video-game controllers to detect changes in the positions of these devices.

PUSH BUTTON:

A push-button is simple switch Mechanism for controlling some aspect of a machine or a process button is generally made out of hard material usually plastics or metal.

POWER LED:

LED is a two-lead semiconductor light source. It emits light when activated. Suitable voltage is applied to the leads, electrons are permit to recombine with electron holes within the device releasing photons. Light Emitting Diode are generally small-scale and integrated optical components may be used to shape the radiation pattern.

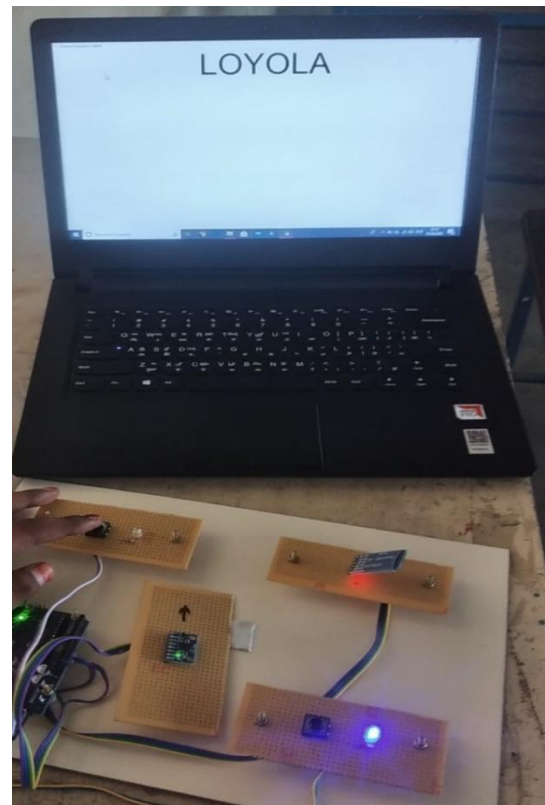
RESULTS AND DISCUSSION

Figure 4. Shows the hardware implementation

Conclusion

The remote-based gesture keyboard concept describes the new idea and it is not only for technical purposes but also can be used in for market potentials. This project will engage some various apparatus that is new for the educational organization. It will be very helpful in school for learning purposes, and also gives enjoyment. This system is also providing multilingual functionality, so the user can easily manage and make a gesture of

a particular language. The aim of a project is the user could enter values or characters without seating in front of a computer and easy to use. The main factor of this project is users don't have to learn prerequisites and don't have to remember buttons as compared to a traditional keyboard, so it makes the huge difference between numerous different keyboards and gesture-based system. This

project has some conflict issues such as 100% accuracy of letters because many people's handwriting is different so the data set will be large if enter number of the font family. This project can be used as a wired or wireless manner. In a wireless manner if some obstacles occur then bandwidth will be decreased these can be overcome in a future enhancement.

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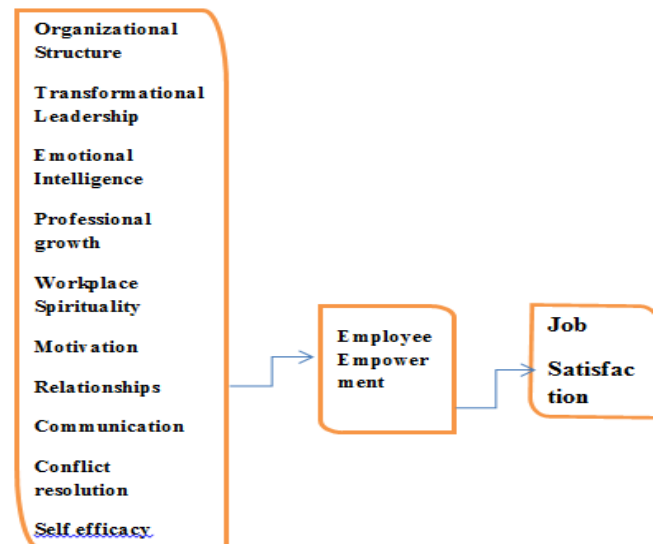
EMPLOYEE EMPOWERMENT - STRATEGY TOWARDS JOB SATISFACTION**K. Vij¹ and R. Chahal²**¹IKG, Punjab Technical University Kapurthala, Punjab, India² Sant Baba Bhag Singh University, Punjab, India¹vijkajal@ gmail.com, ²h_chahal@ymail.com**ABSTRACT**

HR strategies are formulated in such a manner so as to bring employee empowerment and job satisfaction among organizations. Many models are developed to define and validate the concepts so as to have its practical applicability. The present paper is prepared on these lines with a view to construct a model which will take into consideration various factors that are responsible for employee empowerment and it results in job satisfaction. In the field of teaching as well human resource strategies are implemented to draw conclusion which results in formulating the new concept of employee empowerment and job satisfaction. So in lieu of this the present paper is perceived that brings about new strategy in the form of a conceptual model which is statistically analyzed and generalizations are drawn with the help of Factor Analysis using SPSS. Few of the parameters which are included are Organizational structure, Transformational leadership, Professional growth, Workplace spirituality, Motivation, Emotional intelligence, Relationships, Communication, Conflict resolution and Self efficacy etc. As the research is descriptive in nature, an empirical study is conducted using questionnaire which are sent to teaching fraternity for data collection. To assess the reliability of data Cronbach's alpha coefficient is used. To assess the Measures of Sampling Adequacy of data KMO & Bartlett's Test of Sphericity is used.

Keywords: Employee empowerment, HR Strategy, Job satisfaction, Emotional intelligence, Communication

Introduction

Employees are considered as most valuable human asset in the organization who is functioning in present working environment in the midst of quick innovative changes and battling with the worldwide principles. Education area is developing as the most significant and investible area. The profoundly required component in instructive organizations is the showing crew which goes about as column behind the accomplishment of higher instructive foundations. The investigation is one of a kind in itself as it characterizes employee empowerment and Job Satisfaction in various ways while consolidating a 10 factor model which has not yet been concentrated under any zone of examination. The current examination is as to effect of occupation fulfillment of private college educators considering the investigation of huge connection between worker strengthening and employment fulfillment with the assistance of intervening components. Ten factor models consist of various mediating factors such as:



All the above factors have been collaborated in one study to bring about effect on Employee Empowerment and Job Satisfaction. It makes the study valuable and interesting which brings about causal effect on the two attributes. Kokila.P (2016) advocated empowerment comes from individual's perception by influencing the desired effects of working environment it represents the degree to which an individual feels that his input into their organization's

administrative or strategic decisions is up to the level. Chauhan, A. S. (2017) Employee empowerment is one of the means to delegate authority and responsibility as it is utilized to increase productivity, service quality, giving recognition of work, reducing retention, and to create workplace spirituality which will enhance their motivation level.

Kipkebut, D. J. (2010) said Job satisfaction highlights the factors such as professional commitment, turnover intentions among faculty of public and private universities and revealed that private university teachers are more satisfied. Markos, S., & Sridevi, M. S. (2010) generalized that job satisfaction is very essential for any organization so as to make their employee loyal to the organization. Factors affecting job satisfaction are effective communication, training and development; establish reward mechanism, adequate organization and behavior.

Review of Literature

Kirkman, B. L., & Rosen, B. (1999) the study reviewed the model concept of work team empowerment that emphasizes on Organizational and Job Characteristics, team empowerment and work team effectiveness. Gardenhour, C. R. (2008) investigated teacher perceptions of their empowerment measured by psychological empowerment instrument supported the notion that teacher empowerment could be influenced by organizational structure, relationships, communication, conflict resolution, emotional intelligence, motivation, job satisfaction, and transformational leadership. Rahman, M. I. (2008) portrayed the relationship of job satisfaction among public and private college teachers of Bangladesh. Overall improvement in salary structure, technological advancement, improving infrastructure, reduction of red tapism and bureaucratic attitude of managements are required to increase the level of overall level of job satisfaction. Azeem & Sayed (2010) propounded the influence of empowering employees on job satisfaction by identifying the dimensions of employee's empowerment, the extent of job satisfaction and relationship between the two variables in youth care administration. The results revealed that

people were highly dissatisfied with the supervision and salary pattern of the faculty. Kipkebut, D. J. (2010) sited about Organizational Commitment and Job satisfaction in higher educational institutions in Kenya. The extent of factors that is demographic characteristics, professional commitment, job and role-related factors, and HRM practices influenced organizational commitment, job satisfaction and turnover intentions among employees in public and private universities was also one of the major objectives. Hunjra, A. I., et al. (2011) comprised study of Pakistani service industry with the objective of establishing relationship between employee empowerment and job satisfaction. The results reveal that there is positive and significant relation between employee empowerment and job satisfaction. Amzat, I. H., & Idris, D. A. R. (2012) attempted a study to find out the effect of decision making and management styles on job satisfaction. Wherein, the researchers examined the various parameters that have positive effect on level of job satisfaction on academic staff of Malaysian Research University. Hempel, P. S., Zhang, Z. X., & Han, Y. (2012) advocated the study around workplace spirituality, trust and job satisfaction. The findings indicated that there is a positive relationship between workplace spirituality and job satisfaction and trust between employees. Abou Elnaga, A., & Imran, A. (2014) highlighted the relationship between employee empowerment and job satisfaction by reviewing and determining all factors which affect on this relation. Hassan, S. Y., et al. (2015) advocates the relation between transformational leadership and self efficacy conceptualizing the theoretical aspect. Belwalkar, S., & Vohra, V. (2016) proposed the relationships between workplace spirituality, job satisfaction and organizational citizenship behaviors. Choi, S. L., et al. (2016) drew the causality among perceived transformational leadership, empowerment, and job satisfaction.

Objectives of the study

- To study the relationship between employee empowerment and job

satisfaction among private university teachers.

- To explore the factors affecting job satisfaction.

Research Methodology

The paper aims to study relationship between employee empowerment and job satisfaction to determine human resource strategy which will provide a framework that analyses the conceptual framework..First of all information regarding sample and scales were given. Afterwards the statistical model created under the light of data analysis and findings were noted with the help of SPSS. To assess the reliability of data Cronbach’s alpha coefficient is used. To assess the Measures of Sampling Adequacy of data KMO & Bartlett’s Test Sphericity is used. Exploratory Factor Analysis is used to study the correlation between factors affecting job satisfaction. The model constructed comprises of dependent, independent and mediating variables.

- **Samples size**

The population of this research consists of teaching faculty of private universities and research is associated within the preview of Phd research ongoing on said topic. Employees were chosen by convenience sampling method as the samples of this research. The total number of respondents is 150 and generalizations are drawn.

- **Scales**

The different scales regarding employee empowerment and job satisfaction were gathered by using a 5- point Likert Scale ranging from 1 (strongly disagree) to 5 (strongly agree) for job satisfaction and 1 (Almost never) to 5 (Large extent) for employee empowerment. Out of 36 statements pertaining to Job satisfaction few has been taken from Spector (1985) Job Satisfaction Survey and out of 12 statements pertaining to employee empowerment has been taken from

Kanter (1977) Conditions for Work Effectiveness Questionnaire (CWEQ) and rest all statements have been included with a discussion with experts that was required for the study.

The computed values are taken for purpose of analysis.

Result

SPSS was used to draw generalizations. Correlation and Regression Analysis was used to examine the relationship of employee empowerment on job satisfaction. Table 2 shows the Reliability of data and to find the consistency of reliability Cronbach’s alpha coefficient was used in the study. It was found to be 0.906 which is acceptable. Table 3 shows Measures of Sampling Adequacy, which depicts KMO and Bartlett's Test which is found to be 0.770 which is acceptable. Table 4 explains the Eigen Values of 12 components greater than 1 with high Variance. Table 5 shows Communalities of the questions extracted based on Principal Component Analysis.

Table 1 Case Processing Summary

		N	%
Cases	Valid	150	100.0
	Excluded ^a	0	.0
	Total	150	100.0

a. Listwise deletion based on all variables in the procedure.

Table 2 Reliability Statistics

Cronbach's Alpha	N of Items
.906	48

Table 2 shows the Reliability-- To check the consistency of reliability Cronbach’s alpha coefficient was used in the study. It was found to be 0.906 which is acceptable.

Table 3 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.770
Bartlett's Test of Sphericity	Approx. Chi-Square	4667.841
	Df	1128
	Sig.	0.000

Table 3 shows Kaiser- Meyer –Olkin Measures of Sampling Adequacy which is 0.770 that is acceptable. Bartlett's Test of Sphericity also is

significant which highlights that data is absolutely adequate.

Table 4 Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.408	19.600	19.600	9.408	19.600	19.600
2	7.411	15.439	35.039	7.411	15.439	35.039
3	3.338	6.955	41.994	3.338	6.955	41.994
4	2.214	4.613	46.607	2.214	4.613	46.607
5	2.071	4.315	50.921	2.071	4.315	50.921
6	1.927	4.015	54.937	1.927	4.015	54.937
7	1.779	3.706	58.642	1.779	3.706	58.642
8	1.410	2.937	61.579	1.410	2.937	61.579
9	1.307	2.722	64.302	1.307	2.722	64.302
10	1.259	2.622	66.924	1.259	2.622	66.924
11	1.231	2.564	69.487	1.231	2.564	69.487
12	1.036	2.157	71.645	1.036	2.157	71.645

Extraction Method: Principal Component Analysis.

Table 4 explains the Eigen Values of 12 components greater than 1 with total variance

of 71.645% which is quiet high with the help of Principal Component Analysis.

Table 5 Communalities

	Initial	Extraction
1.Policies, strategies & procedures of the university are flexible	1.000	.746
2.Administrative staff or system (online administrative services, frontline staff) is helpful in your university	1.000	.707
3. Supervisor praises the job performed by the people.	1.000	.784
4. Feedback on your behavior is valuable.	1.000	.858
5. Emotional feelings affect your performance.	1.000	.738

6. The opportunity to acquire new knowledge & skill is valued.	1.000	.664
7. You are affected by competitive environment.	1.000	.645
8. Faculty Development Programs and training programs are organized by universities.	1.000	.798
9. Professional growth affects job satisfaction.	1.000	.836
10. Working environment is cordial at your workplace	1.000	.827
11. There is freedom of expression at workplace.	1.000	.749
12. Security of service will give you job satisfaction.	1.000	.794
13. Flexible teaching hours will contribute in motivation.	1.000	.613
14. Receiving pension will be a source of Job Satisfaction.	1.000	.781
15. Good or Bad professional relationship affects job satisfaction.	1.000	.704
16. Effective communication contributes in job satisfaction	1.000	.739
17. Employee's complaints are handled effectively.	1.000	.685
18. Decisions though based on facts are sometimes contrary to your wishes.	1.000	.778
19. Conflict resolution has positive effect on job satisfaction.	1.000	.732
20. You express your views freely on important university's matters.	1.000	.704
21. Innovative strategies should be implemented in teaching.	1.000	.650
22. Your contribution to foster student's creativity & analytical skills are appreciated.	1.000	.796
23. Self-efficacy contributes in job satisfaction.	1.000	.692
24. Your plans or suggestions for promoting university goals are accepted by the university officials.	1.000	.695
25. Your primary source of satisfaction comes from your job.	1.000	.591
26. Communication seems good within the university.	1.000	.623
27. You feel pride in doing your job.	1.000	.696
28. Financial incentives gives you job satisfaction.	1.000	.674
29. Recognition is given to individual initiatives.	1.000	.822
30. You feel satisfied taking responsibilities as a leader.	1.000	.780
31. Diverse responsibilities leads to employee empowerment.	1.000	.541
32. Peers play role in enhancing quality level of your work.	1.000	.717
33. Those who do well in job stand a fair chance of being promoted.	1.000	.673
34. You are comfortable with the idea that your performance is supervised by the management of your organization.	1.000	.698
35. Job satisfaction and employee empowerment is positively correlated.	1.000	.586
36. Employee benefits are provided in your university.	1.000	.657
37. There's autonomy in organizing the way of doing things in your job.	1.000	.605
38. You been appreciated in last six months.	1.000	.679

39. Promotions according to career advancement schemes are fair and equitable.	1.000	.696
40. You are aware of mission of your university.	1.000	.791
41. A good management information system affects employee empowerment	1.000	.755
42. Resources at work place are adequate to perform job.	1.000	.692
43. Freedom or discretion affects job motivation.	1.000	.741
44. Your university provides facility for training and development	1.000	.752
45. Employee contributes in improvement of policies, strategies of university.	1.000	.679
46. University contributes in employee empowerment.	1.000	.734
47. You get opportunity to bring any new innovation to the existing system.	1.000	.689
48. On the whole you are satisfied by yourself.	1.000	.802
Extraction Method: Principal Component Analysis.		

Table 5 shows Communalities of the questions extracted based on Principal Component Analysis with value more than 0.5 which depicts the high value and is a good indicator. Based on the Component Matrix 12 components have been extracted and the factor naming has been done on that basis. Following are the details of Factor naming:

1. Attributes of Job Satisfaction
2. Effectiveness of Employee Empowerment Strategies
3. Factors of Self Efficacy.

Conclusion

There is always a vision to highlight in the study regarding generalizations that it should coincide with the objectives, and same has been in the above study as well. The objectives of the study have duly met as there exist a significant relationship between employee empowerment and job satisfaction. Regarding

the second objective factors affecting job satisfaction, factor analysis is being conducted which provides overall 12 components extracted from Extraction Method: Principal Component Analysis and further Factor naming has been done depending upon the component matrix and they have been termed as Attributes of Job Satisfaction, Effectiveness of Employee Empowerment Strategies and Factors of Self Efficacy. This indicates that most of the research questions are pertaining to job satisfaction, some are affecting as self efficacy and employee empowerment strategies also affect job satisfaction. The institutions must adopt human resource strategies pertaining to employee's job satisfaction that will enhance inner qualities so employee can obtain their self actualization needs as well. This will in turn increase the trust and loyalty of employees towards organizational commitment and achievement of objectives.

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SECOND WAVE OF COVID-19. WHAT IS KNOWN ABOUT IT?**K. Sinha¹, A.R. Srivastava² and H. Garg³**^{1,3} GLA University. Mathura²BIT Mesra, Off-Campus Lalpur, Ranchi¹kunal.sinha@gla.ac.in, ²abhayaranjan@gmail.com, ³harshit.garg@gla.ac.in**ABSTRACT**

“COVID-19 is a global pandemic that threatens the survival of mankind. This health problem is challenge for health services providers. In second wave of this pandemic mortality rate is high and it affects almost all age groups. The objective of the study is to provide data on COVID-19 that contribute to improve quality of the care process in children with suspected SARS-CoV-2 or with the infection. This is a review-based paper data collected from Pubmed / Medline, Science Direct and SciELO. Google Scholar. The information obtained was classified according to the type of source. Most pediatric cases are asymptomatic. Common clinical manifestations include fever, cough, odynophagia, and respiratory difficulty. Although asymptomatic presentation remains to be predominant, respiratory, digestive, neurological and cutaneous involvement is noted in varying degrees. COVID-19 in children has a heterogeneous presentation. It is usually asymptomatic, although it may affect systems and organs. It evolves towards recovering in 3-4 weeks”.

Keywords: COVID-19, SARS-CoV-2, epidemic, child, mortality

Introduction

On January 8, 2020, the Chinese authorities after rigorous screening on others Known officers documented the circulation of a new corona virus (SARS-CoV-2), an agent who identified himself as the person responsible for the acute respiratory syndrome described between people from a seafood market the December 31, 2019. At the end of the month itself, and before the rapid spread of the virus in Asia, Europe and other regions of the world, the World Organization of Health (WHO) declared it an emergency global health issue. This problem, known as COVID-19, it is currently a pandemic that plagues the survival of mankind in various countries of the world. According to the international organization, there is circulation active SARS-CoV-2 in 222 countries. This explains the 191,200,047 cases reported 4,105,555 deaths and 174,152,350 recovered at the world. According to official sources, the American continent started the pandemic in the United States with the patient report on January 20, 2020, and later, on February 26 of the same year, Brazil documented a second case in its demarcation. Subsequently, and progressively, other countries in the region did; and in the Currently, 222 nations have circulation of SARS-CoV-2. The United States is the epicentre of global pandemic in the first wave of COVID-19 and reports the largest number of

infections and deaths in the region. Similar situation is faced by India in second wave of COVID-19. Today, when the article was finished (July 18,2021), there were 3.1Cr confirmed cases; (16.29%) of total cases reported in the world), and 4.14L deaths for the fatality 1.33 % Indian accumulates confirmed cases. Children and adolescents represented about 8 percent of reported cases in the second wave Iftimie, et.al, (2021). The situation is far different from last year for the children. More kids are now being affected with high fever up to 103-104 degrees Celsius, which is persistent for 5-6 days. All age group of children, even below 1 year, are getting affected”. There are few cases that have escalated to pneumonia, and required oxygen and other respiratory support, some kids are also reporting more severe complications like multi system inflammatory syndrome (MIS-C), A rare inflammatory condition with persistent fever, Son & Friedman, (2020).

It generally occurs 2-4 weeks after the onset of Covid. While vaccines for kids are still under trial and may take months before it can be tested and proved beneficial for kids, the only remedy is to wear masks, maintain hand hygiene and social distancing. According to national and international reports, greater number of cases in paediatrics corresponds to those over 10 years old, and to the male sex, Qian, et.al., (2020). However, after this age, gender feminine is slightly higher. In his own

opinion, the low numbers of positive cases to COVID-19 in children, must be interpreted with caution since the incidence varies function of the number of cases studied; and according to the literature collects, the sampling in infants is small, due to its presentation mostly asymptomatic. This could cover up a greater proportion of cases than may go unnoticed. Know the behaviour of the disease and determine possible related conditions with the development of clinical forms in children, it is a felt need from paediatrician's, and more when the information that is published is scarce. Majority of children with Covid infection may be asymptomatic or mildly symptomatic. Common symptoms include fever, cough, breathlessness/ shortness of breath, fatigue, myalgia, rhinorrhoea, sore throat, diarrhoea, loss of smell, loss of taste etc. The paper contribute data on COVID-19 that contributes to improvements in the process of caring for suspicious children and patients with SARS-CoV-2 performed a review of the topic.

Methods & Materials

A bibliographic review on COVID-19 was carried out in Pubmed / Medline databases, Science Direct and SciELO, with the Google search engine Academic. In addition, the literature available in the virtual health library of Informed, and the official websites of health ministries of India and World Health Organization. For the exploration of the information, the words corona virus, COVID-19, SARSCoV-2, and epidemic. The search period was from March 1,2020 to June 15, 2021. The texts after being found are classified by content, type of source and date of publication. The more recent works in relation to theme to be discussed. The information obtained from these sources, proceeded to write this article.

Result

The COVID-19 pandemic represents an unprecedented challenge for systems health services in all countries of the world, due to the risk of collapse of emergency services and hospitalization, due to the insufficient number of workers, lack of inputs, means of protection, beds and respirators to assist seriously ill, and public funds to cover the expenses that your

care entails. To this sad situation, fear is also added of professionals contagious after attending patients infected with SARS-CoV-2, and the accumulation of corpses in the morgues for not have final destination, Schoch- Spana. M, (2000). According to the literature, COVID-19 affects less to the children. Although infection by SARS-CoV-2 has a hospitalization rate and complications to a lesser extent than others infectious agents, and that of the other groups of age, the progressive increase in the number cases has motivated changes in the organization and operation of hospitals, and in acting of the specialists. Changes include unit reorganization care and professionals based on the demands, centralization of care paediatric from various paediatric services, adult care by paediatricians, and withdrawal of assistance considered not essential, Sinha. K & Sahdeo, S. N. (2018). In the opinion of specialists, the biggest challenges are based on the limited information published on the affectation in children, Milanes.et.al., (2021), the application of protocols treatment extrapolated from work with adults, the use of medications with adverse reactions for the management of disease; and above all, the uncertainty of some unions in the face of the increase in infections between service providers. In the opinion of the experts, the health emergency generated by COVID-19 will take time to turn and until having specific immunization, the only effective measures for your control. Although at the beginning of the COVID-19 children were said to be a segment with little affectation social isolation, the use of masks and disinfection of hands and surfaces are less required by this segment, today it is known that the clinical spectrum of the disease is usually similar to adult, Sánchez-Tena,et.al., (2021). Recent works show that infants are a highly vulnerable group; especially when there is previous illness or accompanying socio-environmental factors. Until today, the number of cases in paediatrics is each day, being the most of them mild or asymptomatic.

The demonstrations Common symptoms include fever, cough, odynophagia, headache, myalgia, fatigue, and difficulty in respiratory, Lima.et.al., (2021). Though the asymptomatic presentation remains predominant in

paediatrics, the affectation respiratory, digestive, neurological, and cutaneous, has been indicated to a variable degree in series studied, especially in school children and teenagers. Despite being documented in paediatrics major respiratory involvement in school children and adolescents, recent works have described new-borns with apnea and seizures epileptic as an expression of infection by SARS-CoV-2 Boronat, S. (2020). A case published in the journal *Anales de Paediatrics*, at 26 days of age, it was positive to COVID-19, after being admitted for recurrent apnea and hypoxemia, without fever, or signs of involvement of the lung parenchyma on the radiograph. According to the article, the boy had difficulty severe respiratory tract that required ventilation to Nasal Continuous Positive Pressure (CPAPn), azithromycin (10mg / kg / day) and hydroxyl chloroquine (6.5mg / kg / day). The SARS-CoV-2 test in sample nasal aspirate 16 days after admission hospitable was positive. This child was given of uncomplicated medical discharge. Other respiratory presentations described in the literature are fever (41.5%), dry cough, pain in throat, nasal obstruction from discharge, respiratory distress of varying degree (without associated wheezing), and crackles from lung involvement, Peixoto, et., al, (2021). Cases with parenchymal involvement pulmonary, usually have opacities (32.7 to 60%) or patchy infiltrates (12.3%) in the chest radiograph; alterations that usually resolve between 2 and 3 weeks. However, the literature reports schoolchildren and adolescents with severe symptoms, and need for ventilator support. Children, even being mild cases, can be a major source of virus transmission with an infection rate among their contacts of 7.4% in children under 10 years of age, similar to the average of the adult population with 7.9%, Spielberger, et., al, (2021). It has also been detected that they can excrete virus mainly in faeces up to a month after symptom control respiratory, and that can have high loads viral in respiratory secretions. In Cuba, studies published on clinical behaviour in children are rare. A work carried out in 3 eastern provinces Cuban, described a predominance of symptomatic mild respiratory diseases and men (80%), Hawdon & Wise (2021).

Children with respiratory involvement reported in said series showed high and nonspecific symptoms (fever, dry cough, headache, and sore throat, without phlegm production), and they had no parenchymal on initial chest radiograph by 80%, Panday & Rauniar, (2020). According to the publication, all of the cases resolved with basic treatment recommended by Cuban experts for the management of pneumonia associated with COVID-19. National and international literature reports that in most paediatric cases, respiratory manifestations are nonspecific, and resemble other viral infections of the childhood; they can even be accompanied by rash or pictures of acute pruritic urticarial which requires full clinical review to establish probable diagnosis. Less frequently, the respiratory picture initial worsens and can lead to distress and require assisted mechanical ventilation. This complication is more common in children with previous pulmonary pathology or presence of risk conditions as exposure kept to tobacco smoke. Other presentations in paediatrics are the digestive disorder. The literature collects pictures of diarrhoea (5 to 8.8%) and vomiting (4 to 6.4%), even as the only symptomatology of infection by SARS-CoV-2 in children and adults, Al-Beltagi, (2021). For this reason, the presence of digestive pictures in the current context of COVID-19, it must be reason for clinical review and sampling by test polymerase chain reaction (PCR) SARS-CoV-2, looking for possible infection with SARS-CoV-2; above all, in which the cause of the diarrhoea cannot be determined. Currently, the reported frequency of diarrhoea among paediatric patients with the COVID-19 varies from 2 to 33% and was one of the Outstanding symptoms reported in the India in its first case, Viner, et., al, (2021). A study with 1,099 patients with COVID-19, from 552 Chinese hospitals, reported 5.6% of cases with nausea or vomiting, or both, and 3.8% with diarrhoea. Other works report frequency between 6 and 10% of diarrhoea and vomiting of variable intensity in children infected with SARS-CoV-2. Denis, (2020). The presence of diarrhoea and vomiting, and isolation of SARS-CoV-2 in faeces of COVID-19 positive patients, including after testing negative on

samples respiratory systems, provides scientific evidence of SARS-CoV-2 gastrointestinal infection and its possible route of fecal-oral transmission, Aydin, et.al, (2020).

The researchers after documenting this finding, stated that patients with digestive symptoms may have been careless with the handling of their content intestinal in an early stage of disease, and being underestimated as possible sources of contagion to other people at the community. This problem should be addressed with education in health by physicians and epidemiologists at primary care; and be considered by hospital doctors during the performance of medical procedures such as intubation or tracheal. In the same way, the contact with faecal matter, vomit or patient secretions. Before a suspected or conformed case of SARS-CoV-2 with digestive presentation must extreme hand washing and the use of decontamination solutions. This simple measure prevents contagion and closes the chain of transmission. The reviewed papers describe complications only in adults with having disease previously. In India, there are no reports of cases paediatric patients with renal involvement during SARS-CoV-2 infection. In paediatrics, neurological disorders are limited to anosmia and hyposmia. Literature points out that these manifestations should be interpreted as early markers of SARS-CoV-2 infection. Today, experts relate its appearance to neurotropic of the virus; and explain that it can be due to cytokine storm or direct damage olfactory receptor neurons, located in the olfactory epithelium. Apparently the second cause is more likely because cells of the olfactory epithelium express both receptors for proteins required for SARS infection- CoV-2 in humans: ACE2 and TRMPSS2. Anosmia can occur alone or accompany other manifestations, and it happens in forms mild and severe COVID-19 disease in children and adults. The distinctive feature of olfactory dysfunction produced by COVID-19, is that it is not associated with rhinorrhoea as do rhinoviruses, parainfluenza viruses, Epstein-Barr, and other corona viruses. In the presence of anosmia, they should be indicated olfactory and tests to provide quantitative data on incidence and severity of these sensory losses

during disease. It is vital, the follow-up to these patients after hospital discharge to find out about possible medium and long complications deadlines. In paediatrics, cutaneous manifestations due to COVID-19 are similar to those produced by other common viral infections.

Currently, there is no scientific evidence of a relationship between magnitude of cutaneous symptoms and severity of disease. The information referring to paediatric age, for usually comes from isolated series, and few cases are documented. At present, they have pictures in all ages, even in asymptomatic infants. Morey-Olive et al. described 2 cases with SARS-CoV-2 infection and involvement cutaneous: a schoolboy with cholesteric liver disease unknown who developed a rash maculopapular, low-grade fever and worsening of hepatic markers of cholestasis and cytolysis; and 2-month-old infant with urticarial sharp, pruritic, affecting face, upper and lower extremities, and trunk, without palmoplantar involvement, accrual angioedema, labial, or lingual Morey-Olive, (2020). The duration of both frames did not exceed 5 days and evolved satisfactorily without complications. Dermatoses have also been described during COVID-19 infection. These alterations are report relatively frequently in series of Asian and European countries. Recently in Spain, it was documented skin involvement in asymptomatic children with COVID-19. Scientists explain that their existence may be a late manifestation secondary to inflammatory phenomena or micro thrombotic in the response phase immunological. This hypothesis becomes important in the presence of skin lesions in children and young people during confinement for the circulation of SARS-CoV-2 in Europe.

Erythematous or purpuric eruptions observed in Indian children between 7 and 17 years old, during the circulation of SARS-CoV-2, preferably located on the trunk and present as urticarial lesions or lesions similar to chickenpox. These anathematic lesions are typical of the acute phase of the disease and appear to be the most common form of skin involvement in children and adolescents. According to Spanish scientists, acute urticarial may be pruritic, and is associated with low-

grade fever of variable duration (1 to 4 days). It has localization on the face, upper extremities and lower legs and trunk, without other clinical expression. Although on the other hand, limit patients admitted to units of intensive care, and have behaviour clinically similar to dry gangrene. Accrual purpuric lesions, according to literature, resembles chilblains in hands and feet, is accompanied by enema and, occasionally, evolves into blisters and scabs. This box painful inflammatory causes itching, burning or painful sensation.

Macular or popular purpuric lesions also described, have a rounded shape, with diameter that varies between 5 and 8 millimetres, and present on the palmar or plantar surfaces or on the heels. Clinically, they are similar to vasculitis or erythema multiform and are usually asymptomatic or pruritic. The alterations described occur alone or in combination and may appear in patients that it is not possible to diagnose COVID-19 by immunological tests up to known today. As a general rule, they resolve in 2 or 3 weeks, with the use of corticosteroids topical or combination of corticosteroids topical and oral antibiotic and do not leave sequelae. In this study, an adolescent 14-year-old female, required medication with oral aspirin and gabapentin for pain relief during the dermatological picture. These young had symptoms similar to COVID, with periotic lesions on the feet, enema and blisters, a condition that resolved in 4 weeks. The histopathological study by punch biopsy that Two of the Indian patients with lesions, yielded nonspecific findings with dermal enema, keratinocyte necrosis and deep mixed infiltrate with a booster mostly perivascular or peregrine. The current existence of clinical manifestations in Indian children and youth, attributable to COVID-19, even though the infection, could be explained according to the criteria of experts for the low sensitivity of the tests rapid IgG / IgM levels or rapid disappearance of circulating antibodies, with low levels that do not reach the detection threshold of the polymerase chain reaction (PCR). It was also documented by researchers that the clinical manifestations at the time of evaluation, could be the result of complications late in patients asymptomatic. Prove one or

another hypothesis, it must be object analysis in future research. Until then, any clinical presentation that cannot be explained by known causes will be attributed to COVID-19. In Spain, a study by Granados Campos, et al., In 10 adolescent patients hospitalized during the acute phase of COVID- 19 described skin involvement. According to authors of the article, the appearance of symptoms occurred between the seventh and tenth days after admission hospitable and was characterized mainly by the appearance of a fine erythematous rash and pruritic (8 cases), and urticarial hives (2 cases), without other symptoms of SARS infection- CoV-2, Broche del Pino, (2020).

Eight of the patients resolved with atopy diet, and only 2 of them, required antihistamines and corticosteroids; but in no case was there a need to interrupt the background treatment for COVID-19. The cutaneous presentation in the India has similarity with the Spanish report in terms of type lesions and age of presentation but differs related to the stage of the disease in which these were presented. It is clear that the existence of conglomerate lesions in time-space relationship during circulation SARS-CoV-2 can be interpreted as possible case of COVID-19, but they must consider also adverse reactions that induce drugs such as chloroquine. In relation to laboratory tests in patients with COVID-19, the literature reveals normality in the hologram. Usually, the global leukocyte count does not show alterations, and ranges between 5.5 and 8.5×10^9 . However, it can be observed leukopenia, mostly in shapes severe disease. The erythrocyte sedimentation is normal. Elevation of procalcitonin and C-reactive protein observed in some cases, must be understood as a bacterial superinfection and will be justification for using antibiotics. The enzymatic alterations are variable and inconstant, transaminase alanine transferase (AAT) and creatine phosphokinase (CK) can show increments in children, without this implies modification to mortality; but in generally they are normal. Radiography of chest is usually normal, although it may reveal peripheral interstitial infiltrates that give the appearance of images in frosted glass, in patients with affection parenchymal. Sometimes the CT scan

computerized axial chest reveals involvement lung not visible on radiograph. Up at the moment, the literature does not describe existence of pleural effusion, lymphadenopathy, lobar collapse, pneumothorax, or effusion in children with COVID-19. According to the criteria of experts, the decrease in lymphocytes, elevated temperature body and levels of procalcitonin, D-dimer and CK, should be considered as predictors severity in children with COVID-19. Regarding treatment, to date no there is no specific therapy or vaccination available which is 100% effective. However, prestigious pharmaceutical introduce vaccine they work tirelessly to make it 100% effective.

Medications recommended for relief of general symptoms are the paracetamol in the first option, and ibuprofen, the latter with some precautions. The oxygen therapy is the measure to be applied in patients with respiratory distress. In those that have more serious pictures and / or signs clinical or homogametic failure respiratory system, mechanical ventilation will be applied preferably with non-invasive methods. Hemodynamic support is another element strongly defended in literature and is intended to prevent shock. Antivirals recommended in the literature are lopinavir-ritonavir and interferon alfa (IFN α). This last drug reduces the burden viral and improves clinical symptoms and is approved in Chinese protocols and India. Chloroquine / hydroxyl chloroquine, meanwhile, it inhibits the production and release of tumour necrosis factor and interleukin, recommended in combination with azithromycin. This antibiotic enables viral clearance numerically higher than that achieved with hydroxyl chloroquine monotherapy. However, experts argue that its combination with IFN α is associated with prolongation of the QT interval, which is

considered high risk. The effects secondary to the administration of this combination of drugs are nausea, generally there are short duration, and are not cause for interruption. The disease in children, even in the form's bass has good evolution, and resolves in a period between 2 and 3 weeks, without complications. The most serious are associated with previous medical conditions, but in general, it has good forecast. To date, the deaths reported in paediatric ages are minimal, and are associated with health conditions pre-existing. The low incidence and low mortality in paediatrics should not be understood as a banal disease. At present, they report late complications mediated by phenomena micro thrombotic, suggesting implications not yet well elucidated, which must be studied in depth in futures. The work team is convinced at the time of publishing this material by the speed with which evidence emerges scientific, part of its content may be obsolete or be refuted by prospective studies controlled with a greater number of cases. We know that the results offered come scarce series, which limits the exact vision of the illness. In this sense, we ask sorry. But all updating must be considered a contribution to the difficult challenge of meeting children with COVID-19. The Indian Academy of Pediatrics (IAP) has said that though children remain susceptible to infection, it was "highly unlikely that the third wave will predominantly or exclusively affect children".

Discussion and finding

COVID-19 in children has a heterogeneous presentation. It is usually asymptomatic, although it may affect systems and appliances. Evolves towards full recovery of children in most of the case between 2 and 3 weeks, without complications. But More mortality in adult age is found in second wave of COVID-19.

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CLIMATE CHANGE AND ITS ECONOMIC IMPACT: CASE STUDY OF PASTORAL POPULATION OF POONCH DISTRICT OF JAMMU KASHMIR

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ABSTRACT

This paper deals with the environmental-economic impact of climate change on the pastoral population in the sample area. The impact of climate change is likely to be greater in those communities who are directly dependent on natural resources like pastoralists. These people depend on nature for everything. Climate change is most likely to affect the water availability in already water-stressed areas. The livelihood patterns of nomads depend on how well they can assess risk and uncertainty. These people are more sensitive to natural changes as compared to other population groups. Climatic variability has played a dominant role till now but the existing pattern may well change due to increase in population and problems created by population growth.

Keywords: Pastoralism, Climate variability, Adaptation

Introduction

Climate change plays a major role in the lives of pastoralists. There is a relationship between the climate change and livelihood patterns of pastoralists. These two are interlinked. Climate change and traditional adaptation strategies have long been a part of the pastoral production system, but the convergence of unprecedented levels of land use change together with increasing climate insecurity is wearing down the resilience of ecological and social systems alike. Variations in the weather pattern have major implications for pastoral livelihood and security. Threats from climate change like constant droughts, floods, and diseases have devastating consequences. Severe droughts affect water resources and have led to the death of large numbers of livestock in most pastoral areas. Therefore, current climate change and the antecedent ecological changes will have significant negative effects on the pastoralists and their livelihood, unless effective and sustainable intervention measures are put in place. Pastoralists live in a hostile and arid environment. Gradual climate change and extreme weather conditions have destabilized the progress in poverty alleviation and food insecurity. These changes have a negative effect on overall development efforts. Climate change also affects the economic sectors. Climate change affects crops production too. The possible occurrences of droughts in arid and semi-arid areas are more familiar. The

pastoralists depend on an ecologically sensitive environment. They also face other non-climatic stresses such as poor soil quality, weak infrastructure, armed violence, poverty and poor governance. The pastoral communities are more vulnerable to climate changes. Three factors affect the vulnerability of pastoralist to climate change: first, the extent of dependence on natural resources and ecosystem services; second, reliance of societies on climate-sensitive resources and services; and third, adaptive capacity. Climate change is expected to affect poor people in developing countries disproportionately. In most developing countries the poor often are disproportionately located in rural areas. Climate change is not just a political and economic issue. It is a human issue. Livelihoods of numerous communities are threatened. Climate change will negatively affect the different sectors of the economy.

Review of Literature

Climate change may affect the distribution and quality of natural resources and adversely affect the livelihoods of the people. An economy like India may face main threats because of its total dependence on natural resources such as agriculture, forests resources, water supply (NAPCC, 2007). The climate change in India is resulting in increased number of hot days and a significant decrease in the cold days during the premonsoon season over the period 1970–2005 (INCCA, 2010). Kirkbride and Grahn (2008) in their study

revealed that even though the dry lands are known for their unpredictable and variable climate, the unprecedented rate and scale of human-induced climate change is beginning to pose more problems. Globally, the effects of climate change on human health will be both direct and indirect and are expected to intensify existing health risks, especially in the most vulnerable communities where the burden of disease is already high (IPCC, 2014). According to Allchin (1963), initially, the pastoralism was primarily cattle based, with goats and sheep; buffaloes were included only later. Agriculture seems to have been a somewhat later development. According to Flannery (1965) and Khazanov (1994), pastoralism developed after agriculture and most likely evolved as people migrated into areas of low productivity or regions of unreliable rainfall. Mobile pastoralists are among the communities who are most vulnerable to exclusion from primary social services. These reports referred the nomadic community as hard to reach communities. Vajnshtein et al. (1978) and Chatwin (1987) supported the hypothesis that pastoralism nomadism originated from a settled mixed-farming economy, with the eventual transition among some tribes from the sedentary form of pastoralism to specialized mobile form like nomads. According to Barfield (1993), the nomadic pastoralism emerged as a specialization from a sedentary Neolithic farming economy that relied on both agriculture and animal husbandry. Salzman (2004) stated otherwise, pastoralists came to rely on domesticated animals for subsistence instead of agricultural crops. Swift (1986) in his study revealed that the primary requirements for pastoralist production are livestock, access to grasslands, labour and access to water resources. According to Glatay and Johnson (1990), the pastoral production involves a relationship between factors of land, livestock and labour. Goldstein and Beall (1990) revealed that the nomadic, semi-nomadic and transhumant pastoralist societies have lifestyles that revolve mainly around their livestock. According to Sikana et al. (1993), the pastoralists make their living by selling their livestock products like milk and meat

against the grain even from a relatively low herd numbers.

Objectives and Methodology

The paper intends to identify structural issues characterizing socio-economic development of pastoralists and environmental factors contributing to vulnerability of pastoralists communities in the context of climate change. The study is mainly focused on tehsil Mendhar of Poonch district. Multistage purposive sampling technique has been used to select respondents from two blocks of the selected tehsil. The tehsil Mendhar is further divided into two blocks namely block Mendhar and Balakote. There are total 57 villages in both the blocks. Out of 57 villages, 10 villages have been selected from each block with maximum number of pastoralists as the study is mostly based on this community. This study is confined to villages with a high concentration of pastoral population. The main reason behind the selection of these villages is their population with maximum number of STs because these people mostly belong to pastoralists/nomadic communities. The data collection methods employed includes library research, field questionnaire survey and Participatory Rural Appraisals (PRAs). A structured questionnaire was developed, pre-tested and administered to selected households in the sample villages to get relevant data and information. The questionnaire based field surveys were followed by focused group interviews of a select smaller sample of the representative head of households to collect detail data and information.

Findings of the study

a) Demographic Profile:

It shows that the total population of the two blocks namely Balakote and Mendhar is 3,495. The majority of the population is in the age group 0-14 (28.5 %) followed by age group 14-25 (21.4%), age group 35-45 (15.9%), age group 55-65 (13.1%), age group 25-35 (12.2%), age group 45-55 (7.2), and age group above 65 (1.7%).

b) Family Size:

The unique characteristics of pastoralist families in the past, how they adapt to both environmental and economic constraints have

been the subject of a significant comparative literature (Tufail, 2014). Family plays an important role in pastoralism. There is a relation between the pastoral and agro-pastoral modes of agrarian production and a prevalence of extended or joint family households. A significant proportion of households (both pastoral and non-pastoral) have the family size between 6 members (23%) to 7 members (24.3%). Surprisingly, some of the sample households have family size up to 12 members (1.0%).

b) Languages spoken:

Religion shows the integrity of the family as the foundation of the faith and recognizes that the key to family integrity is maintaining traditional roles for women. All the sample households belong to Muslim religion because of the Muslim dominated area. The majority of the households speak Pahari (46.0%), followed by Gojri (45.5%), Urdu (6.5%), and Kashmiri (2.0%).

c) Castes:

The various castes in the study area are Upper Caste, Schedule Castes (Gujjars, Bakarwals and Baniharas), Rajputs and Other Backward Classes (Blacksmith, Carpenter, etc.) The pastoralist households consist of STs (71.7%), OBCs (20.0%), and Rajputs (8.3%), and the nonpastoralists households consist of STs (28.4%), OBCs (25.0%), Rajputs (23.3%), and Upper caste (23.3%).

d) Income Sources:

These sources are agriculture, government jobs, animal rearing, daily wagers and others (domestic helpers, cooks, shepherds etc.). The majority of pastoralist's households (61.0%) are earning their income from animal rearing, followed by daily wagers (12.7%), others (10.3%), agriculture (9.0%), and government jobs (7.0%). On the other hand, the majority of non-pastoralist's households (56.7%) are also earning their income from agriculture, followed by government jobs (16.0%), animal rearing (10.0%), others (9.0%), and daily wagers (8.3%).

