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VISION

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CONTENT AND ESSENCE OF THE ACTIVITY OF A UNIVERSITY TUTORING

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ABSTRACT

This article describes the content of tutoring activities in higher education organizations, the role and significance of tutoring in the development of students, and their rights.

KEYWORDS: *Tutor, Tutoring Activities, Rights Of A Guardian.*

INTRODUCTION

It is known that, based on the order of the Minister of Higher and Secondary Special Education No. 386/1 dated September 4, 2021, "The procedure for organizing tutoring activities in state higher educational institutions is correct for higher educational institutions in our country." countries" a Model Regulation was developed. This Regulation is based on Decree No. PF-5847 of October 8, 2019 of the President of the Republic of Uzbekistan "On approval of the Concept for the development of the higher education system of the Republic of Uzbekistan until 2030" of the Cabinet of Ministers of the Republic of Uzbekistan. Ministers of the Republic of Uzbekistan "On measures to improve the system related to the organization of the educational process in higher educational institutions" No. 824 dated December 31, 2020 and "The level of housing coverage for students in higher educational institutions of the Republic", it is clear that it determines the procedure and directions for the implementation of the tasks defined in decisions No. 563 of September 9, 2021.

An educator is an employee working in a higher educational institution, meeting the relevant qualification requirements, possessing high moral qualities, helping, educating them in the spirit of humanity, justice, hard work, love for the tyutor, involving them in circles and clubs organized within the framework of five important initiatives, carry out activities aimed at eliminating all issues and problems that arise during the learning process, in the prescribed manner

When organizing a tutoring system in higher educational institutions, the tutor regularly visits the dormitories of students living in student dormitories, rented and private apartments, studies the conditions and problems of students there, and takes measures to improve them.

"In his activities, the tutor complies with the current legal documents, internal procedures and rules of etiquette of the higher education institution, as well as these regulations." Based on the developed legal documents, tutors have the following rights:

-control over the students' classes assigned to him, in order to control student attendance and the quality of classes;

- Announce to students their enrollment in the TJ, collect and submit the relevant documents, and ensure students' participation in the commission meeting;
- Giving consent to the student's removal from the student dormitory, making proposals to improve his living conditions;
- Work in collaboration with the dean's office of the faculty to eliminate problems in the educational sphere;
- Cooperation with the dean's office, rector's office and public organizations during cultural and educational events and sports competitions;
- Participation in deciding the issue of giving references and academic leave to a student, making full use of the information about the student available at the faculty;
- Making proposals to the faculty dean's office regarding the student's participation in classes, development and role in public life, giving an opinion on the student's motivation or punishment and the right to receive a special scholarship;

Monitoring the fair assessment of student's knowledge together with the primary organization of the Youth Union, the Trade Union and the Department for Quality Control of Education;

The teacher may have other rights not prohibited by law.

Also tutors:

- Regular monitoring and analysis of student learning and participation in classes;
- Creating a database of students in tutoring groups and presentation to faculty;
- Do not disclose personal information about students without their consent;
- Be constantly aware of the living conditions of students, rent, living conditions of close relatives and students living in their own home in a tutoring group;
- Ensure maximum student membership in circles and clubs and control their participation in the activities of these circles;
- Conducting regular (in groups and individually) conversations with students of assigned academic groups;
- Meeting with parents, organizing round tables and providing up-to-date information regarding the student's compliance with the rules of manners, behavior and internal order;
- Acquaint students, their parents or other legal representatives with the charter of a higher educational institution, internal procedures, etiquette and rules for the use of TZH and other documents regulating educational activities;
- Organizing "Spiritual Information Hours" and "Soft Skills" trainings in academic groups once a week based on the class schedule and ensuring its effectiveness;
- Immediately report to the dean of the faculty about emergency situations involving students;
- Conduct regular educational activities with the participation of specialists in the field of prevention of delinquency, crime and religious extremism among students;

-Organization of ongoing preventive work on the harmful effects of alcohol, smoking and psychotropic drugs;

-Identify students in need of financial support; make a proposal to the dean of the faculty for their social support;

-Monitor students' compliance with the rules of etiquette and other internal documents on the territory of the educational institution and report to the dean of the faculty on taking appropriate measures against students who violate these documents;

In the system of tutoring in higher education organizations, the tutor carries out his activities in accordance with current legal documents, internal procedures and rules of etiquette of a higher educational institution, as well as other responsibilities in accordance with these regulations.

Article 2 of the Regulations "Goals and Objectives of Tutoring in Higher Educational Institutions" states that the main goals of tutoring are:

- Effective organization of harmony of the educational and training process;

- Regulation of relations between the educational institution and students;

-Providing socio-spiritual and psychological support to students for a better understanding of themselves, making the right decisions in study and life, increasing love for their chosen profession;

- Strengthening the position of the Public Council and the district in matters related to increasing the efficiency of the educational process in educational institutions, improving student attendance;

- Analysis of students' learning of lessons and ensure that they spend their free time meaningfully;

- Consists of constant awareness of one's social (family) status.

In short, the general content of tutoring activities is to prepare family education students to become mature individuals in all respects and human capital, based on the needs of society.

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INTERDISCIPLINARY PERSPECTIVES ON SECOND LANGUAGE ACQUISITION: COGNITIVE, PSYCHOLOGICAL, AND SOCIOCULTURAL DIMENSIONS

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ABSTRACT

This interdisciplinary study delves into the multifaceted realm of second language acquisition, dissecting the cognitive intricacies, psychological underpinnings, and socio cultural factors that shape language learning. Drawing on seminal works by scholars like Bialystok, Hakuta, and Giles, the research navigates through the complexities of language acquisition, highlighting the interplay between intellectual abilities, cultural contexts, and pedagogical methodologies. Insights from linguodidactics illuminate the nuanced relationships between native and foreign languages, learner errors, and socio cultural influences. The exploration reveals that successful language acquisition transcends rote learning, emphasizing the holistic integration of cognitive prowess, cultural awareness, and intrinsic motivation. Educators, armed with these findings, can tailor instructional methods to nurture effective language learners, fostering global communication and cultural understanding.