Climate Change:

More than half of the pastoralist households (62.0%), believed in climate change. Similarly, two-third of non-pastoralists (62.7%) agreed that climate is changing.

Awareness about Evidences of Climate Change:

Talking about climate means they have knowledge about the changing climate, and they are sharing knowledge with other people and the consequences of climate change in the long run. Mostly sample households agreed that climate change had brought droughts, harsh winters and scorching heat in the area and some other results like an increase in floods and landslides. People also believe that the seasons are shifting, and duration of summer increases whereas winter length decreases. Less snowfall, little rainfall, water shortage, lack of forests resources due to less precipitation are some important indicators of climate change in the study area.

Variability in Climate Change

The pastoralist households believed that climate variability results in changing rainfall patterns (30.1%), followed by extreme weather events (24.2%), rise in temperature (19.9%), reduction in snowfall (13.4%), and rise in sea level (12.4%). The non-pastoralist households believed that climate change results in changing rainfall pattern (30.9%), followed by extreme weather events (25.0%), rise in temperature (23.4%), reduction in snowfall (12.2%), and rise in sea level (8.5%). In Balakote block, according to pastoralist households the climate variabilities are changes in rainfall pattern (28.1%), extreme weather events (22.5%), rise in temperature (21.3%), reduction in snowfall (15.7%), and rise in sea level (12.4%). According to nonpastoralists the main variations are changes in rainfall patterns (34.4%), extreme weather events (25.8%), rise in temperature (25.8%), reduction in snowfall (8.6%), and rise in sea level (7.4%). In Mendhar block, according to pastoralists the variations in climate are changes in rainfall patterns (31.9%), extreme weather events (25.8%), rise in temperature (18.5%), rise in sea level (12.4%), and reduction in snowfall (11.4%). According to non-pastoralists the variation are changes in rainfall pattern (29.5%), extreme weather events (24.2%), rise in temperature (21.0%), reduction in snowfall (15.8%), and rise in sea level (9.5%).

Concern about Climate Change:

Changing climate is responsible for shifting in seasons. The winters are growing harsher, and

summers are scorching hot, and other harmful effects. Most of the people are ignorant and have limited knowledge of climate change. This study also tried to know how people are concerned with changing climate. The majority of the pastoralist households (40.0%) are concerned about climate change, followed by slightly concerned (29.7%), not concerned (7.3%), and highly concerned (13.0%). On the other hand, the non-pastoralist households (37.0%) are concerned about climate change, followed by slightly concerned (26.3%), highly concerned (26.0%), and not concerned (10.7%). In Balakote block, 42 percent of pastoralists are concerned about the climate change, followed by slightly concerned (28.0%), not concerned (16.7%), and highly concerned (13.3%). On the other hand, the non-pastoralist households are concerned (37.3%), highly concerned (30.0%), slightly concerned (24.0%), and not concerned (8.7%) about climate change. In Mendhar block, the pastoralist households are concerned (38.0%), followed by slightly concerned (31.3%), not concerned (18.0%), and highly concerned (12.7%) about climate change. The non-pastoralist households are concerned (36.6%), followed by slightly concerned (28.7%), highly concerned (22.0%), and not concerned (12.7%) about climate change.

Contribution of Man in Climate Change:

The pastoralist households (39.0%) believed that man is contributing in climate variability but to a lesser extent, followed by highly responsible (31.3%), no idea (18.7%), and not responsible (11.0%). On the other hand, the non-pastoralist households (36.0%) believed that man is contributing to climate variability but to a lesser extent, followed by highly responsible (33.3%), no idea (20.0%), and not responsible (10.7%).

Outcomes of Climate Change:

The main outcomes of climate change perceived by pastoralist households are shrinking grasslands (30.0%), followed by increase in water scarcity (28.7%), increase in humidity (19.7%), melting of glaciers (12.3%), and all of these (9.3%).

According to non-pastoralists' households, outcomes of climate changes are shrinking grasslands (34.3%), increase in water scarcity (28.3%), increase in humidity (19.3%), melting of glaciers (10.7%), and all of these (7.4%).

Climate Change and Income:

According to pastoralists' households, the main reasons behind low income are low productivity (43.0%), followed by others (29.3%) and less marketable surplus (27.7%). According to non-pastoralist households, the main reasons behind low income are low productivity (52.7%), others (41.0%) and less marketable surplus (6.3%). In Balakote block, according to pastoralists, the main reasons behind low income are low productivity (38.0%), followed by others (33.3%) and less marketable surplus (28.7%). According to non-pastoralist households, the main reasons behind low income are low productivity (51.3%), others (41.3%) and less marketable surplus (7.3%). In Mendhar block, less than fifty percent (48.0%) believed that low productivity is the main outcome of climate change on income, followed by less marketable surplus (26.7%) and others (25.3%). On the other hand, more than 50 percent (54.0%) non-pastoralists believe that the main outcome of climate change on income is low productivity, followed by others (40.7%) and low marketable surplus (5.3%).

Climate Change and Health:

In Balakote block, 42.0% of households agreed that climate is responsible for poor health conditions. In Mendhar block, 53.0% households agreed that climate change is responsible for bad health conditions.

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THE IMPACT OF PROFITABILITY AND FINANCIAL LEVERAGE ON CAPITAL STRUCTURE: EVIDENCE FROM SELECTED OIL & GAS COMPANIES, INDIA

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ABSTRACT

This study aims to determine the impact of profitability and financial leverage and using a sample of 10 publicly listed companies in the Oil & Gas sector in India. Through quantitative approach, pooled panel regression and descriptive statistical models were used by taking annual data of oil and gas sector (10 companies) from 2011 to 2021 and secondary data has been gathered from financial statements of the companies. The study reveals that the profitability and financial leverage of the firm have significant impact on the capital structure of the Oil & Gas companies. The other part of results have concluded that the Correlation Coefficient of profitability has low degree negative relationship with capital structure. The results are showing the impact of profitability and financial leverage on capital structure for the Oil & Gas sector. This study can help higher management of Oil & Gas sector companies in decision making stating clearly about how to perform highly progressive in terms of growth and enhance financial health of the company.

Keywords: Oil & Gas sector, Profitability, Financial Leverage, Capital Structure

Introduction

Cash management is very important for all the corporate companies as it enables one to pay current requirement on business and these arise payment obligations include operating and financial expenses that are short term and long term debt for corporates (Khedkar, E. B. 2015, Ahmed et al 2021). The financial leverage is engaged by corporates firms to earn more on the financial leverage funds than its costs (Achar et al 2020, Zelalem, D 2020). Financial leverage is the use of external funds invested in the business to finance its fixed assets and any business has two aspects one will be internal & second will be external investment (Malik & Ahmed 2013). Liquidity ratios measure a business ability to meet the payment requirements by comparing the cash and cash equivalents and if the coverage is not covered by the companies, it indicates that the business might face difficulties in meeting short term debt/loan from financial institutions (Ali, S. 2016).

Indian oil & gas sector has seen an eventful financial year 2020-21 with new announcements by companies and plenty of changes accorded by the government. While some other Gas companies have gained out of these, there are a few who have borne the pain

as well. Macro-economic factors such as crude price movements, exchange rate fluctuations, sanctions on Iran, Euro Zone debt crisis and many more have played their part in increasing the volatility in stocks of 10 companies.

Theoretical Background

Capital Structure

A firm's capital structure is then the composition or 'structure' of its liabilities. For example, a firm that sells \$30 billion in equity and \$70 billion in debt is said to be 20% equity-financed and 80% debt-financed. The firm's ratio of debt to total financing, 80% of this example is referred to as the firm's leverage. In reality, capital structure may be highly complex and include dozens of sources. Gearing Ratio is the proportion of the capital employed of the firm which come from outside of the business finance, e.g. by taking a short term loan etc. A company's proportion of short and long-term debt is considered when analyzing capital structure. When people refer to capital structure they are most likely referring to a firm's debt-to-equity ratio, which provides insight into how risky a company is. Usually a company more heavily financed by debt poses greater risk, as this firm is relatively highly levered. Our emphasis is multi-

sourcing to ensure we only publish accurate value-added intelligence to our client base of fund managers, proprietary trading desks, leveraged finance bankers, corporate restructuring advisors and private equity sponsors

Literature Review

(Abubakar, A. 2021) studied the impact of liquidity and financial leverage on the profitability and using a sample of 40 listed companies in Pakistan. It revealed that there is positive relationship between financial leverage and profitability. Study explored that there is a strong positive impact of C_R on ROE and D_E has a negative impact on Return on equity. The findings of (Charitou, Elfani, & Lois, 2010) found efficient utilization of the firm's resources leads to increased profitability and reduces volatility which leading to reduction in default risk and thus improves the firm's value and higher risk of the business. Hence if the components of cash conversion cycle are efficiently managed, they will add value to the firm since they increase the firm's profitability and higher sales to the companies. (Rafiq 2017) analyzed the relationship between working capital management and value creation for shareholders among the 10 stocks. In their study, have used net-trade cycle as a measure of working capital management for finding net worth of the businesses. NTC is basically equal to the cash conversion cycle where all three components are expressed as a percentage of sales. NTC may be a proxy for additional working capital for the business needs as a function of the projected sales growth of 7 selected companies. Study concluded that the relationship by using correlation and regression analysis, of industry, and working capital intensity.

(Asif et al, 2017) evaluated the relationship between working capital and profitability of Indian pharmaceutical companies in India. He pointed out that there were two distinct schools of thought on this issue: according to one school of thought, working capital is not a factor of improving profitability and there may be a negative relationship between them, while according to the other school of thought, investment in working capital for long term duration its impacts on working capital and it

improves corporate profitability, and unless there is a minimum level of investment of working capital, output and sales can be maintained - in fact, the inadequacy of working capital would keep fixed asset inoperative.

(Cote & Latham, 1999) argued the management of receivables, inventory and accounts payable has tremendous impact on cash flows, which in turn affect the profitability and financial leverage of firms. (Bhatti et al 2011), companies enjoy better pricing when they hold enough cash to purchase from own suppliers and thus they may enhance their profit. So having enough liquidity also affects the profitability of the firm. (Saleem and Rehman, 2011) found that WC consists of a large portion of a firm's total investment in assets, 40 percent in manufacturing and 50% - 60% in retailing and wholesale industries respectively.

(Zelalem, D. 2020) analyzed the commercial bank profitability on capital structure in India. He argued that the both ROA & ROE are ratios of profitability and impact indirectly on commercial banks. The cash conversion ratio also shows the relationship between these two variables and by the use of the liquid ratio and quick ratio.

(Men Thi Bui et al 2020) Study analyzed oil and gas industry in Vietnam from 2012 to 2018. Studied 29 companies listed in stock exchange and analyzed effects of financial leverage, government ownership, dividend payout, fixed assets to total assets variables on profitability of 29 stocks. Results found that there are four factors have impact on ROA. Suggested that high debt ratio in capital structure and the negative effect of exchange rate on their companies efficiency.

Statement of the problem

There are many factors that influence the profitability of the business, among which liquidity and leverage are ones (Segun et al. 2021) that can affect the profitability of some specific industries only, but the impact may differ according to the nature of the business and industry. The study under discussion specifically focused on the Gas & Oil sector in India, And both variables (profitability and financial leverage) were selected for the purpose of assessing their impact on capital

structure. Various models and approaches have been used for profitability management, and these may also help in determining the effect of these two factors on profitability (Chua et al., 2021). This study aims to assess the impact of Profitability and Financial Leverage on Capital Structure, using a sample (Oil & Gas sector) of 10 public listed companies in India.

Objectives of the Study

- To study and analyze the impact profitability on capital structure of Oil & Gas companies.
- To analyze the impact financial leverage on capital structure of Oil & Gas companies.

Hypothesis

H₀: There is no significant impact of profitability on capital structure.

Research Methodology

The research under discussion involves a quantitative approach and explanatory strategy to find out the influence of determinants of profitability and financial leverage of oil & gas companies. The population of the study includes India Oil & Gas Industry where sample size is 10 Oil & Gas companies namely Cairn India, RIL, Oil India, ONGC, BPCL, HPCL, IOC, GAIL, GSPL and Petronet LNG. Secondary data used for the study from 2011 to 2021. The data were collected from various sources like annual reports of the companies.

Data Analysis and Interpretation

Sample T test

One-Sample Test

	Test Value = 5					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
profitability	-209.282	97	.000	-3.80359	-2.8496	-3.7576

Table 1 shown one sample test of profitability and it is found that there is significant impact of profitability on capital structure, as significant value is less than significant level i.e. 0.05. Hence, null hypothesis is rejected and there is significant impact of profitability on capital structure

One-Sample Test

	Test Value = 5					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Financial leverage	-74.794	97	.000	-5.16583	-5.2915	-3.0402

Table 2 shown one sample test of financial leverage and it is found there is significant relationship between financial leverage and capital structure as significant value is less than significant level i.e. 0.05. Hence, null hypothesis is rejected and there is significant impact of financial leverage on capital structure

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Debt equity	150	0.02	7.06	.8241	.73950
Profitability	150	1.24	6.87	.1964	.43171
Financial leverage	150	3.03	7.55	.8342	.53316
Valid (listwise)	N 150				

In table 3 shown descriptive statistics. Above analysis provide the information about the variables like mean, standard deviation, variance and skewness of ten Oil & Gas companies. It is found that Debt equity is having highest standard deviation and frequent fluctuations in the value of capital structure of ten selected companies from Oil & Gas sector

Correlation Coefficient and Regression Analysis

	profitability	Debt equity	Financial leverage
profitability	1		
Debt equity	-1.407	1	
Financial leverage	0.012	1.243	1

Table 4 shows correlation analysis of ten stocks and it is found that capital structure is having low degree negative correlation with profitability it means if profitability is increasing than capital structure will be affect negatively and vice versa.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.617 ^a	0.776	0.360	0.55231

a. Predictors: (Constant), financial leverage, profitability

Calculation of ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.076	2	26.519	29.183	.720 ^a
	Residual	44.901	97	12.567		
	Total	97.941	97			

a. Predictors: (Constant), financial leverage, profitability

Table 5 shows that the 77.6% variability in capital structure explained by profitability and financial leverage. Similarly, 55.3% relationship is between capital structure and profitability and financial leverage. As calculated value of F (29.183) is greater than significant value (0.720) concluded that there is significant relationship between dependent and independent variable.

Conclusion and future recommendations

This research paper aims to highlight the importance of Profitability and Financial Leverage on Capital Structure, specifically Oil & Gas sector. It is concluded that the financial leverage is higher and profitability is having lowest mean value. Debt equity has highest standard deviation so it is seen having frequent fluctuations in the value of capital structure.

Hence, a company meeting its (day to day) liquidity operation appropriately can get high returns on long term sustainability. This study can help higher management of Oil & Gas companies in decision making stating clearly about how to perform progressive in terms of growth and enhance financial health of the company. This will be more helpful to investors to take appropriate decision on Oil & Gas companies in India. As the result of present research study shows the impact of profitability and financial leverage on capital structure and its significance. It is recommended that future research can identify the contributing factors and other causes. Also suggested that the same two variables should be tested in different sectors like Banking, Pharma, IT, Automobile, Cement, Iron etc.

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TO UNDERSTAND THE CORRELATION BETWEEN PERFORMANCE REVIEW AND EMPLOYEE SATISFACTION IN LARGE AND DIVERSIFIED BUSINESS ORGANISATION

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ABSTRACT

When it comes to the connection between employee satisfaction and performance appraisal, there seems to be an absence of studies. The purpose of this research was to add to the discussion on the relationship between Performance/review and employee satisfaction. For the purpose of determining whether or not there is a connection between employee satisfaction and performance appraisal, both the Person correlation test and a regression analysis were used. For the purpose of comparing the effect of individual employee satisfaction variables on organizational performance, a mean score ranking method was used. Positive connections were found between organizational success and all aspects of employee satisfaction, including working conditions, ability utilization, creativity, collaboration, and independence, Strategic interventions including positive changes of the employee satisfaction characteristics studied in this research may be started and implemented in order to enhance overall organizational performance in public sector organizations, as per the findings. The ability of an organization's workforce to function more effectively may be the difference between success and failure.

Keywords: Employee, Organizations, Satisfaction, Performance, Environmental, Job

Introduction

Despite the extremely aggressive and volatile environment in which they operate, public organizations under enormous pressure to succeed in their performance. This environment has been defined by characteristics such as increasing globalization, exacting stakeholders, crucial skills to be successful, increased workforce variety, and technology advances [1]. These considerations drive public-sector organizations to create and execute performance-improvement initiatives. One such approach is to have workers that are very happy with their jobs. This requires the organization to put a greater focus on identifying and improving all aspects of work that are related to better levels of employee satisfaction. Simultaneously, organizations must identify and mitigate the impact of those factors linked with employees with high level discontent [2]. Queries about the performance of the public organizations are predicated on the assumption that the administration should to provide public goods and services more efficiently and safely. The perspective is that public sector organizations

in most fields of study of their processes find it extremely difficult to tackle the difficulties of underperformance. As a consequence, they are constantly chastised for service delivery, inner wrangling bureaucracy, mismanagement of funds, corruption, and bad corporate management. These perceived or actual malpractices do not bode well for a public sector that tries to serve the objectives of an administration that aspires to be a progressive state [3]. Low institutional capabilities, low stakeholder engagement, widespread corruption, and significant degrees of casualness have been cited as causes for public service under performance. Other reasons include a lack of ethnic diversity, inadequate accountability, central management systems, and labor rights that are in tension. Given the above, it is critical that the issue of lack of performance in public organizations be well understood. Since the dawn of democracy, governments have enacted a variety of legal and constitutional structures designed to help public-sector organizations enhance their provision of public goods and services [4]. Examples include the transformation of delivery of public services and

the creation of a code of conduct for public employees.

Employee satisfaction

Employee satisfaction has always drawn extensive empirical investigation all through the history of organization and behavioral study, resulting to a variety of intriguing definitions. Employee satisfaction is defined as an employee's successful focus towards his or her job [5]. It may also be defined as an individual's perspective and assessment of the entire workplace environment. Employee satisfaction is defined as a general attitude about one's job or a connected set of views about different aspects of the workplace. Employee satisfaction may also be defined as a pleasant emotional state coming from a positive evaluation of one's work or work experience.

Employee satisfaction is focused with how employees in an organization feel about their entire job, which is a common thread that links all

concepts. Based to one research, the two most important elements that influence employee satisfaction are environmental conditions and individual factors [6]. Employee satisfaction ratings among those whose expectations were not met. The person-environment fit concept is generally accepted as the best justification for employee happiness. Moreover, other researchers suggest that employee satisfaction is determined by the interplay of a multitude of elements, including recognition, communication, work colleagues, employee benefits, conditions of employment, the content of the job itself, the nature of the organization itself, organizational systems, practices and processes, compensation, self-growth, advancement, gratitude, security, and so on. Meeting the requirements of workers remains the primary approach for increasing employee satisfaction, according to the majority of management scientists.



Fig 1. Employee Satisfaction

However, recent research advancements have questioned this viewpoint, demonstrating the multifaceted nature of employee satisfaction. To increase employee satisfaction, it is necessary to first assess and determine current levels. However, because of its complex character, measuring employee satisfaction differs from one

organization to the next. Some organizations utilize anonymously employee satisfaction questionnaires that are conducted on a regular basis to assess employee satisfaction [7].

Employee Satisfaction: Its Significance and Advantages

Table 1 shows that satisfied employees are a huge advantage to any organization for a range of factors [8]:

<p>Increased Productivity</p>	<p>Employees that are satisfied with their jobs are more productive. It seems to reason that satisfied staff are more engaged in an organization's growth and would work more to help it succeed.</p>
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Improved Customer Service	Employees who are satisfied are happier persons in generally, which implies they are more likely to provide pleasant customer care. They proudly represent your business, resulting in satisfied customers.
Brand Ambassadors	When individuals are pleased with something, they want to speak about it. For example, if you get excellent customer service at any business, chances are you'll tell others about it and suggest that they go there as well. Employees that are satisfied with their jobs will do the same for you, boosting your product and making you a desirable employer.
Turnover has decreased.	Employees that are satisfied with their jobs tend to remain. Because of the time and money invested in re-hiring and re-training competent personnel, high turnover may be a nightmare for businesses. You can't anticipate 0% turnover, but you can reduce the risk by prioritizing employee satisfaction.

Factors Influencing Job Satisfaction

Employee satisfaction is influenced by a variety of variables. While you may be knocking it out of the parks in one or two categories, if you fall short any of the others, you risk generating a disgruntled workforce and the issues that come with it [9].

Employee Advantages

Make no mistake: good compensation is important. However, how are you faring with your paid time off (PTO) policy? What about the advantages and benefits of health and wellness? And your appraisal and reward programmers. How effectively you start taking care of your workers in regions other than their money determines a large portion of their job satisfaction.

Style Of management

According to a 2018 study of HR experts, the top ten reasons why excellent workers quit their jobs are:

1. Ineffective managers
2. Poor management
3. Ineffective communications
4. Starting to feel overburdened
5. Lack of support
6. There is a lack of confidence and independence.
7. Inadequate appreciation/recognition
8. Lack of respect
9. A deficiency of chances for advancement
10. A sense of being wasted

It's worth noting that each of those turnover triggers may be attributed to management choices and personalities. The management style has a significant effect on work satisfaction.

Job Responsibilities and Tasks

Last but not least, on the list of variables influencing employee satisfaction is the fulfillment individuals get from their jobs.

- Is the job exciting and challenging?
- Does it make use of their talents and education?
- Do individuals believe they can be respected and appreciated for their work?
- Do individuals perceive a clearly upwards route to ongoing success and development?

Nobody likes to be bored or underused at work [10]. The certain reason why excellent individuals willingly quit their jobs in pursuit of better grounds was a sense of underutilization.

Working Environment

You would assume that every employee who is highly paid is happy, but that isn't always the case. Money has little influence on everyday behavior. Things that money cannot purchase are much more powerful.

Workplace safety (both physical and mental) and a hygienic, healthy atmosphere are two of the most important factors. Work should be a location where individuals enjoy going every day [11]. If they do not, their work happiness will suffer, and they will ultimately quit. They may make the same amount of money somewhere.

Performance Appraisal/Review

Performance management is a planned and comprehensive strategy to achieving organizational success by enhancing the performance characteristics of both people and teams. Performance assessment is defined as a distinct, formal, connected institutions event that occurs once or twice a year and includes clearly specified performance dimensions and/or criteria

that are utilized in the assessment process. It is also defined as a systematic method of employee surveillance that often include evaluating performance based on the assessments and views of colleagues, friends, supervisors, other managers, and even employees themselves [12]. Performance assessment is focused with clarifying workers' job expectations, assisting with individual employee development as well as the group development of the whole workforce, and guaranteeing that compensation structure design includes performance.

After their performances are assessed, it guarantees that workers are aware of how companies want them to behave in connection to corporate objectives. This statement of promoting awareness is consistent with a study that says that the primary goal of performance evaluation is to provide specific staff members with periodic and formalized feedback. Performance assessment is carried out as a formalized organizational function for a variety of reasons. There are three major reasons why performance reviews are conducted: One of the causes is something called a performance assessment. They define performance reviews as a chance for managers to have conversations with their workers about their success in their present roles, their strengths, and issues that need to be developed more. Second, they address incentive reviews, which they define as "typically independent conversations but connected to the appraisal system in which the supervisor communicates judgments on rewards

such as pay, benefits, or advancement and feeding back" [13]. Finally, they address prospective evaluations, which are conversations regarding workers' possibilities for advancement, the kind of job they will be suited for in the future, and how this might be accomplished. Mention two common motivations for performance assessment in a discussion related: evaluative and developmental objectives. The evaluative role includes utilizing performance evaluation for standard HR choices such as compensation and salary administration, promotion, retention, termination, and layoffs, as well as providing workers with the necessary recognition and detecting bad performance. This combines two of the goals of performance assessment, namely (performance reviews and incentive appraisals) [14].

Transformation activities are aimed at developing individual workers by using assessments to identify training gaps in employees, offering employees a clear view on their strengths and weaknesses, and providing employees with opportunities for feedback. The development of workers' abilities. In terms of clarifying the reasons for performance evaluation, workers' attitudes toward performance appraisal will be influenced by the perceived causes for appraisal, regardless of the actual objective. As a result, they argue that there should be a clear objective for creating performance assessment, and it must be accomplished [15].

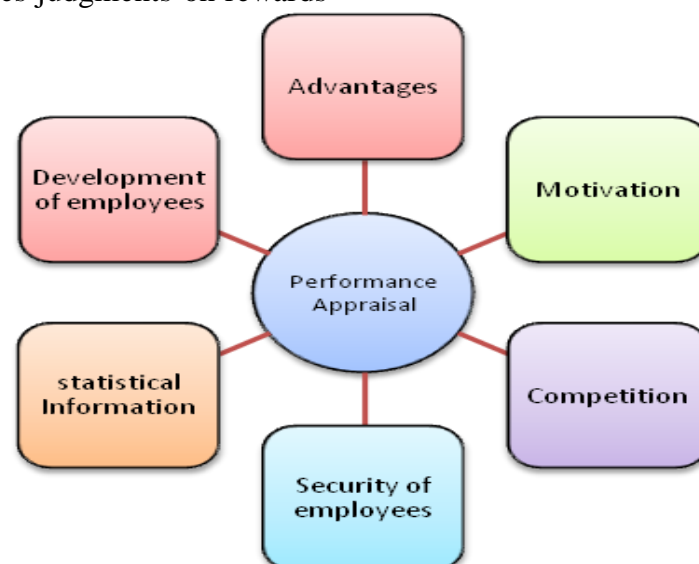


Fig 2. Performance Appraisal

Advantages of Performance Appraisal/Review System

Although a few argue that the reward rating system adds little value to the organization's performance, yearly evaluations are seen as an unpleasant procedure by management and employees. It may sometimes be harmful to performance management. Still, an appraisal system is considered to be a performance measurement standard that has been established in order to provide feedback to workers in order to enhance their level of performance by eliminating flaws [16]. It is praised as a good investment for the business, and this praise is well-deserved when you considering the following advantages.

Transfers and advancements

The merits assessment method assists in identifying talented workers and grooming them to be effective. Employees' hard work and achievements are recognized by the company via promotions, deputations, and transfers. The assessment method ensures that promotions and transfers are made only on the basis of performance, rather than seniority or favoritism.

Preparing for Training and Development

Superiors may understand their colleagues' strengths and shortcomings via the evaluation process, which also helps the HR department create a training and development programmed. The content and manner of training differ depending on the needs of the workers. Even the appraisal system reduces attrition since appreciating and bonuses increase an employee's stability.

Be Incorporated into the Strategic Vision

One of the most essential objectives of an evaluation is to convey staff objectives that are parts of the organization's strategic plan.

The Tool of Inspiration

So, because procedure of evaluating the level of performance and the reward system after

reaching the objective may improve the workers' performance and effectiveness level, performance evaluation serves as an inspiring element for the employees.

Help in Increasing Employee Performance

Administrators must identify deficiencies in workers' performance and convey them to the relevant employees as part of the assessment process. The manager or supervisor may provide recommendations to help them address their deficiencies. The reasonable appraisal method assists line managers and human resource personnel in developing policies and programmers for the advancement of workers and the company. It also helps to pleasingly organized daily work in order to allocate the appropriate personnel to the proper task. The assessment procedure must be objective and fair in order to promote the advancement of each employee's career.

Correlation between Performance Appraisal/Review or Employee Satisfaction

For evaluating the presence of correlation and the connection between dependent and independent variables, we utilize normality test (Person's correlation coefficient test). The table below illustrates the degree of correlation between factors studied as measured by Pearson's correlation coefficient test [17]. Table 2 shows that there is a direct (0.130) connection between satisfaction with performance appraisal and employee commitment. This connection is modest yet significant at the 95% confidence level. Furthermore, there is a connection between satisfaction with performance appraisal and emotional commitment to the organization that is quite high and equivalent to 0.639, which is significant in 99 percent of the cases. There is also a strong connection between work satisfaction and a reduction in desire to leave and an increase in motivation.

Odd		Satisfaction with performance assessment	Motivati on that comes from inside	Work perfor mance	Affective dedication to the organization	Willingn ess to quit job
Satisfaction with performance assessment	Person's factor	1	.729	.130	.639	-.589
Motivation that comes from inside	Person's factor	.729	1	.253	.651	-.550
Work performance	Person's factor	.130	.253	1	.336	-.182
Affective dedication to the organization	Person's factor	.639	.651	.336	1	-.545
Willingness to quit job	Person's factor	-.589	-.550	-.182	-.545	1

Impacts of Performance Appraisal/Review on Employees satisfaction:

The effects of performance evaluation on employee satisfaction showed the importance of performance appraisal to companies while also emphasizing the importance of offering suggestions to workers owing to the beneficial influence on their performance. They claim that providing opinions following an assessment improves communication between supervisors and workers while also motivating employees. The research also emphasizes the importance of performance evaluation in motivating workers to strive for both corporate and personal objectives. Badly executed performance evaluations, they warn, may have a negative impact on the company by leading workers to perform badly. Employees get little advantage from performance appraisals. It stated that there was minimal compensation in terms of performance evaluation [18].

According to the research, there is no significant different in employee incentives performance based. The research questioned why evaluations provide no concrete advantages to workers and recommends that

the aim of appraisals be reconsidered. Because incentives are one of the elements that affect workers' employment mindset, this practice has the capability to minimize employee job satisfaction and commitment levels. The efficacy of performance evaluation systems on employee performance shows performance appraisal systems have a beneficial influence on employee performance and satisfaction. Employee training, management by goals, and results compensation were recognized as the major variables influencing employee performance and received high scores from respondents [19]. According to the research, competency, evaluation, and growth all have a modest impact on employee performance. Employee commitment is significantly influenced by the performance evaluation system in both good and bad ways. She found that employee loyalty is significantly influenced, as is their enthusiasm in doing their duties. As a result, the workers' efficiency and effectiveness are severely harmed, as they say that their desire to perform their job is harmed.

Workers' answers showed that they would not mind working additional hours on the positive

side; but, on the down side, employees would be reluctant to work those hours and beyond the periods for which they are paid because they believe they are not adequately compensated. Employees are eager and feel obligated to reward the company via peak performance if the firm demonstrates a commitment to incentives and employee development. Employees will therefore feel motivated to work towards attaining corporate objectives, even if they are subordinate, leading to an increase in emotional commitment.

Conclusion

The purpose of this study was to establish the relationship between employee satisfaction

and performance appraisal in a diversified organization. We show in this study employee satisfaction and also discussing about the advantages and after that we examine the factors Influencing Job Satisfaction. In this study we discuss about the performance appraisal/review. And after that we discussing advantages. In this research we also show Correlation between Performance Appraisal/Review or Employee Satisfaction and last, we examine the impacts of Performance Appraisal/Review on Employees satisfaction.

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A COMPARATIVE ANALYSIS ON MATPLOTLIB AND SEABORN USING DEPRESSION DATASETS

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ABSTRACT

In Today's growing world of Machine Learning, Python is becoming more and more popular amongst developers as there are many free libraries that can be used by them. The mission of this research paper is to through light on libraries of Python (Matplotlib and Seaborn) for the use in the analysis of Data. It also shows the comparison between the Matplotlib and Seaborn Libraries of Python on the basis of its features, advantages and disadvantages. It further examines Datasets of Depression with the help of these libraries and shows the graphs of the countries that which country has the highest rate of depression.

Keywords: Python, Python Libraries, Data Visualization, Matplotlib, Seaborn

Introduction

Matplotlib is an information representation and moreover a plotting library of python programming language. It is a library utilized in python for information perception. It was at first formed by John D Tracker starting now and into the foreseeable future it has a working improvement neighborhood is dispersed under a BSD-style grant Michael Droettboom was appointed as matplotlib lead engineer immediately before john trackers passing in august 2012 and was additionally joined by Thomas Caswell [1]. Seaborn is likewise one of the python information representation libraries dependent on matplotlib it is answerable for significant level interface for drawing alluring and enlightening factual designs. It expands on top of matplotlib and coordinates intimately with pandas information structures. It assists us with investigating and comprehends the information. It's plotting capacities work on information edges and exhibits containing entire datasets and inside play out the essential semantic planning and measurable accumulation to create useful plots. It's dataset-arranged decisive API that allows you to identify what the various components of your plots mean, as subtitles of how to draw them [2]. Jupyter is a venture and local area whose objective is to foster open-source programming, open-guidelines and

administrations for intuitive registering across many programming languages. It was turned off from IPython in 2014 by Fernando Perez. Jupyter's name is a reference to three programming languages which are Julia, Python and R. Jupyter has created and upheld the intelligent processing items Jupyter Notebook, Jupyter Hub and Jupyter Lab. The main purpose is to help intuitive information science and logical figuring across all programming languages [3].

Literature Review

Abdul Hafeez, Ali Hassan Sial (2021) describes in their paper about the data visualization libraries and evaluated them using Python. They also give the overall analysis and the examination of the principles and concepts of numerical variables and datasets executed in Python [4]. Sebastian Raschka, Joshua Patterson, Corey Nolet (2020) describes in their survey about the knowledge into the field of Machine Learning with Python, taking a visit through critical subjects to recognize a bit of the middle gear and programming norms that have enabled it [5]. Polina Lemenkova (2020) describes in the research about performing display and spatial examination of the marine geographical information utilizing mix of the QGIS and Python Programming [6].

Arnav Oberoi, Rahul Chauhan (2019) describes in their research that visualization

means graphically representation of data through pictorial design. Their aim was to make an easy visual of data to make it comprehend & more presentable. They present that visualization in data science is categorized into univariate information perception i.e., plotting a solitary variable to comprehend about its circulation & multivariate information visualization i.e., logical, designing & monetary information. It works with expressing relationship between two or more variables [7]. Dr. V. Hanuman Kumar (2018) describes in the research about broad information on different python libraries and diverse ML outlines attempts to meet various application necessities [8]. Paul Barrett, John Hunter, J. Todd Miller, Jin-Chung Hsu and Parry Greenfield (2005) describes in their research that matplotlib is one of the versatile 2D plotting and imaging bundle that is pointed fundamentally at perception of both numarray and numeric [9].

Comparative Analysis

Matplotlib

1. In matplotlib basic types of graphs are designed.
2. We need to import this library in the following way-
from matplotlib import pyplot as plt
%matplotlib inline
3. Its syntax is complex and lengthy as compared to seaborn.
4. In this type of python library multiple figures can be open at the same time. We just have to close them.
5. The libraries which are used in matplotlib are- pandas and numpy [10].
6. These libraries (pandas and numpy) are highly integrated with matplotlib.
7. Matplotlib is highly customizable and powerful [11].

Advantages

1. It provides the developer with whole set of tools and open source of documentation that helps developer very much.
2. It provides automatic spacing for subplots.
3. It is best for making charts and graphics but it not best for the purpose of time series data [12].

Disadvantages

1. It is not fitted best for the purpose of time series data.
2. It is not suitable for exploratory data analysis.
3. It is also not good for working with multiple datasets.
4. It is a low-level library; we have to do more coding for getting one small result [12].

Seaborn

1. It uses many powerful themes for plotting the datasets. It is used for combining whole data into single plot.
2. We need to import this library in the following way from seaborn as sns
3. Its syntax is easier as compared to matplotlib.
4. In this type of python library the time is being set for the creation of each figure.
5. The libraries which are used in matplotlib are- pandas, numpy and matplotlib [10].
6. Pandas are more integrated with seaborn.
7. Seaborn avoids the overlapping by giving the default themes [11].

Advantages

1. It is easy for the representation of data.
2. It is used for the visualization of data.
3. We didn't have to worry about what is happening internally we have to just give the dataset or data to the replot() function.
4. We can easily move from one representation to another by using the property named "kind".
5. We can create interactive and informative plot for the representation of the data.
6. The graphs plot in seaborn is easily understandable.
7. As seaborn is the extension of matplotlib so it provides features and functions of matplotlib too [13].

Disadvantages

We have no disadvantage in using seaborn library of python. The only shortcoming is that we have to install seaborn manually as this library is not in-built with python [13].

Methodology

The methodology was simple as the one person working on Jupyter notebook. Jupyter Notebook is the working tool that comes with the Anaconda Navigator Software. The steps that are followed in the research are as follows-

1. Collection of Datasets- For performing any kind of work on the Python, the first and the most important step is to collect the datasets on which we perform the work. I did the same I collected my datasets from <https://datasets.simula.no/depression/#download> [14]. After the successful download of the datasets I edited it according to the data I required for the analysis. The final dataset that comes after the editing is presented below-

	A	B
1	Country	Age
2	United States	37
3	United States	44
4	Canada	32
5	United Kingdom	31
6	United States	31
7	United States	33
8	United States	35
9	Canada	39
10	United States	42
11	Canada	23
12	United States	31
13	Bulgaria	29
14	United States	42
15	United States	36
16	Canada	27
17	United States	29
18	United Kingdom	23
19	United States	32
20	United States	46

Fig. 1 The Final Dataset

2. Uploading the Datasets- When we have the datasets there is need of uploading in order to do the analysis on that datasets. I upload it on the Jupyter Notebook as I have done my all analysis on the same platform. I saved it on the same platform with the name Python.csv.

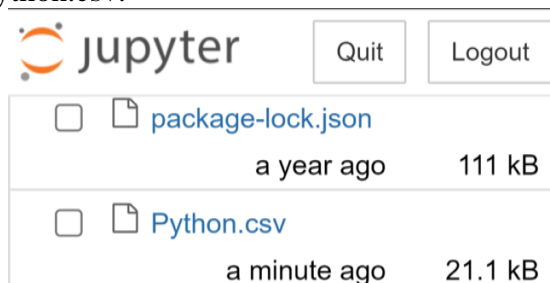


Fig. 2 Uploading the Datasets (Python.csv)

3. Importing the Libraries- When working on the Python we need to import the libraries if we wish to use the in-built functions that are stored in the libraries. For

this, I import the Pandas, Matplotlib and Seaborn libraries of Python.

```
import pandas as pd
import seaborn as sns
from matplotlib import pyplot as plt
```

Fig. 3 Importing the Libraries

4. Reading the Datasets- After the uploading of the datasets, it should read by the Jupyter Notebook in order to perform the analysis. This is done with the help of Python Library named Pandas, this library reads the datasets into .csv format.

```
depression=pd.read_csv('depression.csv')
```

Fig. 4 Reading the Datasets

5. Creating the Variables- After the successful reading of the datasets now we have to create the variables for dividing the datasets. In this analysis I had created the variables with respect to different countries so that I can use it in the analysis.

```
united=depression[depression['Country']=='United States']
india=depression[depression['Country']=='India']
france=depression[depression['Country']=='France']
kingdom=depression[depression['Country']=='United Kingdom']
canada=depression[depression['Country']=='Canada']
bulgaria=depression[depression['Country']=='Bulgaria']
germany=depression[depression['Country']=='Germany']
switzerland=depression[depression['Country']=='Switzerland']
poland=depression[depression['Country']=='Poland']
australia=depression[depression['Country']=='Australia']
```

Fig. 5 Creating the Variables

6. Plotting the Graphs- Last and the final step of my analysis was plotting the graphs according to the data of different countries. I have plotted the graphs with the help of matplotlib and seaborn libraries of python.

```
sns.set(rc={'figure.figsize':(15,5)})
plt.subplot(1,2,1)
sns.barplot(x="Country",y="Age",data=united,color='r')
plt.subplot(1,2,2)
sns.barplot(x="Country",y="Age",data=india)
plt.show()
sns.set(rc={'figure.figsize':(15,5)})
plt.subplot(1,2,1)
sns.barplot(x="Country",y="Age",data=france,color='g')
plt.subplot(1,2,2)
sns.barplot(x="Country",y="Age",data=kingdom)
plt.show()
sns.set(rc={'figure.figsize':(15,5)})
plt.subplot(1,2,1)
sns.barplot(x="Country",y="Age",data=canada,color='r')
plt.subplot(1,2,2)
sns.barplot(x="Country",y="Age",data=bulgaria)
plt.show()
sns.set(rc={'figure.figsize':(15,5)})
plt.subplot(1,2,1)
sns.barplot(x="Country",y="Age",data=germany)
plt.subplot(1,2,2)
sns.barplot(x="Country",y="Age",data=switzerland)
plt.show()
sns.set(rc={'figure.figsize':(15,5)})
plt.subplot(1,2,1)
sns.barplot(x="Country",y="Age",data=poland,color='g')
plt.subplot(1,2,2)
sns.barplot(x="Country",y="Age",data=australia)
plt.show()
```

Fig. 6 Plotting the Graphs Result

From this analysis we can easily get that Seaborn is the more powerful and best amongst the libraries that are stated above for the analysis purpose. The result of Depression Datasets are shown in the form of bar graphs that are presented below-

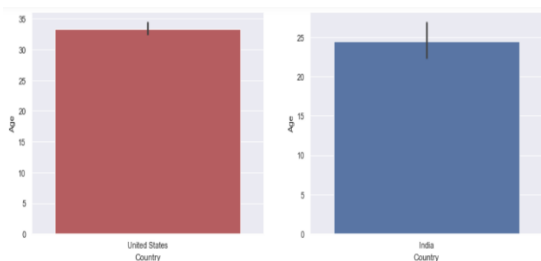


Fig. 7 Result of United States and India

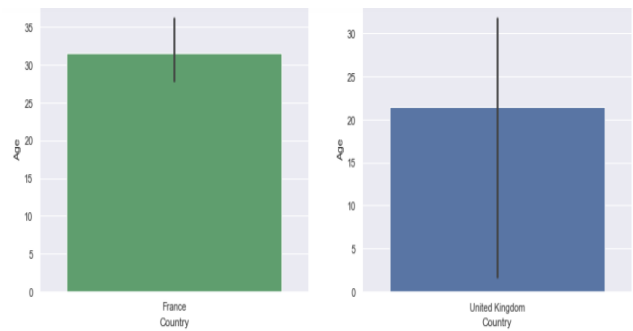


Fig. 8 Result of France and United Kingdom

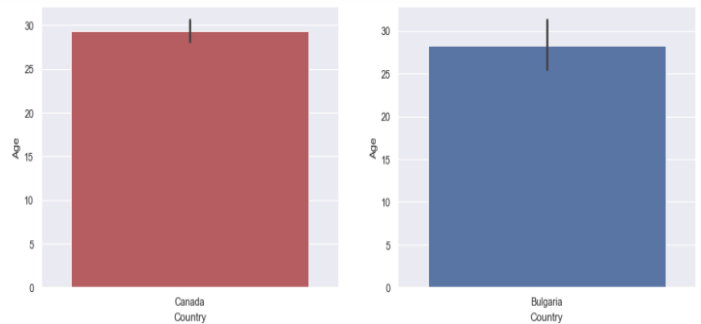


Fig. 9 Result of Canada and Bulgaria

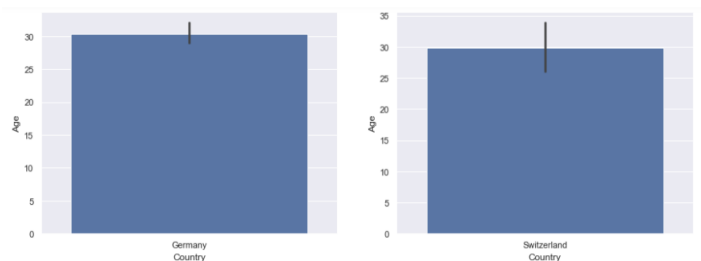


Fig. 10 Result of Germany and Switzerland

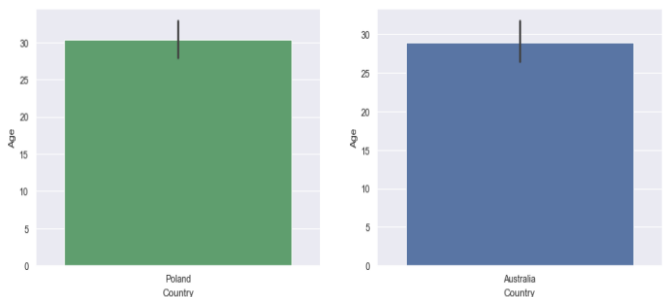


Fig. 11 Result of Poland and Australia

Conclusion

It is always been good to know about what is happening all over the world. This analysis gives the brief study of 10 Countries as about their Depression Rate. This clearly shows that these libraries are one of the productive libraries of Python that are used in Machine Learning. They both are easy to plot and give the accurate result in lesser time. The tabular conclusion of data is given as follows-

Table 1: Depression Rate of 10 Countries

Sr.No.	Country	Depression Rate
1.	United States	33
2.	India	24
3.	France	32
4.	United Kingdom	22
5.	Canada	29
6.	Bulgaria	28
7.	Germany	31
8.	Switzerland	30
9.	Poland	31
10.	Australia	28

This clearly states that the depression rate is higher in United States as compared to others.

Future Scope

As this analysis is the brief study of Depression Rate of some countries. In future, it will be helpful in recognizing the countries which are most affected by the Depression. If we have the knowledge of Depression data, we can easily take steps to decrease the same.

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SINGLE-USE PLASTIC BAN FOR ENVIRONMENTAL PROTECTION: REALITY OR MYTH

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ABSTRACT

Plastic pollution is one of the top environmental concerns these days and the decision of a single-use plastic ban seems to be benign for environmental problems. The rapid and widespread use of plastic has required us to rethink plastic policies, norms, and mandatory implementation of plastic rules. Single-use plastic ban practice can cope up with the plastic waste management and plastic production systems in India. The single-use plastic ban on how it affects the economy of the nation, the attitude of the people regarding the plastic ban, and the industry involved in plastic production are comprised in this study. The use of alternative plastic reveals that India is still far from having eco-friendly innovations that can curb the use of plastic products. This paper also analyses that the use of plastic is increased even after the ban on single-use plastic products during the COVID-19 pandemic that shows the lack of government recognition and guidelines to reduce the loop of plastic production and waste management.

Keywords: single-use plastic ban, citizen approach, plastic waste management, COVID-19 pandemic precautionary measures

Introduction

Plastic becomes an integral and indispensable part of the modern day because plastic is lightweight, easy to carry, low in cost, highly durable, and flexible. The availability of it says that we cannot think to live without the use of plastic because it becomes part of our daily life (Geyer et al., 2017). In the early decades, the concerns were on removing waste from the urban and rural areas. However, these days the focus of the government change towards the prevention of waste generation. Over the years the government has adopted different policies and norms at the national, state, local, and regional levels to curb plastic pollution. Legislation against the use of plastic and severely restrict single-use plastic has been passed by several local, sub-national, and national governments. The tremendous use of plastic shows that it affects not only human life but also the entire eco-systems rather than benign to modern conveniences.

Evolution of the plastic industry

Initially, the concept of the plastic industry is a boon for the country itself and is also considered it has a positive impact on the ecosystem. There is a myth behind the establishment of the industry. In the earlier days, it is considered that it would help the environment because it is an alternative to

wooden products. Earlier in the civilization, every product was made of either wooden or stone. Therefore, Deforestation could be controlled with the help of this plastic product. But the outcome was not as it was expected. Plastic pollution arises from all the stages of the life cycle. Firstly, the plastic industry causes environmental problems from manufacturing and production secondly, the outcome of the industry i.e., plastic products themselves are noxious to the environment due to poor practices in handling waste.

The US-based oil and gas industry developed and encouraged the plastic industry in the year 1970s. Initially, it was not adopted by the consumers because the ubiquitous phrase "plastic or paper?" indicates that it was quite difficult to attain desirable achievements for the plastic industry and faced the negative attitudes of the consumers to adopt disposable plastic bags directly as using a paper bag. American supermarkets started offering plastic bags in 1977, European countries began in 1980, and developing countries in the 1990s (Clapp & Swanston, 2009). The birth of the plastic industry at the world level began after the introduction of first-time synthetic plastic Bakelite. The recognition of the global growth of the plastic industry appeared after the 1950s. Throughout these 65 years, the estimation of the annual production of plastic stated an increasing trend by nearly 200 to 381

million tonnes in 2015 (Ritchie & Roser, 2018). How production and use of plastic are increased leads every nation to rethink over to shape domestic policy implementation.

Bangladesh: the first state to ban plastic bag

The increase in the use of plastics and its related pollution compel the nation to enact laws and policies regarding plastic. In the early 1990s, the cry for anti-plastic policy started but by 2002, legislation has been enacted to ban the production, sale, and use of polyethylene bags started with Dhaka, the capital of Bangladesh, and then slowly nationwide (Clapp & Swanston, 2009). The ban on the plastic industry has not imperative impact on the nation because it is not a major employer and contributor to the GDP of the nation. The major national industry for packaging is the jute and highly employed industry. The anti-plastic norms failed to comply with the environmental best practice. To gain the desired outcome, the strongest waste management policy and recycling infrastructure will need to be developed.

International Convention on plastic waste

Plastic waste and marine litter pose serious global environmental concerns. In 2019, the conference of the Parties (COP) to the Basel convention ratified two crucial findings to address plastic waste. This convention strengthens the Basel Convention as this is the only legally binding agreement between the nation that specifically addresses plastic waste. Earlier to this convention, there was no specific agreement, treaty, or protocol to address the plastic litter this shows the negligence of the nations. Plastic production has been grown considerably since the 1950s and there is no holistic approach between the nation to tackle plastic waste and creating a circular economy.

Action for addressing the plastic waste under the Basel convention

The amendment was made to The Basel Convention on the Control of Transboundary movement of hazardous waste at the 14th conference of the parties (COP14) of the Basel. The convention has voted in the favor of circumscribing the movement of plastic waste exports of contaminated or mixed plastic scrap. Prior informed consent of the nation is required

for the transboundary movement of the trash. The amendment to this convention helps the international trade in plastic waste, helping to reduce marine litter and environmentally sound waste management policies (UNEP Basel).

Under the amendment, plastic is divided into three general categories:

- “clean plastic waste” means plastic waste that has been discarded from scrap before dumping which is good enough to restate or convert with minimal technical assistance

- “other plastic waste” means blended and polluted trash that is not appropriate for export and accountable to the Basel convention agreement

- “hazardous plastic waste” which is subject to Basel convention

Plastic waste partnership (PWP)

PWP plastic waste partnership concept adopted under the same Basel convention to promote business, government academic, and social resources to adopt the eco-friendly and environmentally sound policies (ESP) to minimize plastic waste. Membership of this partnership is open to parties to the Basel Convention. The main and chief aim of this partnership is to mobilize and promote the ESP and long-term eliminate the discharge of plastic waste in the open landfills and marine environment (UNEP Basel).

Plastic Pollution in India

The growth of plastic industries in India was seen in the year 1950s. There is a vigorous beginning of the industries of plastic manufacturing and production. State own Indian petrochemical company fertilized in the year 1979 and in the year 1994 plastic soft drink got pave in the market. Cried for plastic waste took place at the time of the plague pandemic in the Surat. There is no regulatory body to tackle this waste and waste collection, disposal, recycling, and reusing the trash. After this epidemic, waste pickers started to collect the waste from the open landfills (Shrivastava, 2019).

One study reveals that the situation of plastic production, manufacturing, and use shades the current image of the country. India is also dwelling in the scenario as compared to other countries of the world even it is worst

compared to others. The use of plastic products enormously increasing every day. According to the Federation of Indian chambers of commerce and industry survey (FICCI), One prediction is that Plastic production and manufacturing are reached 2 million tonnes (mt) a year by 2020 from 13.4 MT in 2015 and the possibility would that among this more than half was single-use plastic. According to the Central Pollution Control Board report it is estimated in the year 2015 that plastic waste is around 6.92 percent of the municipal solid waste (MSW). plastic waste generation in the year 2017-18, according to reports of the Central Pollution Control Board (CPCB), it is estimated waste generation 660,787,85 tones(Banerjee, 2019). From which approximately, 22per cents incinerated, 2per cent recycled, and 42 percent ineffectively treated either littered or inadequately disposed of in dumps or open landfills (shrivastav.2019). The contribution to Greenhouse gas (GHG) is around 15% of the total global carbon budget. The growth rate of plastic waste estimated by the end of 2050 is around 12000 million metric tonnes (*Microplastics | Definition, Properties, & Plastic Pollution*, n.d.)

Microplastic: an emerging trend

The small piece of plastic is known as microplastic. Microplastic is not a different type of plastic but it is a part of plastic and that is 5 mm (0.2 inches) in length according to the new research done by U.S. National Oceanic and Atmospheric Authority (NOAA). The study explains that microplastic was first time shown in the beauty care product around fifty years ago. U.S. government has banned microplastic used in personal products in the year 2012.

Microplastic is the result of plastic pollution and it is of two types.

1. Primary microplastic
2. Secondary microplastic

Primary microplastic occurred due to used plastic products like cosmetic products, water bottles, etc while secondary microplastic is the result of plastic waste because it is formed from the breakdown of large plastic. Even discovered in the human body, plant tissue, and oceanic ecosystem. Microplastic is non-degradable and the impact on the human body

is still not known (*Microplastics | Definition, Properties, & Plastic Pollution*, n.d.)

Single-use plastic ban impact on the economy

Plastic has remarkable properties that are why become a global commodity and a ban on plastic products became inevitable for every nation of the world. Our plastic addiction has a devastating impact on the environment. Modern technology for plastic waste segregation and recycling needs to be established(Ray et al., 2021). To comply with the international treaties, the Indian government enacted the rules in 2016. Parliament provides the power to enact the law for combating plastic pollution (Dignath.2020). The extended producer responsibility is introduced in the year 2012 for electronic waste and that is to be extended during 2016 for plastic waste when plastic waste management rules,2016 was notified (Bhaskar.2020). India has a plan to phase out the six majors single-use plastic items like plastic cups, bags, straw, and certain sachets and move toward a plastic-free nation by 2020(seethraman. 2019).

According to the All-India Plastic Manufacturer's Association (AIPMA), the Plastic- refinery industry hold around 30,000 entities, annually Rs.2.25 lakh crore business of the industry, and over 4 million employment generation in India. The government's ban on plastic leads to closures of industry and loss of employment will increase the unemployment rate(Maio & Rem, 2015). Cost of product description like company name, business logo, and other information will be a hike on paper and cloth bag as compared to plastic. Thus, the plastic ban adversely affects the other industry as well. Deviation from plastic to non-plastic products will boost the cost for producers, sellers as well as end-users. It realizes adversely on the purchasing power of customers and ultimately declines in demand (battacharya,2019).

Consumers attitudes on the ban

It is clear from the study that despite the ban on single-use plastic, the desired outcome has not been achieved. Moreover, the dependence of customers on plastic bags remains the same

even after the ban. Customers are of opinion that plastic bags are very flexible and most importantly leak-proof and water-resistant. This shows that even a ban on plastic bags does not help in eliminating or changing consumer behavior (millar,2011). Most of the population is negligent that plastic can be the root of global warming and climatic change. Increasing the use of single-use plastic reveals that people are unaware that plastic hurts humans, animals, and marine life(Vimal et al., 2020).

Some study also reveals that people have welcomed the ban on single-use plastic. Customers are aware of the effect of plastic on health and the environment. Customers are enthusiastic to replace plastic items such as plastic cutlery, plastic plates, cups, spoons, water bottles, straw, balloon sticks, and more(Arı & Yılmaz, 2017). The Anti-consumption of the plastic attitude of the consumer is conceptualized as a consumer-based paradox and based on choice (Sharp et al., 2010).

Industrial response to the ban

The proclamation was by the central government to break up thoroughly the practice of single-use plastics at the end of 2022. (banjot kaur,2019). According to The Federation of Indian Chambers of commerce and Industry, the crucial logic of industrialists is that companies and industries depend on plastic for packaging and there is the inadequacy of feasible substitutes of plastic. The enhancement and alternative for packaging are required by Online businesses such as Flipkart, Amazon, and Paytm Mall because of this proclamation. The food industry is also required to alternate its packaging material. This will run ultimately high packaging costs, price of shipping, and delivery. There is an also adverse impact on online food delivery platforms such as Swiggy and Zomato for delivery of items like gravies that need waterproof packing. The lobby in the plastic rule makes the industrialist come with the statements and statistics dissuade the government from its bold move(Sehgal, 2020).

Eco-friendly alternative for plastic

Natural material was being used for covering and shelter to survive by our ancestors during their age. Material that was used is derived from plants or animals. Alternatives to plastic mean reversion to more traditional means of packaging like metal or glass. Bio-plastic seems and feels similar to typical packaging and which is made from natural materials and which is biodegradable or compostable(Environment UNEP, 2018). A sustainable environment means an intense search for green materials. Bio-based plastics have emerged as promising alternatives due to the advancement of biorefineries and bioprocessing technologies and reduction in demand for fossil fuel and carbon footprint. This clean energy industry may also create a job alternative(Wei et al., 2010).

Plastic usage during COVID-19

Plastic pollution and its waste management is not a one-nation problem because it remains always a threat to the whole globe. There are inadequacies and insufficient management of our current waste management system, thus the advent of the covid-19 problem fuels up the complexities of the waste management problem. To protect ourselves from contamination of covid and our hyper-hygiene way of life, increased the need for PPE (personal protection equipment), plastic package food and groceries, and usage of single-use utensils. However, on a deeper review of the covid and plastic pollution, we should take cognizance of the fact that the same is not as simple and straight as it sounded (Joubert et al., n.d.) The use of single-use PPE by medical practitioners and health care workers as well as mandatory use of masks for sheltering ourselves from contamination has multiplied the plastic waste generation. Moreover, national lockdowns and home quarantine orders have increased dependency on online delivery of food and essential groceries which has encouraged a plausible increase in plastic packaging waste generation(Staub, 2020).

Conclusion

To combat the future challenges, Evolution towards ecologically sound materials like

bioplastic and other green technologies would be pivotal. The banned on single-use plastic will help to achieve our ambition of phasing out the usage of single- plastic but the current use of plastic could impede our everlasting objective. . Similarly, waiting for international willingness and participation to curb any form of pollution by the way of summits and agendas may also be postponed its implementation. Prioritizing our policies to curb pollution and to inject the individual

behavioral as well as social and institutional changes can be the way for a reduction in pollution and promoting sustainable plastic waste management. The changes can be achieved by providing incentives measures to the consumer for reusing and retailers for accepting used bags and public-private financing in the exploration of substitution of plastic, infrastructure and marketing would aid to encourage inclusive and sustainable growth of the nation.

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THROMBOLYTIC PROPERTIES AND HRLCMS ANALYSIS OF AQUEOUS EXTRACT OF EPIPHYLLUM OXYPETALUM FLOWERS

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ABSTRACT

Bramh Kamal (Epiphyllum oxypetalum) is a plant with diversities of medicinal properties. Since ancient times different medicinal properties of various parts of Bramh Kamal have been identified. The principal and less explored plant part of Bramh Kamal is flower. In this work, Epiphyllum oxypetalum extracts were prepared in different solvents and important chemical constituents present in its aqueous extract were detected. As phytochemical screening revealed presence of alkaloids, flavanoids, steroids, tannins and cardiac glycosides in the aqueous extract of flower, further it was examined by HRLCMS to have detailed information of chemical constituents. Further this extract was investigated for thrombolytic activity. The thrombolytic evaluation was carried out using in-vitro thrombolytic model, by knowing the percentage of clot lysis using streptokinase as positive control and normal saline as negative control. The aqueous extract revealed substantially good thrombolytic activity (43.05%) when compared to strptokinase (71%).

Keywords: *Epiphyllum oxypetalum, phytochemical screening, HRLCMS, thrombolytic activity*

Introduction

Bramh Kamal (Epiphyllum oxypetalum), one of the species of cactus, also called as "QUEEN OF NIGHT" as the blooming takes place in night, occurs widely throughout the India. Acute petals of the flower signifies the name oxypetalum [1]. It is regarded as sacred plant in India. The another name is orchid cactus, as has beauty like orchid [2]. It is recognized by different names through the world like chengyu (Chinese), moon-cereus (Greek), *Cactus mexicanus* (trade), WijayaKusuma (Indonesian), Nishagandhi (Hindi), Jungle cactus, Dutchman's pipe [1, 2]. Epiphyllum is widely scattered species in the word but undergo natural development in tropical rain forest. To make them different from desert cactus species, they are called as 'Jungle cacti'. It has tendency to bloom rarely, and this happens to occur in late night [2]. Research depicted several activities of Epiphyllum like antimicrobial potential against *Staphylococcus aureus*, a common bacteria delaying wound healing [3-5], anti-inflammatory and anti-oxidant property [6-7]. In addition to this, the stem is utilized cure dropsy and cardiac affections. The soup of petals is considered as tonic and has aphrodisiac medicinal properties [2]. The flower is commonly used in treatment of bloody phlegm and cough, uterine bleeding and

shortness of breath [8]. The overall chemical constituents of plants are known to neutralize blood clotting. The objective of present study was to identify the phytochemical constituents in alcohol extract of Epiphyllum oxypetalum flowers using phytochemical testing in laboratory and HRLCMS analysis. The said extract was examined for thrombolytic activity.



Materials And Methods

The flowers of Epiphyllum oxypetalum were collected from local garden in Pune, maharashtra. Further, they were identified and authenticated by C.R. Jadhav from Botanical Survey of India, Pune, Maharashtra.

Preparation of extracts:

Preparation of Petroleum ether extract: -The flower stem was coarsely cut into small segments using knife. The petals were delicately removed & then floral mass was placed into soxhlet extractor at temperature 50-60°C for 1-2hr.

Preparation of alcoholic extract: - The flower stem was coarsely cut into small segments using knife. The petals were delicately removed & then floral mass was placed into soxhlet extractor at temperature 40-50°C for 1-2hr.

Preparation of aqueous extract: - The flower stem was coarsely cut into small segments using knife. The petals were delicately removed & then floral mass was placed into soxhlet extractor at temperature 70-80°C for 3-4hr.

Phytochemical screening: - After doing successive solvent extraction of the flower i.e. petroleum ether; chloroform; methanol; ethanol; water we observed the following:

Test for alkaloids: -

➤ Wagner's Test: Alkaloids gave a reddish brown precipitate with Solution of iodine in potassium iodide.

➤ Hager's Test: The alkaloids with Hager's reagent gave yellow precipitate.

Tannins test: -

➤ Ferric chloride test: Extracts when mixed with 1 % FeCl₃ solution turns to either green, blue or brownish green colour.

Tests for steroids:

➤ Salkowski Tests: The extract taken in chloroform solution and concentrated sulphuric acid agitated together and allowed to stand for a while gave red colour.

➤ Lieberman Burchardt tests: The extract was mixed in chloroform solution, to it few drops of acetic anhydride and further 1 ml of concentrated sulphuric acid were added from the sides of test tube slowly. Then reddish ring appeared at the junction of two layers.

Tests for Flavonoids:

➤ Ferric chloride test: Extracts were mixed with alcohol and few drops of ferric chloride solution were added to it. The solution appeared green in colour.

➤ Alkaline reagent test: Extract solution was taken and few drops of NaOH solution were added to it, intense yellow colour was

developed. When few drops of dil. acetic acid were added yellow colour disappeared to give completely colourless solution. It indicated presence of flavanoids.

Tests for Glycosides:

➤ Sodium hydroxide reagent test: A small quantity of alcoholic extract was taken and dissolved in 1ml of water and sodium hydroxide solution. The solution turned into yellow colour indicated presence of glycosides.

Test for Cardiac Glycosides:

➤ Kellar Killani's test: The extract was dissolved in water with Glacial acetic acid. Further it was mixed with ferric chloride solution and conc. sulphuric acid was added slowly. The brown ring appeared at the junction of two layers

➤ Raymond's test: The extract was treated with hot methanolic alkali; violet colour is developed.

➤ Legal's test: The solution was treated with pyridine & alkaline sodium nitroprusside solution was added to it, the resulting solution appeared blood red in colour.

➤ Baljet's test: The solution was treated with picric acid or sodium picrate, orange colour was developed.

➤ Test for hydroxyl anthraquinones The sample was treated with potassium hydroxide solution, red colour was produced.

HRLC-MS Analysis: The aqueous extract was dissolved in ethanol and mixture of solvents and then subjected to HRLC-MS analysis. Mixture of solvents involved toluene, chloroform, ethanol and ethyl acetate. The HRLC-MS of sample executed in Sophisticated Analytical Instrument Facility (SAIF), IIT Mumbai, Powai, Mumbai. Agilent instrument **Acquisition-SW** 6200 series TOF/6500 series & Version Q-TOF B.05.01 (B5125.3) was used. The identification of compounds was done by comparing the spectrum of unknown compounds with the spectrum of known compounds in their library and the name, molecular weight and structure were probably determined.

Collection of blood: The blood samples were collected from healthy human volunteers with no history of oral contraceptives or anticoagulant therapy. 1ml of the collected blood was taken in eppendorf tubes and allowed to form clots.[9]

Determination of thrombolytic activity:

The incubation process of eppendorf tubes were carried out at 37°C for about 45 minutes. The weight of empty eppendorf tubes was noted. The serum was removed after clot formation without disturbing the formed clot and each eppendorf tube with clot was weighed again and weight of clot was determined (clot weight= weight of clot containing tube- weight of tube alone). 100µl of aqueous extract was taken in each eppendorf tubes containing pre-weighed clots. Then these tubes were incubated at 37 °C for about 90 minutes. Then the lysis of clot was observed. The variation in weight of eppendorf tubes after clot disruption was noted after incubation after removing the released fluid. The clot lysis in percentage was taken as

difference of weight before clot lysis and after clot lysis.

% clot lysis= (Weight of the lysis clot/ Weight of clot before lysis)*100

Results

Phytochemical screening: All extract of Epiphyllum oxypetalum flower displayed the presence of alkaloids and tannins except ethanolic extract. Almost all the extracts revealed presence of flavanoids while ethanolic, methanolic and aqueous extract found to contain steroids. Glycoside test for all extracts was observed positive, but cardiac glycosides were particularly showed their presence in aqueous and methanolic extract.

Table 1: Phytochemical screening of E.oxypetalum flower extracts

Phytochemical Test	Petroleum ether extract	Chloroform extract	Ethanol extract	Methanol extract	Aqueous extract
Hagger's test (alkaloids)	+VE	-VE	+VE	-VE	+VE
Wagner's test (alkaloids)	-VE	+VE	-VE	-VE	+VE
Tannic acid test (tannins)	+VE	+VE	-VE	+VE	+VE
Alkaline reagent test(Flavonoids)	-VE	+VE	+VE	+VE	+VE
Legal test(Cardiac Glycosides)	-VE	-VE	-VE	-VE	-VE
Baljet test(Cardiac Glycosides)	-VE	+VE	-VE	+VE	+VE
Fec13 test (Flavonoids)	+VE	+VE	-VE	-VE	-VE
Salkowaski test (steroids)	-VE	-VE	+VE	+VE	+VE
Saponification test Glycosides)	+VE	+VE	+VE	-VE	+VE
Liebermann Buchard's test (steroids)	-VE	-VE	+VE	+VE	+VE
Raymond's test (Cardiac Glycosides)	-VE	+VE	-VE	+VE	+VE
Keller killiani test (Cardiac Glycosides)	-VE	-VE	+VE	+VE	+VE

HRLCMS Analysis:

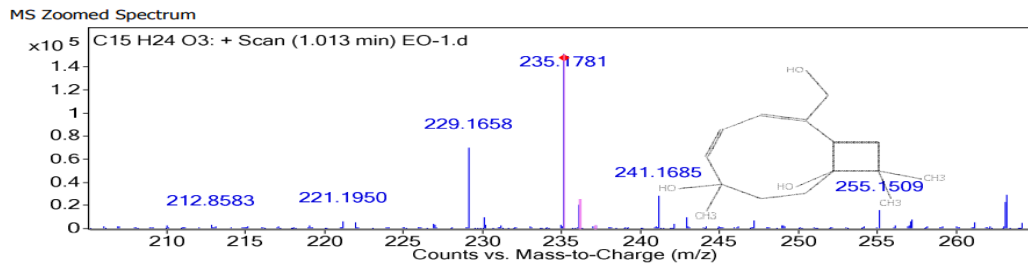
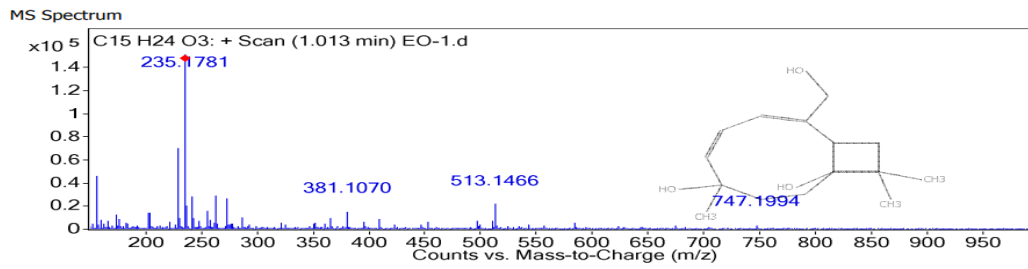
HRLCMS of extract of Epiphyllum oxypetalum flower displayed 17 major peaks giving the clue of diverse phytochemical constituents therein. All these compounds were characterized and identified by comparison of the high resolution liquid chromatography and mass spectra of constituents with the main library.

Pantothenic acid, Carbetapentane, Glycoursodeoxycholic acid, Porrigenin A, Amrinone, Terazosin, Diethylstilbestrol diglucuronide, Betamethasone valerate, Ropivacaine, Cystamine, Diglykokoll, Cuscohygrine, Racepinephrine, Methyl jasmonate, 6,3' Dimethoxy flavone, Stropanthidin and Punctaporin B were found to occur in the extract.

Figure 1: HRLCMS graphs of Phytoconstituents identified in aqueous extract of *E. oxypetalum* flower

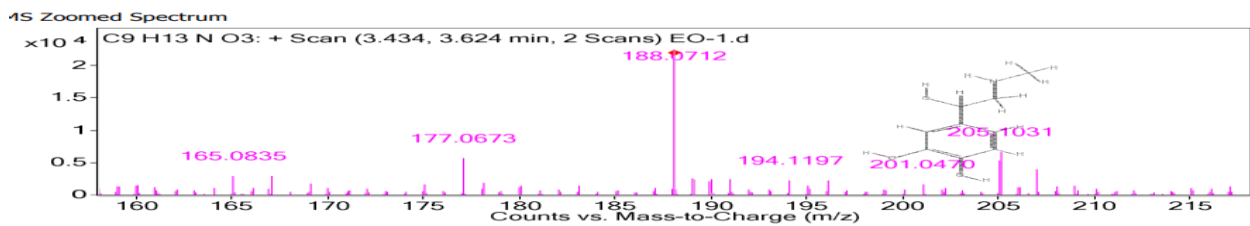
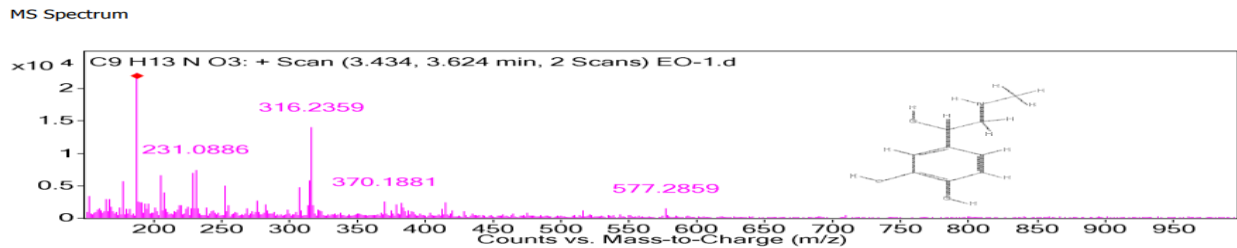
1.

Compound Label	Name	m/z	RT	Algorithm	Mass
C15 H24 O3	PUNCTAPORIN B	235.1719	1.026	Auto MS/MS	252.1752



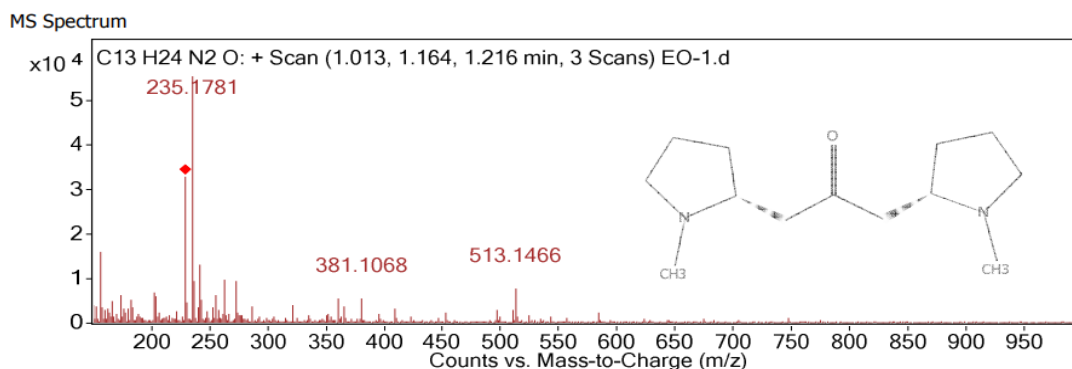
2.

Compound Label	Name	m/z	RT	Algorithm	Mass
C9 H13 N O3	Racinephrine	188.0646	3.546	Auto MS/MS	183.0859



3.

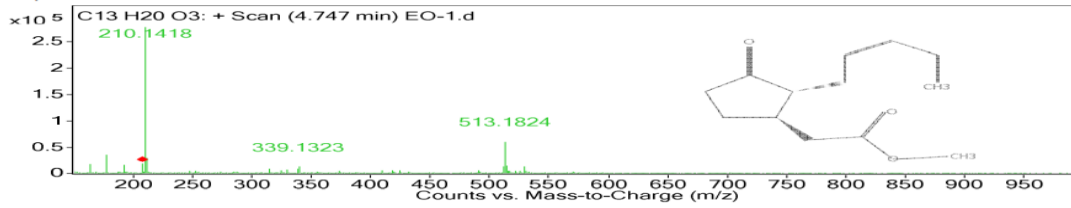
Compound Label	Name	m/z	RT	Algorithm	Mass
C13 H24 N2 O	Cuscohygrine	229.1659	1.132	Auto MS/MS	224.1873



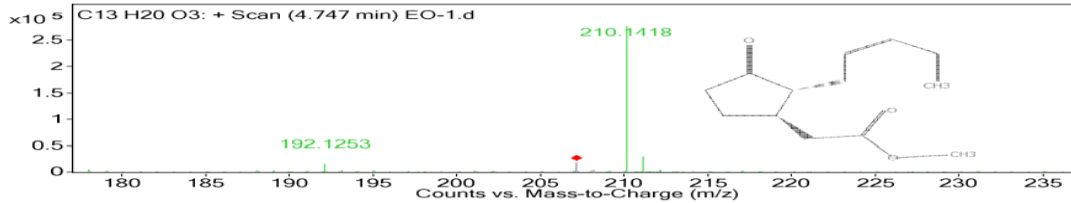
4.

Compound Label	Name	m/z	RT	Algorithm	Mass
C13 H20 O3	Methyl jasmonate	207.1382	4.769	Auto MS/MS	224.1415

MS Spectrum



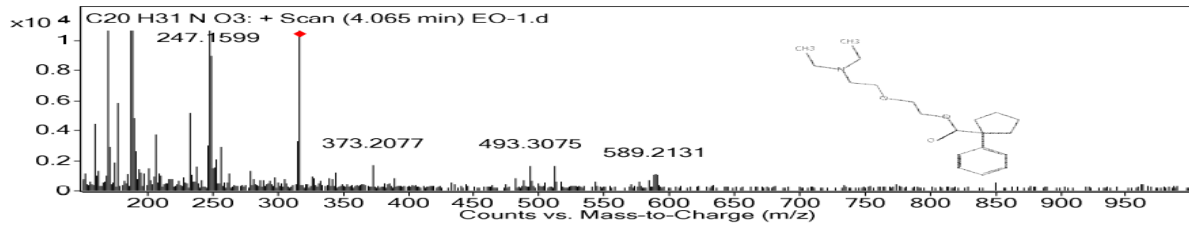
MS Zoomed Spectrum



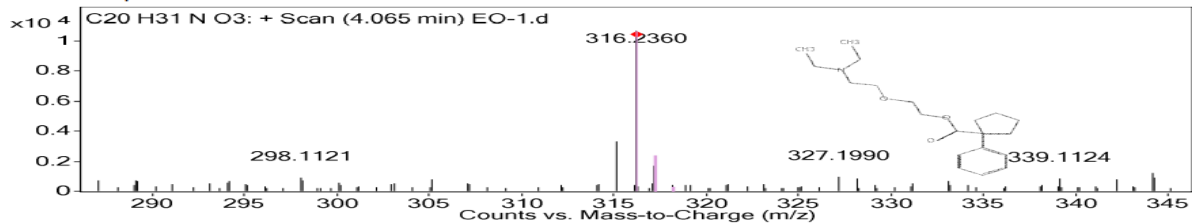
5.

Compound Label	Name	m/z	RT	Algorithm	Mass
C20 H31 N O3	CARBETAPENTANE	316.2273	4.092	Auto MS/MS	333.2306

MS Spectrum



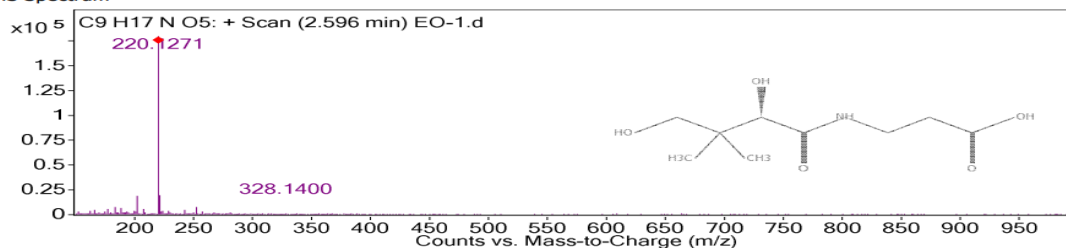
MS Zoomed Spectrum



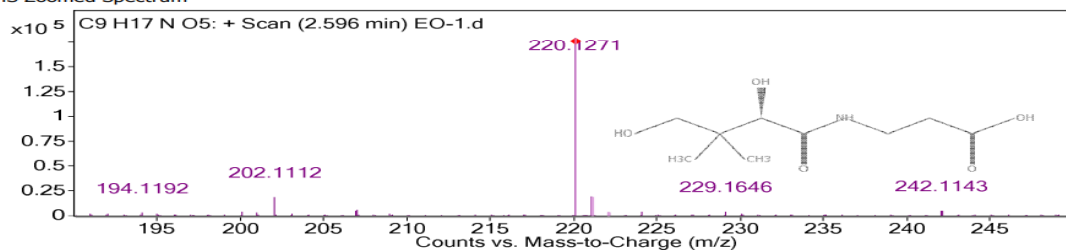
6.

Compound Label	Name	m/z	RT	Algorithm	Mass
C9 H17 N O5	Pantothenic Acid	220.1209	2.609	Auto MS/MS	219.1136

MS Spectrum



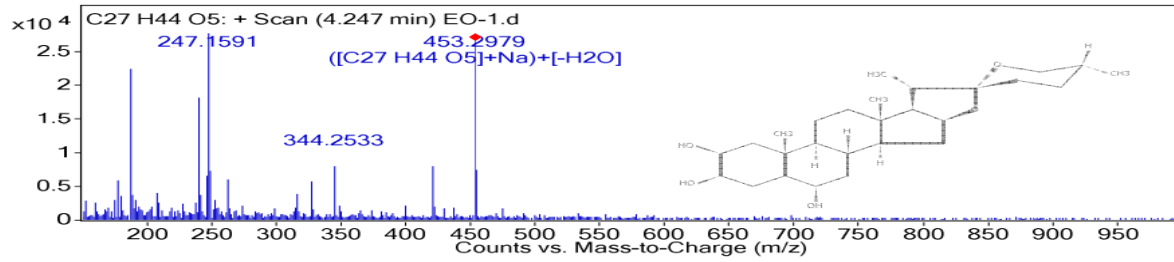
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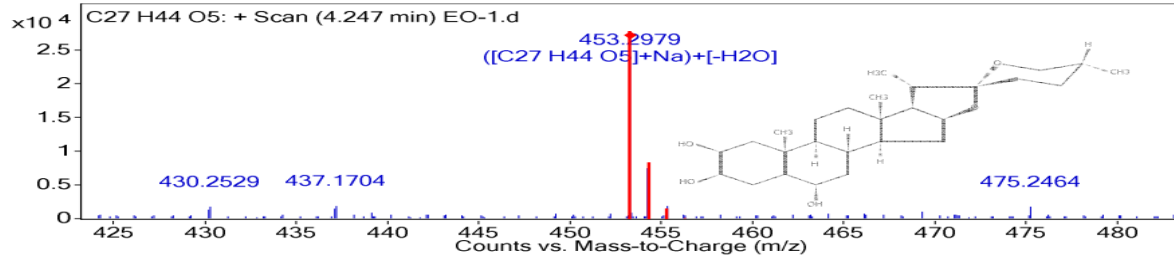
7.

Compound Label	Name	m/z	RT	Algorithm	Mass
C27 H44 O5	Porrigenin A	453.2979	4.264	Auto MS/MS	448.3183

MS Spectrum



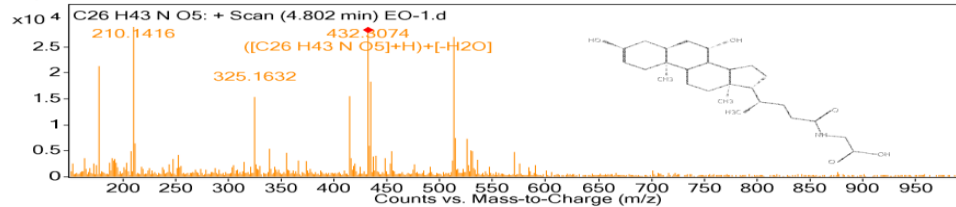
MS Zoomed Spectrum



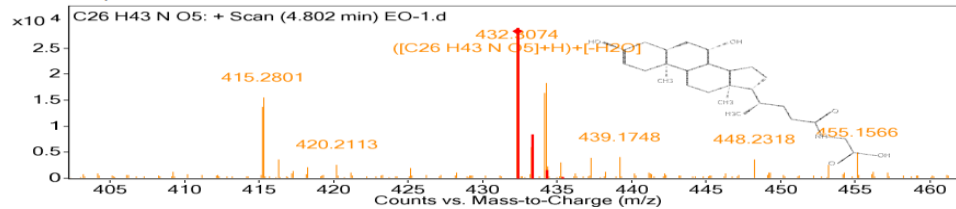
8.

Compound Label	Name	m/z	RT	Algorithm	Mass
C26 H43 N O5	Glycoursodeoxycholic acid	432.3074	4.818	Auto MS/MS	449.3104

MS Spectrum



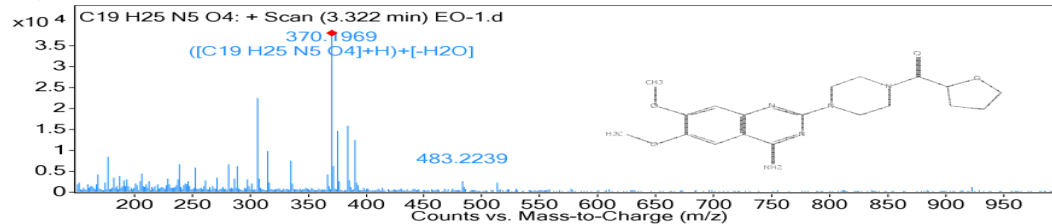
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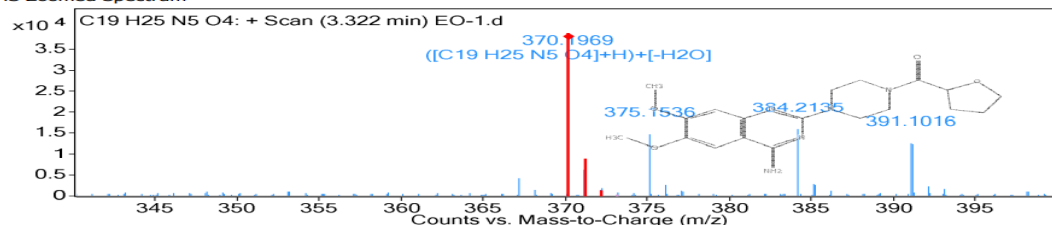
9.

Compound Label	Name	m/z	RT	Algorithm	Mass
C19 H25 N5 O4	Terazosin	370.1969	3.337	Auto MS/MS	387.2002

MS Spectrum



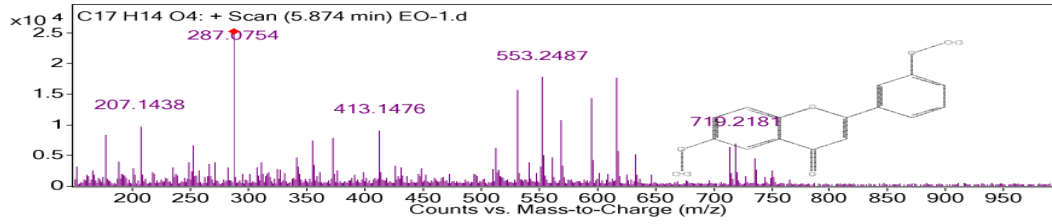
MS Zoomed Spectrum



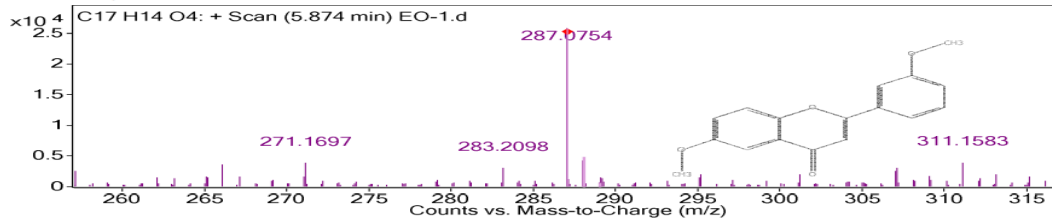
10.

Compound Label	Name	m/z	RT	Algorithm	Mass
C17 H14 O4	6,3'- DIMETHOXYFLAVONE	287.068	5.891	Auto MS/MS	282.0893

MS Spectrum



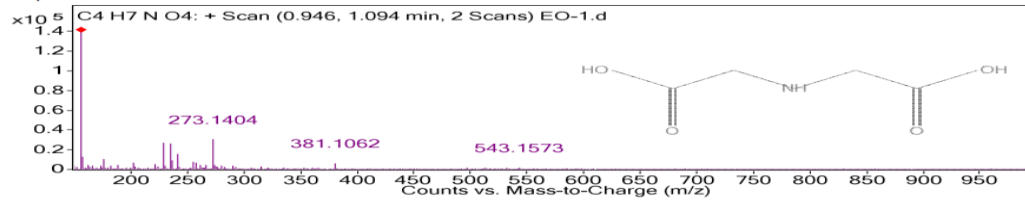
MS Zoomed Spectrum



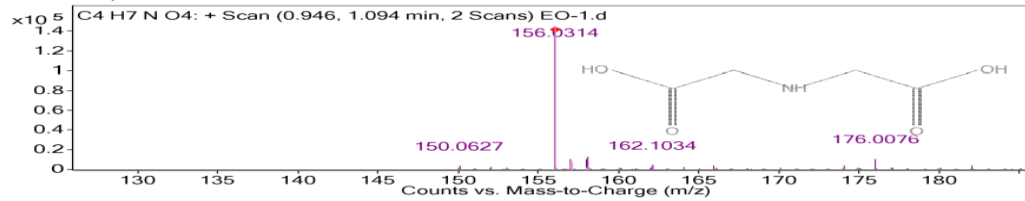
11.

Compound Label	Name	m/z	RT	Algorithm	Mass
C4 H7 N O4	Diglykokoll	156.0254	1.036	Auto MS/MS	133.0362

MS Spectrum



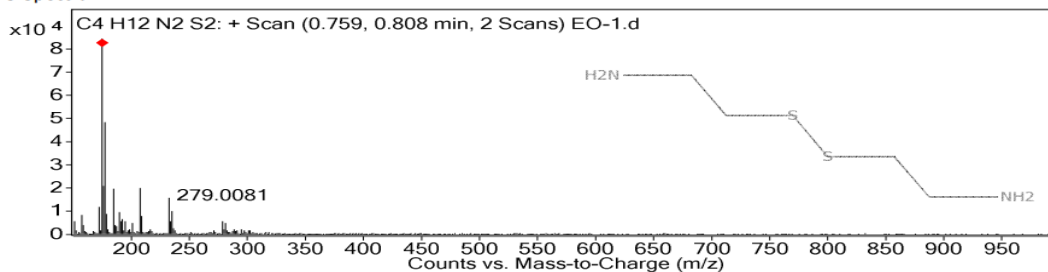
MS Zoomed Spectrum



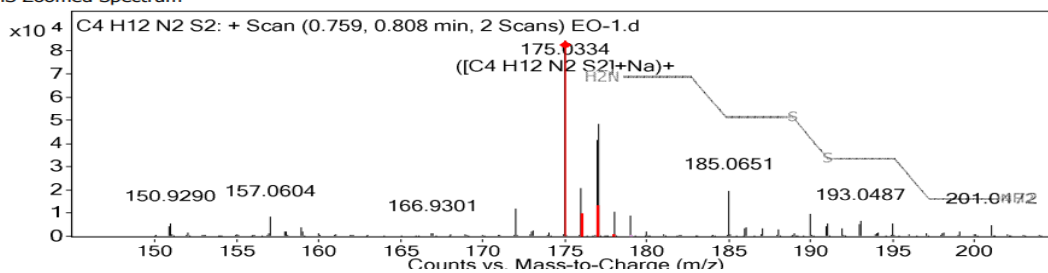
12.