KEYWORDS: *Second Language Acquisition, Cognitive Abilities, Socio Cultural Factors, Linguodidactics, Language Learning, Educational Psychology, Intercultural Communication, Pedagogical Methodologies.*

INTRODUCTION

The acquisition of a second language is a complex and multifaceted process influenced by a myriad of factors, ranging from individual aptitude and motivation to societal and cultural contexts. Scholars and researchers have delved into this intricate domain, dissecting the cognitive, psychological, and socio cultural dimensions that underpin language learning. This article navigates through the nuanced landscape of second language acquisition, drawing insights from prominent works by scholars such as Bialystok, Hakuta, Giles, and others. By examining the interplay between intellectual abilities, cultural influences, and educational methodologies, we explore the diverse facets of language acquisition. In doing so, we aim to unravel the intricate tapestry of second language learning, shedding light on the fundamental elements that shape this profound journey of linguistic discovery.

The process of learning a second language is a multifaceted endeavor influenced by a variety of life circumstances and motivations. Bialystok and Hakuta, scholars from Stanford University, in their book “In Other Words: The Science and Psychology of Second-Language Acquisition,”

identify five fundamental aspects that shape this process: language, brain, intellect, self-education, and culture (Bialystok & Hakuta, 1994, pp. 32-34). Over the years, the acquisition of a foreign language has been a subject of extensive debate, with linguists, psychologists, and other researchers conducting numerous studies on the topic.

Notably, the authors of the book highlight that these aspects were largely overlooked for a significant period. They pose intriguing questions, such as whether a student who struggles with physics or algebra can successfully master a foreign language. In essence, they delve into how to harness an individual's intellectual capabilities for learning a second language. Bialystok and Hakuta contend that individuals facing academic challenges in other areas can excel in second language acquisition because this process necessitates practical skills in addition to theoretical knowledge. Moreover, they emphasize that one's depth of knowledge in their native language directly impacts their ability to advance in learning a foreign language.

In their chapter on "Self-Education," Bialystok and Hakuta discuss the diverse factors that influence individual language learning. Age, interests, proficiency in one's native language, intellect, motivation, standard of living, and cognitive abilities all play crucial roles in this process. Mastery of a second language is achieved when individuals discover the necessary skills to attain their language-learning goals. They do not need to relearn the concept of language since they already possess it through their native language (Bialystok & Hakuta, 1994, pp. 14, 15).

The authors further explore the process of learning a foreign language through the lens of concepts. They draw a parallel to small, basic concepts, much like Lego blocks, coming together to form complex semantic structures. This underscores the idea that speech is composed of individual meaningful words that collectively convey meaning.

Moving beyond Bialystok and Hakuta's insights, other Western scholars, like H. Giles in his work "The New Handbook of Language and Social Psychology," shed light on individual aptitude for learning a foreign language. Giles discusses how individual differences and educational background significantly impact achievements in second language acquisition. Highly educated students possess a better understanding of the nature of language tasks, prepare thoroughly for their assignments, engage in independent study of the material, and select effective methods to enhance the quality of language learning (Giles & Peter, 1990, pp. 21-23).

H. Giles also underscores the role of parents in shaping an individual's aptitude for second language learning. Parental involvement can be either active or passive. Some parents introduce elements of communication in a second language from an early age, especially if the family resides in a multilingual environment with members from different linguistic backgrounds. However, some parents may exhibit passive or even negative attitudes towards their children's language learning endeavors. For instance, they might deem it a waste of time or may not be willing to invest resources in their child's language aptitude development. Consequently, an individual's capacity to learn a foreign language can vary significantly (Giles & Peter, 1990, pp. 21-23).

In the context of educational innovations within the Russian education system, teacher preparation takes on a new level of importance. Teachers are expected to align their professional activities with federal educational standards, which include the ability to systematically analyze the effectiveness of lessons and teaching approaches, evaluate students' knowledge objectively based on testing and other assessment methods, and apply modern psycho pedagogical

technologies rooted in an understanding of personal and behavioral development in both real and virtual environments (Kraevsky, 2004). One of the critical components of teacher preparation is scientific research activity, where graduate students in master's programs are trained to design educational processes based on specialized scientific knowledge and research findings (Kraevsky, 2004).

Modern linguodidactics introduces the concept of a secondary language personality, which pertains to an individual's readiness for intercultural communication. This concept aligns with the contemporary goals of language education, which prioritize the development of students' foreign language communicative competence. This involves not only the ability and readiness to engage in foreign language communication but also the assimilation of students into the culture of the target language country and an increased awareness of the value of one's own culture, enabling students to represent it effectively in their communication (Galskova, 2008). Linguistic competence, a vital component of communicative competence, encompasses knowledge of vocabulary, phonetics, grammar, and the ability to understand and interpret others' thoughts and express one's own ideas both orally and in writing (Milrud, 2007).

Linguodidactics delves into interconnected phenomena associated with language acquisition, such as the interaction between native and foreign languages, the role of innate language abilities versus acquired language and speech experience in the foreign language, diverse perspectives on the process of foreign language acquisition, attitudes towards errors made by learners in the target language, and socio cultural factors influencing language acquisition (Kraevsky, 2004). These categories represent interrelated linguodidactic phenomena, each of which can significantly impact the outcomes of pedagogical activities in foreign language education. The examination of the foreign language acquisition process under controlled and considered conditions involves the implementation of the linguodidactic experiment method.

The experiment employs a range of methodologies, including empirical methods such as a comprehensive review of scientific literature, pedagogical observations, and diagnostic methods that involve questionnaires, interviews, and linguodidactic testing. Theoretical methods, such as modeling, analysis, synthesis, comparison, classification, and generalization, are also instrumental in this process. Additionally, statistical methods, which encompass mathematical statistics for processing and analyzing results, play a crucial role in testing hypotheses and achieving the objectives of the experiment (Kraevsky, 2004).

In the ever-evolving mosaic of second language acquisition, this exploration has illuminated the intricate web of influences that determine an individual's proficiency in a foreign language. From the cognitive intricacies highlighted by Bialystok and Hakuta to the socio cultural dynamics examined by Giles, we have traversed diverse terrains of linguistic understanding. Through the lens of linguodidactics, we discerned the complex interplay between native and foreign languages, errors made by learners, and the socio cultural milieu in which language acquisition unfolds.

As we conclude this journey, it becomes evident that successful language learning is not merely a matter of memorizing vocabulary or mastering grammatical rules. It is a holistic process that encompasses intellectual acumen, cultural awareness, and a deep-rooted motivation to bridge linguistic divides. Educators, armed with the insights from these studies, are better equipped to guide students on this expedition, tailoring their approaches to accommodate individual differences and societal contexts. In fostering a deeper understanding of second language

acquisition, we pave the way for a more interconnected world, where languages serve as bridges, uniting diverse cultures and fostering meaningful communication across global boundaries.