Compound Label	Name	m/z	RT	Algorithm	Mass
C4 H12 N2 S2	Cystamine	175.0334	0.798	Auto MS/MS	152.0432

MS Spectrum



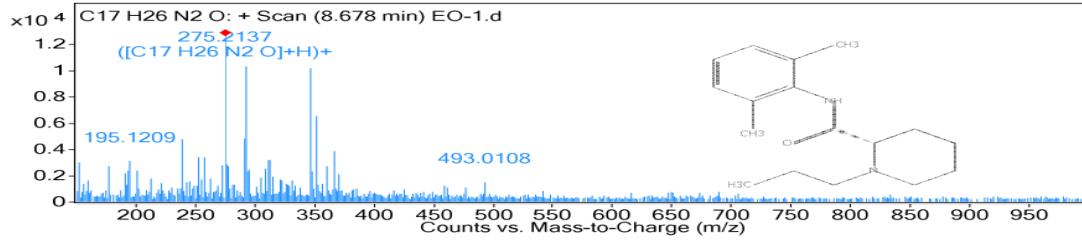
MS Zoomed Spectrum



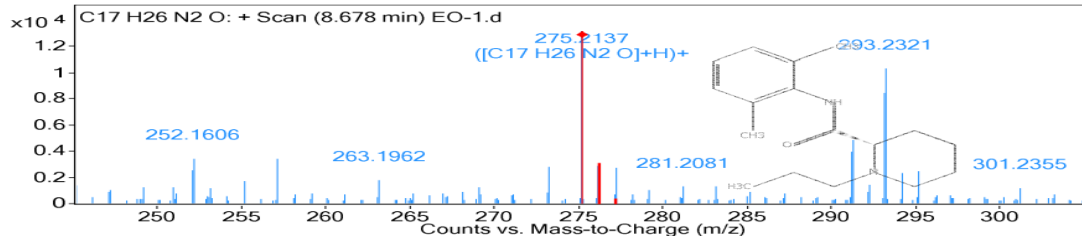
13.

Compound Label	Name	m/z	RT	Algorithm	Mass
C17 H26 N2 O	Ropivacaine	275.2137	8.697	Auto MS/MS	274.2062

MS Spectrum



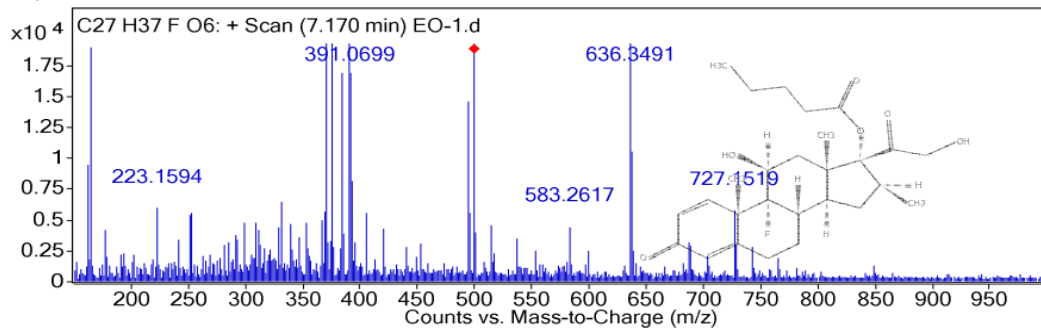
MS Zoomed Spectrum



14

Compound Label	Name	m/z	RT	Algorithm	Mass
C27 H37 F O6	betamethasone valerate	499.2395	7.188	Auto MS/MS	476.2508

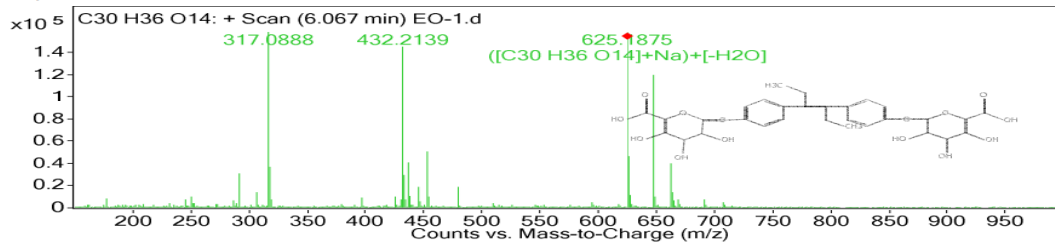
MS Spectrum



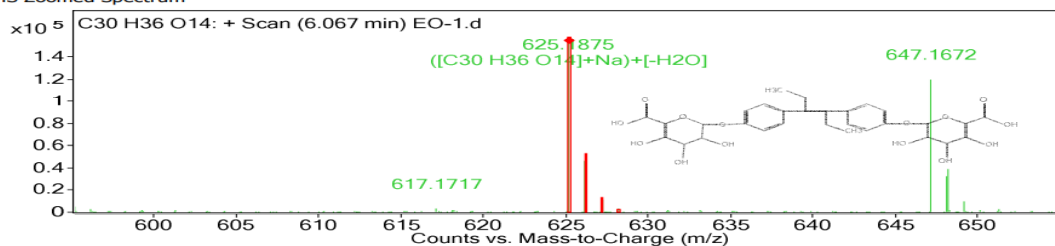
15.

Compound Label	Name	m/z	RT	Algorithm	Mass
C30 H36 O14	Diethylstilbestrol diglucuronide	625.1875	6.082	Auto MS/MS	620.2083

MS Spectrum



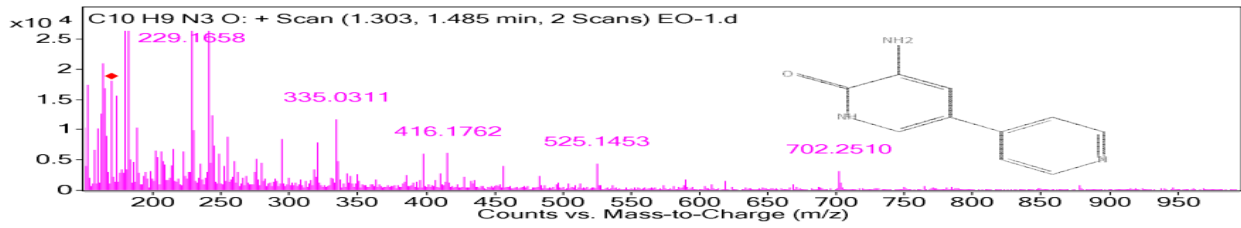
MS Zoomed Spectrum



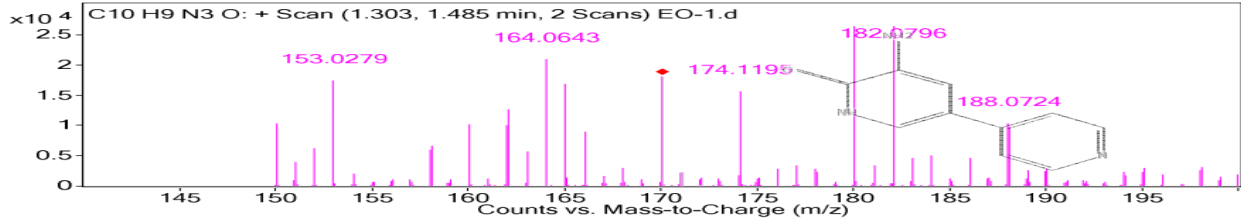
16.

Compound Label	Name	m/z	RT	Algorithm	Mass
C10 H9 N3 O	AMRINONE	170.0689	1.432	Auto MS/MS	187.0722

MS Spectrum



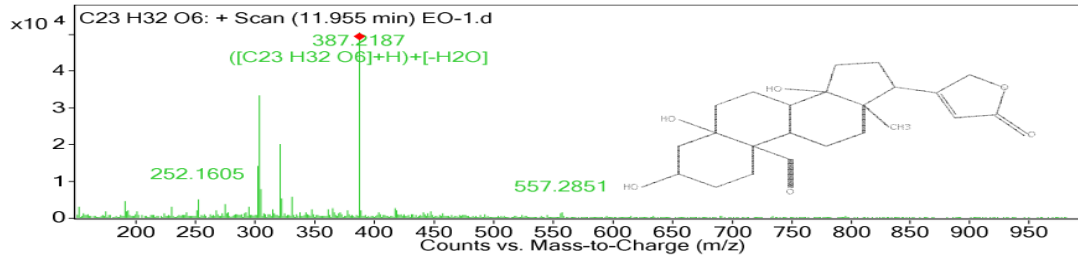
MS Zoomed Spectrum



17.

Compound Label	Name	m/z	RT	Algorithm	Mass
C23 H32 O6	STROPHANTHIDIN	387.2187	11.97	Auto MS/MS	404.2222

MS Spectrum



MS Zoomed Spectrum

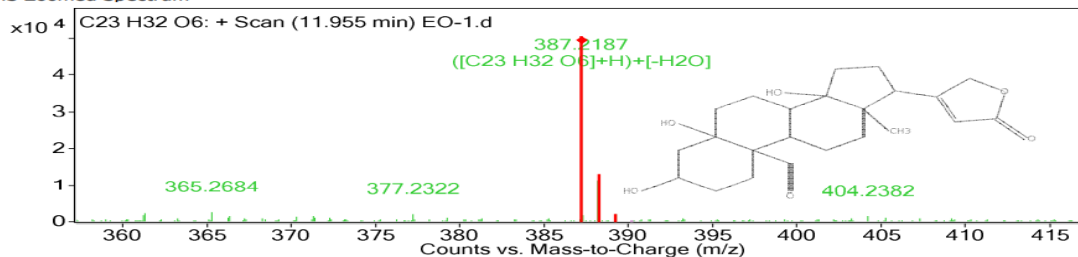


Table 2: Phytoconstituents identified in aqueous extract of *E. oxypetalum* flower by HR-LC MS analysis

Retention time (minutes)	Name of compound	Molecular weight	Molecular formula	Db difference (in ppm)
2.609	Pantothenic acid	219.1136	C9 H17 N O5	-13.58
4.092	Carbetapentane	333.2306	C20 H21 N O3	-0.57
4.818	Glycoursodeoxycholic acid	449.3104	C23 H43 N O5	8.36
4.264	Porrigenin A	448.3183	C27 H44 O5	1.39
1.432	Amrinone	187.0722	C10 H9N3 O	12.5
3.337	Terazosin	387.2002	C19 H25 N5 O4	-24.87
6.082	Diethylstilbestrol diglucuronide	620.2083	C30 H36 O14	3.55
7.188	Betamethasone valerate	476.2508	C27 H37 F O6	13.81
8.697	Ropivacaine	274.2062	C17 H26 N2 O	-6.02

0.798	Cystamine	152.0432	C4 H12 N2 S2	6.61
1.036	Diglykokoll	133.0362	C4 H7 N O4	9.77
1.132	Cuscohygrine	224.1873	C13 H24 N2 O	6.78
3.546	Racepinephrine	183.0859	C9 H13 N O3	19.67
4.679	Methyl jasmonate	224.1415	C13 H20 O3	-1.08
5.891	6,3' Dimethoxy flavone	282.0893	C17 H14 O4	-0.34
11.97	Stropanthidin	404.2222	C23 H32 O6	-5.76
1.026	Punctaporin B	252.1752	C23 H24 O3	-10.56

Thrombolytic activity:

When 100 µl Streptokinase, a positive control (30,000 I.U.) was put into the clots and incubated at 37° C for 90 minutes showed 72.11% clot lysis, while it was 2.35% when

treated with 100 µl sterile distilled water (negative control). The aqueous extract of flower displayed about 43.05 % lysis of clot. % lysis of clots attained when clots were treated with aqueous extracts and control.

Table 3: Thrombolytic activity of *E.oxypetalum* flower aqueous extract

Sr. No	Weight of the empty tube(A)gm	Weight of the tube with clot(B)gm	Weight of clot.(C) C=B-A	Weight of the tube with clot after lysis (D) g	Weight of lysis (E) (B-D)	% of clot lysis	Average % of clot lysis
1	0.78	1.12	0.34	0.97	0.15	44.1176	42.049
2	0.81	1.02	0.21	0.94	0.08	38.0952	
3	0.79	1.01	0.22	0.91	0.1	45.4545	
4	0.75	1.09	0.34	0.9	0.19	55.8824	
5	0.79	0.95	0.16	0.89	0.06	37.5	
6	0.80	1.21	0.41	1.04	0.17	41.4634	
7	0.81	1.13	0.32	1.02	0.11	34.375	
8	0.85	1.09	0.24	1	0.09	37.5	
9	0.79	1.24	0.45	1.04	0.2	44.4444	
10	0.78	1.02	0.24	0.92	0.1	41.6667	

Discussion

The present study was undertaken to explore different chemical constituents present in *Epiphyllum oxypetalum* flower extract. Various solvent extracts of the leaf have shown the presence of sterols, alkaloids, saponins, tannins & flavonoids, however there is very little work done or literature available on screening of phytoconstituents of the entire flower as of now. Thus, *Epiphyllum oxypetalum* flower extracts were prepared in various solvents like petroleum ether, chloroform, methanol, ethanol and water. The detailed phytochemical screening of all the extract revealed presence of various chemical constituents as discussed under result section. Out of all extracts prepared, *Epiphyllum oxypetalum* flower aqueous extract exhibited presence of more phytoconstituents in

comparison with other extracts. Thus aqueous extract was selected for further investigation. It was subjected to HRLCMS to know details of phytoconstituents present therein. As discussed in results section, HRLCMS analysis confirmed the presence of all the phytoconstituents which were recorded by simple phytochemical screening. The consumption of food and herbs containing thrombolytic agents e.g. having anticoagulant and anti platelet effect may prevent from coronary strokes and events [10-13]. In this study *Epiphyllum oxypetalum* flower aqueous extract displayed significant thrombolytic activity. In future flower would be evaluated for further research specifically for cardiovascular disorder.

Conclusion

It can be concluded from above study that Epiphyllum oxypetalum flower aqueous extract could be potential candidate as thrombolytic agent. However this study involved preliminary study dealing with phytochemical and pharmacological investigation to search its medicinal properties. The work would be extended further in future to explore its potential to treat the cardiovascular disorders.

Acknowledgements

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INDIVIDUAL INVESTORS' FINANCIAL RISK APPETITE AND DEMOGRAPHIC ATTRIBUTES: AN EMPIRICAL STUDY

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ABSTRACT

A client's financial risk appetite is the amount of risk they consider they are willing to take. Risk appetite must be assessed simply because it is a component of utility for any investment choice, and the ultimate aim in any financial activity is to maximise predicted benefit. The article presents the findings of a study that looked at the relationship between individual investors' risk appetite and their demographic characteristics. The majority of the expected relationships between financial risk appetite and each of the demographic characteristics were found to be relevant in the literature. Age, investment experience, marital status, employment status, and income of investors are all found to have a significant relationship with risk appetite, whereas gender, education, and the number of dependents are not. The current study detects risk appetite among individual investors, investigates the link between personal investor profile and risk appetite, and suggests future research directions.

Keywords: Risk appetite, Demographic attributes, Individual investment decision.

Introduction

In dangerous and critical circumstances, there is only one important decision to make: how much risk to take. This quite straightforward issue is probably very difficult to answer. It is influenced by a number of interconnected influences, which are mostly internal to choice as individuals and communities, and others that occur externally and independently of individuals. Furthermore, some of those variables may be affected or dictated by the individual involver's decisions, while others occur independently of people decision.

The words "risk aversion", "risk premium" and "risk appetite" are often interchanged when discussing market sentiment. However, the definitions are somewhat different, and their misuse makes it impossible to determine and articulate the true extent of risk-taking willingness. Investors fear the confusion that their asset portfolios imply about potential demand. Risk appetite—investors' willingness to take the risk—is influenced mostly by the extent to which they fear uncertainty and the magnitude of the uncertainty. The macroeconomic climate influences the level of confusion regarding consumption prospects. And investors' fear of volatility represents their inherent preferences for lotteries. This risk aversion is ingrained in the minds of buyers.

A variety of social considerations often play a part in risk-taking decisions, with outcomes that are often haphazard and volatile. According to (Hillson & Murray, 2011), It's vital to know that risk appetite is an intrinsic trait that can't be directly calculated. As a consequence, some proxy through which this intangible propensity can be articulated is needed.

Risk appetite refers to a person's desire to take risks, while risk capability refers to a person's ability to take risks. It further characterise risk appetite and risk capability in terms of known and unknown risks, so clients can consider the outcomes if they can identify and quantify the risks they are taking. However, difficulties occur where the risks exceed their expectations or understanding. Risk appetite refers to how much risk an individual is likely to access in exchange for a reward. Danger appetite can be expressed qualitatively or quantitatively, based on the anticipated return. Investors with a higher risk appetite are more concerned with the opportunity for major returns than with the probability or magnitude of failure, whereas with a lower risk appetite, are risk averse and give focus on prioritise safety and capital protection. Researchers suggested Investors should consider their risk capacity before defining their risk appetite. If sometimes they don't do then in the case of known risk,

advisors can effectively manage such problems for their customers whereas unknown risk is often linked to irrational investor activity since it is difficult to quantify.

President George W. Bush's defence secretary, Donald Rumsfeld, best defined known and unknown risk. Known risk that's what we'd term "normal risk"—risk that we can understand and calculate using empirical evidence from financial market analyses, Unknown risk called “abnormal risk” which happens about in 10 to 20 years and is unexpected. Unknown risk may cause investors to act irrationally when deciding how often risk to take (risk appetite) or measuring how often loss could be tolerated without jeopardising financial targets (risk capacity). To get an entire facts of their risk tolerance, people must understand their possible response to known risk and, particularly, unknown risk.

Review of literature

There are few longitudinal studies on individual investors' financial risk appetite in relation to demographic factors. The following are several similar research on different influence of financial risk appetite:

Risk Appetite

Investors' risk appetite is a term used to describe their willingness to take financial risks. The desire of investors to take financial chances in the hopes of making a return is known as risk appetite. According to (Gai & Vause, 2005) The array of risk appetite measures can be divided into two groups depending on the assessment and control tools used. The first group of risk appetite metrics, referred to as market-based measures here, are primarily theoretical measurements that are assembled using basic mathematical techniques to aggregate data derived from market prices. The second set of metrics is known as model-based interventions. Gai Prasanna, Vause Nicholas in their paper used the variance in the proportion used by investors from subjective probabilities to risk-neutral in determining potential future returns on an asset to propose a metric for calculating investor risk appetite (Gai & Vause, 2005).

When it comes to realistic analysis, risk appetite refers to how likely an investor is to take chances in a given situation and how

much compensation he receives in return. The estimated return on volatile assets is clearly influenced by risk appetite. If market holders' risk appetite declines, anticipated re-turn rises and asset prices sink (Misina, 2003); (Misina, 2005); (Gai & Vause, 2005). (Dungey et al., 2005) have empirically shown that shifts in investors' risk appetites in developed markets are inextricably related to changes in emerging market bond return premiums.

Despite the concept's relevance, academic literature on risk appetite is relatively sparse. Many recent research (e.g. (Berlinger & Varadi, 2015), (Howell & Krishnan, 2014) ,in the fields of finance and economics investigate the idea of "investor risk aversion," which takes an individualistic approach to risk appetite rather than considering it as a corporate phenomenon, as the current thesis does. Similarly, "investor risk appetite" tends to be almost solely focused on financial risk.

Alex Wang in his study using survey results, and revealed that subjective knowledge, objective knowledge, and risk taking are all strongly correlated, at least for investors. (Alex Wang). According to (Grable, 1999), risk appetite appraisal approaches can be divided into five groups, which we will use to address these: decision dilemma, utility principle, objective tests, heuristic judgments, and subjective evaluation. (Fung et al., 2008) built a risk appetite metric based on (Gai & Vause, 2006) framework for investors in the United States, the United Kingdom, Germany, Japan, and Hong Kong, and used it to evaluate problems of financial inclusion and financial market inter - dependence. The indicators indicate that financial convergence between these five financial markets is very limited.

Risk-taking, on the other hand, is influenced not only by the general traits of trial participants, but also by their actual physical, mental, and psychological condition. Social loaf (Dobelli, 2014), judgement exhaustion (Baumeister & Tierney, 2011), affect heuristic (Hirshleifer & N, 2003), gender urges (Baumeister & Tierney, 2011), and the limelight effect (Baltussen et al., 2014), (Barber & Odean, 2001), Minsky effect (Minsky, 1992), easy come, easy go effect (Thaler & Johnson, 1990) are only a few instances.

Demographic factors and Risk tendency

Age, gender, marital status, profession, wages, time horizon, liquidity requirements, portfolio size, investment experience, and attitude toward market volatility are all factors that can influence an investor's risk tendency. Specific investor demographic characteristics may be used to differentiate between degrees of financial risk appetite, and a relationship between these factors could be established to forecast investors risk appetite.

There has been a great deal of study into how people's risk propensity is linked to their socio-demographic and cognitive characteristics. The outcomes are incredibly complex, but they can be described as follows in a condensed form: Men take more risks than women; young people take more risks than the elderly; high-income individuals take more risks than low-income individuals; highly trained individuals take more risks than those with little to no experience. (Varga and ulbert, 2005)

Age It is generally believed that older people have less time to repair losses than younger people, and that as a result, older people would have poorer risk tolerant (Mandal & Roe, 2014), (Anbar & Melek, 2010). (Wallach & Kogan, 1961) are widely credited as being the first to explore the connection between risk perception and age. A negative relationship between age and risk tolerance was noticed by (Wallach & Kogan, 1961), (Deaves et al., 2007), (Poterba, 2001). (Grable, 1999), (Grable & Joo, 2004), and (Wang & Hanna, 1998), on the other hand, revealed a significant relationship or struggled to find one between age and tolerance for risk.

Gender The plurality of research concerning gender and financial risk perception suggest that women are less risk prone than men (Embrey & Fox, 1997), (POMPIAN & Longo, 2004), (Bruce & Johnson, 1994). According to (Bajtelsmit et al., n.d.1999), (Schubert, 2006), women have a poor risk threshold. Men's risk tolerance is greater than women's, according to (Grable & Roszkowski, 2007), and men seem to overestimate their desire for taking risks. (Grable & Joo, 1999) found no statistically significant correlation between gender and risk tolerance.

Marital status It is considered that marital status to be an important factor in deciding risk

exposure levels among investors. When it comes to the influence of marital status on risk tendency, married people are less risk prone than single people (Hallahan et al., 2004), (Grable, 1999), (Grable & Joo, 2004), (Yao & Hanna, 2005), (ARDEHALI et al., 2005). In the other hand, according to some surveys, married people are more likely to make risky investments as their family income rises (Anbar & Melek, 2010), (Eker & Anbar, 2019). In addition to these findings (Grable, 1999), and (Sarac & KAHYA OGLU, 2011) found no connection between marital status and financial risk profile in their studies.

Education Individuals with a higher educational level are often able to take more risks, while people with a low educational level are risk averse (Sung & Hanna, 1997), (Halek & Eisenhauer, 2001), (Lewellen et al., 1977). Many studies have shown a connection between financial knowledge and financial activity (Mandell & Klein, 2009), (Christiansen et al., 2006). Education has been shown to promote risk taking (MacCrimmon et al., 1986), so fund managers believe that higher levels of education are related to higher levels of risk exposure (Baker & Haslem, 1974), (Grable & Lytton, 1998).

Income level (ARDEHALI et al., 2005), (Deaves et al., 2007) discovered a beneficial association between income and risk aversion, arguing that a higher degree of income acts as a hedge against potential losses and Individuals with higher income levels are more likely to invest in riskier financial instruments (Finke & Huston, 2005), (Watson & McNaughton, 2007).

Occupation The investor's profession can affect his or her risk value. Self-employed individuals, according to (MacCrimmon et al., 1986), are still willing to take more risks than others. Similarly, private-sector workers are more likely to take risks than public-sector workers (Sung & Hanna, 1997).

Statement of the problem

In consideration of the above studies, it was considered appropriate to examine individual investors' risk appetite. To begin, the study uses a structured self-assessment test to determine individual investors' risk appetite. Second, it looks at the relationship between an

investor's personal profile and their risk appetite. Finally, it discusses the ramifications of the findings for future studies.

Objectives

- To determine an individual investor's financial risk appetite.
- To investigate the relationship between the investors' demographic factors and their financial risk appetite.

Hypothesis

H0: There is no association between individual investors' risk appetite and their demographic characteristics in Haryana.

H1: There is an association between individual investors' risk appetite and their demographic characteristics in Haryana.

Methodology

The aim of this study is to determine the relationship between demographic factors and

risk appetite among investors in Haryana's NCR and non-NCR areas. Sex, age, wealth, occupation, marital status, investment background, and educational level are all called independent variables, while risk appetite is a dependent variable. The current research is observational and is focused on primary data obtained by a questionnaire. The study's sample consists of 260 investors from the Haryana region. Respondents are classified as having a high risk appetite, a considerable risk appetite, a moderate risk appetite, a low risk appetite, or zero risk appetite based on their responses. The respondents in the survey were chosen using a convenience sampling method. To classify the correlations between demographic variables of investors and their risk aversion, the Chi Square test and correlation analysis were used with the aid of SPSS.

Table 1: Profile of Individual Investors

Demographic Factors		Number of Respondents	Percentage
Gender	Male	172	66.2
	Female	88	33.8
Age	Less than 30	59	22.7
	30-40	119	45.8
	40-50	30	11.5
	Above 50	52	20.0
Marital Status	Married	200	76.9
	Single	60	23.1
Education	Intermediate (std XII) or less	9	3.5
	Bachelors degree/Diploma	78	30.0
	Master degree/Diploma	114	43.8
	Doctoral Degree/Fellowship	59	22.7
Monthly Income	Less than 25,000	43	16.5
	25,001-50,000	66	25.4
	50,001-75,000	56	21.5
	75,001-1,00,000	52	20.0
	More than 1,00,001	43	16.5
Number of dependents	0	59	22.7
	1	54	20.8
	2 to 3	113	43.5
	More than 3	34	13.1
Employment Status	Employed in public sector	75	28.8
	Employed in private sector	79	30.4
	Self-employed	48	18.5
	Retired	21	8.1
	Other	37	14.2
Investment experience	Less than 5 years	118	45.4
	5-10 years	55	21.2

	10-15 years	37	14.2
	15-20 years	16	6.2
	More than 20 years	34	13.1
Risk Appetite	Risk seeking (High Risk)	34	13.1
	Risk tolerant (Considerable Risk)	75	28.8
	Risk neutral (Moderate risk)	91	35.0
	Low risk (Moderate Risk averse)	41	15.8
	Zero risk (Risk averse)	19	7.3

Source: Compiled from the primary data.

Table 1 shows the demographic profile of respondents. Among the entire respondents of the survey 66% of them are male and 34% are female. 77% of the respondents are married. 30% of them with the educational qualification of Bachelor degree whereas 44% have Master degree and 27% have Doctoral degree. The total sample respondent comprises of 29% of government employees and 30% of Private sector employees whereas 19% are self-employed and 8% are retired from their job. Balance of them are self-employed. More than 45% of investors have less than 5 years investment experience and below level is 6%

of investment experience come under 15-20 years. Higher 35% of investors have their Risk Appetite come under moderate risk level i.e they are considered Risk neutral and only 7% are zero risk taker i.e they are risk averse.

Empirical results

Gender and Financial Risk Appetite

Hypothesis 1

H0: There is no association between gender and risk appetite.

H1: There is an association between gender and risk appetite.

Table 2: Relationship between Gender and Risk Appetite

		Risk Appetite level					Total
		Risk seeking (High Risk)	Risk tolerant (Considerable Risk)	Risk neutral (Moderate risk)	Low risk (Moderate Risk averse)	Zero risk (Risk averse)	
Gender	Male	26 (15.1%)	52 (30.2%)	60 (34.9%)	22 (12.8%)	12 (7%)	172 (100%)
	Female	8 (9.1%)	23 (26.1%)	31 (35.2%)	19 (21.6%)	7 (8%)	88 (100%)
Total		34 (13.1%)	75 (28.8%)	91 (35%)	41 (15.8%)	19 (7.3%)	260 (100%)
Pearson Chi-Square			4.892 ^a				
df			4				
Asymp. Sig. (2-sided)			0.299				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.43.

Source: Compiled from the primary data.

Table 2 shows that the majority of male and female respondents had a moderate risk appetite, with 34% of male and female respondents willing to face a greater degree of risk. Men are more prone than women to participate in High Risk Appetite (15 % to 9 %). The null hypothesis must be accepted since the computed value of χ^2 (4.892) is smaller than the tabular value (6.43) (d.f = 4; p >0.05). As a result, it may be argued that the gender of

individual investors and their financial risk appetite are unrelated. As a result, it may be argued that gender has no impact on an investor's risk appetite.

1.1. Age and Financial Risk Appetite Hypothesis 2

H0: There is no association between age and risk appetite.

H1: There is an association between age and risk appetite.

Table 3: Relationship between Age and Risk Appetite

Relationship between Age and Risk Appetite							
		Risk Appetite level					Total
		Risk seeking (High Risk)	Risk tolerant (Considerable Risk)	Risk neutral (Moderate risk)	Low risk (Moderate Risk averse)	Zero risk (Risk averse)	
Age	Less than 30	16 (27.1%)	9 (15.3%)	23 (39%)	7 (11.8%)	4 (6.8%)	59 (100%)
	30-40	10 (8.4%)	50 (42%)	35 (29.4%)	15 (12.6%)	9 (7.6%)	119 (100%)
	40-50	4 (13.3%)	7 (23.3%)	10 (33.3%)	7 (23.4%)	2 (6.7%)	30 (100%)
	Above 50	4 (7.7%)	9 (17.3%)	23 (44.2%)	12 (23.1%)	4 (7.7%)	52 (100%)
Total		34 (13.1%)	75 (28.8%)	91 (35%)	41 (15.8%)	19 (7.3%)	260 (100%)
Pearson Chi-Square		32.544 ^a					
df		12					
Asymp. Sig. (2-sided)		0.001					

a. 5 cells (25.0%) have expected count less than 5. The minimum expected count is 2.19.

Source: Compiled from the primary data.

Table 3 shows that up to 35% of investors are willing to accept a moderate risk, with those under the age of 30 being more likely to take a larger risk. The computed chi-square value is 32.544 with a significance value of 0.001 (less than 0.05) at the 95% confidence level, and it shows the results of Chi-Square Tests for age and risk appetite. The value of the table is 2.19. As a result, the null hypothesis is rejected, and

it is determined that age and risk appetite have a statistically significant relationship.

1.2. Marital status and Financial Risk Appetite Hypothesis 3

H0: There is no association between marital status and risk appetite.

H1: There is an association between marital status and risk appetite.

Table 4: Relationship between Marital Status and Risk Appetite

Relationship between Marital Status and Risk Appetite							
		Risk Appetite level					Total
		Risk seeking (High Risk)	Risk tolerant (Considerable Risk)	Risk neutral (Moderate risk)	Low risk (Moderate Risk averse)	Zero risk (Risk averse)	
Marital Status	Married	20 (10%)	58 (29%)	72 (36%)	37 (18.5%)	13 (6.5%)	200 (100%)
	Single	14 (23.3%)	17 (28.3%)	19 (31.7%)	4 (6.7%)	6 (10%)	60 (100%)
Total		34 (13.1%)	75 (28.8%)	91 (35%)	41 (15.8%)	19 (7.3%)	260 (100%)
Pearson Chi-Square		11.401 ^a					
df		4					
Asymp. Sig. (2-sided)		0.022					

a. 1 cells (10.0%) have expected count less than 5. The minimum expected count is 4.38.

Source: Compiled from the primary data.

The computed value of χ^2 (11.401) with a significance value of 0.022 is more than the tabulated value (4.38), it falls within the critical area, and the null hypothesis is rejected (df = 4; p < 0.05). As a result, it may be argued that a person's marital status influences their financial risk appetite. As a result, the null hypothesis is rejected, and it is determined that there is a statistically significant link between married status and risk appetite.

1.3. Level of Education and Financial Risk Appetite Hypothesis 4

H0: There is no association between education and risk appetite.

H1: There is an association between education and risk appetite.

Table 5: Relationship between Education and Risk Appetite

		Risk Appetite level					Total
		Risk seeking (High Risk)	Risk tolerant (Considerable Risk)	Risk neutral (Moderate risk)	Low risk (Moderate Risk averse)	Zero risk (Risk averse)	
Education	Intermediate (std XII) or less	2 (22.2%)	0 (0%)	3 (33.3%)	4 (44.5%)	0 (0%)	9 (100%)
	Bachelors degree /Diploma	9 (11.5%)	18 (23.1%)	31 (39.7%)	12 (15.4%)	8 (10.3%)	78 (100%)
	Master degree /Diploma	12 (10.5%)	42 (36.8%)	35 (30.8%)	17 (14.9%)	8 (7%)	114 (100%)
	Doctoral Degree /Fellowship	11 (18.6%)	15 (25.4%)	22 (37.3%)	8 (13.6%)	3 (5.1%)	59 (100%)
Total		34 (13.1%)	75 (28.8%)	91 (35%)	41 (15.8%)	19 (7.3%)	260 (100%)
Pearson Chi-Square							17.077 ^a
df							12
Asymp. Sig. (2-sided)							0.147

a. 6 cells (30.0%) have expected count less than 5. The minimum expected count is .66.

Source: Compiled from the primary data.

Table 5 shows that the computed value of χ^2 (17.077) with a significant value of 0.022 (p) is more than the tabulated value (.66), implying that the alternative hypothesis (df = 12; p > 0.05) should be adopted. As a result, the null hypothesis that there is a link between educational qualification and risk appetite is accepted, and it is determined that respondents' educational credentials have no impact on their risk appetite levels. As a result, it is determined

that education has no substantial impact on an investor's risk appetite.

1.4. Monthly Income and Financial Risk Appetite

Hypothesis 5

H0: There is no association between monthly income and risk appetite.

H1: There is an association between monthly income and risk appetite.

Table 6: Relationship between Monthly Income and Risk Appetite.

		Risk Appetite level					Total
		Risk seeking (High Risk)	Risk tolerant (Considerable Risk)	Risk neutral (Moderate risk)	Low risk (Moderate Risk averse)	Zero risk (Risk averse)	
Monthly Income	Less than 25,000	11 (25.6%)	10 (23.3%)	15 (34.8%)	4 (9.3%)	3 (7%)	43 (100%)
	25,001-50,000	4 (6.1%)	14 (21.2%)	20 (30.2%)	18 (27.3%)	10 (15.2%)	66 (100%)
	50,001-75,000	6 (10.7%)	20 (35.7%)	18 (32.1%)	9 (16.1%)	3 (5.4%)	56 (100%)
	75,001-1,00,000	5 (9.6%)	21 (40.4%)	20 (38.5%)	4 (7.7%)	2 (3.8%)	52 (100%)
	More than1,00001	8 (18.6%)	10 (23.3%)	18 (41.8%)	6 (14%)	1 (2.3%)	43 (100%)
Total		34 (13.1%)	75 (28.8%)	91 (35%)	41 (15.8%)	19 (7.3%)	260 (100%)
Pearson Chi-Square							33.322 ^a
df							16
Asymp. Sig. (2-sided)							0.007

a. 5 cells (20.0%) have expected count less than 5. The minimum expected count is 3.14.

Source: Compiled from the primary data.

According to Table 6, the computed value of χ^2 (33.322) is more than the tabulated value (.66), and the significant value of 0.007 (p) is less than .05 percent, thus the alternative hypothesis (df = 12; p < 0.05) should be accepted. As a result, the null hypothesis is rejected, and it is determined that there is a substantial relationship between monthly

income and individual investors' financial risk appetite.

1.5. Number of dependents and Financial Risk Appetite

Hypothesis 6

H0: There is no association between number of dependents and risk appetite.

H1: There is an association between number of dependents and risk appetite.

Table 7: Relationship between Number of Dependents and Risk Appetite

Relationship between Number of dependents and Risk Appetite							
		Risk Appetite level					Total
		Risk seeking (High Risk)	Risk tolerant (Considerable Risk)	Risk neutral (Moderate risk)	Low risk (Moderate Risk averse)	Zero risk (Risk averse)	
Number of dependents	0	9 (15.3%)	15 (25.4%)	22 (37.3%)	9 (15.3%)	4 (6.7%)	59(100%)
	1	7 (12.9%)	13 (24.1%)	22 (40.7%)	9 (16.7%)	3 (5.6%)	54 (100%)
	2 to 3	13 (11.5%)	38 (33.7%)	35 (30.9%)	18 (15.9%)	9 (8%)	113 (100%)
	More than 3	5 (14.7%)	9 (26.5%)	12 (35.3%)	5 (14.7%)	3 (8.8%)	34 (100%)
Total		34 (13.1%)	75 (28.8%)	91 (35%)	41 (15.8%)	19 (7.3%)	260 (100%)
Pearson Chi-Square							3.733 ^a
df							12
Asymp. Sig. (2-sided)							0.988

a. 4 cells (20.0%) have expected count less than 5. The minimum expected count is 2.48.

Source: Compiled from the primary data.

Table 7 shows that the computed value of χ^2 (3.733) with a significant value of 0.988 (p) is more than the tabulated value (.66), implying that the alternative hypothesis is rejected (df = 12; p > 0.05). As a result, it may be inferred that the number of dependents has no impact on an investor's risk appetite.

1.6. Employment status and Financial Risk Appetite

Hypothesis 7

H0: There is no association between employments status and risk appetite.

H1: There is an association between employments status and risk appetite.

Table 8: Relationship between Employment Status and Risk Appetite

Relationship between Employment Status and Risk Appetite							
		Risk Appetite level					Total
		Risk seeking (High Risk)	Risk tolerant (Considerable Risk)	Risk neutral (Moderate risk)	Low risk (Moderate Risk averse)	Zero risk (Risk averse)	
Employment Status	Employed in public sector	6 (8%)	26 (34.7%)	24 (32%)	12 (16%)	7 (9.3%)	75 (100%)
	Employed in private sector	9 (11.4%)	28 (35.4%)	25 (31.6%)	14 (17.8%)	3 (3.8%)	79 (100%)
	Self-employed	12 (25%)	12 (25%)	17 (35.4%)	5 (10.4%)	2 (4.2%)	48 (100%)
	Retired	0 (0%)	1 (4.8%)	11 (52.4%)	6 (28.5%)	3 (14.3%)	21 (100%)
	Other	7 (18.9%)	8 (21.6%)	14 (37.9%)	4 (10.8%)	4 (10.8%)	37 (100%)
Total		34 (13.1%)	75 (28.8%)	91 (35%)	41 (15.8%)	19 (7.3%)	260 (100%)
Pearson Chi-Square							28.384 ^a
df							16
Asymp. Sig. (2-sided)							0.028

a. 6 cells (24.0%) have expected count less than 5. The minimum expected count is 1.53.

Source: Compiled from the primary data.

Because the calculated value of 28.384 is more than the tabulated value of 1.53, the null hypothesis of a correlation between occupation and risk appetite is accepted, according to the findings of Chi-Square tests for employment status and risk appetite in table 8. It displays the results of Pearson chi-square tests for gender and risk appetite, with a calculated value of 28.384 and a significant value of 0.028 at a 95% confidence level. The null hypothesis of no link between job status and

risk appetite is rejected, and the alternative hypothesis is supported, because the tabulated value is 1.53.

1.7. Investment experience and Financial Risk Appetite

Hypothesis 8

H0: There is no association between investment experience and risk appetite.

H1: There is an association between investment experience and risk appetite.

Table 9: Relationship between Investment Experience and Risk Appetite

Relationship between Investment experience and Risk Appetite							
		Risk Appetite level					Total
		Risk seeking (High Risk)	Risk tolerant (Considerable Risk)	Risk neutral (Moderate risk)	Low risk (Moderate Risk averse)	Zero risk (Risk averse)	
Investment experience	Less than 5 years	22 (18.6%)	26 (22%)	40 (33.9%)	21 (17.8%)	9 (7.6%)	118 (100%)
	5-10 years	6 (10.9%)	20 (36.4%)	20 (36.4%)	3 (5.5%)	6 (10.9%)	55 (100%)
	10-15 years	1 (2.7%)	18 (48.6%)	12 (32.4%)	5 (13.5%)	1 (2.7%)	37 (100%)
	15-20 years	4 (25%)	4 (25%)	4 (25%)	4 (25%)	0 (0%)	16 (100%)
	More than 20 years	1 (2.9%)	7 (20.6%)	15 (44.1%)	8 (23.5%)	3 (8.8%)	34 (100%)
Total		34 (13.1%)	75 (28.8%)	91 (35%)	41 (15.8%)	19 (7.3%)	260 (100%)
Pearson Chi-Square		30.389 ^a					
df		16					
Asymp. Sig. (2-sided)		0.016					

a. 9 cells (36.0%) have expected count less than 5. The minimum expected count is 1.17.

Source: Compiled from the primary data.

The computed chi-square value is 30.389, with a significance value of 0.016 (less than 0.05) at the 95 percent confidence level, according to Table 9. As a result, the null hypothesis of a

link between investment experience and risk appetite is ruled out. It has been determined that an investor's risk appetite is connected to their investment experience.

Table 10: Correlation Analysis between Demographic factors and Financial Risk Appetite

Correlation Analysis between Demographic factors and Risk Appetite									
	Gender	Age	Marital Status	Education	Monthly Income	Number of dependents	Employment Status	Investment experience	Risk Appetite
Gender	1	-.193**	0.091	.228**	-.295**	-.309**	.128*	-.237**	0.116
Age	-.193**	1	-.473**	-0.085	.340**	.224**	0.005	.661**	.158*
Marital Status	0.091	-.473**	1	0.029	-.307**	-.420**	.141*	-.326**	-0.119
Education	.228**	-0.085	0.029	1	0.065	-0.115	-0.004	-0.049	-0.105
Monthly Income	-.295**	.340**	-.307**	0.065	1	.228**	-.300**	.371**	-0.091
Number of dependents	-.309**	.224**	-.420**	-0.115	.228**	1	-.280**	.151*	0.007
Employment Status	.128*	0.005	.141*	-0.004	-.300**	-.280**	1	-0.024	0.021
Investment experience	-.237**	.661**	-.326**	-0.049	.371**	.151*	-0.024	1	0.075
Risk Appetite	0.116	.158*	-0.119	-0.105	-0.091	0.007	0.021	0.075	1

** . Correlation is significant at the 0.01 level (2-tailed). * . Correlation is significant at the 0.05 level (2-tailed).

Source: Compiled from the primary data.

A measure of the strength of a linear relationship between two variables is the Pearson product-moment correlation coefficient. Pearson's r might be anything between -1 and 1. A complete negative linear connection between variables and vice versa is shown by an r of -1. An r of 0 implies that there is no linear connection between the variables. Table 10 shows a positive relationship between respondent's gender, age, and investment experience, as well as a weak positive relationship between number of

dependents, employment status, and risk appetite, as well as a negative relationship between investors' marital status, education, and monthly income and risk appetite level.

Discussion

When investors make investing decisions, risk is an essential issue to consider. Investors must assume greater risk in order to get a higher return. Investors' risk appetite, on the other hand, is determined by a variety of variables. An attempt was made in this study to

investigate the relationship between investors' demographic characteristics and their risk appetite level. It was discovered that there is no link between gender and risk appetite, which is consistent with Dhiman, Singu, and Raheja's findings (2015). The risk-taking behaviour of investors is positively associated with the age of the investors. Older investors are hesitant to take on greater risk because they may fear that future losses may have a negative impact on their financial well-being in retirement. There were no significant variations in risk appetite between single and married investors. This discovery contradicts the findings of the vast majority of studies in this field. Number of dependents, employment position, and risk appetite all have a slight positive connection. Investors with greater expertise have a better knowledge of the numerous investment alternatives and their characteristics. They also know how to manage risk utilising a variety of approaches. Respondents' occupation has a minor impact on their risk-taking mind-set. Investors' income is also found to be adversely associated with their risk appetite.

Conclusion

The majority of the expected associations/relationships between financial risk propensity and each of the demographic or socioeconomic characteristics of individual investors were found to be relevant in the research. Individual investors' financial risk appetite is considered to diminish as they

become older. The current study, on the other hand, fails to back up this claim or even give evidence to the opposite. Single people are seen to be more risk tolerant than married persons. According to the findings, there is a strong link between marital status and financial risk appetite. Larger levels of formal education do not enhance one's capacity to appraise risk, and hence do not lead to a higher financial risk appetite, according to the study. Many research, like this one, have established a link between individual investors' income and their willingness to take financial risks. Only a few research speculated that the number of dependents of individual investors could influence their financial risk appetite. The current study, on the other hand, found a substantial low negative connection between the number of dependents and financial risk appetite. However, a study of different demographic factors of individual investors and their financial risk appetite found that demographic characteristics of individual investors could be used to distinguish between levels of financial risk appetite, and a relationship between these variables could be developed to predict a person's risk appetite. These results will aid investors in bettering their investing decision-making abilities. Investors' risk appetite may also be influenced by behavioural variables. As a result, future research may look at the impact of behavioural variables on risk appetite.

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DIELECTRIC CHARACTERISATION OF SOIL AS A FUNCTION OF MOISTURE CONTENT

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ABSTRACT

The purpose of this paper is to investigate the dielectric properties of soil as a function of moisture content. The dielectric constant and moisture content have a relationship. In soil, physical qualities, chemical properties, electrical properties, and geographical properties are all important. The key parameter of soil is its dielectric properties. Because soil dielectric characteristics are highly responsive to moisture content, they are particularly critical at microwave frequencies. The goal of this research is to look at how soil dielectric characteristics change as a function of many soil factors at microwave frequencies. Moisture content has been shown to be critical for agriculture production to grow sustainably. The dielectric property of soil is affected by moisture content. In addition, it has been discovered that transition moisture is higher in low clay soils than in sandy soils. There is a non linear graph in between dielectric properties and gravimetric water content.

Keywords: Dielectric constant, moisture content, texture, microwave frequency, sustainable

Introduction

In soil, physical qualities, chemical properties, electrical properties, and geographical properties are all important. Dielectric constant, dielectric loss, tangent loss, microwave conductivity, relaxation time, and other electrical parameters are examples. The target sensor is determined by the target geometry and dielectric parameter in relation to the sensor parameters in remote sensing. Because soil dielectric characteristics are highly responsive to moisture content, they are particularly critical at microwave frequencies. The contribution from the underlying soil can alter the target response of vegetation-covered surfaces at incidence angles. Because experimental data is offered in a variety of sources, the relationship between dielectric qualities and soil characteristics has not been dealt with systematically. The goal of this research is to look at how soil dielectric characteristics change as a function of many soil factors at microwave frequencies.

The backscattering coefficient for active sensors and the emissivity for passive radiometers can be used to describe the target response in the microwave area of the electromagnetic spectrum. Both amounts are dependent on the sensor and target characteristics listed below.

Sensor parameters

- a) Frequency
- b) Incident angle

c) Polarization

Target parameters

d) Dielectric properties

e) Surface and subsurface roughness from which detectable radiation is reflected or emitted.

f) Temperature of the surface and beneath materials as measured by thermometer.

For active or passive sensors, the impacts of the first five parameters are obvious. The dielectric characteristics of the surface scattering and emission character are influenced by the thermometric temperature. Furthermore, the radiometer's measurement of radiation is proportional to the goal thermometric temperature. Microwave remote sensing is a significant instrument for performing and analyzing natural resources such as soil in today's technological environment. The dielectric constant increases exponentially with increasing moisture content, according to Rajeev Kumar et al. validation of the RKAS soil dielectric model for C and X band microwave frequencies.

Theoretical Consideration

For a perfectly smooth contact between two media, the Fresnel reflection coefficient r is defined. It is a relationship between the size and phase of reflected electric and magnetic fields and the incident fields of a plan wave. The power reflection coefficient, $R = r^2$, is the parameter of interest in terms of the subject.

If the incident wave is in air and the reflectivity medium is homogeneous the R is given by [1]

$$R_h = \frac{|(p-\mu)^2 + q^2|}{|(p+\mu)^2 + q^2|}$$

$$R_v = \frac{|(\mu k_1 - p)^2 + (\mu k_2 - q)^2|}{|(\mu k_1 + p)^2 + (\mu k_2 + q)^2|}$$

Where h and v subscripts defining horizontal and vertical polarization, respectively, k_1 and k_2 are the real and imaginary parts of the relative complex dielectric constant respectively and $\mu = \cos\theta$ where θ is the incident angle. The parameter p and q are given by [2].

$$p = \left(\frac{1}{\sqrt{2}}\right) \left\{ \left| (k_1 + \mu^2 - 1)^2 + K_2^2 \right|^{1/2} + (k_1 + \mu^2 - 1)^2 \right\}^{1/2}$$

$$q = \left(\frac{1}{\sqrt{2}}\right) \left\{ \left| (k_1 + \mu^2 - 1)^2 + K_2^2 \right|^{1/2} - (k_1 + \mu^2 - 1)^2 \right\}^{1/2}$$

The emissivity of a smooth surface is defined as,

$$E_i = 1 - R_i$$

$i = h \text{ or } v$

Although most natural earth surfaces (with the exception of calm water) are not electromagnetically smooth at microwave frequencies, the dependency of R on soil moisture (via k_1 and k_2) can be utilized as a reference in the research of microwave sensor response to soil moisture.

Skin depth: The energy acquired by a microwave radiometer viewing a specific target is compared to contributions from the surface and subsurface layers of the target. The back scattered energy is also depending on depth. The attenuation coefficient of a medium, which is a function of its dielectric characteristics, determines how well microwave penetrates it,

$$\alpha = \left(\frac{2\pi}{\lambda}\right) \left[\left(\frac{k_1}{2}\right) \left| \left(1 + \frac{K_2}{K_1}\right)^2 \right|^{1/2} - 1 \right]^{1/2}$$

where

α = attenuation coefficient nepers/m

λ = wavelength

k_1, k_2 = The real and imaginary components of the medium's relative dielectric constant.

The relative magnetic permeability was assumed to equal unity in the above calculation, which is a decent approximation

for most natural surfaces, including water, at microwave frequencies.

The power is proportional to the surface value $p(0)$ at a depth h under the surface.

$$p(h) = p(0) e^{-2\alpha h}$$

At a depth δ such as $\alpha * s = 1$

$$\frac{p(h)}{p(0)} = 0.13$$

δ is the skin depth; reflection from a plane deep by a perfect reflector will be attenuated by the same amount, aiming at a surface with a magnitude of 0.017. If the medium depth profile at k_1 and k_2 is not constant, δ can be defined by,

$$\int_0^\delta \alpha \, dh = 1$$

Dielectric properties and dielectric constant of soil

Dielectric constant measurements in the microwave area for naturally occurring compounds are frequently not repeatable by different investigators. Because of the numerous elements that influence soil dielectric behavior, dielectric tests of soil require great precision and time.

The dielectric constant's dependence on many parameters such as moisture, bulk density, soil type, temperature, and frequency has been investigated. Many researchers have studied the dielectric behavior of soil and come to appropriate conclusions. In 1999, O.P.N. Calla et al. used the coaxial probe method to study the properties of dry and wet loamy sand soil at microwave frequency and found that the dielectric constant increases as the gravimetric moisture content increases. He employed a frequency range of 2 GHz to 20 GHz, and it was discovered that the dielectric constant increases as the frequency decreases. Measurements were taken for dry soil and samples with moisture content of 31 %, 27 %, 23 %, 17 %, 11 %, 7.5 %, 4.5 %, and 1.5 % in the current investigation [3].

Song Dongsheng et al. (2007) conducted research on soil moisture using microwave remote sensing in China and discovered that microwave soil moisture monitoring is conceptually dependent on the dielectric constant variations between liquid water and dry soil. Many factors, such as vegetation cover, surface roughness, soil texture, and measuring depth, might alter the dielectric

constant to some amount. Surface roughness can alter surface emissivity and soil moisture sensitivity [4]. Using the microwave frequency spectrum of the X-band H.C. Chaudhary and V.J. Shinde (2010) found that the dielectric constant and dielectric loss of black soil varied with moisture content. [5].

Using microwave X –band frequency at 8GHz for dry soil and wet soil Chandan N.K. and Shrivastava (2015) found that wetting point varies from 0.075 to 0.114. Transition moisture varies from 0.202 to 0.244 and Y value vary 0.389 to 0.438[6]. Kumar Rajeev and Sharma Anupamdeep (2015) showed variation in dielectric behavior of soil of Indo Gangetic region of Haryana with fertilizers at 5 GHz and observed that when fertilizers are added in soil ,pore space enhances [7]. Jaiswal Shweta et al. 2019 showed that dielectric constant of moist sandy soil exponentially increases with percentage water content [8].

In the year 2004 Venkatesh M.S. and Raghavan G.S.V. overviewed the microwave processing and dielectric properties of agro-food material and presented as an outcome of literature review in microwave dielectric properties and summarized several microwave processing aspects and its usefulness in understanding the microwave material interaction and the role of dielectric properties[9]. Chaudhary P.D. et al. in the year 2020 studied dielectric properties of soil mixed with urea fertilizers over 20 Hz to 2 MHz frequency range and showed the exponential fit graph of R_{dc} of soil with moisture content for moisture content of distilled water and water

with two different concentration of urea solution[10].

All the concerned MUT are taken and studied comprehensively theoretically as well as experimentally. After this with the help of mathematical formulae numerical value are obtained. The following equation is used to compute the gravimetric soil moisture content in percentage terms:

$$W_c (\%) = \left(\frac{W_w - W_d}{W_d} \right) * 100$$

Where W_w is the weight of wet soil and W_d the weight of dry soil.

The wetting point of soil is also calculated using Wang and schmugge’s Model[7].

$$W = 0.06774 - 0.00064 * (\text{sand}\%) + 0.0478 * (\text{clay}\%)$$

The complex dielectric constant can be calculated using the following relation

$$\epsilon' = \frac{g_\epsilon + [\lambda_{gs}/2a]^2}{1 + [\lambda_{gs}/2a]^2}$$

and

$$\epsilon'' = \frac{(-b_\epsilon)}{1 + [\lambda_{gs}/2a]^2}$$

where g_ε and b_ε are real and imaginary part of admittance, λ_{gs} is wavelength in air filled guide, a is the inner width of rectangular waveguide.

Result & Discussion

Table 1

S.No.	Frequency GHz					
	Frequency 2 GHz		Frequency 8 GHz		Frequency 11.9 GHz	
	GMC	DC	GMC	DC	GMC	DC
1.	5	2.5	5	2.5	5	2.4
2.	10	2.9	10	2.9	10	2.7
3.	15	8.5	15	8.2	15	8.1
4.	20	15.0	20	13.1	20	11.9
5.	25	22.0	25	18.2	25	16.7
6.	30	30.0	30	25.6	30	23.6

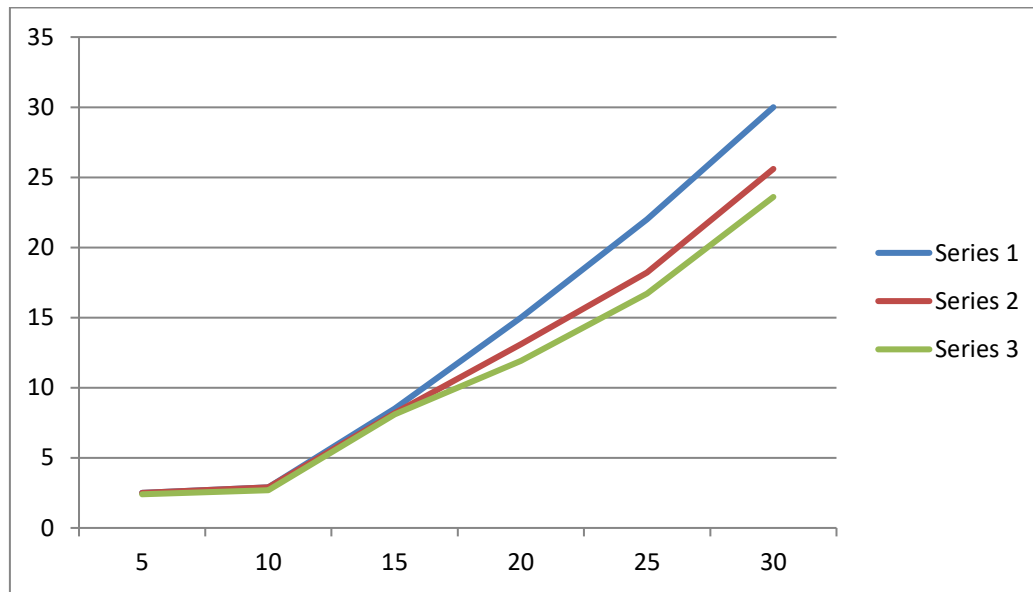


Figure 1

In the absence of liquid, the dielectric constant of dry soil is virtually independent of temperature at frequency. With an increase in moisture content, the value of ϵ' and ϵ'' both rises. Surface roughness is defined as small scale roughness, which means that the scale is substantially smaller than the resolution unit. Surface roughness has an impact on surface emissivity and soil moisture sensitivity. The relative permittivity of the soils grows slowly with moisture content at first, as can be shown. According to the findings, the relationship between dielectric content and gravimetric water content is nonlinear. This is due to the fact that damp soil is a composite material. In general, the value of ϵ' fluctuates from 2 to 3 for dry soil to 20 for moisture-rich soil.

Conclusion

Moisture content are very important for sustainable growth of agriculture production. The dielectric property of soil is affected by moisture content. When compared to sandy soil, transition moisture is higher in low clay soil. There is a non linear graph in between dielectric properties and gravimetric water content

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ANALYTICAL STUDY OF PHYSIO-CHEMICAL PROPERTIES OF SOIL**A. C. Paul¹, Rashmi Jain¹, M. Z. Khan¹, S. K. Shrivastava², A. K. Shrivastava^{1*}**¹Dr. C.V. Raman University Kota, Bilaspur, Chhattisgarh, INDIA²Govt. R.G.P.G. College Ambikapur, Chhattisgarh, 497001, INDIA.^{1*}drakshrivastava01@gmail.com**ABSTRACT**

In this paper an attempt has been made to study the physio-chemical properties of soil. The Physical capacities of a soil are influenced by the size, proportion, arrangement and composition of the soil particles. Microwave remote, sensing techniques are now a day's widely adopted and used to estimate the presence of natural resources underneath the ground surface. The present study has been taken to have an idea of microwave remote sensing characteristics of soil properties in agriculture for food purpose. These dielectric properties can be used to predict the soil fertility and health. The quality of soil is controlled by physical, chemical and biological components of soil and their interactions. The soil has physical, chemical as well as electrical properties, colour, texture, grain size, bulk density etc. comprise the physical properties, nutrients, organic matter, pH etc, comprise chemical properties while, electrical properties include dielectric constant, electrical conductivity and permeability. The concept of soil health and soil quality has consistently evolved with an increase in the understanding of soils and soil quality attributes. The dielectric constant of soil is dependent on the bulk density of soil and hence porosity and wilting point of soil. The dielectric constant of Indian soils is dependent on the texture of soil i.e. the percent content of sand silt and clay. There are eleven Samples were collected For different site .Each sample has different properties. In observation table one the data of five samples have been tabulated. It has been observed that in sample S1, and S2 the pH value of are suitable. In all sample electrical conductivity are normal. The normal value of organic carbon is in between 0.51 TO 0.75% In sample one. But it has been seen that there are one sample that is S1 is suitable. Besides these N, P, K, S, Zn, B, Fe, Mn, Cu are very normal. In observation one the percentage of silt is high although in observation one the percentage of silt is nearer. Further it has been seen that in observation two sample S4 & S6 has normal pH. Finally it has been concluded that in observation one sample one & sample two are favorable for production of agriculture, whereas in observation two sample S4 & sample S6 are favorable for good Production of agriculture.

Keywords: Microwave, Remote Sensing, Soil Quality, fertility, dielectric, dielectric constant, nutrients, texture.

Introduction

Soil plays important role in soil physics. There are a lot of soil properties but physio-chemical properties has significant role. As we know that the soil is the uppermost layer of Earth's crust which comprises fine particles, dead remains of organism, various minerals and water. Soil is a dispersed poly phase system consisting of solid, liquid and gaseous phase. Each phase is physically or chemically different and mechanically separable. There are four major components of soil as solid phase, liquid phase, gaseous phase and soil minerals. Soil minerals are of three types as primary, secondary and accessory minerals. Generally, there are three types of properties as physical properties, chemical properties and geographical properties. In physical properties following parameters have been studied as well as measured as textural class, bulk density, particle density, water holding capacity, porosity, wilting point, transition moisture, hydrant conductivity and colour etc. In

chemical properties following parameters have been studied as well as observed viz, pH, electrical conductivity, organic carbon, NPK, copper, zinc, Mg, Mn, Fe, Phosphors, Nitrogen etc. in electrical conductivity it has been studied about dielectric constant, dielectric loss, tangent loss, microwave conductivity, relaxation time, emissivity, etc. Geographical properties explain LALA i.e., latitude, altitude, longitude and average rainfall (mm). Roll of essential elements are very important. There are seventeen essential elements in plants such as carbon, hydrogen, oxygen, nitrogen, phosphorus, potassium, calcium, magnesium, sulphur, iron, manganese, boron, zinc, copper, molybdenum, chlorine, sodium, iodine and cobalt. Whereas there are nineteen essential elements in human as carbon, hydrogen, oxygen nitrogen, phosphorous, potassium, calcium, magnesium, sulphur, iron, manganese, zinc, copper, molybdenum, chlorine, sodium, iodine, cobalt and fluorine.

Theoretical cum experimental consideration

The collection of samples is very important to analysis the report. Surface samples of soil are usually taken to a depth of nine inches, unless there is a marked difference between soil and subsoil before that depth is reached. The subsoil is usually taken as the depth 9 to 18 inches or the next nine inches following the change from soil to subsoil. In special cases *i.e.*, fruit soils, deeper samples may be taken, and in the study of soil profiles, important from the point of view survey work, samples are taken from each level or horizon from the surface to the parent rock. It is important that several samples should be taken from the same field or uniform area, and that these be bulked and well mixed before being analysed. In practice, little is to be gained from analysing each sample separately and averaging the results for the experimental errors are very little, larger when only one analysis of the composite sample is carried out. Various sampling tools are used. The availability of nutrients in soil depends upon pH value, EC, OC, Macronutrients, Micronutrients. To determination of pH value, it is estimated the fertility of soil. There are so many tools to collect the soil samples but Agar, Khurpi, fabra, Knife, clean bucket, cloth, polyethene. First of all the surface of soil is clean, there after at the depth of 15-20 cm. of soil is collected.

The shape of soil collection 'V' type. After collecting the sample, it is field in air tied pocket and then sent to soil testing laboratory. There are 17 essential elements are in planets *i.e.*, carbon, hydrogen, oxygen, nitrogen, phosphorus, potassium, calcium, magnesium, sulphur, iron, manganese, boron, zinc, copper, molybdenum, chlorine, sodium, iodine and cobalt.

There are 19 essential elements in human as carbon, hydrogen, oxygen nitrogen, phosphorous, potassium, calcium, magnesium, sulphur, iron, manganese, zinc, copper,

molybdenum, chlorine, sodium, iodine, cobalt and fluorine.

There are 18 essential elements for animals *i.e.*, carbon, hydrogen, oxygen nitrogen, phosphorous, potassium, calcium, magnesium, sulphur, iron, manganese, zinc, copper, molybdenum, chlorine, sodium, iodine and cobalt.

Materials & Methods

Soil samples are taken from different locations of district Mungeli which is mentioned earlier. For each sample 15 mm topsoil was removed and 5 pits were dug. A composite sample of about 1 to 2 kg represents one site. Representing soil samples were collected with wooden tools to avoid any contamination of the soils. 4 to 5 pits were dug for each sample. From each pit sample were collected at a depth of 0-25 cm. The samples were then dried in the open atmosphere to remove the traces of moisture present in it. When the samples were completely dried, they are crushed and then sieved through the gyrator sieve shaker, which is available at the civil engineering laboratory in DR. C V Raman University, to remove the course particles. the sieved out fine particles were dried in the hot air oven to a temperature around 110°C for about 21 hours in order to remove completely any trace of moisture. This dry sample is called as oven dry when compared with the wet samples. After sieving the given samples were packed in the polythene bags for further laboratory investigation.

Data Sampling & Observations

The five samples were collected from five places (Chhattisgarh). The details are as follows,

- S1: Chorbhatti(J)
- S2 : Baghamudda
- S3 : Sangwakapa
- S4 : Chorbhatti
- S5 : Birgaon.

Table 1 : Observation – 1

Parameters / Samples	S1	S2	S3	S4	S5
Ph	7.6	8.0	6.3	5.1	5.1
EC (ds/m)	0.7	0.7	0.7	0.4	0.4
OC (%)	0.45	0.30	0.30	0.30	0.15
N (kg/hact.)	250	238	225	263	275
P (kg/hact.)	18.81	11.64	13.44	11.64	15.23
K (kg/hact.)	331	470	268	313	380
S (ppm)	12.50	10.00	12.50	11.25	11.25
Zn (ppm)	0.919	1.213	0.912	0.712	2.212
B (ppm)	6.0	6.0	6.0	5.0	5.0
Fe (ppm)	21.22	12.15	21.11	12.30	11.23
Mn (ppm)	13.40	10.12	17.30	16.25	25.13
Cu (ppm)	1.121	1.121	0.930	0.712	0.912
Sand (%)	11.17	10.95	12.32	12.01	10.23
Silt (%)	64.40	56.00	58.63	57.23	56.32
Clay (%)	20.00	12.32	9.32	11.32	14.32

Table 2 : Observation – 2

Parameters / Samples	S1	S2	S3	S4	S5	S6
pH	6.70	6.80	6.70	7.10	6.90	7.20
EC (ds/m)	0.30	0.30	0.30	0.30	0.40	0.40
OC (%)	0.15	0.30	0.15	0.15	0.15	0.30
N (kg/hact.)	301	363	313	313	275	301
P (kg/hact.)	16.18	18.82	21.50	16.12	17.02	17.02
K (kg/hact.)	481	439	448	459	470	481
S (ppm)	23.75	28.75	32.76	31.25	31.25	12.50
Zn (ppm)	0.64	0.41	0.71	0.83	1.12	0.92
B (ppm)	6.00	6.00	4.00	6.00	7.00	6.00
Fe (ppm)	8.31	17.31	9.12	10.11	9.18	31.91
Mn (ppm)	30.12	34.13	47.14	12.42	30.14	10.14
Cu (ppm)	1.89	1.95	1.19	0.69	0.64	1.32
Sand (%)	12.15	10.23	9.56	11.45	10.96	11.52
Silt (%)	62.01	59.29	65.13	63.25	65.12	66.32
Clay (%)	21.01	19.96	20.32	20.11	21.14	20.96

Result & Discussion

Soil texture has remarkable effect on the dielectric constant. A soil is made up of four elements : inorganic or mineral fraction (derived from the parent material) , organic material , air , and water. From an observation of a real soil profile one can identify colour , texture , structure , and other properties of soil . Agriculture, the primary theory of economic activity includes not only, cultivation, but livestock ranching, dairy, forestry, lumbering and most of other activities. Thus agriculture is a human activity, involving planned utilization

of land Soil and water for the growth of plants and animal to meet the basic requirement of food and clothing Although agriculture is different from pastoral forming i.e. the practice of breeding and rearing of certain herbivorous animals. The term 'agriculture' is derived from the Latin Word AGRICULTURA which literally means 'Care of Soil' Agriculture is the pivotal and most basic productivity of human society. Agricultural production in an area is influenced by several physical and economic factors and largely by an integration between there two pet of factor, Climate, Soil and relief in the first group and land tenure, Scale of

operation, marketing transport, labor, capital and government policies in the second group are important factors exercising influence on agriculture climate is very import for Soil. Suitable temperature and rainfall condition are essential for plant growth. Most plants need a minimum temperature of 5⁰-7⁰C before growth commences.

In marginal areas of cultivation where the length of growing season is scarcely long enough for cultivation of crops, frost coupes servos damage. Sufficient amount of sunshine

is also necessary for plant growth. Cloudy Summons often cause delay in ripening and harvesting of crops in temperate regions, while per penitent cloud cover and reduced amount of direct bun shine in the equatorial regions may prevent the double cropping. Rainfall is a significant factor in agriculture Excess or deviancy in rainfall causes severe crop losses. Winds also affected forming activities in many eves. Wind erosion in dry farming areas causes loss of valuable toop Soil.

Observation : 1

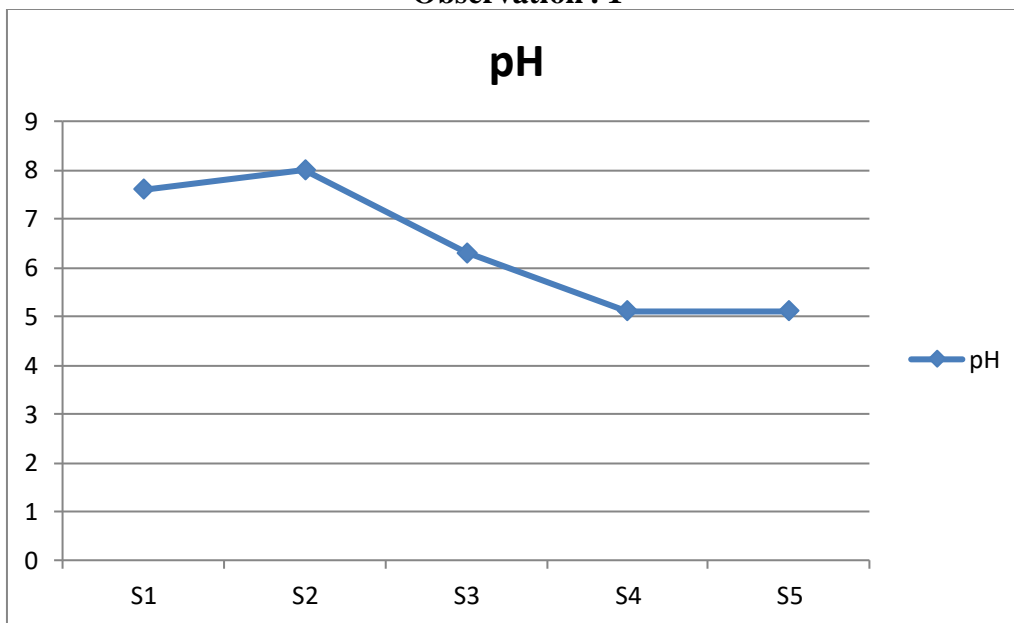


Fig 1. Variation of pH of different sample

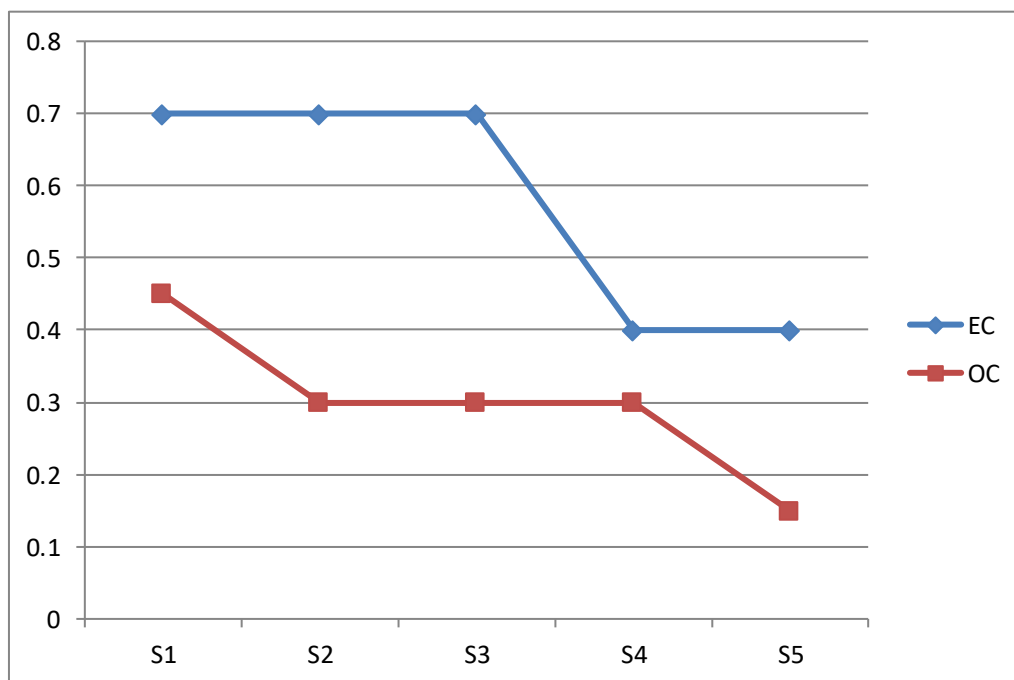


Fig 2. Variation of EC and OC of different sample

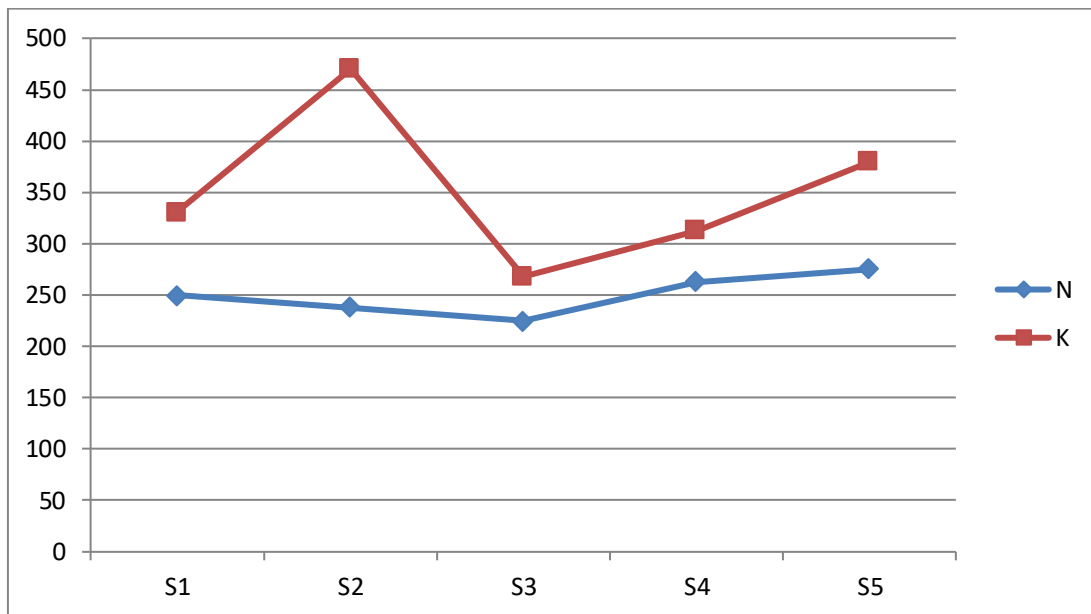


Fig 3. Variation of N and K of different sample

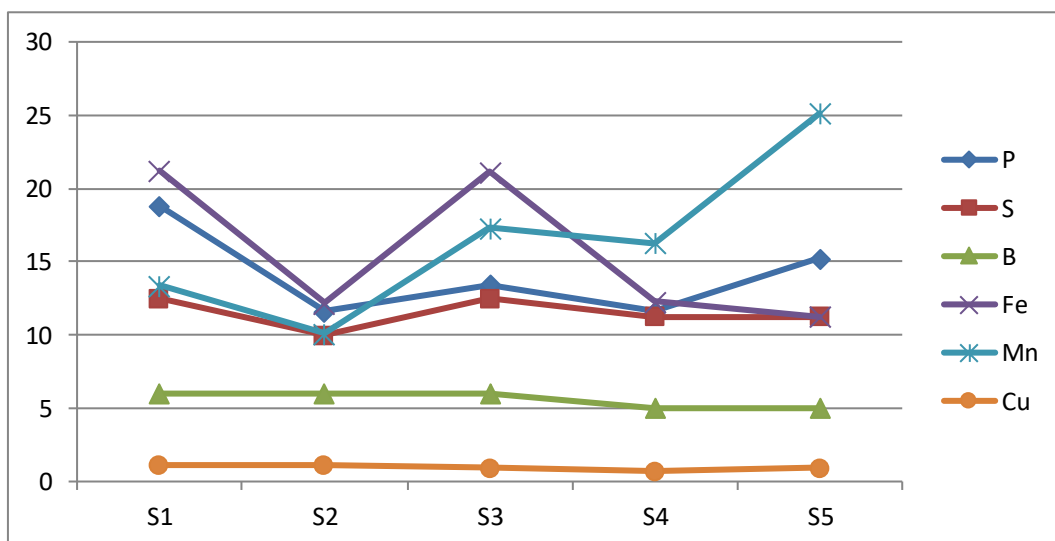


Fig 4. Variation of P, S, B, Fe, Mn, and Cu of different sample

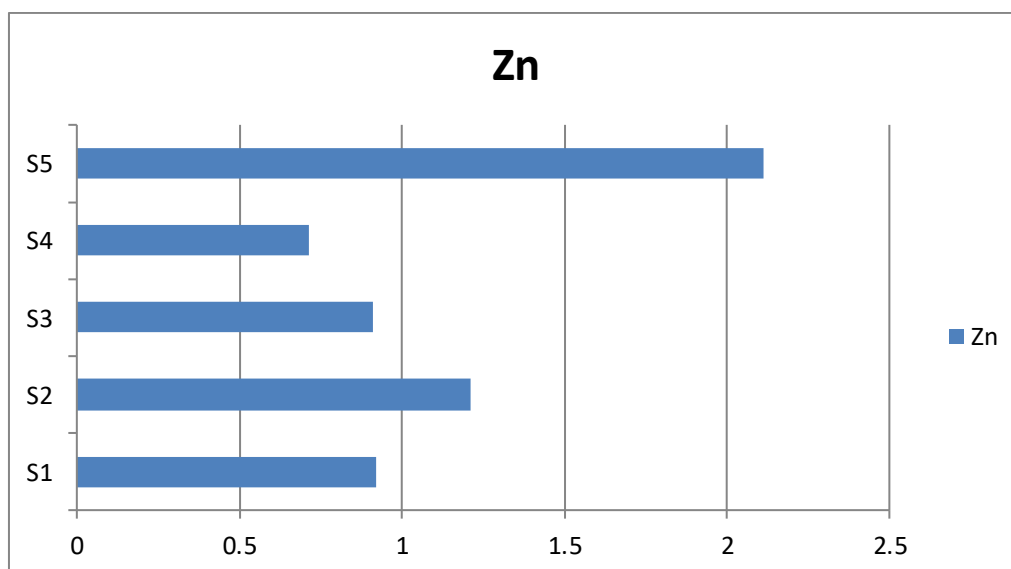
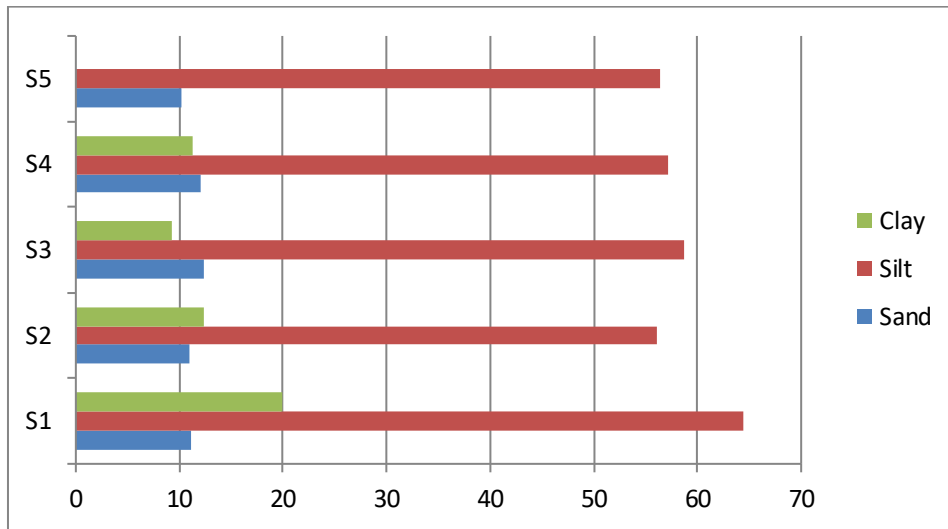


Fig 5. Variation of Zn of different sample



**Fig 6. Variation of Sand, Silt and Clay of different sample
Observation:2**

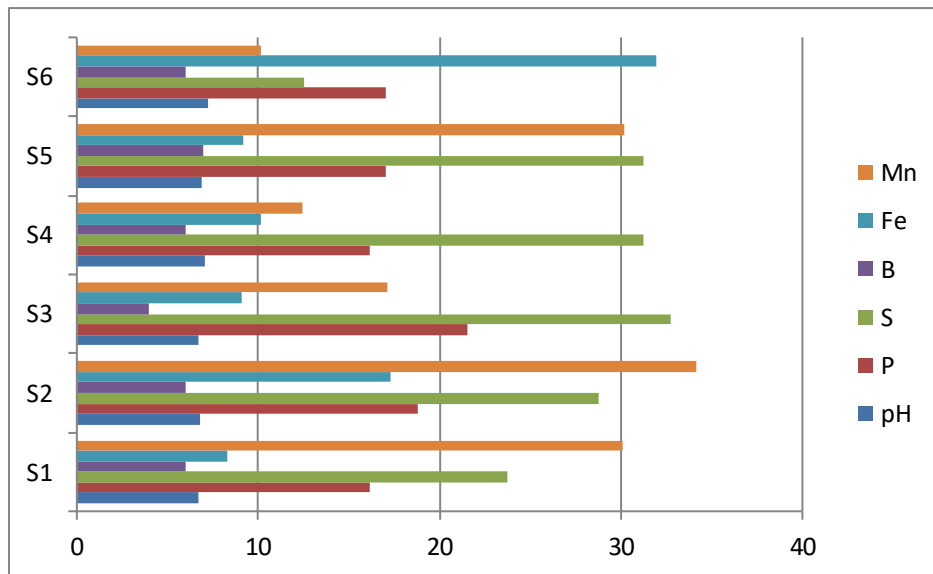


Fig 7. Variation of pH, P, S, B, Fe, & Mn of different sample

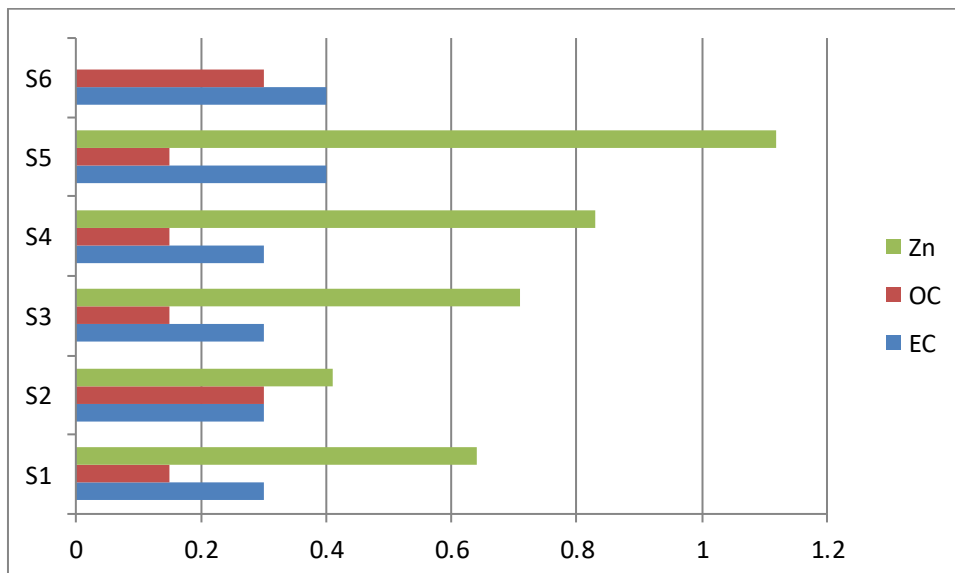


Fig 8. Variation of Zn, OC, & EC of different sample

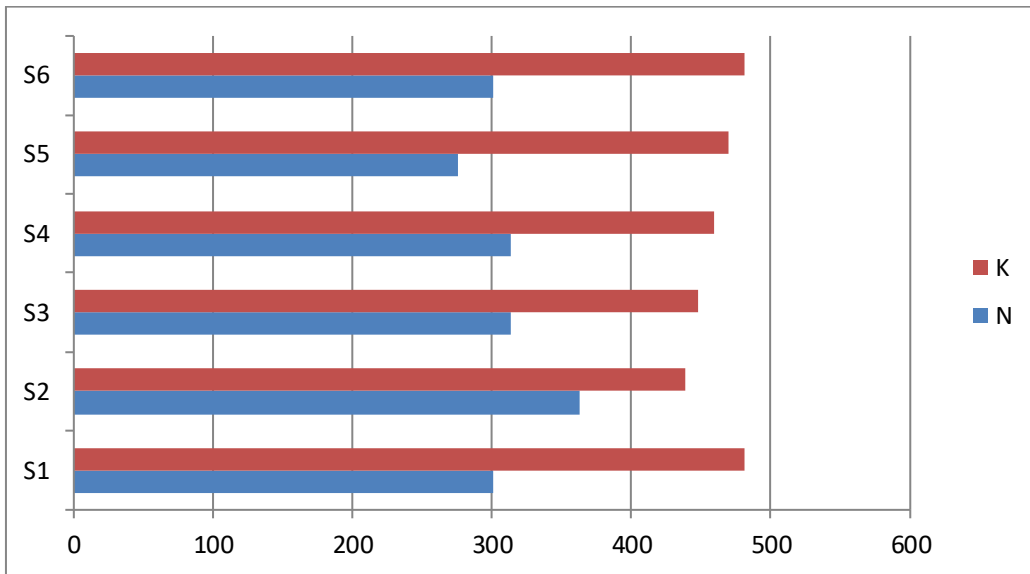


Fig 9. Variation of K, & N of different sample

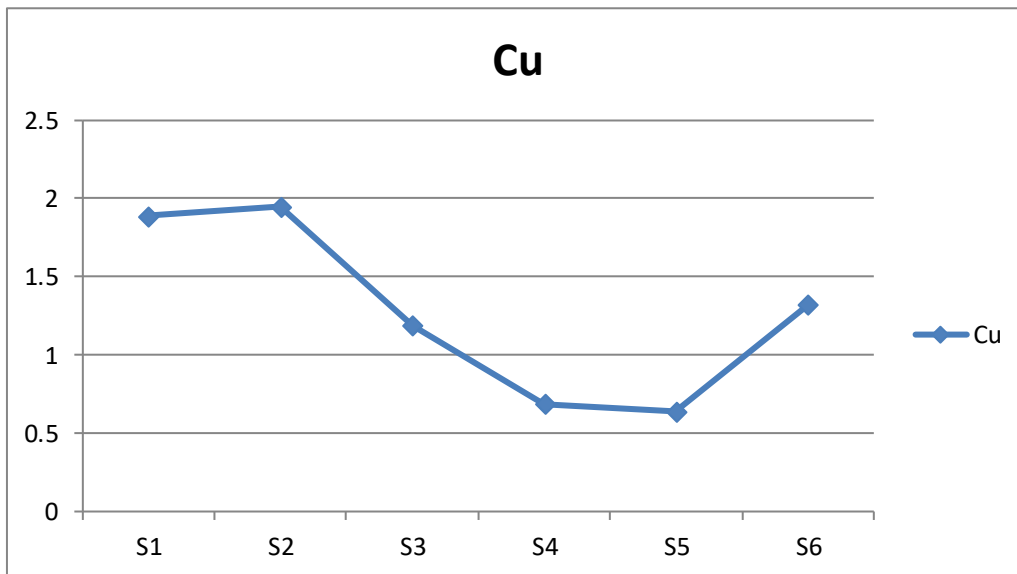


Fig 10. Variation of Cu of different sample

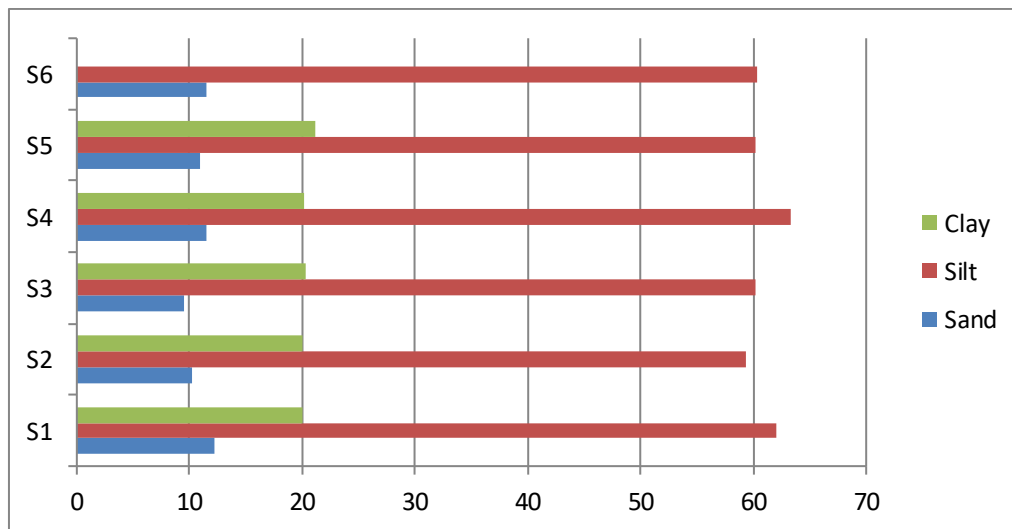


Fig 11. Variation of Sand, Silt, & Clay of different sample

Conclusion

There are eleven Samples Were collected For different sidte .Each sample has different properties. In observation table one the data of five samples have been tabulated .It has been observed that in sample S1,and S2 the pH value of are suitable. In all sample electrical conductivity are normal. The normal value of organic carbon is in between 0.51 TO 0.75% In sample one. But it has been seen that there are one sample that is S1 is suitable .Besides these N, P, K, S, Zn, B, Fe, Mn, Cu are very normal .In observation one the percentage of silt is high although in observation one the percentage of silt is nearer. Further it has been seen that in observation two sample S4 & S6 has normal pH. Finally it has been concluded that in observation one sample one & sample two are favorable for production of agriculture, whereas in observation two sample S4 & sample S6 are favorable for good Production of agriculture.

Soil in the essential material upon which all agriculture is bared. All farms of agriculture remove certain minerals from Soil thereby

causing loss of fertility and productivity. Lam Sails are often regarded as duel although her vies clay Soils may be suitable for certain crops. Sandy Soils are generally infertile although they respond to heavy application of fertilizer. All crops take water and moisture from the Soil. This moisture may be available from rains or from Bur face or underground irrigation barters. Within wide temperature than any other environmental factor in crop production. The excess of water in the Soil, therefore, leads to stunted growth of plants, Rain is the cheapest source of water, provided it is timely and adequate in quantity.