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LIFE AND SCIENTIFIC HERITAGE OF SADRI SHAHID HUSAMUDDIN

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ABSTRACT

In this article, the author gave information about the lifepath and scientific works of Sadri Shahid Bukhari. In particular, the copies of the work "Sharh al-jami' as-saghir" of the Husomiddin Sadri Shahid. He shows the place and importance of this work in the eyes of scholars were discussed. On the relating of "Sharh al-jami' as-saghir" work gave scientific conclusions on the copies of the work that are kept in the world's funds and their condition, having closely familiarized with the research.

KEYWORDS: 12th Century, Bukhara School Of Jurisprudence, Sadri Shahid Bukhari, Jurisprudence, Hanafi School, Manuscripts And Fatwas.

INTRODUCTION

The famous scholar of jurisprudence Husamuddin Sadr Shahid was born in the year 473/1090 in the city of Marv. His full name is Husamuddin Umar bin Abdulaziz bin Umar bin Moza Bukhari. He taught mature jurists and judges of his time. Until Husamuddin's death, he was known in Bukhara as Moza or Banu Moza (Children of Moza). He was given the nisab of Sadr Shaheed posthumously. Sadr Shahid was the chairman of Bukhara for twenty years, from 512/1118-19 to his death in 536/1141.

Because Husamuddin Sadr Shahid Moza was the most presided over by the children, the sources that provide information about the jurist add the nisba "sadr" to him. "Sadr" (Arabic meaning front, chest) is also a title given to various officials in Muslim countries. This title is sometimes given to religious leaders, who are entrusted with the task of managing the endowment affairs of the entire state or a province. The rank of Sadr was given to him by Sultan Sanjar. He became known as a martyr due to his death in 536/1141 in a battle between the troops of Sultan Sanjar and the Qarakhitai¹.

MAIN BODY

In the 10th-11th centuries, Bukhara and Samarkand, which are the big cities of Central Asia, were actively involved in the social and political life of the scholars of the Hanafi sect. Many researchers in the west have carried out effective scientific activities on the entry and development of the Hanafi sect in this country.

According to the conclusions of a consistent study of the information in the works of "Tabaqat al-Hanafiyya", it was determined that Sadr Shahid has the following works: 1) "Sharh al-Jami' as-Saghir" is related to the work "al-Jami' as-Saghir" by Muhammad al-Shaybani, one of Abu

Hanifa's students. is considered a finished review; 2) "Al-Usul al-Husamiyyah" or "Usul al-Sadr al-Shahid" is a work on usul al-fiqh. Carl Brockelman reports on this work; 3) "Sharh al-jami' al-kabir". This work is a commentary on "al-Jami' al-kabir" by Muhammad Shaybani. No manuscript copy of this commentary is known to exist. However, many quotations from it in "al-Fatovo al-hindiyya" are proof that it was such a work; 4) "Umdat al-mufti wa-l-mustafi" (Guide to Fatwa Issuer and Requester); 5) "Al-Fatawa al-Sughra"; 6) There are works such as "Al-Fatovo al-kubra".

In particular, the work "Sharh al-Jome' as-saghir", which contains the main jurisprudential views of the author, is considered a commentary on the work "al-Jome' as-saghir" by Muhammad al-Shaybani, one of the students of Abu Hanifa, and the author of "Miftah as-sa'ada" is this commented that the commentary is one of the seven major commentaries written on al-Jame' al-saghir. Carl Brockelman reports on two copies of this commentary held in the American Barston University Arabic Manuscripts Collection. There are also copies of it in the Mosul Public Library and the National Library of Alexandria in Iraq².

The copy of this work, which is now kept in the "Devband" madrasa in Saharanpur, India, was researched in 1310/1892-93 by Muhammad ibn Abdulhay al-Laknavi al-Hindi. As a result of the research, it became known that the work is also known by the names "al-Jome' as-saghir fi-l-furu'" or "Jome'i Sadr Shahid". At present, its Tashkent copy is stored in the main fund of the National Academy of Sciences of the Republic of Uzbekistan under number 5815.

Many commentaries were written on this work of Husamuddin Sadr Shahid by the leading jurists of his time. For example, "Sharh Badruddin al-Varsaki", "Sharh Abi Nasr Ahmad al-Isbijabi", "Sharh Alauddin al-Samarqandi" are among them. In addition, there are seven in the public library of "Sharh al-Jome' as-saghir" in Baghdad, four in the Istanbul State Museum, one in the treasury of "Hasan Poshho al-Jalili books" in Iraq, two in the library of the "al-Fatih" mosque in Istanbul, three in the Iraqi State Museum in Baghdad, Eleven manuscript copies are preserved in the libraries of al-Azhar, Alexandria, and Dar al-Qutub al-Misriyya in Cairo³.

In 1993, the full manuscript was published as a result of the scientific work on the topic "Sharhu al-jame as-saghir fi al-fiqh" by Sadri Shahid Umar ibn Moza, which was carried out and researched as a master's thesis at the Islamic community in Madinai Munawwara⁴.

Researcher Buno Sa'id quotes the following about the lists of this work kept in world treasures:

1. In the National Library of France in Paris: copy number 821. This was copied in 740 AH (1339).
2. In the National Library of France in Paris: copy number 822. This was copied in 1140 AH (1727).
3. In Darul Qutb al-Misriya, Cairo: Copy No. 1078. The date of transfer is unknown.
4. It is stored in the personal library of Arif Hikmat in Madinai Munawwara. But the date of copying of this copy is also unknown.
5. Stored in Maktabati Asad (Library of Asad) in Damascus, Syria: No. 20676. This copy is the oldest copy copied during the time of the author Sadri Shahid⁵.

Similarly, the author's work "Sharh al-Jome' al-kabir" is available. This work is a commentary on Muhammad Shaybani's "al-Jame' al-kabir". No manuscript copy of this commentary is known to

exist. But the fact that many quotes from it in "al-Fatovo al-hindiyya" is proof that it was such a work.

From the above jurisprudential fatwas, the consideration of Husomiddin Sadri Shahid's unique jurisprudential views by other jurists is also reflected in this work, and it can be seen how the development of society and the benefit of people are prioritized in it.

CONCLUSION

In conclusion, it can be said that Husamuddin Sadr Shahid graduated from Bukhara and Samarkand jurisprudence schools and as a scholar who gathered many years of tradition, he left many scientific works behind him. In the future, conducting new research within the framework of scientific works of this scientist is one of the priority tasks.