It is well known that the word is derived from the Latin word slum. In general, soil refers to the loose sorts of the earth as distinguished from solid rock. It is the material that marshes and supports growing plants.

Acknowledgements

We are highly thankful to office of the soil testing office, Bilaspur, Govt. of Chhattisgarh and Government Engineering College Bilaspur, Chhattisgarh.

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CHILD LABOUR IN INDIA: CHILD RIGHTS AND LEGAL LAWS IN UTTAR PRADESH**G. C. Rai¹ and M. Kumar²**¹Department of Law DSMNRU, Lucknow, Uttar Pradesh, India²Department of Law DSMNRU, Lucknow, Uttar Pradesh, India

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ABSTRACT

The children are impotent part of our society. Child labour has been observed decades that due to poor family, economical background, literacy, and send to bonded labour works, forced work, which result is very serious problem in the world is facing present and future development country.

Right based approach of National and International, Indian Constitution, Legislative Acts, ILO, UDHR, ICCPR, ICESCR. There are many laws protect child labour, abolition of child labour and fully protection. Children are facing in socio-economic inequality. India is independent in 74 years ago but child labour exploitation in economically it's a reality in the world. They are Indian judiciary to protection of child rights and direction state governments to provide the rehabilitation child labour. They are the land Mark Judgment in 'M. C. Mehta vs. Union of India' the Honble Supreme Court given judgment directed that the children engage in any employment violation of Child Labour (Prohibition and Regulation) Act, 1986 imposed fine employers. The analyzing laws the child labour. The researcher observed constitution provisions, legislative Acts, and International laws.

Keywords: Children, Child labour, ILO, ICCPR, UDHR, ICESCR, Exploitation, Bonded, Industry

Introduction

The children is the supreme asset of the world, they are the god gift in human being and very important part of our society. But unfortunately children have been exploiting in every place in society, discriminated. Children working as labourers have been the cheapest and heinous condition child labour in our society. Today's child labour condition is very heinous, realizes I will found the every place find that likes hotel, Motel, households, Dhabas, tea stall, Agriculture, food stall and motor vehicle in working. Child labour is generally work in under unhygienic conditions in long times and payment in paid is very small.¹ Children are exploited in first times own family member likes guardian and parents so they are very big problem. There are no difference boys and girls exploited sexually, mentally and emotionally. Child labour exploited the sexual abuse engaged in work place; they are no idea to outer away in work place so conditions are very high level exploitation. The child labour is a very big problem in our country. But they the control in two step in child labour, first is high fine in employers and family members engagements child labour and seconds is imprisonment very tits. Today's demands Child labour he has must be love and affection

in started the global moments. Indian Constitution Article 23 and 24 of the deal with the right against exploitation in child labour. Article 23 embodies two rights. The first right is that the traffic in human beings, begar and other similar forms of forced labour are prohibited. The second right is that any violation of the rights recognised shall be an offence punishable according to law.²

According to the International Labour Organization (ILO) there are more than every country total 350 million children engaged in economically active. Today's demand in discussion child labour has been stimulated as a contemporary global issue in international labour standards. Incidence of total child labour in India 10.4 million and has been declined in recent decades.³ Children are supreme assets in nation; India is care the assets then the make the National Policy for children (1974) gracefully acknowledge, future citizens. Citizens make sure really counter upon the children. Childhood shows the man, as morning shows the day, says John Milton. Today's children are tomorrow's world.⁴ Child

² . Rao, Prof. (Dr.) Mamta, 'Constitutional Law', EBC, p. 341

³ . MONASH UNIVERSITY business and economics p 2

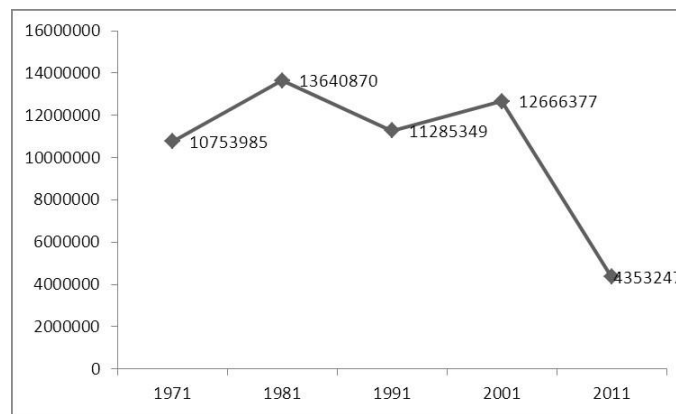
⁴Child labour in India by K. Chandrasegaran SCHOOL OF LEGAL STUDIES COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY COCHIN DECEMBER '1996

¹ . Nuzhat Praveen Khan, 'Constitutional and Legal Rights of the Child', Vol. X, Issue 1, Nyaya Deep, P. 42

labour is the practice of having children engaged in economic activity, on part or full-time basis. This practice deprives children of their childhood, and is harmful to their physical and mental development. Poverty, lack of good schools and growth of informal economy are considered as the important causes of child labour in India. The national census of India estimated the total number of child labour, aged 5-14 years, to be at 12.6 million, out of a total child population of 253 million in 5-14 age group.

A 2009-2010 nation-wide survey found child labour prevalence had reduced to 4.98 million children (or less than 2% of children in 5-14 age groups). The 2011 national census of India found the total number of child labour, aged 5-14, years to be at 4.35 millions and the total child population to be 259.64 million in that age group. The child labour problem is not unique to India; worldwide, about 217 millions children work done, many full times⁵.

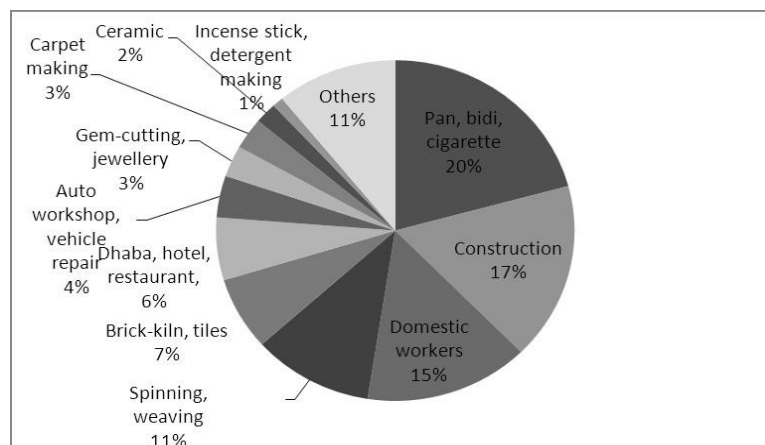
Figure 1: Child Labour in India (Age 5-14 years)



Source: ILO

Figure 2: Children working in prohibited industries in India, 2001

According to ILO survey report defines the child labour engaged in different-different sector working children. The child labour reported 2001, prohibited child labour in different-different sectors and show the percents in figure no. 2. Incense stick detergent making working child labour in 1 percent, Ceramic 2 percent, Carpet making 3 percent, Gem-cutting jewellery 3 percent, Auto workshop vehicle repair 4 percent, Dhaba hotel restaurant 4 percent, Brick-kiln tiles 7 percent, Spinning weaving 11 percent, Domestic workers 15 percent Construction 17 percent, pan bidi cigarette 20 percent and others working engaged in 11 percent.



Source: ILO, 2001

5.

Statement of the problem child labour in India: - child labour is very big problem in the world. Children engage in any work place empowerment this is the crime. All over the world make sure child labour prohibited then the any employer engage any child will be punished according laws. India is democratic country in the world. Indian territory living people different-different culture, tradition, faith of god, citizen in India and non-citizen to equal protection and equal rights to provide Indian Constitution.

Objective of the Study: - The objective of the study is to develop comprehensive understanding of the phenomena of child labour, with a facilitate formulation of laws and policies programmers effect measure control child labour in India.

1. Discuss in detail the conceptual understanding and constitutional provision prohibition of child labour.
2. Discuss in detail the International conventions, National Legislations, and International treaty.
3. Discuss in Role of Judiciary and child labour Prohibition Cases.
4. Conclusion.

Research Methodology: - The research article work in the present study is Doctrinal method. The research work involve in collections of secondary data sources likes, International Conventions, Treaty, National laws, Legislative Acts. The laws have been analyzed in light of present situation child labour in India.

Hypothesis: - The work will be carried out in hypothesis child labour in India child rights and legal law in Uttar Pradesh. The present scenario work will be child labour prohibited and violation of laws, human rights.

Child labour work will be all over sectors hazardous and non-hazardous but many laws National and International laws prohibited then violation of laws imposed fine and imprisonment.

Definition/ Meaning: - The international organization and convention was protection of children age of 6th to 14th years. A member of International Labour Organization was treaty the India. The following the treaty and International Convention protection of

children. United Convention on the Rights of the Children 1989 Article 1 A child mean human being below the age of 18th years unless under the law applicable to the child.⁶

ILO Defines child: - Child labour defines ILO the term as work takes way. There are potential is not healthy, and health is harmful. The ILO provided dignity and bodily. The child labour is dangerous, harmful, mental, physical economical, and social.

CRY defines: - child labour as “children in the age 6 to 14th years” there are work and involve as economic corner. There are full bonded or not, working hours, working place. The child population they participated in work paid or unpaid.

ICCPR defines: - According ICCPR convention under Article 3 “The States Parties to the present Covenant undertake to ensure the equal right of men and women to the enjoyment of all civil and political rights set forth in the present Covenant”.⁷

ICESCR defines: - According ICESCR convention under Article 3 “The State parties to the present convention undertake equal opportunities and equal rights to provide civil, political, economical, social and cultural”.⁸

U. P Children Act, 1951, Section 2(4) child means a person under the age of 16th years.⁹

Child labour (Prohibition and Regulation) Act, 1986: - child” means a person who has not completed his 14th years age.¹⁰ It means children include child labour prohibited age

⁶. www.unicef.org.uk Article 1 Definition of child (For the purposes of the present Convention, a child means every human being below the age of 18 years unless under the law applicable to the child, majority is attained earlier.)

⁷. <https://www.ohchr.org/en/professionalinterest/pages/ccpr.aspx>- According

ICCPR under Article 3 defines the equal opportunities and equal protection human being includes children.

⁸

<https://www.ohchr.org/en/professionalinterest/pages/cescr.aspx>- International Covenant on Economic, Social and Cultural Rights Adopted and opened for signature, ratification and accession by General Assembly resolution 2200A (XXI) of 16 December 1966 entry into force 3 January 1976, in accordance with article 27- under Article 3

⁹. <http://www.bareactslive.com/ALL/up917.htm>

¹⁰. https://labour.gov.in/sites/default/files/act_3.pdf

group 6 to 14th years engaged in any employment likes, Hazardous and non-hazardous.

The Juvenile Justice (Care and Protection of Children) Act, 2000: - under this Act, section 2 (12) define “Child” means a person below the age of 18th years.

Under this Act, section 2 (14) define “Child in need of care and protection” means child- (i) who is found without home or shelter place of abode and without any ostensible means of subsistence; or

(ii) Who is found working in contravention of labour laws for the time being in force or is found begging, or living on the street; or

(iii) Who resides with a person (whether a guardian of the child or not) and such person— (a) has injured, exploited, abused or neglected the child or has violated any other law for the time being in force meant for the protection of child; or (b) has threatened to kill, injure, exploit or abuse the child and there is a reasonable likelihood of the threat being carried out; or (c) has killed, abused, neglected or exploited some other child or children and there is a reasonable likelihood of the child in question being killed, abused, exploited or neglected by that person; or

(iv) Who is mentally ill or mentally or physically challenged or suffering from terminal or incurable disease, having no one to support or look after or having parents or guardians unfit to take care, if found so by the Board or the Committee; or

(v) Who has a parent or guardian and such parent or guardian is found to be unfit or incapacitated, by the Committee or the Board, to care for and protect the safety and well-being of the child; or

(vi) Who does not have parents and no one is willing to take care of, or whose parents have abandoned or surrendered him; or

(vii) Who is missing or run away child, or whose parents cannot be found after making reasonable inquiry in such manner as may be prescribed; or

(viii) Who has been or is being or is likely to be abused, tortured or exploited for the purpose of sexual abuse or illegal acts.¹¹

¹¹ . <http://cara.nic.in/PDF/JJ%20act%202015.pdf>- According JJ Act, 2000 under section 2 sub clauses- define child and need of children- the Gazette of India- MINISTRY OF LAW AND

The Child labour (Prohibition and Regulation) Amendment Act, 2016: -“An Act prohibit the engagement of children in all occupations and to prohibit the engagement of adolescent in hazardous occupations and processes and the matters connected therewith or incident thereto.”

Section 2 of the principle Act- they are the following clause (a) and (b):

(i) “Adolescent” means a person who has completed his fourteenth year of age but has not completed his eighteenth year.

(ii) “Child “means a person who has not completed his fourteenth year of age or such age as may be specified in Right of Children to free and Compulsory Education Act, 2009,

Section 3 (1) No child shall be employed or permitted to work in occupation or process:

(a) Helps his family or family enterprise, which is other than any hazardous occupation or processes set forth in the Schedule, after his school hours or during vacations.

(b) Works as an artist in audio-visual entertainment industry, including advertisement, film, television serials or any such others entertainment or sports activities accept the circus, subject to such conditions and safety measures, as may be prescribed.¹²

JUSTICE (Legislative Department) New Delhi, the 1st January, 2016/Pausha 11, 1937 (Saka)

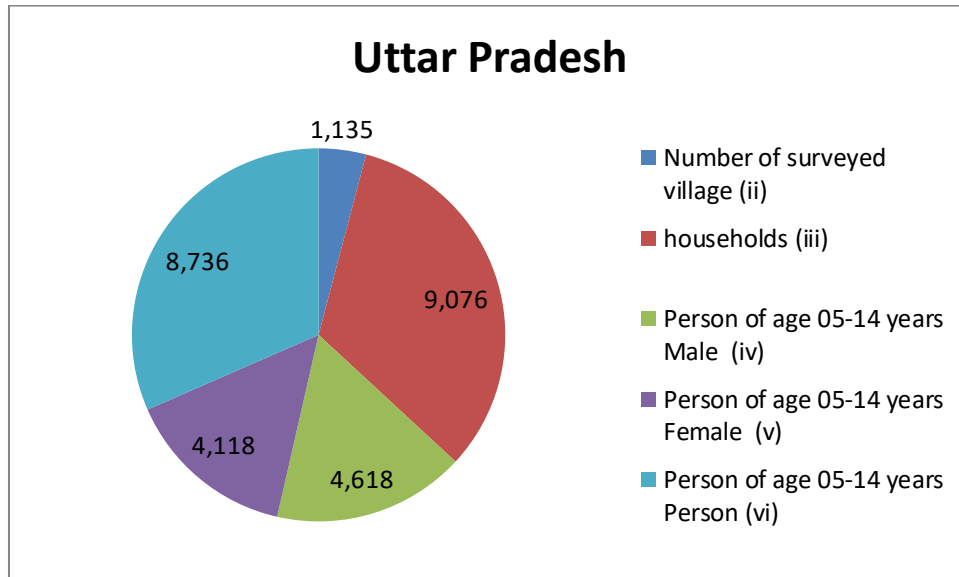
¹² . the child labour (prohibition and Regulation) Amendment Act, 2016 (The Gazette of India)

Concept in child labour in India: -

Figure (1). number of villages/block, households surveyed and person enumerated by age and gender for Uttar Pradesh Rural Urban

State	Number of surveyed village	households	Person of age		
			05-14 years		
			Male	Female	Person
(i)	(ii)	(iii)	(iv)	(v)	(vi)
Uttar Pradesh	1,135	9,076	4,618	4,118	8,736

Source: Annual report PLFS 2019-20



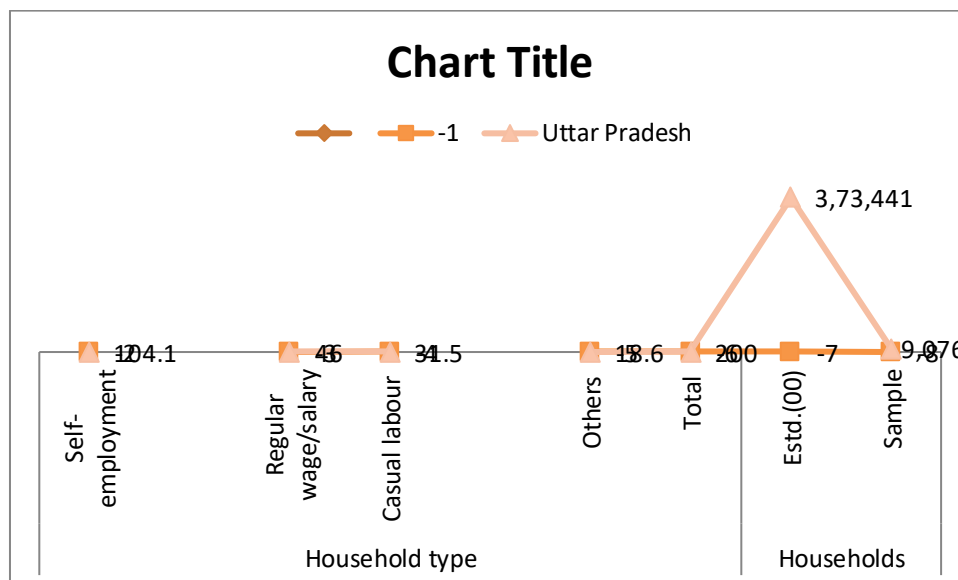
According to the Annual report in PLFS 2019-20 reported the Uttar Pradesh in village, including rural and urban areas survey of total sample 1,135 in Uttar Pradesh. Household children in this survey find that rural and urban 9,076 children below the age of 14 years. There

are male children below the 5-14 years find that 4,618 household. The female children below the age 5-14 years find that 4,118 in household included rural and urban areas. There is total population male and female in minimum difference in household children's.

Figure(2) Percentage distribution of households by household type for urban area for Uttar Pradesh

Uttar Pradesh Rural+Urban	Household type					Households	
	Self-employment	Regular wage/salary	Casual labour	Others	Total	Estd.(00)	Sample
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Uttar Pradesh	104.1	46	31.5	18.6	200	373,441	9,076

Source: Annual report PLFS 2019-20



According there was annual reports in Uttar Pradesh percentage distribution of households by household type for urban and rural. Household’s children work in agriculture and non-agriculture engaged, rural children’s maximum work in agriculture but some engaged in non-agriculture work. But urban living children engaged in maximum work in non-agriculture. This types of children in self-employed in engaged in maximum and second is casual labour engaged in minimum engagement. Figure (9) distribution of households by household include rural and urban areas engaged children, self-employed in rural area 63.2 percent and urban area 40.8 percent total 104.1 percent engaged. Second is the regular wage/salary rural area engaged children 7.9 percent urban area 38.1 percent and total engaged children in Uttar Pradesh 46 percent. Third is casual labour engaged in rural area 20.8 percent and urban area 10.7 percent total percent is 31.5. And others workplace engaged in children rural area 8.1% and urban area 10.5% total engagement 18.6 %. Now total percent of rural and urban areas 200%. Household estimated 100% children total children 373,441 and sample size 9,076.

Literature review: - Globalization and Child labour: Evidence from India-Mita Bhattacharya [2009]-child labour is global phenomena. Discuss the causes of child labour and maximum child labour working in bonded different-different sectors. Analyzed International and national laws not work of grass root level. The historical aspect in child

labour in India analyzed. The child labour in rural and urban sectors including manufacturing works and others work. The survey report maximum child labour includes hazardous and non hazardous working. NSSO survey report actual condition of child includes rural and urban areas work. Legislative frame prohibited below the age of 14 years. The government policies were enforce of grass root level. Monitoring the committee and evaluate the various scheme and change the scheme and effective of the child labour.

Human rights perspective and legal framework of child labour with special reference to India-Bilal Ahmad Bhatt [2009]-child labour exploitation to protect the human rights. Discusses the Indian constitution is providing fundamental rights to citizen and Non-citizen. Child labour rights violation to protect the human rights analyzed UDHR. International laws and convention to protection of the child labour and time to time amendment the laws. Indian legislative frame work is force able compensation of the child labour and fine imposed employment.

Judicial response to child labour in India: Human rights perspective-(Thomas Paul) The child labour every time exploited and facing the violation of the human rights. Analyzed the Indian constitution is provided the fundamental rights violation of the human rights. Child labour engaged hazardous and non hazardous work then the violation of the rights to protection of the human rights and others. Know the critically examine Supreme

Court and high court's decision is very sensitive cases judgment protection of child labour and human rights violation.

M.C. Mehta v. state of Tamil Nadu and others: The Supreme Court landmark judgment. SC stop every children work in hazardous below the age of 14 years. Government policies make to ensure the rehabilitation of children working in Dhabas.

2. Constitutional provisions legal rights of child labour: - Indian Constitution is guarantee the Fundamental Rights provide child rights. Indian constitution provided children equal protection, equal opportunities at the domestic level and good effort uplifting the position in India. Children sentience related cover the child rights and child welfare provided Indian Constitution, some provisions cover child rights. There are covered in two Part first is Indian Constitution Part III of Fundamental rights and second is Directive principles of state policy.

Right to Equality- Article 14 and 15: - it means the equality before law and equal protection of laws, they every person living in India, citizen and non-citizen include children. Constitution embodies the principle of "non-discrimination".¹³

Article 15(3): - the state government to make ensure provision children and women, they are not prevented making any special provision, effect of the own life survival and treated the backward class and children empowers child and women.¹⁴

Right to life and Liberty Article 21: -the state shall be provided ensure every person right to life include dignity and full enjoy in children. Article 21A every state is provided every children free and compulsory education below the age 6 to 14 years.

Right against Exploitation Article 23 and 42: - Article 23 prohibited trafficking children include beggar, forced labour etc. Article 23 declare any children include the any work doing. He is offence punished accordance with law. Their children working but main problem of parent's poverty living the society and

pledge. They are exploitation of permitted the parents. Their no engaged the educational activities and economically justice and welfare the children. So millions children exploited of the society. Article 24 Indian constitution prohibited the employment of the children below the age of 14 years engaged the mines, factories, hotels, motels, and hazardous work. The main problem of the poverty so living the poor society engaged the hazardous work. This article not absolute made below the age 14 years children.

Indian constitution part VI provides welfare of the children. Directive principal of the state policy provide the every person social, economic, political, justice. State duty is protection and welfare the every person. Article 39[e] and [f] Directive principal provide state shall provide the welfare of the children and women. State will be protection tender age of children. Social, political and economic welfare made the policy.¹⁵

Article 41 shall be made the provision securing justice of human being and securing. State shall secure of the child work and child labour welfare of the society. The provision implementation of secure the child rights and provides the education.

Article 42 the provision of secure the pregnant of women and born the child. State shall be providing the health, care, protection of children and women.¹⁶

Legislative provision:- Indian Legislative provision made the enacted secure children prohibited the child labour in India. The constitution are providing the children right. After independence ensure child care and child labour protection. Basically tender age children and employment hazardous and non-hazardous engaged the different-different occupation to protection need laws. Then the need the legislations time to time protection of children and child labour.

The child Labour [Prohibition and regulation] Act, 1986:- This Act is prohibited the engagement of children in certain employment of hazardous and Non-hazardous nature. They are prohibited below the age of 14 years any employment and occupation. They are regulating the law and force enforces the

¹³. Jain, M. P, 'Indian Constitutional Law', edi. 7th.pub. Lexis Nexis, p.877

¹⁴. Mukesh Kumar and Dr. Gulab Rai, 'Child labour in India: Impact of right to Education, Offences and Punishment', shiksha shodh manthan A Half yearly International Peer-Reviewed Journal of Education, Vol. 6th, p. 54

¹⁵. ibid

¹⁶. ibid

workplace. This act realized every children worked in hazardous and non-hazardous occupation exploitation of children. This act was punished the violation of the act and exploitation of children in workplace. The punishment is violation under section 14. The fine imposed of this act range 10,000 to 20,000 or three month imprisonment to maximum 1 year and fine and imprisonment are both.¹⁷

The Juvenile Justice (Care and Protection) of Children Act, 2000:- The Juvenile and Justice (Care and Protection) Act, 2000 in passed with UN convention on the rights of the child below the age 18 years. Under the Act Section 26 deals the exploitation of juvenile or child labour. The main purpose of the Act prohibited child labour and hazardous and Non-hazardous employment bonded paid and non-paid. The Act shall be Punishable with imprisonment enforce of the Act three years imprisonment and fine imposed.¹⁸

• **Convention on the Rights of the Child, 1989**

The convention recognized on the right of the child. The United Nation drafted the commission on the Human Rights, was adopted by the General Assembly on the 20th November 1989. The convention is a set international standard level on the world, and measures intended to protect and promote the children in society well being. The convention drafted the main measures of four points described civil, political, social, economic, and other then include rights on culture rights of child. There are rights of describe the children Rights of survival, includes the right to life, the highest attainable standard of health, nutrition and standard of living. There are included the right to nationality and name.¹⁹

Article 32

¹⁷. ibid

¹⁸ JJ, Act, 2000, Article 26- under sec exploitation of juvenile or child labour.

¹⁹

<https://www.ohchr.org/en/professionalinterest/pages/crc.aspx>- Convention on the Rights of the Child Adopted and opened for signature, ratification and accession by General Assembly resolution 44/25 of 20 November 1989 entry into force 2 September 1990, in accordance with article 49

1. "State Parties recognize the right of the child to be protected from economic exploitation and from performing any work that is likely to be hazardous or to interfere with the child's education, to be harmful to the child's health or physical, mental, spiritual, moral, or social development".
2. "State Parties shall take legislative, administrative, social and educational measures to ensure the implementation of the present Article. To this end, having regard to the relevant provision of other international instruments State Parties shall in particular".
 - (a) "Provide for minimum age or minimum age for admission to employment".
 - (b) "Provide for appropriate regulation of the hours and condition of employment".
 - (c) "Provide for appropriate penalties or other sanctions to ensure the effective enforcement".

Article 34

"State parties undertake to protect the child from all forms of sexual exploitation and abuse. For there are many purpose. State parties shall in particular take all appropriate national bilateral and multilateral measures to prevent;

- (a) "The inducement or coercion of a child to engage in any unlawful sexual activity;
- (b) "The exploitative use of children in prostitution or other unlawful sexual activity;
- (c) "The exploitative use of children in pornographic performance and materials".

Article 35

"State parties shall take all appropriate, national, bilateral and multilateral measures to prevent the abduction of, the sale of or traffic in children for any purpose or in any form".

Article 36

"State parties shall protect the child against all other forms of exploitation prejudicial to any aspect of the child welfare".

Optional protocol to the Rights of the Child on the sale of children, Child Prostitution and pornography 2000

The Protocol to the Rights of the child on the sale of children, child Prostitution and Pornography States parties would be guarantees to protection, trafficking in children

to close the States governments and rehabilitations available in children.²⁰

Article 1 “States Parties shall prohibit the sale of children, child prostitution and child pornography as provided for by the present Protocol”.

Article 2 “For the purposes of the present Protocol”;

(a) Sale of children means any act or transaction whereby a child is transferred by any person or group of persons to another for remuneration or any other consideration;

(b) Child prostitution means the use of a child in sexual activities for remuneration or any other form of consideration;

(c) Child pornography means any representation, by whatever means, of a child engaged in real or simulated explicit sexual activities or any representation of the sexual parts of a child for primarily sexual purposes.

Article 3 “Each State Party shall ensure that, as a minimum, the following acts and activities are fully covered under its criminal or penal law, whether such offences are committed domestically or transnational or on an individual or organized basis”;

(a) In the context of sale of children as defined in article 2:

(i) Offering, delivering or accepting, by whatever means, a child for the purpose of:

- a. Sexual exploitation of the child;
- b. Transfer of organs of the child for profit;
- c. Engagement of the child in forced labour;

(ii) Improperly inducing consent, as an intermediary, for the adoption of a child in violation of applicable international legal instruments on adoption;

(b) Offering, obtaining, procuring or providing a child for child prostitution, as defined in article 2;

(c) Producing, distributing, disseminating, importing, exporting, offering, selling or

possessing for the above purposes child pornography as defined in article 2.

2. Subject to the provisions of the national law of a State Party, the same shall apply to an attempt to commit any of the said acts and to complicity or participation in any of the said acts.

3. Each State Party shall make such offences punishable by appropriate penalties that take into account their grave nature.

4. Subject to the provisions of its national law, each State Party shall take measures, where appropriate, to establish the liability of legal persons for offences established in paragraph 1 of the present article. Subject to the legal principles of the State Party, such liability of legal persons may be criminal, civil or administrative.

5. States Parties shall take all appropriate legal and administrative measures to ensure that all persons involved in the adoption of a child act in conformity with applicable international legal instruments.²¹

National Charter for Children 2013

National Charter for children 2013 adopted the state government to insure the children human rights. Every child has the right to life, liberty, survival, protection and participation education and development goes beyond physical existence. Every child has an equal protection and rights and no discrimination against on grounds of religion, sex, color, caste, race, place of birth, class, language, and disability social, economic or any other status. Ensure the best interest of the children every form like abuse, exploitations.²²

Role of Judiciary: - The judiciary discusses and judgment of the cases time to time and protected the child rights of Indian judiciary. The Indian judiciary will be proved the protection of every person rights. They are exploitation of and violation rights to protect every person include children. The court protects child labour issues. The court will be decided the exploitation of rights of child labour. There are court to direction and decided the cases from time to time. Indian judiciary is every person to protect of violation of rights. Every child is a gift of God-a gift must be

²⁰

<https://www.ohchr.org/en/professionalinterest/pages/opscrc.aspx>-Optional Protocol to the Convention on the Rights of the Child on the sale of children, child prostitution and child pornography **Adopted and opened for signature, ratification and accession by General Assembly resolution A/RES/54/263 of 25 May 2000 entered into force on 18 January 2002**

²¹ . ibid

²² . https://www.nhp.gov.in/national-charter-for-children-2013_pg

nurtured with care and affection, with in the family and society. But unfortunately due to socio-economic and cultural problems, the code of child centeredness was replaced by neglect, abuse and deprivation particularly in the poverty affected sections of the society.²³

People union for Democratic Rights v. Union of India this case is the famous name of Asian worker case. The Supreme Court decided the case of child labour below the age of 14 years prohibited employment in contractive activities and hazardous work. Article 24 of the constitution Justice P.N Bhagvathi and Justice Bahrul held that each other ILO convention no.59 not an even enforces. They have prohibited hazardous work.

Bandhua Mukti Morcha v. Union of India & others Justice Bhagvathi say that Government includes State Government that is the problem to need attention. The Government to takes steps and adopts measures to ensure social justice. The government does not ignore the exploitation of human being to include bonded child labour.

M.C Mehta v Tamil Nadu & others the court said that Justice Kuldip Singh and B.L Hansaria, every child labour under the Act of child labour legislation violation his must be punished. S.B Majumdar analyzed the child labour rehabilitation very must of the present time, and child labour condition is heinous. So every employer enforces the high compensation violation of the Act. There are compensation Rs. 20,000 imposed of employer and deposits the adequate "Child labour Rehabilitation-cum Welfare Fund. There is a provision under sec 17 enforce Appointment of the inspector.²⁴

State of Madhya Pradesh v. Pradesh Bhartiya, the doctrine of "equal pay for equal work" is implicit in the doctrine of equality enshrined in Article 14, and flows from it. The rule is as much a part of article 14, as it of Article 16(1). The doctrine is also stated in Article 39(d), a directive principle, which ordains the State to direct its policy towards

securing equal pay for equal work for both men and women.

The Court has enunciated the doctrine follows, "The doctrine of equal work for equal pay would apply on the premise of similar work but it does not mean that there should be complete identity in all respects. If the two classes of persons do some work under the same employer, with similar responsibility, under similar working conditions, the doctrine of "equal work equal pay", would apply and it would not be open to the State to discriminate one class with the other in paying salary."²⁵

Salal Hydel Project v. J. & K. by Bhagwati J. for himself and Pathak and A. N Sen. JJ. Bhagwati J. observed that no doubt economic conditions led children to work in order to supplement the family income. However, the prohibition contained in Article 24 against employment of child labour was restricted only to factories, mines and other hazardous employment. Since construction work had been held in the Asiad Workers Case as being hazardous, any child under 14 could not be employed in construction work.²⁶

Vishal Jeet vs. Union of India the Supreme Court has directed the State Government to instruct their law enforcing authorities to take action under the law to eradicate child prostitution.²⁷

The Court urged the setting up of remand and juvenile homes for children in jails. In **Sheela Barse v Secretary Children Aid Society** the Supreme Court came forward to protect the rights of the children in the observation homes.²⁸

Sakshi v Union of India

In this Public Interest Litigation matter, the Supreme Court of India asked the Law Commission to consider certain important issues regarding sexual abuse of children submitted by the petitioner and the feasibility of amendment to 375 and 376 IPC.²⁹

²³. Shukla, Narendra "child labour in India", sarup publishers pvt ltd, New Delhi, p. 131

²⁴. Dr. Gulab Rai and Mukesh Kumar, 'Child labour in India: Role of Judiciary', Vol. XVI, Number 2, Education Times, APH Publishing Corporation, p. 15

²⁵. . Seervai, H.M., constitutional law of India, edi. VI, vol. 2, pub. Universal law publishing co. pvt. Ltd. New Delhi, pp. 980 & 981 .

²⁶. supra note 1335

²⁷. supra note 1241

²⁸. 1984 SC 469

²⁹. AIR 2004 SCR 723

Conclusion/ Suggestions

Children exploitation every ware and every place, this chain break is very important so they are depend on the growth of our country. There are looks at working children in place of roadside, they are very weak and poor family belong but employer this matter use in our benefit, low wage pay and heavy benefit increase. These types are employer and any working place is just prohibited, heavy fine imposed this times and government ban this working and destroy work place. Judiciary this

types matter in fast track court look at this matter and as possible minimum time consume and judgments. The Government time to time inspection in every work place and they are involving person black list working place. State government there appointment officer breach of trust in our duty they are suspend just know. Government's advertisement in child labour prohibited and child rehabilitations centers open, training companion, and pay some of money.

CONTEMPORARY RELEVANCE OF ECONOMIC PHILOSOPHY OF JAYAPRAKASH NARAYAN IN GANDHIAN FRAMEWORK: REFLECTION FROM “TOTAL REVOLUTION”*IN HISTORICAL CONTEXT

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ABSTRACT

What is difference between Marxism and Gandhism? Many scholars of social science can give the answer of this question in a single line that “just excludes violence from Marxism it will become Gandhism”. Is it very simplistic way to define the difference between ideologies of two great personalities of 20th century world i.e. Marx and Gandhi? And in other sense, Is it justifiable to discuss on the difference of two ideologies. Theoretical scholars use theological methods and historical enquiry of research to find out the answers of such kind of question but one person who adopted different deviated method to explain this difference was not a scholar or theoretician but was a practical idealistic i.e. Jayaprakash Narayan. Earlier he lived and practised his political constructive work based on Marxian principles and later he turned towards Gandhian philosophy of social transformation. Can Jayaprakash Narayan or popularly known as “Jannayak ” be regarded as Gandhian political economists? As in this paper, discussion and discourse is primarily based on the paradigms of Gandhian political economy. In the initial stage of our enquiry and rediscovery of thoughts and ideas of J.P , the answer is no but at some context this paper will explore his ideas and practical constructive deeds in the framework of Gandhian philosophy. In the next segment major discussion in this paper will be based on the analysis of his views on core concepts of economics as well as on some interdisciplinary perspective like electoral reforms, socialism, and village decentralization, non violent social order, functioning of democracy, corruption, economic equality, nationalization, social movements and economic policy and cite its relevancy.

Keywords: Gandhian political economy, Idea of total revolution, Relevance of Gandhi Jayaprakash Narayan on various socio-economic issues

Introduction

Idea of Total Revolution:

Total revolution demands changes in social, political and economic structure. In the discourse of Gandhian political economy, total revolution demands for change in property relation and mode of production. In the sphere of total revolution political movements is not only related to reestablishment and reconstruction of political institutions but also focus on the functioning of democratic institutions. Later this whole phenomenon of political movements converts in to new socio economic order. As Gandhi stressed out in Hind Swaraj for change in every prospectus of civilization and economic behaviour of individual in the same sense in his remarkable idea of Total revolution, J.P looked change in economic structure along with political structure, he said that “*The total revolution which is to be brought about peaceful means, will embrace all aspects of individual and social life ..The economy and polity will have*

to go through a revolutionary change, In short society as a whole or in totality of all its social relations, institution and processes will have to undergo a change. I am obviously speaking of the change that will improve the quality of life and make man more human”ⁱ

J P was having firm belief on Gandhian idea of social reconstruction. Social reconstruction requires non violent method. In Gandhian political economy, any social change must be based on peace generating action oriented programme. Needless to mention that, economy and society cannot function on the basis of violent revolution. J P through his conception of total revolution provoked about non –violent social order. The ultimate aim of any non revolution is to achieve harmonic socio-economic development. Revolution brings changes and changes induce towards establishment of good social order. In his words “*I visualize this movement as a total revolution that will bring about fundamental changes in social, economic, and political cultural, education and moral spheres. A new*

society totally different from the existing one and with a minimum of undesirable features should be emerged out of It. Exploitation will disappear or be reduced to bare minimum. Social evils cease to exist and justice will prevail in this new order” (Narayan, 1992) ⁱⁱ.

In nut shell, Like Gandhi’s remarkable work “Hind Swaraj”, J P’s idea of total revolution demands revolutionary changes in social and economic structure of India. One is related to economic vision of father of nation, primarily written in pre independence period, another provide insight revolutionary ideas to utilization of freedom with sense of economic and political responsibility in independent India.

Socialism

In the context of socialistic ideas, J. P adopted different path. Earlier he was in favour of Marxian perspective but later he turned on Gandhian principles. He was not in the favour of adopting western socialism in Indian context. He criticized Nehru’s view and action based on socialistic planning ideology. He demanded socialism not only in the context of private property matters but also for public sector. According to him cause behind India’s political and economic turmoil was due to the existence of corrupt socialism. In his speeches during 70s, he quoted “*The economic fabric of the country is being destroyed in the name of socialism and problems of the poor remain still unsolvedI call the system under which this happen corrupt socialismⁱⁱⁱ*” He also raised his voice against the socialistic pattern of wealth distribution and profit sharing. He viewed inequality as inherent part of corrupt socialism. He viewed and linked the socialism to gospel of non possession and decentralized power. He also viewed Indian Nehruvian socialism as root cause behind administrative mismanagement and poor efficiency in movement sector units which is directly centralized through corrupt governance and government. In his words “*Socialism could have been had very cheaply if it meant only the taking over of industries, the railways etc by the government. Whatever the latter does it done in name of socialism but the outcome is always the opposite of that which was expected the impact on people is also unfavourable.....Any profit that accrues*

ought to be equitably distributed.Here in the public sector we do not have any profits and the questions of distribution do not arise at all. And how could it, when we have top administrators living in high style”. ^{iv}In crux, his conception of socialism influenced by basic elements of Gandhian philosophy like non-possession, equality and decentralized power.

Economic inequality and Sarvodaya

J.P had raised many questions on the issue of economic inequality. He was from the Gandhian school of thought so he looked the economic equality as an important parameter of non-violent social order and for him inequality is one kind of violence. Removal of economic inequality is possible through economic revolution. Economic revolution is an integral part of total revolution. J P was aware about the Indian social problems and economic condition of masses so he launched seven different revolutions which combined one prospect of Integral revolution. Economic, political and social revolutions contribute in reconstruction of nation and this reconstruction must be start from bottom up approach. J P believed that objective of achieving economic equality is not possible without decentralized democracy or participatory democracy. Like Gandhi, he visualized ideal society in the form of sarvodaya that mean welfare for all. He stated that “*The main problem of the reconstruction of this country is the shape of the things comes in to villages. These latter are already divided in to exploiter and the exploited, the rich and poor. The main task is no simply one of doing away with differences in a superficial manner but of establishing social and economic equality” ^v*

To him, sarvodaya cannot be achieved without the transformation of socialism. He has written on the aspects of true socialism and Gandhian social philosophy. Gandhian social philosophy was an important of his integral or total revolution. He emphasized on non violent methods to transform socialism in to Gandhian sarvodaya society. His conception of equality and justice is not beyond the circle of Gandhian idea of non violent social order. His sarvodaya society involves all Gandhian constructive programmes and harmonic social relationship. His conception of sarvodaya

throws light on development with dignity and decentralized development. In his conception of equality, development process must be in the directions of human rights and political rights. He gave place electoral reforms in his conception of sarvodaya. It is instructive to note that J P never used the concept of non violent economic order and sustainable development in his writings and discourse. However one can discern many ideas of inclusive development through his analysis. In his words *“My regret is that I did not reach this point in my life’s Journey while Gandhi ji was still in our midst. However, some years back it became clear to me that socialism as we understand it today cannot take mankind to the sublime goals of freedom, equality, brotherhood and peace. Socialism, no doubt, gives promise to bring mankind closer to those goals than any other competing social philosophy. But I am persuaded that unless socialism is transformed into Sarvodaya, those goals would remain beyond its reach; and just as we had to taste the ashes of independence, so future generations may have to taste the ashes of socialism”* (Narayan, 1998)^{vi} It can be said that JP had visionary power to see the future economic problems of global level. Peace, political rights and justice are now important part of millennium development goals (MDGs). To achieve MDGs especially in the context of peace and political rights, J P demanded for structural change in Indian polity and electoral reforms is important paradigm of this structural change. In other words in the economic vision of J.P development without electoral reforms and structural change in democratic setup is not sustainable development. In the J.P conception of sustainable development, removal of economic inequality is a goal and sarvodaya is a final structure of social order.

He provided an alternative to socialism and his alternative idea comes in the circle of total revolution. He found no difference between his conception of total revolution and Gandhian sarvodaya. He said that *“There is hardly any difference between sarvodaya and Total revolution. If there is any then sarvodaya is goal and total revolution the means, Total revolution is basic change in all aspects of life. There cannot be sarvodaya without this”*^{vii}

Democratic values and electoral reforms

J P had written many articles on the issue of democratic values. He was against the centralized democracy system. In his view democratic values become weak when electoral set up of the country is based on corrupt power politics. He wanted revolutionary changes in electoral set up of country. He was agreeing Gandhi on the issue of parliamentary democracy. In his conception, true democracy lies in villages. He raised his voice against party dominant democratic system. He was not in favour of electoral democracy at village level also. He warned political parties not to participate in panchayat elections. He said that *“If Panchayat raj is aimed at building “communitarian” society, than participation by political Parties in elections unnecessary. I disagree with view that Panchayat raj is an application of parliamentary democracy to rural areas”* (Narayan, 1962)^{viii}. He demanded for large scale electoral reforms for the betterment of nation as well as society. He was standing with Gandhian idea of village swaraj and decentralization. He supported Vinoba’s land donation movement and idea of lokniti. He believed in social movement as a mean to wake up the ineffective and corrupt government. During his prison days he wrote about defective electoral system in contemporary India. He said that *“The existing electoral laws and system are exceedingly defective and sooner they are changed the better it will be our country and our democratic system”* (Narayan, 1992)^{ix}. In the context of establishing participatory democracy, he had different opinion and he called for resignation of nonperformers elective representatives. In other words, he demanded for right to reject the nonperforming Member of Parliament. In his view functioning of democracy depends on functioning of electoral system and electoral reforms significantly play an important role in economic growth. He had opinion that democracy without strong decentralized electoral infrastructure is useless. He said that *“If we lose faith in representative we had elected earlier, we will ask them to resign so that we can elect new ones. Is this against democracy”*^x. It is obvious from his wordings that democracy is sustainable when people having faith on democratic values and

their representatives. His aim was to create a non violent social order through strong participatory democratic system led by citizen of this country. In his words, *“The Janta Government should be based on the principle of participatory democracy. All adult citizens both men and women, should directly participate in the taking of all important decisions far as practicable”* (Narayan, 1992)^{xi}

Satyagarha in social movements

Loknaya Jayaprakash Narayan supported non violent social movements. According to him, social movements cannot be regarded as unconstitutional. He favoured use of Satayagarh as passive resistance technique not only for individual but also for government and democratic institutions also. Satayagarh demands for change in evil practices. Social transformation depends on Satayagarha and social movements work as mean to do this non violent transformation. He was against the any kind of violent activity and behaviour in people's movements. Even demand of public is right; violence has no space in voices of people. He quoted that *“Social movements neither unconstitutional nor anti democratic. What should the people do when democratic institutions fail to represent the aspirations of the people and fail to tackle the hard ship that grinds the people down”* (Narayan, 1992)^{xii}. He admired the way of non violence for social reconstruction such as Bhoodan and gramdan and used non violent revolution during emergency period of 1975-1977 to save democratic values. He was with Vinoba on the issue of land reforms. He considered Bhoodan as a great non social violent movement. He believed in Gandhian constructive work to achieve the holistic objectives of Sarvodaya society. He was agreeing Vinoba on concept of Jai Jagat and supported Gandhi's concept of global peace .He Said that *“The main objective of the creative work of Mahatma Gandhi was to establish a nonviolent society, a violence free world”* (Narayan,2001)^{xiii}. Social movements and peaceful non cooperative action help nation to make harmonic society. But In this connection, he rejected the western idea of democracy and Marxian methods of transformation. He was in favour of alternative

economic, political and social methodology to develop nation.

Decentralized politics and Village Swaraj

Gandhian concept of gram swaraj is base of Jayaprakash Narayan's political and economic philosophy. In his view village swaraj is a reflection of Vinoba's lok niti and conception of political decentralization. He was against the politicization of village level democracy. He wanted to establish stronger democratic values through bottom up approach of decision making. He worried for poor and last people. He praised Ruskin and Gandhi's perception towards development of marginalized and excluded person. To him, centralized politics or elite politics lead exclusionary behaviour in political sphere. Inequality and poverty is a result of power politics. He demanded for stronger moral values in political culture of nation. He held view that *“It will be lokniti or the people's politics, not “Rajniti” or the elitist politics. This new politics will not be imposed from the top, but will be built from below. The initiative for it will come not from Delhi but from the villages”* (Narayan, 1992)^{xiv}

Jayaprakash Narayan believed that the rural and village development should be the base of development of the Indian economy. He said that Gandhi ji wanted to develop every village as a self dependent agricultural industrial unit. According to him, *“Gandhi ji wanted that in the democracy, the power should not be in the hands of some selected people, but the power should be in hands of all people. It is possible only when gramraj will be the base of democracy”* (Narayan, 2001)^{xv} In this connection, he also discussed role and structure of panchayti raj in India. He was an active researcher and writer on issues of panchayati raj. He warned villagers about party rivalries and political violence in panchayti raj. He stated that *“The representative political institutions ...should be so constituted as to represent not individuals, but their communities; beginning with the primary (or village) community and going outward to embrace wider and wider”*^{xvi} .He wanted system of decentralized governance based on Gandhian philosophy. According to him, *“I myself hoped that the Panchayti Raj might*

“flower in to a living instrument of a true kind of people’s democracy, and as such, I gave it my fullest support and cooperation” (Narayan, 1978)^{xvii}. He rejected the idea of parliamentary democracy at bottom level. He gave opinion that “If Panchayat raj is aimed at building “communitarian” society, than participation by political Parties in elections unnecessary. I disagree with view that Panchayat raj is an application of parliamentary democracy to rural areas” (Narayan, 1962).^{xviii} While interpreting the Gandhian idea of swaraj, he seems to be stand with Gandhi’s perception towards democracy. In present scenario when violence is now very common thing during panchayat elections and village level political rivalries, one must remember the wordings and ideology of Lok Nayak.

In this paper we have discussed the central idea of J.P’s philosophy of and testing its relevance in the context of present scenario. His idea of total revolution is mix-up with many Gandhian ideas and mainly related to some political economy principles. After analyzing his an thought process, we can conclude that even in the 21st century , world needs an integral revolution in the form of socio, economic and political reforms . Sarvodaya, Trusteeship, and proper functioning of decentralized machinery cannot be ignored while making a development plans for new India. In few areas Gandhian philosophy may be irrelevant but in the context of political and economic reforms , the J.P’s idea of total revolution hold satygarh in its inner sphere and in the globalized world to overcome the violence we need this Gandhian Satyagraha.

Conclusion

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- ^x Ibid, p.48.
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DEPENDENCE OF SOLUTION ION CONTENT ON GLUTATHIONE OUTPUT OF THYMOCYTES UNDER HYPOOSMOTIC STRESS

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ABSTRACT

Glutathione is important in many cellular processes, its concentration inside and outside the cell is always constant. Intracellular glutathione concentrations are controlled by two mechanisms: the rate of synthesis and the rate of excretion from the cell. To date, it has been studied that a number of proteins are responsible for the release of glutathione from mammalian cells, and it has been found that glutathione transporters have specific properties and perform a number of functions. All types of ABCC / MRP membrane proteins mediate GSH transport and homeostasis. MRP proteins not only mediate GSH release, but also transport GSH oxidation products (glutathione disulfide (GSSG), metal complexes of glutathione), as well as other glutathione conjugates. In our experiments, we studied the effect of solution composition on glutathione release from the cell. Therefore, we replaced the sodium ion with NMDG (N-methyl-D-glucamine) and potassium ion, sodium chloride with sodium glutamate, and used BAPTA solution to determine the effect of calcium on glutathione output in the intracellular environment.

Keywords: glutathione; rat thymocyte; cells; hypoosmotic stress

Introduction

Glutathione is a universal, important antioxidant in living organisms and is involved in many biological processes. It is present in all organs, including the liver, kidneys, pancreas, the cornea and pearl of the eye, in higher concentrations than other organs. The liver cell contains relatively more glutathione (around 10 mM), which is due to the high consumption of molecules in the detoxification of xenobiotics, where xenobiotics are released from cells in the form of glutathione conjugates using specific adenosine triphosphatase. [2]. Small amounts of glutathione can also be found in the intercellular environment. The concentration of glutathione in the interstitial fluid is a few μM , while in plasma this amount is usually twice as high. At the same time, the concentration of glutathione in the thin layer of fluid covering the lung epithelium is about 400 μM , which is twice as much as in normal interstitium. This is caused by intense gas exchange in the surface layer of the lung epithelium, resulting in strong oxidative stress. Therefore, the epithelial cells of the alveoli secrete glutathione into the extracellular environment, thereby protecting themselves from free radical oxidation [1].

Glutathione has important antiviral properties in the immune system. It is a powerful agent against cancer. It is involved in the detoxification process in the liver. Glutathione is an antioxidant that protects proteins and maintains cellular oxidation-reduction potential, which is also important in nucleic acid synthesis and DNA construction [3]. Glutathione slows down the aging process. It protects the integrity of red blood cells in the blood, maintains the normal function of the brain, regulates the functional activity of lymphocytes in the body's immune response. Basically, reversible glutathione is found in many plants, microorganisms, and various living cells. The amount in the body is higher than in other organic substances and the concentration in cytosol is 1-2 mM. Glutathione regenerates and isomerizes disulfide bonds, affects the activity of enzymes and proteins, is a reserve of cysteine in the body [4]. An important antioxidant property of glutathione is reflected in its participation in physiological processes in the body. The antioxidant function of the digestive system is explained by the consideration of the pathways of glutathione entering the gastrointestinal tract through endogenous and nutrients, where it interacts with the mucous membrane of the

small intestine and is protected from free radical oxidation products.

The most important organ in mammals that synthesizes GSH is the liver. The liver synthesizes 90% glutathione for physiological and biochemical processes in the body. During starvation, the amount of glutathione in the liver is reduced by 2 times and returns to its normal state after eating. The formation of glutathione depends on the amount of cysteine in the food. The transition of glutathione from the liver to blood plasma and bile is stimulated by glycogen and vasopressin. When glutathione synthesis is inhibited, the amount in the liver, blood plasma, and the body as a whole decreases.

Skeletal muscles retain glutathione in plasma by reducing the activity of the enzyme gamma-glutamyl transpeptidase, and in the liver and kidneys increase the activity of gamma-glutamyl transpeptidase due to a decrease in the level of glutathione in plasma [8]. Glutathione is formed as a result of the consumption of two ATP molecules at two enzymatic stages of glutamic acid, cysteine and glycine. Glutathione is involved in many biological processes, including protein and DNA synthesis, molecular transport, and redox signaling. Of particular importance is the ability of glutathione to return free radicals and active forms of oxygen [6]. It is an endogenous antioxidant that maintains oxidant levels in the intracellular environment. Glutathione is oxidized in the presence of the enzyme glutathione peroxidase during oxidation with active compounds of oxygen to form GSSH and water. During the reduction process, glutathione reductase produces glutathione from glutathione disulfide. This process maintains the active compounds of oxygen at the physiological level. Therefore, glutathione plays an important role in the cell redox system. GSH / GSSH levels are an indicator of the state of cell oxidation reduction [5].

It was found that 50-60% of glutathione in the liver is transported through bile. Glutathione in bile fluid is an important reducer in the metabolic changes of peroxidated fats in the small intestine [3]. The antioxidant system of glutathione protects the cell from oxidative stress. This protection is mainly mediated by 3 different enzymatic pathways. These are

superoxide dismutase, catalase and glutathione peroxidase. In this case, superoxide radicals, hydrogen peroxide and organic hydroperoxides are returned.

Materials and Methods

Solutions and chemicals. The normal isotonic Ringer solution contained (in mM): 135 NaCl, 5 KCl, 2 CaCl₂, 1 MgCl₂, 5 Na-HEPES, 6 HEPES, and 5 glucose (pH 7.4, 290 mosmol/kg-H₂O). Hypotonic solutions were prepared by mixing the normal Ringer solution with a HEPES-buffer solution containing (in mM): 5 KCl, 2 CaCl₂, 1 MgCl₂, 5 Na-HEPES, 6 HEPES, and 5 glucose (pH 7.4, 38 mosmol/kg-H₂O). Nicotinamide adenine dinucleotide phosphate (NADPH) and glutathione reductase were from Oriental Yeast (Tokyo, Japan). Other drugs were stored as 1000-times stocks in DMSO and added to the experimental solution immediately before use. DMSO did not have any effect, when added alone at a concentration of $\leq 0.1\%$. Osmolality of all solutions was measured using a freezing-point depression osmometer (OM802: Vogel, Kevelaer, Germany).

Cells. Cell isolation was performed as described previously [24–26]. Briefly, the 6–8 weeks old rats were anaesthetized with halothane or diethyl ether and painlessly euthanized by cervical dislocation; the thymi were dissected and carefully washed with an ice-cold Ringer solution. The thymi were then minced using fine forceps and passed through a 100 mm-nylon mesh. The suspension was centrifuged at 1000 g for 5 min, the pellet was washed two times with the normal Ringer solution and resuspended in this medium at a cell density of $(1-15) \times 10^8$ cells/ml. The cell suspension was kept on ice for ≤ 5 h and contained no more than 5% of damaged cells as assayed by trypan blue exclusion.

Glutathione release assay. The bulk extracellular GSH concentration was measured by an enzymatic recycling method by reduction of 5,5'-dithiobis-2-nitrobenzoic acid (DTNB, Ellmans reagent) in yellow-colored 5-thio-2-nitrobenzoic acid (TNB) as described elsewhere [7-8]. Briefly, the cell suspension was diluted 1:10 with the normal or hypotonic Ringer solution and incubated at 25 °C (if not indicated specifically). In some experiments,

the cells were exposed to the normal Ringer solution supplemented with 500 mM mannitol. At the specified time points, the cell suspension was centrifuged at 1000 g for 10 min, and 125 ml aliquots of the supernatants were collected for a photometric assay. The aliquots were mixed with 375 ml of a cocktail containing (in mM): 133 MES (2-(morpholino) ethanesulphonic acid), 33 KH₂PO₄, 0.66 EDTA, 0.11 NADPH, and 0.2 DTNB (pH 6.0). The cocktail was prepared on the day of experiment and was additionally supplemented with 0.25 U/ml glutathione reductase (EC 1.6.4.2) immediately before use. The mixture was incubated in dark for 25 min at room temperature and the optical density was measured at 412 nm. The GSH concentration was calculated from a standard calibration curve obtained using the same procedure performed with pure GSH in a range from 0 to 16 mM. When required, drugs were added to the normal or hypotonic solutions to give the final concentrations as indicated. The drugs at the concentrations employed in the present study had no significant effect on the assay reaction. In some experiments, treatment with a GSH scavenger, 2- vinylpyridine (2-VP), was performed with supernatants for 60 min at room temperature. Since at the used concentration (30 mM), 2-VP had a mild inhibiting effect on the enzymatic reaction, the error caused by this effect was accounted for by calibration using oxidized glutathione (GSSG) as a substrate.

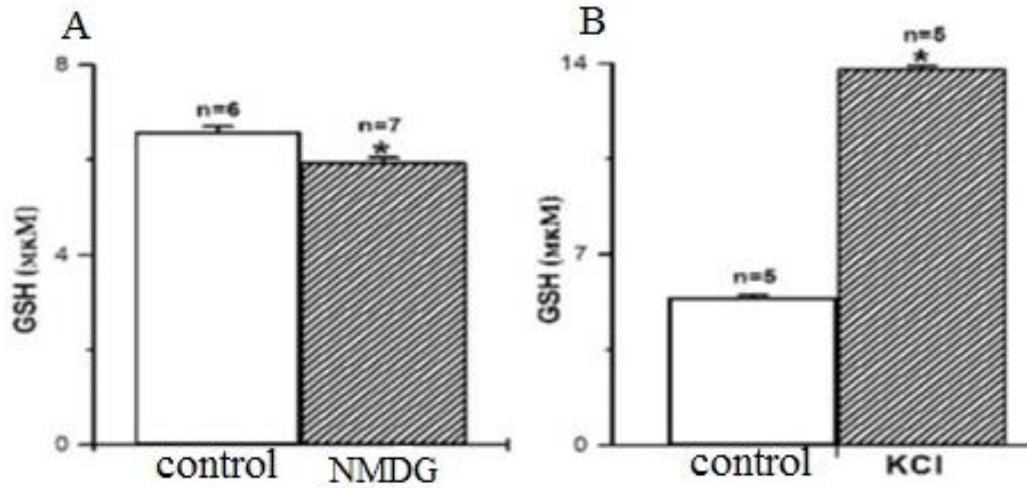
Results

Glutathione is important in many cellular processes, its concentration inside and outside the cell is always constant. Intracellular glutathione concentrations are controlled by two mechanisms: the rate of synthesis and the rate of excretion from the cell. To date, it has been studied that a number of proteins are responsible for the release of glutathione from mammalian cells, and it has been found that glutathione transporters have specific properties and perform a number of functions.

All types of ABCC / MRP membrane proteins mediate GSH transport and homeostasis. MRP proteins not only mediate GSH release, but also transport GSH oxidation products (glutathione disulfide (GSSG), metal complexes of glutathione), as well as other glutathione conjugates. Although the functions of glutathione in the intracellular environment are now clear, its pathways out of the cell have not been determined. Therefore, in our experiments, we studied the effect of ions on the process of glutathione exit from the cell. In our experiments, we replaced the sodium ion in the solution with NMDG (N-methyl-D-glucamine) and the potassium ion. While $6.58 \pm 0.12 \mu\text{M}$ glutathione was isolated in the control, a $5.95 \pm 0.09 \mu\text{M}$ glutathione yield was observed in the NMDG solution. It can be seen that NMDG reduces glutathione release from the cell (Fig. 1A), and this decrease indicates the involvement of a sodium-dependent transport mechanism in glutathione output. We continued the experiments by replacing the sodium ion in the solution with the potassium ion. At the same time, $7.43 \pm 0.12 \mu\text{M}$ glutathione was observed in 100 ml / ml cell for 20 min under control, and $15.01 \pm 0.18 \mu\text{M}$ in potassium solution (Fig. 1B). The result obtained differs from the above result in the membrane potential in a high-potassium environment because the intracellular negative electrical potential must help glutathione, which has a negative charge, to leave the cell. Presumably, swelling of thymocytes at high concentrations of potassium (as described in this literature) may have led to an increase in glutathione output.

Effect of glutathione release from thymocyte cells under hypoosmotic stress under exchange of sodium ion (A) NMDG and (B) potassium ion in solution. The number of cells is 100 million / ml. On the ordinate axis - the glutathione output from the cell is expressed in μM , on the abscissa axis - the experimental groups are represented. Relative to control in all cases.

Figure 1:



In the next phase of our experiments, we used sodium glutamate instead of sodium chloride in the solution to determine the role of the chloride ion in the solution. In this experiment, a glutathione output of $7.1 \pm 0.22 \mu\text{M}$ was observed from a 100 ml / ml cell for

20 min under control, and $7.9 \pm 0.19 \mu\text{M}$ from glutamate solution (Figure 2). The fact that the amount of glutathione is not reduced, and, conversely, slightly increased, indicates that the mechanism of glutathione release is not related to the process of chlorine metabolism.

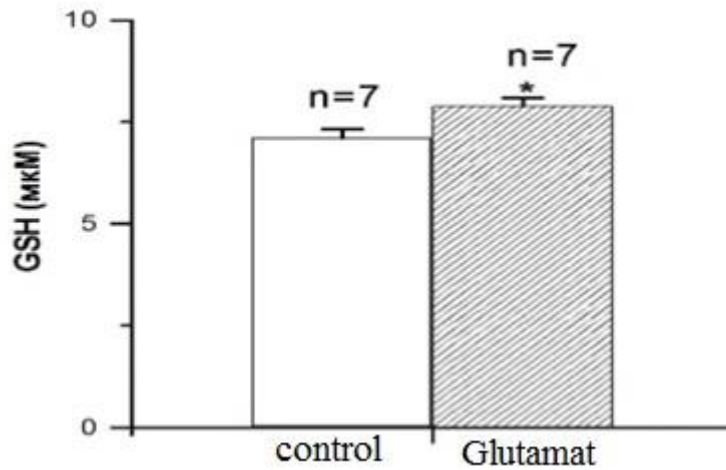


Figure 2. The effect of glutathione release from thymocyte cells under hypoosmotic stress under the exchange of chloride ion in solution for glutamate.

The number of cells is 100 million / ml. On the ordinate axis - the glutathione output from the cell is expressed in mkM, on the abscissa axis - the experimental groups are represented. In all cases, $P < 0.05$ ($n = 7$) relative to the control.

To determine the role of the calcium ion in the glutathione release process, we removed the calcium ion from the solution. According to the results obtained, $6.03 \pm 0.25 \mu\text{M}$ glutathione was released in the control, while

$7.17 \pm 0.13 \mu\text{M}$ glutathione was released in the calcium-free environment. In the next part of our experiment, we used a $100 \mu\text{M}$ BAPTA solution to determine the effect of calcium in the intracellular environment on glutathione output. BAPTA binds intracellular calcium and prevents it from participating in the process (Figure 3). Under these conditions, glutathione release did not change significantly. The result obtained suggests that the participation of calcium ions in the

mechanism of glutathione release under hypoosmotic stress is not significant.

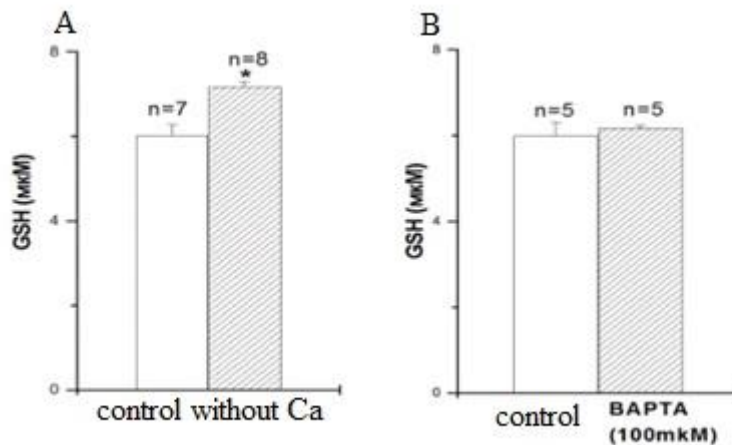


Figure 3. The effect of removal of calcium ions from the solution on the release of glutathione from thymocyte cells under conditions of hypoosmotic stress and chelation with the help of BAPTA complex.

The number of cells is 100 million/ml. On the ordinate axis - the glutathione output from the cell is expressed in mkM, on the abscissa axis -

the experimental groups are represented. In all cases, $P < 0.05$ ($n = 7$) relative to the control.

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THEORETICAL BASIS OF ESTABLISHMENT STATE BODIES IN LOCAL GOVERNMENT

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ABSTRACT

This scientific article describes the process of public administration through local government bodies, its features. The essence of local government, theoretical approaches of researchers, the concepts of "self-government", "local government", "local government", "activities of local representative authorities" are scientifically classified.

Keywords: public administration, the principle of separation of powers, the institution of representation, local government.

Introduction

The efficacy of public administration depends on the conclusion of the decision, not on the decision made by them. This is confirmed by the statement of the President of Uzbekistan Sh. Mirziyoyev during his visitation to Namangan region on 19-20 February 2021, to the "Bunyodkor" mahalla in Namangan, that "the position in the mahalla is the face of every sector leader." In this regard, the head of state has repeatedly emphasized the viability of his decisions to local authorities. Execution of the decision made by each local executive body can also be assessed as a decision of the representative body. However, today in the practice of public administration in Uzbekistan there are many problems and uncertainties in this area due to the fact that the executive and representative powers are not completely separated from each other.

The Address of the President of the Republic of Uzbekistan Sh. Mirziyoyev to the Oliy Majlis on 29 December 2020[1] stressed the need to further improve the institutional framework of local executive bodies and representative offices. It was noted that local councils are working on the basis of the Law adopted in 1993, and this law does not meet modern requirements, and it is necessary to update it.

This means the need to fortify the role of local representative bodies in local government in the regions and to create a new system to increase its efficiency. From the point of view of the research topic, it is expedient to consider this issue, first of all, in

terms of the political and legal basis of the representative bodies of local government.

Analysis of the relevant literature

The first elements of important processes in public administration have been developed since ancient times. In the works of Plato, Aristotle, and Cicero, it is interpreted as a central and unified mechanism of governance as well as a process that is largely carried out by leaders. For example, the Greek philosopher Plato, in his book *The State*[2], acknowledged that the state came into being on the basis of human coexistence and mutual assistance. , - he says. Aristotle, one of the Greek thinkers after Plato, in his book *Politics*[3] saw the state as a form of interaction, emphasizing that it was a political organization with supreme power. He also emphasizes the need for citizens to be involved in all matters of state life, citing some of Plato's and Socrates' views on statehood, including the family, slavery, and common property, which is a form of communication. One of the representatives of the ancient Roman political doctrine, Cicero in his works *"On the State"* and *"On the Laws"*[4] raises issues of the principles of local self-government, the boundaries of power and the interests of the state. Like Plato, he believes that "the reason for the emergence of the state is the desire of people to live together." In our view, if the state was first formed as a result of the natural needs of the people, then it will begin to reflect its political attributes.

By the new era, such views have changed. It begins to represent an organization

with political power, performing all functions related to governance processes. In particular, the well-known thinker and politician T. Jefferson[5] argues that the right of all to participate in the formation and control of state power, no one can be deprived of this right. It is no coincidence that his political ideal was a democratic republican form of government that allowed the state to be governed and controlled by representatives elected by the people. It also states that all officials should be elected for a certain term and be under the control of the people. One of the classic representatives of political theory, J. Locke[6], opposes absolutism and supports the principle of separation of powers by limiting absolute power.

The ideologues of the bourgeois revolutions of the XVII-XVIII centuries - Montesquieu, Russo, Franklin, Jefferson - analyzed in detail the socio-political determinants of the process of interaction between the formation of a democratic state and local government. In the works of A. Smith, Diderot, and others, the concept of the actual formation of local government was developed as the basis of general governance. Including, J. Russo substantiates the contractual relationship between the supreme and local authorities in the settlements [7]. As a result, local authorities transfer some of their powers to higher authorities. According to him, freedom is guaranteed only when the whole nation participates in the legislation. Only when the state adheres to democratic principles can a person have political freedom instead of the natural freedom he has lost. The French thinker C. Montesquieu, studying the relationship between the political system and the type of social order, argues that an important role is played not by the form of government (monarchy, republic), but by the way of exercising power based on the rule of law. In *On the Spirit of Laws*, he emphasizes that the essence of governance is the expediency, value, and ethical guidance of laws. Among political thinkers, the theorist of democratic problems, the liberal A. Tocqueville[8] emphasizes the need to decentralize power. He said that the growing power of the state and its deeper penetration into the life of society would lead to an

increase in the dependence of individuals on the state, the destruction of local self-government, and eventually administrative centralization in its place. The existence of a democratic government means freedom, the absence of arbitrariness, and the exercise of power in accordance with the law.

This determines the safety of individuals. We also agree that some of the powers and functions of public administration should be distributed from top to bottom, strengthen the participation of citizens in government and society, and local representative institutions should have more powers in lower levels of government.

In political science, the issue of local government institutions of public administration is based on the experience of countries that have reached a high stage of democratization. This will allow a comparative study of the systems of organization of local government in developed foreign countries, to identify its existing forms, rules and principles. In considering the theoretical principles of local government, local government and self-government, Western scholars I. Bentham, H. Stimpfl, O. Roy, E. Harloff, H. Aldelfer, A. Gasser, S. Duncan, L. Tony[9] ideas are important. Their theoretical views and practical guidelines on the management process play an important role. However, these works mainly explore the role of local governments in public administration, which take the form of a federal structure, and their role in the decentralization process. Under market conditions, the degree of autonomy to perform these functions locally increases naturally and therefore implies the availability of independent resources to provide them. In countries with developed market economies, local governments play an important role. In particular, in the EU countries, the level of domestic expenditures averages 12% of GDP (3.5% in Romania, up to 33% in Denmark), while in Germany the expenditures of more than 9,000 communes (communities, cities and regions) account for 10% of GDP [10]. In Western Europe and the United States, local self-government has gradually taken shape as a result of citizen initiative. Its most effective forms were selected according to the requirements of life. New trends in the development of local

authorities by German researchers have emerged, such as reliance on internal resources, diversification, regional cooperation and strategic principles, the formation of innovation centers and the implementation of municipal marketing. The formation of local self-government in Russia took a different path: it was created in a short time by the decisions of state bodies.

Research methodology

During the research, data from foreign scientific works, scientific methods of studying management processes - generalization, systematic analysis, descriptive and other methods were used.

Analysis and results

In our country, one of the most painful problems is the need to radically change the activity of local government and increase their efficiency. It should be noted that for many years, these representative bodies have been led by governors, who are in fact the heads of local state authorities, as the most corrupt form of government. The issue was sharply criticized in 2017 by President Sh.M.Mirziyoev. Since then, there has been a debate on how to increase the efficiency of these representative bodies, the formation of their powers and role as an integral part of the legislature.

All over the world, local government is one of the most important institutions of a democratic society. But because some elements of self-government are specific to individual states, it has not been fully implemented in any one country. This is directly related to public administration activities. Management activity is a type of professional activity, the specificity of which is determined by its most common task - the organization of other people's activities to achieve common goals, based on the principles of hierarchy[11]. Therefore, it can be said that public administration activities are carried out at the upper, middle and lower (local) levels. In the course of our research, we will examine the management activities at the local level.

Local government is an integral part of general management activities, which is characterized by the following features. First,

local government has its own concept, which, as an institution of democracy and civil society, directs its powers to local government. Second, in the system of local government the following are considered as objects of management: local councils, the importance of the region as a socio-economic system and the socio-economic, political processes taking place in the local area. Third, the leading cadres of local government organizations and elected officials of local self-government bodies are considered as subjects of governance in this system. Thus, local government is complex in nature, it is diverse in its forms and consequences, socio-political phenomena. It has a major impact on social development, which in itself is influenced by political, socio-economic and other factors.

According to some representatives of the economic approach, the local government focuses its activities on meeting the needs of the population for various services, the development of the region, the creation of conditions for personal development[12]. In our view, local government will have its own characteristics as an integral part of social governance.

A distinctive feature of local government is the maximum and effective use of the socio-political potential of local councils based on human resources as a key factor of local areas. Local government is based on the mentality, traditions, spiritual and moral values of regional communities. At the same time, it is not correct to compare local councils with cooperatives or joint-stock companies, whose members have united to pursue common interests. Moreover, it is local government that can be seen as a fundamental principle of the exercise of power in society and the state. This, along with the principle of separation of powers, forms the basis of the system of governance in a democratic state governed by the rule of law.

Some researchers note the dual nature of the concept of "local government"[13]. The content of local government activities includes, on the one hand, issues related to the general interaction of local government with various entities operating in the territory of local self-government bodies, on the other hand, it depends on regulating economic relations for

municipal enterprises, institutions and organizations.

Another researcher divides local government management activities into two types, economic and socio-political[14]. The main type of economic activity of local public authorities is to direct the activities of enterprises and institutions located in the local area to the realization of public interests of citizens. Another feature is that local government is closely linked to self-government. Local councils monitor their specific role as a subject of local self-government. Therefore, not only the results in the economic sphere, but also other key areas: socio-cultural, political and ideological aspects are important as criteria for the effectiveness of their activities.

Local self-government is a logical continuation of intra-state self-government as a way of organizing the life of the population in a particular area. Due to its relative independence, it performs a number of functions that predetermine the content of social relations in the system of public administration at the local level. In this case, the government will have to focus directly on solving pressing social problems of a local nature. The adoption of this function by local governments will, first and foremost, help decentralize governance, excluding the concentration of power in a single system vertically. Decentralization cannot be imagined without the independence of local governments, the establishment of appropriate boundaries for the distribution of powers between authorities. Such decentralization implies the transfer of certain functions from higher levels of government to lower levels, but this is not seen as a way of organizing local self-government[15].

The concept of "self-government" does not have the same scientific meaning as most terms in the social sciences and is interpreted differently by different authors. The theory explaining the nature of local self-government first appeared in Belgium and France in the mid-19th century. Representatives of this theory of free (natural) society (O. Laband, E. Meyer, O. Ressler) believe that the right of society to govern its own affairs is as natural and inalienable as human rights. That is why

society is a broader concept than the state. Second, the government must respect the freedom of society. "Society, by its very nature, has the right to be independent of the central government. It does not create a state community, it only recognizes it." [17] Hence, the concept of self-government includes the following elements: society manages its own affairs and public government officials are communities, not state bodies. Within this theory, the executive - the legislature and the judiciary, as well as the lower - local (municipal, communal, public) authorities are recognized. This theory was later replaced by economic theory. Its representatives R.Mol, A.Vasilchikov pay attention not only to the recognition of the self-governing society as an independent legal entity, but also to the content of communal activities. Both theories are areas of social theory that leave the essence of "self-government" to the participation of the local community in the management of their public interests, while leaving government agencies to the management of public affairs only. According to legal theorists G. Ellinek, N. Korkunov, B. Chicherin, local governments are not state bodies, but the state gives them a number of government rights and thus recognizes their independence and inviolability. Later, the state theory of local government emerged. Its basic rules are L. Developed by researchers such as Stein, R. Gneist [18], proponents of this theory considered local government to be part of the state. In this sense, any government of a collective nature is a matter of the state. In this process, it is not the isolation of the local community, but the involvement of the local population to serve the interests and goals of the state.

According to N.Lazarevsky, one of the scholars who shaped the essence of local government, it is divided into four components: the exercise of government rights on behalf of the state; the activity of public administration consists of the performance of local functions; the state itself performs the functions of public administration and the state itself has bodies and representatives.

At the highest stage of the principles of democratization and decentralization, local self-government is reflected in the structure

and activities of representative bodies. At the same time, it is impossible to accept any interference of the state power both in the implementation of the functions of these bodies and in the process of their formation, if their financial independence is fully guaranteed by law. Also, the expansion of local self-government is not possible without the formation of a democratic state with a legal social orientation in parallel with society.

The formation of local government, in turn, creates a reserve for the establishment of a representative institution of local government, along with its representatives, allowing the local population to show more civic activism. Researcher Aydar Yusupov[19] considers local self-government as one of the conditions for achieving the real goals of certain levels of government. Article 3 of the Charter of Local Self-Government, adopted by the Council of Europe in 1985[20] defines local self-government as the right to regulate and manage an important part of public functions acting within the law in accordance with its powers and the interests of the local population. However, some authors, including N.V. Bondar writes: "Local self-government is defined by the people of the whole country as a way of exercising power, that is, as a form of state power at the local level"[21]. In our view, in some federal states, local self-government is recognized as a form of exercising popular sovereignty through direct and organic unity of institutions of representative democracy.

Discussion of research results

It can be said that the models of local government implementation in foreign countries are diverse. No model has a single and clear way to ensure that issues of local importance are more successfully addressed. Each of them is determined by the political, economic and social level of development of a society, its traditions and legal culture. Moreover, there is no single model of local self-government that is acceptable to the state at different stages of territorial development.

In general, the development of local government has a beneficial effect on the implementation of the principle of people's sovereignty. An important role in this is played by the development of communication

mechanisms for direct and indirect forms of population participation in local government (for example, the election of a member of a representative body or the institution of recall of a local elected official). Also, the concept of local government, reinforced by general principles, allows the development of mechanisms to protect the people's power in relation to the activities of local self-government bodies as a form of local sovereignty[22]. Therefore, the reform of the local government system should not be limited to general amendments, but the formation and organization of local representative bodies so that citizens can fully and systematically exercise their democratic rights. Researcher - A.A Zamotaev explains that "local self-government is carried out through the activities of local authorities"[23]. B.C.Vet suggests that "the ability to coordinate and manage the affairs of civil society within the framework of the law, based on its powers and interests, is an important aspect of the activities of local communities"[24]. Thus, in this case, it would be correct to consider the local population as a subject of authority, i.e., based on the factor of living in a certain (local) area, united in order to protect the interests and exercise power. In our view, the organic interaction of forms of representation and direct democracy allows for the correct implementation of the principle of people's sovereignty in modern statehood. Local activity, as a rule, is carried out taking into account the interests of the population. The importance of local representative government as a democratic institution is that it expresses the right of citizens of a particular region to solve local problems through their representatives. In view of the above, we can define the concept of "local self-government" as a form of exercise of power directly and independently through local public authorities in accordance with applicable law. At the same time, self-governance should be seen as a way of organizing and implementing local government that ensures that citizens resolve local issues independently, taking into account historical and other local traditions.

At present, the concept of local government is usually manifested in the following aspects: First, local government is the right of citizens and local communities to independently

manage local affairs. It is clear from the definition that local government is seen as a clear legal capacity. This department ensures that the population independently resolves issues of local significance, ownership, use and disposal of territorial property. The right of local government can be exercised both through direct forms of expression of will (elections, referendums, etc.) and indirectly through the system of local representative bodies. Second, it is the activity of citizens to independently address issues of local importance. Third, it is a form of democracy, a way for the people to exercise their power. For this reason, Article 7 of the Constitution of the Republic of Uzbekistan stipulates that the only source of state power is its people. The people exercise their power directly, as well as through local representative bodies of state power.

At the same time, the direct decision-making of citizens based on the interests of the population, taking into account historical and local traditions, is ensured through local public authorities. Fourth, local government is one of the foundations of the constitutional system. In the organization of power, it defines the principle of separation of powers (horizontal distribution of powers), as well as the system of governance along the vertical (division of forces).

Local government has a number of common features, despite significant differences from other institutions (self-government of the people, permanent and temporary associations of citizens, the principle of control over the activities of all authorities). Therefore, we can see local self-government as part of a modern democratic society and as a single structure of the organization of power and governance in the country.

In addition to the principle of horizontal distribution of power, there is also the principle of vertical separation. Thus, the power available in the region can be divided vertically into state and local. The term "public authority" was first used in a legal document, and there are two types - public authority and local (municipal) authority. Each power level has its own characteristics. Public authorities resolve issues of national importance; local public

authorities address issues of local importance. These features include, for example, a clearly defined institutional character. Both the state and local government are distinguished by the existence of a separate apparatus that exercises this power - state power and local government. Both state and local government have continuity on a universal basis. The activities of state and local governments are based on laws and other regulations. Both branches of government exist in a particular area (generally the territory of the state, the subject of the country, the municipal structure) in relation to all persons in that area. At the same time, the territory of the local community is the territory of the state, and the local population is the citizens of the state.

Local government is an integral part of the system of public authorities, which is the final instance in which laws and decisions of public authorities are to be enforced. In addition, the forms of public administration must be consistent with the specific goals, objectives, conditions of the ongoing reforms at all levels of government, including local self-government. They must have certain territorial powers, provided with resources to perform certain functions necessary to meet local needs. In our view, the formulation and implementation of local social, economic, environmental and institutional policies should be based on different regional needs and interests. On this basis, local authorities will try to provide them in practice. The main tasks of local authorities in the implementation of local economic policy stem from the needs and interests. They approve and execute the local budget, introduce local taxes and levies, and manage communal property. Local authorities should also set conditions for the use of local land; creation of city enterprises, organizations, banks, issuance of securities, business, regulation of prices and tariffs, employment, solving other social problems, forecasting and planning the development of the region, manages material resources, accumulated research and production capacity, qualified personnel, and so on. In case of non-compliance with their decisions, local public authorities have the opportunity to use the necessary means legally approved - to bring to justice, to apply other state coercive measures.

In other words, local public authorities, like public bodies, have an appropriate set of powers of a public authority, without which it is impossible to govern. It may also have certain state powers by law, such as the collection of taxes, the formation of an independent budget.

The status of local public authorities is determined by the state in the Constitution of the country and in laws adopted by public authorities. Unlike public authorities, local authorities act on behalf of the local community, not on behalf of the state. The content of state power consists of issues of state importance, for example, it is defined in the fifth section of the Constitution of the Republic of Uzbekistan. At the same time, issues of local importance are addressed taking into account the specifics of the development of their territory. Local governments are the level of government that is closest to the population, and they are in closer contact with the population than central government bodies. Forms of direct participation of the population of the region in this process are very important. Local authorities do not have the right to exercise their legislative power, but to monitor its implementation.

The lack of the right to enact relevant laws on certain issues that replace the general laws for a particular territory is an important criterion that distinguishes local state power. Of course, local governments issue appropriate rules, including general rules of conduct. But they are not subject to the law. Local governments do not have the “authority to establish their own authority”, ie they cannot independently determine the scope of their authority; unlike the state itself, the local community does not have sovereignty.

Conclusions and suggestions

Summarizing all of the above, it should be noted that local government is a system of relations that performs local government functions on the basis of this coercive tool. Local government is not only social power, but also state power that acts on behalf of the local community and acts in a local order based on the law. An analysis of the nature of local government allows us to conclude that it simultaneously combines two principles: the

state and the public. It should be noted that, despite the dual nature of local government, we propose that the existing local state authorities be constitutionally divided into two independent power structures (representative and executive).

At present, a single definition that explains the essence of the concept of local representative bodies has not yet been formed. Many scientific and theoretical sources comment on the role of local representative institutions in the system of public authorities, and differ in their content. In particular, according to M. Maslovskaya [25], the local representative body consists of deputies elected in local elections, with special powers to address issues at the local level, taking into account the interests of the population, taking into account historical and other local traditions. authority. In addition to its definition as a body of public power formed through elections, it can be said that the local representative body is an important branch of government that oversees the implementation of laws in the lower regions of the state. Another researcher, A. Barixin[26], described it as an electoral body of local self-government that has the right to represent the interests of the population and make decisions on behalf of that population. True, the local representative body carries out its activities independently, not vertically subordinate to higher authorities. This does not mean that the local representative body fully represents the local self-government. Because in the system of state power, the upper, middle and lower links are based on the mechanism of interaction. On the one hand, it is seen as a state authority with special powers in the local branch of government, on the other hand, it is seen as a structure that exercises public control. In this case, deputies are not civil servants, but representatives of the public.

As a continuation of these ideas, A.Djagaryan[27] considers the local representative body as a collegial body formed by elections, which performs the function of representation of the people at the local level, and is the main institution that creates norms at the local level. According to G. Ismalova, an Uzbek researcher, the Council of People's Deputies should be a real representative body

of the people, and people should be elected who know the secrets of society and public administration, understand the concerns of the people and can help them, it is a requirement of necessity [28].

In addition to the above, in order to clarify this concept, we define the representative body of local government as follows: a

representative body of local government is an elected body of local government, which protects the interests of the population and makes decisions on its behalf in the local area. It is a specific type of state power, characterized by the implementation of its activities on the basis of monitoring the implementation of laws in the regions.

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PROBLEMS OF ENSURING OPENNESS AND TRANSPARENCY OF BUDGET DATA

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ABSTRACT

This article addresses the issue of openness and transparency of budget information. It also analyzes the transparency and quality of budget information, their delivery to foreign investors and other stakeholders, as well as the level of participation of parliamentarians and civil society in the formation and implementation of the State Budget of the Republic of Uzbekistan. It is scientifically based that the information posted on the websites should meet the requirements. In addition, conclusions and recommendations have been developed to address the issues of openness and transparency of budget information.

Keywords: budget information, formation of the state budget, foreign investors, openness and transparency of data, distribution of budget funds, budget policy.

Introduction

It should be noted that as part of the reform of the country's economy, consistent work is being done to expand access to economic and financial statistics and to introduce new mechanisms to increase the transparency of the budget process.

At the same time, transparency and quality of budget information, their delivery to foreign investors and other stakeholders, as well as the participation of parliamentarians and civil society in the formation and implementation of the State Budget of the Republic of Uzbekistan (hereinafter referred to as the State Budget) level is not enough.

In order to further increase the openness and transparency of budget information, strengthen parliamentary and public control over the formation and expenditure of budget funds, as well as in accordance with the tasks set out in the Action Strategy for the five priority areas of development of the Republic of Uzbekistan in 2017-2021 [1]:

To establish the order of formation and execution of the state budget according to which:

From 2019, a mechanism will be introduced to provide for the participation of citizens in the distribution of budget funds, directing at least 10% of additional sources of district (city) budgets to activities formed on the basis of public opinion;

From 2020, the State Budget and the budgets of state trust funds will be approved by a law with detailed information, prepared in

accordance with advanced international standards;

Draft budgets of the state budget and state trust funds, main directions of tax and budget policy, as well as reports on the implementation of the state budget and budgets of state trust funds are mandatory before submission to the Legislative Chamber of the Oliy Majlis of the Republic of Uzbekistan must be put up for public discussion;

The information publication "Budget for Citizens" prepared by the Ministry of Finance of the Republic of Uzbekistan together with the draft budgets of the state budget and state target funds and reports on their implementation will be published for public discussion;

External audit and evaluation of the State Budget of the Accounts Chamber of the Republic of Uzbekistan and the budgets of state trust funds, draft main directions of tax and budget policy, as well as the annual report on the implementation of the state budget and budgets of state trust funds The conclusions on the results will be made public.

According to the deputies, the draft state budget for 2021 will allocate an additional 100 billion soums for equipping secondary schools, an additional 32.5 billion billion for the El-Yurt Umidi fund, and 5 billion billion for updating and replenishing the library fund in information and library centers. it has been. 63.4 billion dollars will be spent on reforming the healthcare system, improving the health of the population, increasing the effectiveness of medical prevention, and introducing new

mechanisms for primary health care facilities, including walking, running, mini-football, cycling, badminton, streetball and 104 billion dollars to be allocated for “Workout” sports development program [2].

According to the Ministry of Finance, the main parameters of the state budget are based on the following main fiscal objectives [3]:

- Stimulation of aggregate demand in the economy in the context of declining external demand in 2020-2021 and the continuation of tax policies aimed at global economic activity, competitiveness of the economy, investment attractiveness, business activity, export promotion;
- Ensuring the stability of the state budget and keeping the amount of public debt in line with international standards, reducing the consolidated budget deficit to less than 2% of GDP in the medium term;
- Ensuring sustainable growth of state budget revenues and the principle of fair taxation, as well as the regulation of tax benefits;
- Maintaining the social orientation of the state budget. In particular, funding important programs aimed at developing education systems, health care, and raising the necessary funds to fight the coronavirus pandemic;
- timely and full financing of salaries and equivalent payments, pensions and benefits, ensuring their growth at a level not lower than inflation;
- increase social support and employment, reduce poverty and strengthen social protection;
- Funding of government programs aimed at saving and efficient use of water and land resources, energy conservation, protection of nature and the environment, improvement of the environment and other important government programs;
- Maintaining inter-budgetary relations aimed at increasing the revenue base and stimulating the efficiency of local budget expenditures; increase budget transparency and ensure comprehensive budget coverage.

It is necessary to further strengthen the public finance system and budget discipline, increase the transparency of the fiscal system, increase the interest of local governments in the implementation of budget revenue forecasts.

Analysis of the relevant literature

Prof. A. Burkhanov and docent. H. Kurbanov substantiates his scientific conclusions aimed at expanding the sources of income of local budgets in the regions. They conduct their research on the example of Kashkadarya region. As a result, the following scientific conclusions are drawn [4]: first, in Kashkadarya region, the share of economically developed regions in the revenues to the state budget is relatively high. Second, in some areas of Kashkadarya region in the analyzed period, the development of the regional economy, ie the rapid development of small business and private entrepreneurship, the creation of new enterprises through further development of investment activity, financial rehabilitation of economically insolvent enterprises, reduction of existing tax arrears and as a result of a series of reforms related to the transfer to the sector. A. Mamanazarov conducted research aimed at increasing the role of taxes in stabilizing local budgets [5]. According to him, the stability of the budget is characterized by the following two aspects. first, it means that the budget is balanced and there will be no deficit; secondly, it emphasizes that even when there is a shortage, it means that it is maintained at a certain level. Z. Ruziev has conducted research on the formation of local budget revenues, studying the problems in Kashkadarya and systematizes them as follows [6]: first, the low level of tax collection in the formation of local budget revenues and incomplete state registration of taxpayers. Secondly, the structure of local finance is the formation of local budgets and corporate finance, with receivables and payables growing from year to year. It is noted that the focus is not on the creation of value added by local enterprises, and fourthly, on the establishment of norms of deductions from revenues from national taxes and the allocation of subsidies to local budgets. In order to ensure the transparency of the budget process, the information posted on the

official websites must meet the following requirements [7]:

- publication of information in open, free formats in accordance with legal requirements and ensuring their free access;
- failure to provide access to personal data of individuals;
- non-disclosure of information containing state secrets or other secrets protected by law, as well as confidential information;
- Do not contain incorrect information.