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TO SEE THE STUDY OF DOUGH DISHES AS AN EXAMPLE OF AN AUCTION LESSON

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ABSTRACT

In this article, the formation of a mature person, his acquisition of a suitable profession, his ability to contribute to the development of society, to live and thereby manifest his identity in society, that is, to mature as a person, are taken into account. The pursuit of perfection is a complex process that takes place together with the professional formation of a person and lasts almost a lifetime. In a broad sense, professional formation means that a person receives education in a certain profession according to his mental abilities, physical capabilities, abilities, interests and aspirations for this or that field, as well as values and worldviews, and then enters and adapts to this field. Finally, it is understood that over the years he will grow into a mature and qualified specialist, and his main criterion at the current stage of quality education is to use the auction method to teach students about dough dishes in the teaching of technology in his classes.

KEYWORDS: Auction, Dough Dishes, Somsa, Chuchvara, Manti, Honim, Norin, Lagmon, Turban Dishes, Sour Cream, Trade.

INTRODUCTION

The reform of the education system in Uzbekistan and the adoption of the national personnel training program are the first steps in creating a mature generation. Achieving personal development is carried out through the educational system implemented in every society. Today, the work being carried out in this regard has risen to the level of state policy in our republic.

As the President of the Republic of Uzbekistan, Shavkat Mirziyoyev, said in his speech at the joint session of the Oliy Majlis Chambers, "The fact that our youth are able to take responsibility for the future of our country and are becoming the decisive force of today and tomorrow gives us all pride and honor. It is necessary to bring to a logical conclusion the large-scale work we are conducting in this field, in particular, the adopted nationwide programs on education.

One of the convenient ways to increase the effectiveness of training on guiding students to choose a profession is the "Auction" lesson. We will consider the auction lesson as an example of the topic "Teaching students about dough dishes" related to cooking in the labor education lesson.

The teacher acts as a manager in the auction. A few students are cooks, and the rest are buyers. After organizing the lesson, the teacher opens the "Auction".

Dear customers. Today's auction includes sweet-tasting doughy dishes. By buying these foods, you can have healthy, vitamin-rich, tasty foods, and learn how to prepare these foods.

Good luck to all of you.

Our chefs will tell you about the dishes.

After that, a student will go on stage and give information about preparing dough dishes.

Dear customers. The dishes that we would like to recommend to you are Uzbek national dishes, rich in vitamins, which our people love to eat. These include the following: somsa, chuchvara, manti, honim, norin, lagman, turban and hakoza.

At our auction, we prepared "somsa", which is considered the Uzbek national dish. This dish has its place in Uzbek national dishes. Preparation of somsa from dough dishes is as follows:

Necessary ingredients: 500 grams of flour for the dough, 200 grams of margarine, 1 glass of yogurt or sour cream, 1 egg, a teaspoon of baking soda, a teaspoon of salt.

For minced meat: 500g of meat, 250g of onion, salt and spices.

Preparation: put margarine and flour in a rolling pin and rub it well. Yogurt or sour cream, drinking soda, salt and eggs are mixed into the mass in the rolling pin, mixed well and made into a dough. Cook the dough well. We put the dough in the refrigerator to chill and prepare minced meat, cut the onion into half rings, mix salt, spices and fatty ingredients according to taste. We take the kneaded dough and divide it into pieces like walnuts. We spread the zuvalachas and put 1 tablespoon of the ingredients into a roll. Spread egg yolk on the somsa and sprinkle with sesame or sesame seeds. Ready somsa are cooked in the oven at 120 degrees.

Another one of the auction lessons is to organize and conduct a lesson in the form of a scene on the use of trading activities in the market. Students of the class selected for this lesson will be divided into 3-4 groups, and each of these groups will be assigned tasks and tasks, i.e., a deputy manager and a supervisor will be appointed. Under the leadership of these "responsible persons", the groups try to fill their stalls with various dishes prepared by themselves and sell these dishes by advertising.

In order to sell products, they must first advertise the products and call buyers. In advertising, students should use various wall newspapers and product samples. If necessary, the groups also prepare business cards. Not only students, but also teachers can directly participate in product mapping.

In the evaluation of the students' activities, how sweet and healthy they prepared food, their ability to advertise and sell products, as well as the attitude of the students are taken into account.

When conducting technology lessons, when organizing an auction lesson among students, sellers wrap the purchased product or add small gifts to those who bought more, which helps to make the lesson interesting.

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PSYCHOLOGICAL IMPORTANCE OF SELF-AWARENESS IN THE DEVELOPMENT OF THINKING SKILLS IN CHILDREN AGED 5-6 YEARS OLD

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ABSTRACT

This state description of the features of the cognitive process in the development of the mental abilities of children 5-6 years old. The state contains information about mental processes aimed at self-realization of children of this age.

KEYWORDS: *Child 5-6 Year's Old, Mental Process, Self-Awareness, Self-Awareness, Self-Awareness.*

INTRODUCTION

Rapidly developing cognitive processes in children aged 5-6 years force them to think, analyze reality, and, based on observation, seek detailed information from the people around them. In children of this age, the thinking process manifests itself as a product of the cognitive process. - In 6-year-old children, the process of understanding is actively manifested in the process of thinking. The child is now trying to understand what is happening with his own mind. The bulk of his opinions consist of opinions about me. For example, when am I? Why is there a breeze? Similar questions actively arise in his thoughts. This indicates that the process of understanding in a child quickly manifests itself in the child's psyche.

The mental development of a person, the development of his thinking abilities, his formation as a person is associated with the development of self-awareness, that is, awareness of oneself as a physical, spiritual and social being.

The development of understanding in children aged 5-6 years occurs differently for each child. "I play", "I dress", "I eat" and the word "I" can often be found in the speech of a 5-6 year old child. One of the most important achievements of 5-6 year old children is the transition from expressing themselves with a third person pronoun to using the pronoun "I". Some psychologists (L.I. Boyovich) even believe that the "I" system that forms in childhood and the desire for independent action, the desire to express one's "I" are the most central new structure that arises during this period. Among the structures that arise from this structure, the emergence of self-esteem is of great importance in the development of the child as an individual.

At these stages of personality formation, the child's communication with adults plays a decisive role in the genesis (emergence) of self-esteem during the period of preparation for school. Since the child does not have sufficient knowledge about his capabilities, he accepts the assessment given to him by his elders. In other words, the child evaluates himself through his opinion about the child. During this period, the child completely relies on the opinion of adults in self-esteem. Elements of independent imagination about oneself appear a little later.

According to special studies (B. G. Nechaev and others), these elements initially appear not in the assessment of personal qualities and moral qualities, but in the assessment of the internal characteristics and external characteristics of the subject. This shows that actions are not completely separate from the object.

A significant change in the development of a child's personality at the age of preparation for school is expressed in the transition from assessing the external characteristics of another person to assessing personal characteristics.

It has been noticed that children of this age evaluate people who are different from themselves more objectively. With an increase in the meaningfulness of the thought process in children 5-6 years old, we see that the thinking of children of this age is changing in nature. However, now the formation of opinions in relation to the object begins to occur on the basis of critical and analytical approaches.

Self-esteem in kindergarten is emotional. The value that a child places on others also has this characteristic. If a child trusts one of the adults who cares for him, if he receives kindness, he will give that person positive feedback. Children of older kindergarten age try to express the inner world of the adults who care about them. Unlike children of middle and junior kindergarten age, they have a much deeper and differentiated assessment of the inner world of adults.

It has been established that a child's position in a group affects his self-esteem. For example, children who occupy a low position in a group tend to rate themselves very highly, and conversely, children who occupy a much better position in a group tend to rate themselves low. By the end of kindergarten age, the child's assessment of other people begins to take a deeper, more detailed and expanded form.

These changes are explained by the fact that children of kindergarten age are more interested in the inner world of people, learn important evaluation criteria, and develop their thinking and speech.

The self-esteem of a 5-6 year old child reflects his developing feelings of pride and shame.

The development of self-awareness is inextricably linked with the formation of the child's cognitive and motivational sphere. As a result of the development of these areas, the child begins to understand both himself and the situation he occupies, that is, an understanding of his social self is formed. This phenomenon plays an important role in the child's transition to the next age, as well as in his psychological readiness for school. By the end of kindergarten age, independence and critical assessment of the child by parents and each other increases. The motivational field of a kindergarten-age child is actively developing. The behavior of a child of kindergarten age is not much different from the behavior of a child of early childhood. During this period, children act primarily under the influence of situational emotions and desires. They do not always understand and cannot explain why they do something. The behavior of kindergarten-aged children is more specific. Different motives encourage children at different stages of kindergarten age to perform the same action.

For example, a three-year-old child washes the house to play with water, and a six-year-old child wants to clean up the house and help his mother.

In the kindergarten period, motives characteristic of this period appear in the motivational field. Among them there are also motives related to the child's interest in the world of adults and the desire to be like them.

According to special studies (L.Z. Neverovich and others), motives of a social nature can have great motivating power already in childhood, even greater than motives such as interest in the external, procedural aspects of personal interests and activities. However, motives that have a social nature and content do not arise suddenly, but are formed under the educational influence of adults.

Thus, at 5-6 years old, new motives of behavior appear. These motives enter into certain relationships and, connecting with each other, form a hierarchy of motives. The hierarchy of motives is usually considered as a structure that arises in the motivational field of a child in kindergarten and plays a very important role in his development.

Due to the interdependence of motives in the hierarchy of motives, a child may refuse an activity that is currently interesting to him in order to complete an important, but rather boring task. At kindergarten age, motives for activity fall into a certain system, and some motives begin to prevail over others. The predominance of any motive determines the direction of the child's behavior. Even if in the kindergarten period the child's personality is just being formed, during this period a certain trend in the behavior of children begins to be observed. This orientation can be different - from an egoistic orientation to an individualistic, social orientation (of course, within the capabilities of this age).

Creativity is manifested in the behavior of some children aged 5-6 years, and some children show tendencies towards mischief and consumerism. Educators and parents should be quick to spot these trends. Because this makes it possible to correct negative characteristics in a timely manner, to form needs and motives that can be formalized from a social point of view, and to create conditions for the self-expression of each child.

In Conclusion, it should be noted that the meaningfulness and volume of the thought process in children 5-6 years old is a complex mental process that depends on the process of self-awareness.

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**MEASURING THE CONSISTENCY OF LIQUIDITY AND ITS
FINANCIAL HEALTH: A STUDY ON TRIBAL CO-OPERATIVE
MARKETING DEVELOPMENT FEDERATION OF INDIA**

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ABSTRACT

The present study of the paper aims to show the consistency of the liquidity and its effects on the financial health of Tribal Co-operative Marketing Development Federation of India (TRIFED). The objective of the study is to examine the extent of association between the variables and to show the consistency of the liquidity position of the TRIFED. For examining the significance of the value of W, Chi-square (χ^2) and Altman's Z-score has been used to check the organization monetary position. The result of the analysis concludes that Kendall's coefficient of concordance (W) among the given six ratios are found to be statistically significant at the 5 % level. In addition, one sample t-test portray a remarkable difference in the Altman's Z-score of Tribal Co-operative Marketing Development Federation of India (TRIFED) during the study period. The study leads to significant conclusion based on the study's result.

KEYWORDS: *Liquidity, Altman Z Score, TRIFED, Kendall's Coefficient Of Concordance, T-Test.*

INTRODUCTION

A Co-operative Society is an artificial voluntary association of people who work together to promote their economic interest and in order to achieve common goals. These societies are incorporated with some social motives and they often have separate legal body and common seal. The main aim of such a society is to self help each other by using the resources gathered by the society and do not depend on anyone and to eliminate the unnecessary profit of middlemen in trade and commerce. For this purposes, Tribal Co-operative Marketing Development Federation of India is an apex organization under Ministry of Tribal Affairs in 1987 was brought into existence with the main objective of institutionalization the trade of [Minor forest products](#)(MFP) and to provide the tribal of India a fair price for the surplus agricultural products produced by them.

Liquidity is the term used to describe the liquid assets in order to cover current and future liabilities, including others, like expenditure on goods and services. Liquid assets can be readily available whenever it is required. But other types of assets, like long-term investments can take

more time to convert to cash. If such an asset is to be sold very quickly because of an unexpected shortfall, there is a risk that the company will lose some of its value.

Profitability indicates the profit earning capacity of the business enterprise in the process of business. This capacity is expressed in relation to investments or level of operation (sales). Profitability analysis is employed to measure the organizational efficiency during the year. In some cases, the technique of cost-benefit analysis may also be used. It is helpful for the purpose of planning and control. Critical analysis of the profitability is also required to test the viability of the company.

In this background, the present study concentrates on the measuring of the consistency and liquidity position of TRIFED. The effects of profitability on the liquidity have also been analyzed in the study.