Open data providers have access to their official websites by the 25th of the first month of the next quarter following the results of each quarter:

a) information on the distribution of the limited amount of funds allocated from the budget among the budget organizations at their disposal;

b) periodic financial statements in the following forms in accordance with the legislation:

- balance;
- report on the implementation of cost estimates;
- Report on the movement of funds on extra-budgetary funds of budget organizations;
- information on receivables and payables from the state budget and extra-budgetary funds;
- information on the implementation of revenues and expenditures of state trust funds and the Reconstruction and Development Fund;
- reports on the implementation of the plan for the sector, states and contingent by budget organizations and recipients of budget funds;

c) information on the implementation of projects implemented at the expense of capital investments;

d) information on tenders and public procurement, tenders and information on public procurement, tenders for low-cost and perishable goods and tenders information on public procurement and information on tenders for construction, reconstruction, repair work in the appropriate forms.

The Ministry of Economic Development and Poverty Reduction and relevant first-tier budget allocators will post information on the implementation of social and industrial infrastructure development programs financed

from the state budget of Uzbekistan on their official websites no later than the 25th day of the quarter following the quarter. The State Tax Committee and the State Customs Committee list the list of tax and customs benefits, as well as information on the amount of tax and customs benefits provided to businesses on their official websites. publishes quarterly reports on its websites on a quarterly basis no later than April 1 of the following year.

Research methodology

A number of measures are being taken in the country to ensure the transparency of budget documents, expand the content of budget documents, further improve the information publication "Budget for Citizens", as well as ensure the participation of the Republic of Uzbekistan in the Budget Transparency Index.

The state budget is an important tool of macroeconomic management, the effectiveness of which determines the success of the government in achieving socio-economic goals. According to the Budget Code, openness and transparency are the principles of this document. This includes the procedures for preparing, reviewing and adopting the state budget, the publication of information on the approved budget, the activities of state trust funds, their openness and transparency for society and the media.

Today, the mechanism of interaction between government agencies and citizens has changed radically. Relevant documents have been adopted in our country to involve citizens in the budget process, increase their literacy in this area, ensure public control over its implementation, determine measures based on their initiative and opinion in the formation of the budget and the allocation of additional funds.

Statistical grouping of data, comparative and trend analysis methods were used in the analysis process. The article provides a comparative analysis of the scientific and theoretical views of economists aimed at ensuring the sustainability of local budgets as one of the most pressing issues of the public financial system.

In accordance with Resolution No. 414, budget organizations are exempt from taxes levied on the State Budget from January 1, 2000 to

January 1, 2023, fees to the Republican Road Fund and mandatory contributions to state trust funds. It is planned that the remaining funds will be used to strengthen the material and technical and social base of the budget organization, as well as to provide financial incentives to their employees in the manner prescribed by law. Therefore, there is no need to determine the tax base in budget organizations, as a result of which some mistakes are made in the accounting of production costs of goods (works, services) in budget organizations. In other words, in some budget organizations there are cases when current expenditures are not reflected and all expenditures are carried out at cost. Targeted tax incentives are aimed at creating an attractive environment for doing business in budget organizations, but due to the strict definition of the direction of expenditure of income, high level of control, centralization of financial management of organizations and the fact that this process is not clearly regulated in regulations. work, services) create difficulties in setting up production activities. In addition, there are disputes in budget organizations over the reflection of these tax benefits in accounting documents, accounting transfers, accounting registers and reports. This is because there is no practice for a budget organization to file tax returns with the tax office on tax benefits. This eliminates the need for accounting for the targeted use of tax benefits.

Analysis and results

Based on our research, we believe that it is important to pay attention to the following aspects in the distribution of local budget expenditures:

- introduction of the practice of cluster analysis or hierarchical implementation in prioritizing budget expenditures;
- Development of a coefficient of transparency in the formation of budget expenditures and accelerating the participation of citizens;
- Determining the effectiveness of budget expenditures and systematizing them taking into account the characteristics of the region;
- Introduction of a system of accounting for budget potential in the formation of budget expenditures. In this case, it would be expedient to give the regions the authority to make changes in spending [9].

As part of the reform of the country's economy, consistent work is being done to expand access to economic and financial statistics and the introduction of new mechanisms to increase the transparency of the budget process. At the same time, the level of transparency and quality of budget information, their delivery to foreign investors and other stakeholders, as well as the participation of parliamentarians and civil society in the formation and implementation of the State Budget of the Republic of Uzbekistan is insufficient. Budget structure (structure) - means a set of relations associated with the organization of the state budget. The budget structure of each country is determined by its national state or administrative-territorial structure (Malikov and Haydarov, 2007). The budget structure determines the organization of the state budget and the country's budget system, the relationship between its individual components, the functioning of budgets included in the budget system, their legal framework, the composition and structure of budgets, the principles of formation and use of budget funds. Differences in the state structure of countries, in the budgetary rights of different levels of government determine the existence of budgetary structures of different forms and models. In world practice, there are centralized, decentralized and mixed models of budget structure. The centralized model is characterized by the centralization of all budgets in a single state budget, in which the role of management is attached to each top budget. We can see this model in the practices of France, Italy, Kazakhstan and Uzbekistan. The decentralized model is characterized by the freedom of the central and local budgets of the budget system, with each of these budgets having its own sources of revenue that provide for their expenditures. We can observe such a situation in the practice of the USA and Germany.

In this regard, the Department of State Financial Control of the Ministry of Finance of the Republic of Uzbekistan and its territorial departments constantly monitor the targeted use of budget funds. The following figure shows the results of an audit conducted in 2019 by the Department of State Financial Control and its regional offices (Figure 1).

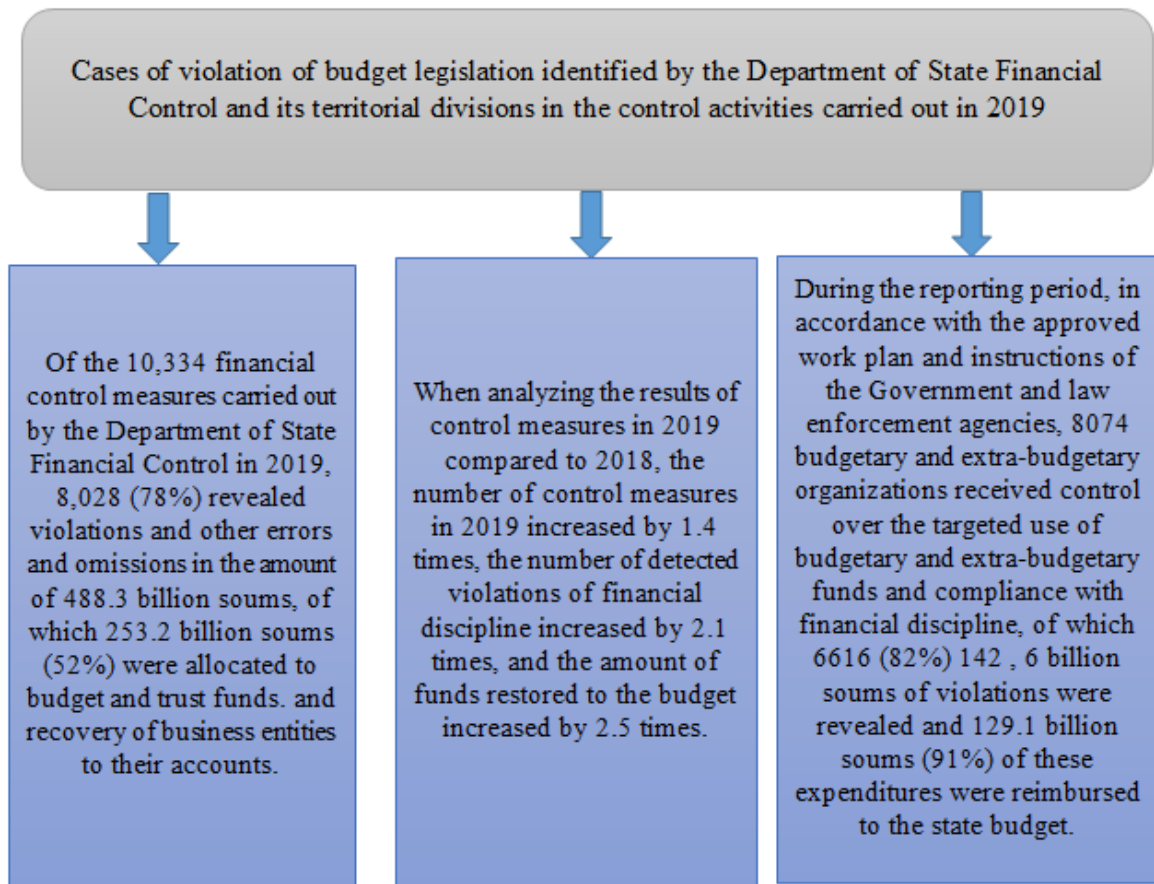


Figure 1. Cases of violations of budget legislation identified by the Department of State Financial Control and its territorial divisions in the control activities carried out in 2019

- The following are the main tasks of the Cabinet of Ministers, ministries and departments, the Council of Ministers of the Republic of Karakalpakstan, regional and Tashkent city administrations in the budget and financial sphere [10]:
- Ensuring the fulfillment of the relevant budget revenue forecast by fully covering the objects of taxation and the tax base, increasing the level of tax collection, mobilizing existing reserves and launching new production facilities;
- Targeted and rational use of budget funds and their savings, strengthening budget discipline, strengthening the system of accountability for the effectiveness of the use of budget funds;
- timely financing of primarily financed expenditures (wages and equivalent payments, food, medicine and utilities) and avoidance of creditor indebtedness;

- to direct the funds provided for capital investments for the design, construction (reconstruction) and equipment of facilities, primarily for the commissioning of facilities that have passed previous years;
- Ensuring efficiency through the use of foreign loans on behalf of the Republic of Uzbekistan and under the guarantee of the Republic of Uzbekistan to finance the most urgent measures of socio-economic development and their effective use. The Cabinet of Ministers of the Republic of Uzbekistan from 2020 [11]:
- the consolidated budget deficit does not exceed 0.5% of GDP;
- Balanced execution of revenues and expenditures of the Fund for Reconstruction and Development of the Republic of Uzbekistan;
- The limited volume of new agreements signed on behalf of the Republic of Uzbekistan (Government of the Republic of Uzbekistan) or

under the guarantee of the Republic of Uzbekistan to attract foreign debt does not exceed 4 billion US dollars;

➤ Limited disbursement of external debt on behalf of the Republic of Uzbekistan (Government of the Republic of Uzbekistan) or under the guarantee of the Republic of

Uzbekistan and repaid at the expense of the State Budget of the Republic of Uzbekistan shall not exceed 1.5 billion US dollars. minlasin. The summary parameters of the budget of Uzbekistan for 2021 and the budget targets for 2022-2023 can be seen in this table 1.

Table 1

Aggregate parameters of the budget of Uzbekistan for 2021 and budget targets for 2022-2023, in billion soums

Indicators	Forecast for 2021	Budget targets	
		2022 y.	2023 y.
Consolidated budget revenues	178512,4	208371,3	238954,0
State budget revenues	147002,3	173550,2	200708,6
Revenues of state trust funds	26173,9	28251,7	30544,5
Receipts to the Fund for Reconstruction and Development of the Republic of Uzbekistan	5336,2	6569,4	7700,8
Consolidated budget expenditures	215945,2	231338,9	258096,0
State budget expenditures	149681,6	163780,4	183675,0
Expenditures of state trust funds	40740,0	46709,1	51720,2
Expenditure of the Fund for Reconstruction and Development of the Republic of Uzbekistan	13423,6	6569,4	7700,8
Expenditures on the state program at the expense of external debt	12100,0	14280,0	15000,0
Transfers to state trust funds	15896,4	17930,2	21097,2
Consolidated budget balance (surplus, deficit)	-37432,7	-22967,6	-19142,1
State budget and sale of state trust funds (surplus, deficit)	-17245,3	-8687,6	-4142,1
Debt settlement	7767,7	10316,8	12476,2

The Resolution of the President of the Republic of Uzbekistan dated August 22, 2018 "On measures to ensure the transparency of budget information and active participation of citizens in the budget process" was adopted, and this document is important in ensuring the transparency of budget execution. Since 2019, the Open Budget portal has been launched to exercise public control over targeted budget expenditures [12].

It publishes draft state budget, main directions of tax and budget policy, reports on budget execution and conclusions of the Accounts Chamber. The portal contains information on the proposed activities to be funded from additional sources of city and district budgets

to form public opinion. Citizens can also send messages through the portal about violations of budget legislation, proposals to improve the budget process.

A number of measures are being taken in the country to ensure the transparency of budget documents, expand the content of budget documents, further improve the information publication "Budget for Citizens", as well as ensure the participation of the Republic of Uzbekistan in the Budget Transparency Index.

Conclusion

To address the issues of openness and transparency of budget information, we have considered the following proposals:

- Development of a medium-term budget framework for the implementation of a strategic approach to fiscal policy and the introduction of a new "results-oriented budget" system of annual budgeting;
- increase institutional capacity and accountability of participants in the budget process to ensure the reliability of macrophysical forecasts;
- Increasing the powers and accountability of budget allocators and local governments in the field of budgeting and strengthening their accountability;
- introduction of a system for assessing fiscal risks, accounting for financial assets and liabilities and their effective management;
- Strengthening financial discipline by unifying budget accounting standards, improving the system of internal control and audit;
- Ensuring transparency, completeness and compliance of budget information with international standards;
- Strengthen parliamentary and public control over the budget process.

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FORMATION AND DEVELOPMENT OF OASIS LANDSCAPES IN ZARAFSHAN BASIN

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ABSTRACT

This article states that the emergence, formation and sustainable development of the oasis landscapes of Uzbekistan corresponding to the historical and geographical stages of the geological period and has a special place in the history of development of the landscape sphere. The dynamic development of oasis landscapes over time is described in detail in the example of the Zarafshan hollow and the Kashkadarya basin.

Keywords: *oasis landscapes, history of development, geographical and archeological periods, ancient settlements, Neolithic and Bronze Ages, geoecological situation, protection, mapping, forecasting.*

Introduction

Anthropogenic landscapes are found in all geographical zones, mountainous regions, and occur in different zonal conditions. Each zone has its own anthropogenic landscape spectrum. For example, an arid zone is characterized by anthropogenic landscapes such as oasis-city, oasis-village, oasis-agriculture, irrigation, oasis multi-moist, rainfed agriculture [6; 5-301 b., 8; 82-85 b., 9; 296 b.]

In the geographical literature, "oasis" (in latin, oasis - the first names of several settlements in the Libyan deserts) is a scientific concept derived from local terms applied to areas, in the desert and semi-deserts, sometimes consisting of shrubs and other vegetation. However, the moisture formed due to artificial irrigation plays an important role in the composition of anthropogenic oasis landscapes. This in turn causes groundwater levels to rise and sometimes springs to form.

It should be noted that the main factors in the formation of oasis landscapes in deserts and semi-deserts: water (arable lands on irrigated lands) and human labor, oasis landscape - formed and managed by human activities, covered with agrobiocenoses, irrigated and dry farming, is a complex of anthropogenic landscapes with different zoning "(Abdulkasimov, 1972). "The oasis is a land developed by producing water in deserts and semi-deserts" (Karaev et al., 1979) or the development of agriculture over many years led to the formation of oases "[6; 5-301 b., 8; 82-85 p.]

In oasis geosystems, the circulatory motion of matter and energy occurs under the influence of two major groups of forces:

natural forces and human influence. Due to the long-term and constant human impact, human impact on the circulating motion of matter and energy, where current anthropogenic changes have taken place in the oasis geosystems, is significant. Oasis landscapes are a zonal view of anthropogenic landscapes in arid climates, which, according to the history of their formation, together with all anthropogenic landscapes form a separate genetic line - a series of anthropogenic landscapes. Therefore, oasis landscapes can be called anthropogenic oasis landscapes. The landscape of the oasis includes not only permanently irrigated agricultural lands - cotton plantations, rice plantations, orchards, mulberries, hedges and melons, but also irrigation facilities - canals, reservoirs, ditches, urban and rural floodplains, re-saline and swampy lands, lakes and other anthropogenic landscape elements formed at the expense of wastewater. These in turn form a system of anthropogenic oasis landscapes [8; 82-85 p., 10; 36-39p., 11; 4267-4272 p.]

The landscapes of anthropogenic oases in the territory of the Republic are inextricably linked with river and stream valleys, their spreads, intermountain depressions, foothill proluvial-alluvial plains and springs. All major oasis landscapes in our regions - from the most ancient to modern oasis landscapes - are located in the valleys of the Amudarya, Syrdarya and Zarafshan rivers, in the basins of Fergana, Tashkent, Mirzachul, Zarafshan, Surkhandarya and Kashkadarya. Agro-landscapes lead a major role in them, occupying an area of 4.2 million hectares (Abdulkasimov, Abdurahmanova, Davronov, 2017), in some sources 5 million hectares

(Rahmatullaev, 2018) [8; 82-85 pp., 7; 14 p., 12; 60 p.].

Anthropogenic oasis landscapes, which occupy a special place among modern geosystems and are an integral part of them, are a unique historical category. The history of the formation, emergence and development of oasis landscapes corresponds to a part of a certain geological period and has a special place in the history of development of the landscape sphere. To know the history of the emergence and formation of anthropogenic oasis landscapes of any region, it is necessary to study its development on the basis of paleogeographic, historical-genetic and archaeological methods. N. Mil'kov [1,11-27], V.S. Jekulin [2,6-7], A.A. Abduqodirov studied the history of the formation of anthropogenic landscapes and determined their age. However, they said that all geosystems, even the morphological structure of the anthropogenic oasis landscapes of each region, are a historical category [8; 82-85 b., 9; 295-298 p.].

According to the zonal stratification characteristics of anthropogenic landscapes in space, they began to emerge and take shape at different times. According to F.N.Milkov and V.S.Jekulin, the formation of anthropogenic landscapes in the middle and northern latitudes of the Eastern European plain began in the Neolithic, and much later in the northern taiga zone, in the Mediterranean and Central Asia in the Mesolithic and even Upper Neolithic [6; 5-301 p., 8; 82-85 p.,].

A.A .Abdulkasimov analyzed the history of the emergence and formation of anthropogenic oasis landscapes in Central Asia and Uzbekistan, explaining that they were formed and developed under the influence of human economic activity in different geographical and archaeological periods. Based on these methods of historical genetic and archaeological research, A.A. Abdulkasimov identified the following major historical and geographical centers of anthropogenic oasis landscapes in Central Asia and Uzbekistan: South-West Turkmenistan, Southern Turkmenistan, Southeast Turkmenistan, Southern Uzbekistan, Khorezm, Fergana, Southern Kyzylkum and Samarkand historical and geographical centers. Each of these centers differs from each other in the time of its

emergence and formation. The historical and geographical center of Samarkand, which is one of the largest centers of the 9 anthropogenic oasis landscapes, divided according to its origin and formation, is located in the basin of the Zarafshan plateau [6; 5-301 p.] ...

The Zarafshan basin is located in the middle part of the Zarafshan river basin and is a tectonic synclinal sediment according to its history of origin. The basin is surrounded by low mountains such as Gobdintog-Aktag-Karatag in the north and Chaqilkalon-Qoratepa-Zirabulak-Ziyovuddin in the south. The Zarafshan basin stretches for 160 km in width, with an average width of 70 km. The total area is 13,600 km². The widest part of the basin corresponds to the Samarkand meridian. It is getting narrower and narrower to the west. Near the village of Hazar, the Kyzyltepa and Oftobachi hills converge to form the Hazar corridor, 8-10 km wide. The territory of Zarafshan basin administratively belongs mainly to Samarkand region and partly to Navoi and Jizzakh regions [11; 4267 p., 12; 60 p.].

The first influence of ancient people on the first natural virgin landscape complexes in the Zarafshan basin began 100-40 thousand years ago in the Middle Pleistocene, or the Middle Paleolithic period of archaeologists. The Zarafshan basin was the site of the oldest people in the Amankotan cave on the northern slope of the Zarafshan mountain range and near the ancient Kotirbulak spring in the Narpay district, which is located in the foothill proluvial plain. According to archaeologists, ancient Neanderthal-type people lived in the Middle Paleolithic settlements. They influenced the nature around their habitats, including wildlife. This was evidenced by the paleozoological materials found in the Middle Paleolithic settlements. For example, the ancient people who lived in the Amankoton cave were found in the cultural strata as a result of archeological excavations, where the bone remains of animals such as arhar, deer, badger, brown bear, rabbit, groundhog were hunted. About 10,000 Middle Paleolithic stone tools and various stone objects were found in Kotirbulak. Labor tools made of diorite, quartz and flint - sharp knives, scrapers, spear-shaped

stone weapons - were found in the Amankoton cave. This means that the ancients also used the rocks that formed the basis of natural landscapes.

By the Upper Pleistocene, the ancient people gradually left the caves in the mountains and settled in the central parts of the Zarafshan basin, on the terraces above the Zarafshan river, in the deltas of large rivers. 40-12 thousand years ago, people of the Upper Paleolithic period built a camp around the park-lake in the central part of the modern city of Samarkand. This place has been studied in detail by archaeologists, and it is called the Samarkand place of ancient people. Ancient people living in Upper Paleolithic settlements built dwellings in the open, cut down trees, and engaged in farming activities such as hunting, fishing, and gathering. The influence of human economic activity during this period covered the valley and delta landscapes of the rivers. According to A.Askarov and D.N.Lev [4, 21-30], about 7,500 hunting and working weapons found in the territory of Samarkand were made of hard rocks such as green silicon, diorite, amphibolite gneiss, mined from Chophonota hill. The Upper Paleolithic people hunted wild horses, wild camels, various deer, and Pleistocene assholes, similar to the Przewalski's horse, and had a strong influence on the fauna of the nature surrounding the Samarkand settlement.

Neolithic settlements have also been found in the Zarafshan basin. They are Tim and Sazagan, located 27 km southwest of Samarkand, on the banks of the Sazagansay. Even in this period, the ancient people were armed with bows and lightning stones, pointed arrows, and were engaged in hunting and gathering. The people of the Neolithic period, during their primitive economic activities, were mainly engaged in hunting and fruit-gathering, influencing the fauna and flora of the area. This period corresponds to the middle part of the Holocene, 6-5 thousand years ago. Archaeological data analyzed above show that in the Zarafshan basin, the influence of ancient people on natural landscapes from the Pleistocene to the Middle Holocene was only quantitative. During these periods, the conditions for the formation of anthropogenic

landscapes were gradually formed (see Table 1) [8; 82-85 p.] ...

By the Upper Holocene, new farms are emerging in the Zarafshan Basin, which are very different from the farms run by the ancients. These are the branches of agriculture and animal husbandry that belonged to the Bronze Age (3.5-2 thousand years ago) and were formed during this period. The emergence of agriculture and animal husbandry creates, expands the material base of certain societies in the Zarafshan basin, and creates opportunities for interaction and exchange between tribes. In the Bronze Age, in addition to the composition of production, there were two large communities, the agricultural community and the livestock community, which clearly reflected two different economic sectors.

A Bronze Age settlement in the Zarafshan basin was found in Navkatepa near Kattakurgan. The second site of this period was found in the village of Muminabad, located on the bank of the river, which crosses the foothill proluvial-alluvial plain near the left bank of the Zarafshan River. Among the anthropogenic layers of these settlements, according to A.Askarov and D.N.Lev [4, 21-30], there are ceramic vessels with the image of a spruce and decorated with various patterns, silver rings with gold water, gold jewels, corals and pearls. During the Bronze Age, cattle-breeding tribes often lived in the deserts, semi-deserts and steppes of the foothills, using natural landscape complexes in these areas as pastures. The increase in the number of livestock and their long-term grazing on certain plots of natural landscape complexes of the foothills create a process of digression in pastures. As a result, the productivity of biomass of desert, semi-desert and steppe landscapes decreases.

Tribes living in the valleys of the Zarafshan River and in the deltas of large rivers began to engage in irrigated agriculture in the Bronze Age. From the first half of the Upper Holocene to the Bronze Age, various anthropogenic landscape complexes are formed in connection with the development of human society. Motorized farming played a major role in the agriculture of that period. During the Bronze Age, people learned to dig ditches to irrigate their fields, along with plowing the land and planting wheat, barley, and millet. Thus, the

natural landscapes on the terraces of the Zarafshan basin and in the deltas of large rivers were changed as a result of human activities, and anthropogenic oasis landscapes were created in their place. During this period, the gradual development of irrigated agriculture allowed for the expansion of the area of irrigated oasis landscapes and the formation of urban seliteb landscapes.

It should be noted that in the Bronze Age, the impact of man on the natural landscape complexes shifted from quantitative to qualitative. In other words, in areas where irrigated agriculture is practiced, natural vegetation has been replaced by cultivated crops - agrolandscapes, agroirrigation deposits have started to form on irrigated lands, and anthropogenic ravines are formed as a result of irrigation erosion on sloping lands. However, the anthropogenic landscapes that emerged in the first half of the Upper Holocene, especially their oasis landscape types, had a local character. The primitive people of the Bronze Age were also engaged in the fine arts peculiar to their time and culture. On the rocks of the Ellisay valley of the Qoratepa mountain, 20 km south of Samarkand, and on the rocks of the Karakasmaksay valley of the Gobdin mountain, the hunting scene of primitive hunters is depicted. More than 50 photos were found. The rocks depict riders, various animals, including goats, camels and other animals. Archaeologists claim that these paintings date back to the Bronze and Iron Ages.

The second half of the Upper Holocene dates back to the Iron Age of archaeologists. By this period, iron dominates the material culture and tools of the population, and the process of formation of class society and large states begins. From the first millennium BC, when iron prevailed in the culture of the population, the development of the productive forces accelerated, technology grew, and man began to use it more widely by studying the laws of nature. At the same time, a new phase

of human impact on the landscape complexes of the Zarafshan basin begins. During this period, a number of urban seliteb landscapes were built in the valley part of the Zarafshan basin, on the banks of rivers in the northern foothills of the Zarafshan mountain range and north of the Yangirabot fortress of Khatirchi district. These are the cities of Afrosiab, Kofirqala, Choldortepa, Kuldortepa, Ishtikhan, Rabinjon, Dabusiya, Kushaniya, Khojakurgan. At present, these ancient cities are strongly eroded and ruined anthropogenic hills, which exist in the form of madfun seliteb landscapes [5,9-13].

The process of formation of class society and the state in the Zarafshan basin led to the expansion of urban and rural landscapes and the emergence of large cultural centers such as Sughd and Afrosiab. At the beginning of the Iron Age, people were engaged not only in agriculture and animal husbandry, but also in the development of minerals. They mined silver, iron, and salt from the surrounding mountains. As a result, man-made anthropogenic landscapes of local significance have also emerged (see Table 1).

Consequently, in the Upper Holocene in a number of areas of the Zarafshan basin, in the alluvial plains of the Zarafshan river, on the terraces, in the foothill proluvial plains, various species and types of anthropogenic landscapes, including oasis landscapes, urban and rural seliteb landscapes were intensively formed. In particular, the areas of oasis landscapes in the valley of the Zarafshan River are higher than in the foothills. The role of the most recent period in the development of urban and rural seliteb landscapes, that is, the present period, is enormous in the expansion of the area of agrolandscapes in the Zarafshan basin. By this time, man had armed himself with powerful technical means, acquired nuclear energy, mastered outer space, built large-scale reservoirs and large main canals, and opened up reserves and gray lands (see Table 1).

Table 1
Periods of formation of anthropogenic landscapes in the Zarafshan basin

	Anthropogenic landscape system	Geological and archaeological periods								
		Pleistocene			Golotsen					
		Lower	Medium	High	Lower	Medium	High			
		paleolith			Mesolithic	Neolithic	Eneolithic	bronze	iron	new
	Early changes in landscapes		+	+						
	The emergence of altered landscapes				+	+				
	Anthropogenic cliffs					+	+			
	Irrigated agrolandscapes						+	+		
	Man-made landscapes							+	+	
	Ancient madfun seliteb landscapes							+		
	Irrigation landscapes							+		
	Seliteb landscapes							+		
	Spring agrolandscapes								+	
10	Terraced sloping landscapes								+	
11	Recreational landscapes									+
12	Anthropogenic pastures									+

As a result, the anthropogenic oasis landscapes developed steadily and stretched from the eastern part of the Zarafshan basin to the western part, forming a wide continuous strip. By the most recent period, the fact that the population of the Zarafshan basin is trying to make full use of the various natural landscape complexes and radically change them poses a number of the most pressing problems, such as geo-ecological, nature protection and forecasting of negative and positive changes in regional and local natural conditions under the influence of anthropogenic factors. This, in turn, requires serious attention to a comprehensive study of the landscapes of the Uzbek oasis, a detailed study of the existing geo-ecological situation, protection and mapping them on different scales on the basis of geographic information data (see Table 1).

In conclusion, it should be noted that oasis landscapes differ from natural landscapes in terms of origin and formation features, they form their own independent anthropogenic genetic range, such as lithogenic, hydrogen, proluvial, alluvial, karst, eolian, glacial landscapes. Oasis landscapes, like natural landscapes, are distinguished by the complexity of their structure, the diversity of morphological units, they serve as a specific geographical object in landscape typological mapping and are studied as an anthropogenic landscape. At the same time, oasis landscapes differ from natural desert and semi-desert landscapes in that they have a clear morphological structure, microclimate characteristics, structural dynamic status, strong transformation of components, prevalence of agroirrigation deposits, variability of surface and groundwater regimes under anthropogenic factors.

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ANALYSIS OF CREATIVE IDENTIFICATION AND TRUTH**H. S. Ahatovich¹ and J. D. Ergashovna²**^{1,2}Samarkand State University Republic of Uzbekistan**ABSTRACT**

This article is focused on the biography of Sadriiddin Ayniy as well as his personality and sequence of given events which are analyzed according to the literal factors.

Keywords: *personality of the writer, sequence of events, historical facts, jadidism, realistic prose, history and fiction*

Introduction

Literary studies focus on the factors that shape the artist, his worldview, personality, and reality. The impact of social, psychological and psychological processes that have brought up the creator in the objective or subjective interpretation of the world leaves its mark. Being honest is a virtue for an artist. In spite of all the cholera, the historical reality is that the creative character, thinking, and soul of the person are still in the form of a particular work. The character, thinking, and soul of the artist "breathes in the air" of the surroundings and conditions.

In the second half of the 20th century, our literary studies, which were in the process of formation, achieved great successes. Great research on the poetics of the works of classical and modern writers has been carried out and is being carried out. The works of S. Aini, A. Kadiri, Chulpon, Fitrat, and later G. Gulom, Oybek, A. Kahhor, H. Alimjon and others are being comprehensively researched and subjected to new interpretations. At the same time, it is encouraging that new literary methods are being used in our literature. In this regard, it is useful to look at the 140-year-old Sadriiddin Aini's works based on biographical principles.

Discussion

Sadriiddin Aini grew up in the Emirate and was recognized. He was educated in the old school, madrassah. He was born under the influence of his father's command, "Don't be a mullah, do not be a judge, be a man." The education of the school, the madrassah, and the emirate-based order of the emirate have increased the feeling of dissatisfaction, and later hatred in young Sadriiddin, who followed his educated father.

This emotion, expressed through gestures and symbols in his first poems, became evident in prose works.

Undoubtedly, objective, subjective factors such as ambiguity, oppression and violence, the execution of his brother by the executioners of the Emir and his own beating, have certainly fueled this feeling of hatred.

The writer did not have a place of residence while studying at the madrassa. There was some time when he moved into the homes of his brother, friends and acquaintances, and but in general, he was homeless. His poems written at that time was appealed by Amir Abdulahad Khan and he was invited to work at the palace. However, Aini rejected the offer, citing various reasons

The writer, who was young and early in his life, was beginning to develop personal qualities, and if he agreed with the "flattering of the status-quo", he would have understood probable bad consequences in the example of another poet - Shamsiddin Shahin's fate.

It is known that S. Aini began his career by writing poetry. When he became acquainted with Ahmad Donish's brutal realism, "Navodirul Waqoe", he became fascinated by his writing. His works were simple, fluent, folk, and persistently work on the harmonious cohesion of sentences. In the 1920s and 1921s, he commenced to be a writer.

According to psychologists, the character traits in a person are identified between the age of 22-25. Sadriiddin Aini was 40 years old at the time of the October Revolution. The ideals of the author, including his unwavering commitment to social injustice, coincided with the ideas of the new regime. That is why the writer welcomed the overthrow of the emir (1920).

Another thing is that the Soviet government needed a well-known person like SadriiddinAini to raise the flag.

In the history of Bukhara from the second half of the 19th century to the 20s of the 20th century, there were a lot of misleading and unfounded points in the history of Bukhara. Historical documents, textbooks, reference books were presented in one way or another, influenced by the politics and ideology of their time, and show how high and important the importance of SadriiddinAini's works are not only artistic but also historical. In this regard, Memories are a valuable resource.

The main basis of SadriiddinAini's poetic style is adherence to the historical reality and truthfulness. This is also the case with his research work about Ibn Sina, Rudaki, Firdavsi, Sheikh Saadi, AlisherNavoi, MirzoBedil and Mukumiy. He compared Turkic, Persian and Arabic sources and bases his scientific views on historical facts, evidence and documents.

The author's works "Old School" and "Memories" tell about historical events in which he participated. The plot of other fiction is also based on the lives of historical figures, historical realities, living space and time. Apart from microplaces such as "school", "madrasah", "mosque", "market", "office", "caravanserai", "arc", "barn", only "Mahallibolo" is in Shafirkan district,

Villages like "Mamadboqi" (today Mahalliboqi), Denav and Sogd (today, Sughut) are also historical places, and it is possible that the author did not exaggerate in making the historical fact as an artistic reality. The village of the uncle Mahallibolo, a writer who lived in these villages for a long time, knew the poor, the quarter, the orphans, and the rich. In these villages the main parts of the "slaves" plot are located.

In the 20s, SadriiddinAini's writings clearly show his sympathy for the new regime. If we look at the works of the writer in chronological order, it can be seen that this sympathy gradually evolved into alertness, then panic, and then fear. In the 1930s, anyone who was not afraid of the emirate's authority was terrified of Soviet politics. Because in the late twenties, clouds of repression covered the sky, even though it was parked. It was impossible

for the alert author, a creator with a deep understanding of the inner processes of reality to be unaware and be ignorant.

Though written in the past, "Dohunda" (1930) and "Slaves" (1934) cover the events leading up to the October Revolution and later events. With literature of that time, the actions of "alien elements" and "basmachi" (the people who fought for their freedom against Russian aggressors) were referred. Of course, there were many who were affected by the loss of their property and confiscation of their lands.

Most of them were illiterate and far-sighted, and there were very few who fought for national freedom, independence of the country and religious development. The movement, which was based on popular sentiment, did not become a national movement. Moreover, there was not a single idea, purpose, and unity of interests that united the existing layers of society.

There were many data in the past that related to the activities of representatives of the political movement known as the "basmachi" (the people who fought for their freedom against Russian aggressors) in Ferghana region. However, information about the movement's representatives in the Bukhara region were preserved only in the Aini's works. There are few other literary, scientific, and publicist sources in this regard. SadriiddinAini was not sympathetic to the movement, but most importantly, these facts were recorded as a historical event that did not disappear.

In 1928, the author's story "Qulbobo" (Slave granddad) was published in the journal "Education and Teacher". Based on this story and with the recommendation of AkmalIkramov, the novel "Qullar" (Slaves) was written. The author had close relations with the members of the party and statesmen F.Khodjaev, A.Ikramov, N.Turakulov. He took into account their suggestions when writing his works.

And, naturally, certain issues were expressed in accordance with that modern's ideology and status - quo. It should also be noted that in a large epic work like the novel, it is difficult to objectively cover the reality of the current issues. In fact, the epic work tells the story of events that took place in the past.

Because they should have passed through some experience. As a result, the status of ideology in the culmination and resolution of the "Dohunda" and "Slaves" plot increases.

It should be noted that the artistic interpretation of historical events prevails in some respects of the subjective views of the artist. So, one of the issues is Jadidism - the movement of young Bukharians. The Soviet policy initially supported the ideas and views of Jadidism and provided comprehensive support. Once the new regime solidified its foundations, Jadids will be no longer necessary to them. Participants in this movement were harassed, imprisoned, repressed.

FayzullaKhodjaev noted that SadriddinAini's book "Materials for the History of the Bukhara Revolution" was incorrect and abstract, and that "the most interesting thing was that Aini tried to interpret Bolshevism with Jadidism as a holistic, indestructible in the whole."

In the later works of "Dohunda" and "Slaves", attitudes towards Jadidism changed slightly - they were portrayed as a movement away from society.

In addition, the last chapters of both novels seem to have stretched images of Soviet reality. If you focus on the Soviet realities, it is easy to see that the socialist tone and propaganda style were replaced by the objective, natural and clear image of the works. The instinct of self-defense comes into play, with both of the latter chapters adapting to the principles of the method of socialism.

By the time these novels were written, the writer was between 53 and 56 years of age. As we get older, we become more balanced and reasonable. Though his works glorified new realities, the writer was spiritually prepared for any unforeseen situation and lived in fear of being imprisoned. That was no accident. There were some things that should not be said in the works, which were also ignored by the specialists who worked on Aini's works. In the seventeenth episode of the "Slaves" novel, the Tatar boy has a guest appearance at Abdurahimboy's house. In this hospitality, the essence of Chorism policy was deeply analyzed.

"... Tatar was recovering from a feather pillow, drank two cups of chilled tea, and

looked at Abdurahimboy, who was feeling some mental anguish over his old age. "Abdurahimboy," he said, "thank you for treating us with such respect, but why don't you talk or do you want to sleep?"

"The world was ruined. The country is under Russians." Now, how a Muslim can have the ability to speak and be happy, "said Abdurahimboy.

"Well ... that's right," he said after drinking a couple of teaspoons of hot tea in front of a Tatar, ,, but none of muslims can tolerate when non-muslims invade or another non-muslim country's people come to the throne. But it is not a Muslim's job to disobey God and to be unhappy about destiny of God.

"In fact, we must agree with death," Imam Tatar approved Abdurahmonboy.

The interpretation of these themes, which was considered risky at that time, was found in other works, although it was from the language of characters.

In the Emirate, criminals were beaten, imprisoned, and rarely executed. Those who were sentenced to death for trivial reasons tormented the writer and saddened him. He, as an ordinary man, deeply felt the saving of human life and holocaust. 1936-1938 can be called a period of depression in the work of the writer.

Although the process of the repression was not finished by 1939, the world was on the brink of a new disaster - the start of World War II. "Death of a pawnbroker" was written that year. The work might be written quickly, but the preparation for writing was not fast process. The plot of the story is based on the events of the writer's student years. Given the fascinating, plausible, ideological and artistic features of the language, the writer's sense of self-control, though not entirely free from the dangers of imprisonment, is now felt. Because in this work there is no ,,flattering to the status – quo".

SadriddinAini hated three categories because of his actions, behavior, and speaking in a language. The first category is the rich, the second is the clergy, and the third is the members of the government. The members of these categories who move from Aini's works to his other works were not fictitious, false or fabricated. Their descendants - grandchildren

and great-grandchildren - are working in various fields today. The author made these categories inherent parts of his works since the rich were greedy and selfish, the religious leaders were there for their hypocrisy and ignorance and members of government for their cruelty.

There were also rich, scribes, and judges who supported Aini's growth and maturity. Although the writer mentioned about them partly, he did not go further, as it is known, that he did not went against politics. Unlike the wealthy students, the future writer worked hard and had lots of bitter and hard life-experience.

In order to get through in difficult period, he took care of laundry, swept, went to the market, cleaned the snow and served in LatifjonMakhdum's yard, worked in the madrassa for several people, looked after the sick and contracted to the plague.... As a result, he was fully aware of the bitter truth and difficulties of life and thus he understood the condition of the poor in detail and he felt compassion for them.

There was no class in society that is out of his sight. The author thoroughly analyzed the causes and effects of each incident, with his keen eye always focused on the nature of the issue.

In the third part of the "Memories", a dervish officer, Yahyokhodja, who was a descendant of the officials, the author described with interest and pleasant. There were data that he was famous by making insulting remarks about those who disliked him. Whenever the mullahs and the people of the palace saw him in the streets, they hid themselves in the streets to avoid his insults. One day, Yahyokhodja came to the great judge Badriddin. The judge spoke deceptively before he could start reproaching him and then he asked to pray.

"In response to the judge, Yahyokhodja raised his hands in the air like the people who prayed:

"God, make the Judge Badriddin the mighty."

Judge was amazed by this praying.

- Oh... oh... oh! It was a disappointment.

"There is no room for shame and wonder," Yahyokhodja said. , Why can't you say that? You are more powerful than Emir in Bukhara,

everyone's life is in your hands; if you want you can make them suffered, if you want you can give them hope, nobody can reprimand you for this. And there is only one place to which you can replace, more than Emir.

... To be mighty is good for you; you are responsible for the black days of widows and children for the desolate peasants are the orphans, the fatherless men, widows' husbands, and the fatherless children and those husbands you have taken away. Perhaps fear of the wrath of God may hinder your business in some spheres. If you were mighty, you could rest in peace and to do anything you like. You will not be afraid of the judgment of the Day of Resurrection, nor will you store up treasures on it."

This passage is a typical example of the real situation in a system of social injustice and its creative attitude to it. According to historical sources, the disintegration of khanates in the nineteenth century confirmed that the country was in ruin not only politically but also culturally and educationally.

The Tsarist army occupied Tashkent in 1865, and Samarkand in 1868. 52 years and four months later, it was decided to end the emirate, despite its semi-colonial rule. The two great empires, which had timely begun their eastern invasion, temporarily retained the independence of Bukhara and Afghanistan emirates as a "buffer" zone, so that there could be no conflict between the Russian Tsar and the British. However, both empires worked tirelessly through various reforms to bring the emirate to its sphere of influence.

S.Aini was close a Tatar Jadidian, while A. Fitrat was close to the Turkish school of Jadidian. Aini also worked as a translator at the Tatar school for some time. There were significant differences between Tatar and Turkish schools ...

According to the memoirs, a Russian citizen could not have been prosecuted, imprisoned or otherwise punished by a policeman, even if he had committed a crime in the Emirate. The Russian consulate could be notified if a serious crime was committed.

It is worth mentioning that the people of Samarkand were also citizens of Russia after 1868. Because they were free and inviolable in the Emirate, many locals were envious of them,

and some bought fake Russian passports to escape punishment.

Sadriddin Aini lived in two regimes. His works mainly covered the themes of the past. In the chapters reflecting the new regime, we do not see any striking character that can be clearly remembered. The life of the past was inexhaustible for the writer. On the subject of the past, the writer's pencil became clearer, history start dictating, and we began to look at it as a modern film. Comparisons are viable, exact.

The reader does not have an abstract concept, an unclear comparison, an unknown phrase or a situation, a view. Illustrations, visual aids came from the occupation of heroes, from what they saw and used in everyday life, to the objects and concepts that played an important role in revealing the character and enhancing the effect.

The emergence of a new character signifies a new work has started. In the "Memories" we see hundreds of characters who are not alike, do not duplicate each other, their appearance, dress, and character. The vividness of the characters, the clarity of the portraits, the psychologically grounded and viable nature of the mental states make the memories stand out as a work of art.

In this work, you can easily enter Bukhara of 120-130 years ago, because the concepts of historical and artistic truth were united at one point. resembles sketches of a magnificent epopee with the scale, universality, aesthetic appeal, and authenticity of life.

"The Death of a pawnbroker", "The Old School", "The Remembrance" are the masterpieces of the painter-writer. These are not mere pictures hanging on the walls of the museum. It reflects the thoughtful, illuminating image of the creator, who burdened the suffering and suffering of the nineteenth century and penetrated the jungles of the 20th century in search of justice and faith.

One of the most important services of Aini is that he made a worthy contribution to the formation and development of the Uzbek and Tajik realistic prose. Few artists were ever able to create works that would meet the requirements of literature in Soviet times, at all times. S. Aini was undoubtedly one of such artists.

Until the 1990s of the last century, there was a lot of research work in the field of Aini's works. At the same time, a number of works were dominated by the ideology of the regime, the spirit of literary criticism that emphasizes the writer's attitude to the particular system rather than to study the poetics of his works. In the years of democracy and publicity, many artists were treated unfairly as S. Aini's works, resulting in the neglect of the home museum for many years, his works were published, and the existing ones were excluded from textbooks.

Conclusion

Chingiz Aitmatov, the person whose works were highly evaluated by Y. Fuchik, L. Aragon, K. Fedik, L. Leonov, considered S. Aini as his teacher, can not be born every day. So, now, with a deep sense of artistic expression, treating the work as a holistic aesthetic phenomenon, and according to the successes of World Literature, it would be respect to the spirit of our great writer.

The creative personality of the writer can be matured in society, not in a separate vacuum. It changes the existing doctrines in the society and renews its views. His works were created at a specific time, but it did not stay within that period. As the times and systems changed, the artistic expression continued to manifest itself. That is why the works of world artists, who were true to their originality and authenticity, based on history, truth, and universal ideals, continued to live with the true human suffering, the ideas they put forth, and the life-giving characteristics. The work of Sadriddin Aini is a striking example.

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