Review of Literature

Chellasamy & Kannamudaiyar (2019)¹ The Altman Z score is used to predict distress of companies two years prior to the happening of the event. The main objective of this paper is to check the efficiency of this model in predicting financial distress of Indian footwear companies five years prior to the occurring of the event. Five companies have been selected to check the efficiency and accuracy of this model. The study concludes that the overall financial health of footwear industry is in healthy zone. Because from the five selected companies, four companies (Bata India, Relaxo, Mirza International and Khadim's) are in healthy zone. Only the Z score values of Liberty Footwear are found below 1.80, which indicating Distress zone.

Swarankar, J & Jain, O.P (2020)² conducted a study on the measurement of the fiscal situation of Rajasthan Dairy Co-Operative firm. The aim of this article is to ascertain the financial conditions of the Kota dairy in Rajasthan for a period of eight years from 2011-12 to 2018-19 by using Altman Z score model along with one sample t-test. But the findings of the study portray that the financial performance of the selected dairy co-operative firm was in the gray zone in the year 2011-12 and 2018-2019 was stabled as per financial health.

Naskar, A & Guha, P (2017)³ studied the relationship between the financial performance and working capital management of the listed Indian company. The findings indicate that profitability has an important impact on the management of working capital. In addition, Debtors Turnover Ratio (Days), Creditors Turnover Days (Days), Inventory Turnover Ratios, Current ratios, Quick ratio, Cash cycle has a strong negative relationship with the prosperity of the company.

Statement of Problem

Change is inevitable. It is very important to understand that the only thing that is constant in the world of business environment is change. Co-operatives play an important role of uplifting living conditions of low and middle income groups of the society. In order to serve themembers well, a co-operative society must ensure that the business is run efficiently and this must be reflected in its financial performance. TRIFED charges reasonable prices for all of its products. However, due to poor management, a lack of cooperative democracy, corruption and embezzlement, a lack of working capital, and the weakness of supporting institutions, cooperative marketing development societies are unable to perform well. Thus, profit is essential for co-operative marketing societies' survival, as is providing more and better services to their members in order to keep them from turning to money lenders or intermediaries.

Objectives

1. To examine the consistency on the liquidity management of Tribal Co-operative Marketing Development Federation of India (TRIFED) □
2. To study the financial health of the Tribal Co-operative Marketing Development Federation of India (TRIFED)

Research Methodology

The impact of profitability on the liquidity and its consistency on TRIFED has been analyzed based on the secondary data. The company’s yearly accounting statement from 2016-17 to 2019-20 have been considered for the study. The Kendall’s

Coefficient of concordance (W) has been adopted to examine the extent of association between the variables and to show the consistency of the liquidity position of the TRIFED. For examining the significance of the value of W, Chi-square (χ^2), regression analysis, Altman’s Z-score Model applied by Altman’s has been used to check the organization monetary position.

Result and Discussions

The ratios considered in the study have been used as the financial indicators of TRIFED. C.R (Current Ratio) measures the organization’s liquidity. Asset Turnover Ratio) measures a company's ability to manage its wealth. ITR (Inventory Turnover Ratio) measures the level of inventory management. ROE (Return on Equity) measures the effectiveness of the management in utilizing equity financing provided by shareholders. ROCE (Return on Capital Employed) to assess a company's profitability and capital efficiency. To Know is there any consistency among the liquidity management of TRIFED different financial ratios have been calculated for the five years, which is shown in table 1.1

TABLE 1.1 FINANCIAL RATIO

Year	CR	LR	ATR	ITR	ROE	ROCE
2015-16	2.8	1.9	0.08	0.45	0.05	0.03
2016-17	3.1	2.4	0.07	0.38	0.13	0.03
2017-18	3.0	2.3	0.11	0.64	0.05	0.04
2018-19	2.1	1.5	0.17	0.78	0.08	0.07
2019-20	9.8	7.4	0.13	0.68	0.06	0.02
Mean	4.16	3.1	0.112	0.58	0.07	0.03
S.D	3.18	2.43	0.04	0.17	0.03	0.02
C.V	0.76	0.78	0.36	0.28	0.45	0.51
CAGR	0.28	0.31	0.10	0.09	0.04	-0.08

Source: TRIFED Annual Report

With regard to Liquidity ratios, C.R and L.R shown in the financial ratio of TRIFED is performed better during the period 2015-16 to 2019-20. As shown in the table 1.1, the Mean of the liquidity ratio are 4.16 and 3.1 respectively and the CAGR also been 0.28 and 0.31. The activity ratios, ATR and ITR are been fluctuating during the study period and the Mean and CAGR of the activity ratio also been 0.11, 0.58 and 0.09 and 0.04 respectively. In the profitability ratios, ROE and ROCE is also been fluctuating during the study period and the CAGR of ROCE shows the negative trend of -0.08 during the study period.

Kendall’s Coefficient of Concordance

Kendall’s Coefficient of Concordance (W) is a suitable formula to examine the extent to which more than two classes of the series are associated. It is usually denoted by W. W may be computed by:

$$W = \frac{12R}{m^2(k^3 - k)}$$

Kendall’s Coefficient of Concordance (W) =

$R = \sum (R_i - R)^2$, R stands for the Sum of grades allocated to each case, R_i is the average value of R, K is the number of groups of rankings, N stands for the number of cases graded (Rank).

The Kendall’s Coefficient of Concordance, the most preferred formula for assessing liquidity management for the years 2016-17 to 2019-20 using the financial indicators shown in table no 1.2.

TABLE 1.2 KENDALL’S COEFFICIENT OF CONCORDANCE

TRIBAL CO-OPERATIVE MARKETING DEVELOPMENT FEDERATION OF INDIA	Variables	2015-16	2016-17	2017-18	2018-19	2019-20
	CR	4	2	3	5	1
	LR	4	2	3	5	1
	ATR	4	5	3	1	2
	ITR	4	5	3	1	2
	ROE	5	1	4	2	3
	ROCE	3	4	2	1	5
	Sum = R_i	24	19	18	15	14
	K	5				
	M	6				
	W	0.572				
	r	-0.027				
	X² (Chi-Square)	4.133				
d.f	4					
P-value	0.388					

Kendall's coefficient of concordance (W) indicates the degree of association of ordinal assessments made by multiple appraisers when assessing the same samples. Usually Kendall's coefficients of 0.9 or higher are considered very good. Here, W shows the 0.572 using Kappa Scale, it shows a good or significant Kendall's coefficient means that the appraisers are applying essentially the same standard when assessing the samples

Analysis of the Financial Position of Tribal Co-operative Marketing Development Federation of India

For the purpose of verifying the financial position, Z-score Model proposed by Prof. Edward Altman in 1968 has been used. The Z - score may be calculated considering the five ratios as stated for predicting the possibility, when a business can go bankrupt. The discrimination function is set out as below:

$$Z=1.2X_1+1.4X_2+ 3.3X_3+.6X_4 + .999X_5$$

Where, X1=Working Capital/Total Assets

X2=Net Operating Profit/Total Assets

X3=EBIT/Total Assets

X4=Market Value of Equity/Book value of Total Debt

X5=Sales/Total Assets

TABLE 1.3 FINANCIAL RATIOS FOR ALTMAN'S Z SCORE MODEL

Year	WC/TA *1.2	NOP/TA *1.4	EBIT/TA *3.3	MV/TD *.6	Sales/TA *.999	Z-score
2015-16	0.26	0.04	0.11	0.39	0.08	0.87
2016-17	0.37	0.04	0.25	0.35	0.07	1.81
2017-18	0.38	0.07	0.09	0.34	0.22	1.10
2018-19	0.39	0.13	0.14	0.30	0.16	1.89
2019-20	0.62	0.06	0.05	0.15	0.10	0.97

Table no 2.1 makes it clear that the value of Z-score is above 2.99, then the organization is likely in safe in regards the financial conditions. In this particular case, it is observed that the Z score value for the year 2015-16, 2017-18 and 2019-20 is lower that 1.81. The financial position of the company is not good enough to show its ability. The financial condition is stable in 2016-17 and 2018-19, which looks better financial position as the Z score value is more that 1.81.

To measure the significance level of the company Altman' Z score is analyzed with the help of one sample ttest shown in table 2.2.

TABLE 1.4 ONE SAMPLE STATISTICS

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Zscore	-7.720	4	.002	-1.67200	-2.2733	-1.0707
N	5					
Mean	1.3280					
Std. Dev	0.48427					
Std. Error	0.21657					

A significant difference in the value of Altman's Z score, shown in table 2.2 of the company is $p < 0.01$.

Findings

1. It is observed that the financial ratio (liquidity management) using Kendall's coefficient of concordance (W) considering all six ratios is 0.172, whereas the tabulated value at the 5% level is 11.067. The result is significant at the 5 % level. There is a strong relationship among the financial ratios, which indicates that there is a consistency of the liquidity among the selected financial ratios.
2. The miserable situation is found during the year 2016-17and 2018-19 and 2015-16, which indicates that the financial health of Tribal Co-operative Marketing Development Federation

of India has gone down during the periods. The financial condition of the company is comparatively better during the period from 2017-18 to 2019-20.

3. One sample t-test portrays that there is a significant difference in the financial health of TRIFED in several years, calculated using the Altman's Z-score during the five year period, since the p-value <0.01 .

CONCLUSION

Co-operative is an important tool of the economic development in the rural india. In same way, TRIFED in India, gives an idea of collective efforts to achieve specific objective to carry out marketing strategy for tribal products. Profitability and liquidity are interlinked with each other that are useful in measuring a company's financial soundness. Profitability measures the financial performance and liquidity to measure the cash flow position of the company, primarily in response to its short term obligation. The study implies that the consistency among the financial ratios is sustained as proved by using the Kendall's Coefficient of Concordance. On the other side, the economic strength of the company is not a remarkable one as analyzed by applying Altman's Z-score. It also implies that there was a close and significant association among the different aspects of financial performance of TRIFED. It is also found that the Return on Capital Employed (ROCE) has an overall positive influence on the four independent variables i.e. C.R, L.R, ITR and DTR, which is insignificant. A significant difference in the financial soundness of the company is noticed. The study also reveals that there is needed a remarkable improvement in the overall liquidity of TRIFED in the coming years.

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THE CONSISTENCY OF EDUCATIONAL REFORMS IN THE YEARS OF INDEPENDENCE AND ITS ESSENCE

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ABSTRACT

In this article, the essence of the development of pedagogical ideas in different periods is described, and the specific features and content of pedagogical ideas of each period are highlighted. In particular, different directions of development of pedagogical ideas in the period of independence and considered separately.

KEYWORDS: *Education, Pedagogical Thought, Pedagogical Innovation, Stages Of Gradual Development, Non-Traditional Education, Collaborative Pedagogy, National Pedagogy, Education Reform.*

INTRODUCTION

It is known that the success of fundamental reforms implemented in our country largely depends on changing the education system, raising it to the level of current requirements, and forming a well-rounded person. Because the development of the society, its economic and social development is determined by the intellectual and spiritual potential of the citizens living in this society. Therefore, in the development of society, each period has its own promising directions, and each science has its place in the implementation of this task. In this place, pedagogical ideas, which are considered the main concept of pedagogy, have their own experience and development.

If we look at the history of education, we can see that the most important, the main issue in modern times is a person, to educate him well. Starting from the oldest sources, in the educational and moral works that appeared later, both theoretical and practical issues of education were analyzed, based on which the issue of spiritual and moral formation of the human personality was the central problem.

The goal of this problem is to look at education as a whole process, to determine its content, form and methods, methods, tools, on the one hand, if we turn to the history of education, and on the other hand, to put scientific innovations into practice. It is necessary to take into account the effectiveness of the specific characteristics of education. Views on the development of pedagogical ideas philosophers (I.Mo'minov, J.Tulenov, M.Khairullayev, T.Mahmudov, S.Shermuhammedov, E.Yusupov, M.Oripov, Q.Nazarov, Z.G'ofurov, H.Alikulov and etc.) by the influence of education on personality development, psychologists (L.I. Bojovich, L.S. Vysotsky, M.G. Davletshin, A.G. Kovalyov, E. Goziyev, B.H. Kadirov, V. Karimova, G.B.Shoumarov, R.Sunnatova and others) theory and history of our national pedagogy, pedagogic scientists (S.Rajabov, S.Nishonova, K.Hoshimov, O.Hasanboyeva. A.Zunnunov,

R.Mavlonova, H.Homidov, R. Jorayev, U. Aleulov, O. Musurmonova, J. Yoldashev, M. Kuronov, F. Yuzlikayev, Safo Ochilov, M. Inomova, R. Safarova, Kh. Mahmudov, A. Choriyev, N. Saidahmedov, S. Turgunov, N. Egamberdiyeva, B. Abdullayeva, O'. Tolipov) and made an invaluable contribution to the enrichment of pedagogical ideas during the period of independence. . It is worth saying that the development of pedagogical ideas has its own stages of gradual development, which are: firstly, views on the formation of ancient education and humanism ("views in the Avesta" and "Orhun-Enasoy" writings); secondly, views of the Middle Ages (descriptions of the Holy Qur'an, Hadiths, teachings of the word, fiqh, mysticism, representatives of classical literature, encyclopedic scholars, and opinions put forward by scholars of the great state; Views on the new era (opinions expressed by modernists and advanced Uzbek pedagogues of the Soviet era); Views in the period of independence (thoughts on education, psychology, spirituality and ideology); It is worth saying that if in the ancient views the ideas of human wisdom are the priority, then in the medieval views the priority of the idea of a perfect person is observed. During the time of the Soviets, the main goal was to educate a person with a class character, which comes from the ideological education of the builder of communism. During the period of independence, the idea of raising a mature generation was formed as a priority, and in the first ten years of independence, regarding the theory and history of pedagogy:

- Well-rounded human education in the development of pedagogical thought;
- Formation of spiritual and moral culture in young people;
- The spirituality of independence and the basics of education;
- Scientific and methodological foundations of national education in general education schools of Uzbekistan;
- Socio-pedagogical foundations of general secondary education management;
- Problems of organizing primary education and its liberalization;
- Socio-pedagogical foundations of the national personnel training program;
- Introduction of advanced pedagogical technologies into the educational process;
- Theoretical and practical foundations of using national traditions in the educational process;
- Laws of interdisciplinary connection and interdependence of pedagogy;
- Pedagogical foundations of general education schools of the Republic of Uzbekistan and the direction of improving the educational process;
- Researches were carried out in areas such as modernization of the content of mother tongue education.

As a result of scientific research carried out by scientists in the first ten years of Uzbekistan's independence, it was possible to find solutions to the following scientific-theoretical and practical problems in the development of pedagogical ideas.

1. In the years of independence, based on the tasks of educational reforms, the conditions affecting the development of pedagogical ideas have been identified:
2. The impact of the national idea and national ideology formed in the years of independence on the development of pedagogical ideas is highlighted;

3. The main directions of pedagogical ideas are determined;
4. A historical-comparative analysis of the development and formation of pedagogical ideas in the history of pedagogy;
5. The development of pedagogical ideas and the best practices of world pedagogy at the present time are comparatively analyzed.

1 There it is worth saying that in the first ten years of Uzbekistan's independence, traditional education based on the study of pedagogical innovations, their application to the educational process, and the provision of ready-made information related to the issues of reforming the educational system based on efforts to move from the type of teaching to an educational system that teaches students to search for information themselves. Accordingly, the need for new knowledge has increased. The updated ideas, their content and scientific aspects were substantiated by Uzbek scientists U.Nishonaliyev, B.Farberman, N.Saidahmedov, N.Azizkhodjayeva, U.Tolipov, M.Usmonboyeva. In the first ten years of independence, pedagogical innovations in the conditions of Uzbekistan were mainly focused on the improvement of the pedagogical system, the development of pedagogical technologies aimed at the effective organization of the educational process, and their application to the educational process.

The content and essence of pedagogical innovations served to enrich the content of pedagogical ideas by requiring the improvement of this pedagogical system, making its components more convenient for the student. As a result, in the first ten years of independence, the foundation was laid for directing pedagogical innovations to improve the education system, adapting it to the level of socio-economic development of the society, and thus training competitive personnel who can adapt to changing life conditions. Also, the transition from the traditional method of teaching and upbringing to the technological, creative and research method in the organization of the educational process made possible a technological approach to the educational process. This served to enrich the content of pedagogical ideas by managing the educational process on the basis of democratic principles, encouraging the activities of learners, supporting initiative, and creating a favorable opportunity for the formation of cooperative pedagogy based on cooperation.

Collaborative pedagogy - unlike traditional teaching, focuses on establishing a friendly relationship with the child. The principle of "working in cooperation" is based on a deep knowledge of the personality of the student. Collaborative pedagogy has a positive effect on the child's personality, allows for the purposeful and purposeful direction of pedagogical thoughts by directing warmth, cooperation, like-mindedness, one's will to a single goal - education in the educational process. . Uzbek scientists such as N.Azizkhodjayeva, J.Yoldoshev, R.Safarova, B.Khodjayev, Sh.Abdullayeva, N.Dilova, Q.Inokov, enrich the content of pedagogical ideas in the years of independence by explaining the strategies of cooperation pedagogy. z contributors.

In Conclusion, It should be said that the reforms carried out in our country in the first ten years of independence, changes in people's minds, changes in pedagogical thinking ensured the further development of pedagogical ideas.

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SOCIAL CONDITIONS OF DEVELOPMENT OF COGNITIVE PROCESSES OF PRESCHOOL CHILDREN

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ABSTRACT

In the article, students will be introduced to scientific information about the mental development of preschool children, the development of cognitive processes, and personality traits. Formation of theoretical and practical knowledge on the problem of psychological preparation for school.

KEYWORDS: *Ontogenesis, Child, Predment, Youth Period, Language, Behavior, Morality, Aesthetic Taste, Game.*

INTRODUCTION

In ontogeny, the period from 3 to 7 years old is the kindergarten age or preschool age period. Taking into account that there are very rapid quality changes in the psychology of preschool children, it is divided into 3 periods: (3-4 years old) junior preschool period, (kindergarten age), (4-5 years old) high school period, (middle kindergarten age), (6-7 years old) can be divided into senior preschool period (senior kindergarten age). In the process of development, the child interacts with the world of objects and events created by his generation. The child actively learns and acquires all the achievements of humanity. In this case, the world of objects, actions performed with their help, language, relations between people, development of motives of activity, growth of abilities should be carried out with the direct help of adults. Basically, from this period, the independent activity of the child begins to increase.

The education given to children of kindergarten age should be focused on mastering their complex movements, forming basic hygiene, cultural and labor skills, developing speech, and forming the first buds of social ethics and aesthetic taste.

One of the prominent characteristics of children of kindergarten age is their mobility and limitability. The main law of the child's nature can be expressed as follows: the child requires continuous activity, but he is tired not from the result of the activity, but from the sameness and chronicity of the activity.

The importance of interest in the development of a child is that the child seeks to know what he is interested in as deeply as possible and does not get bored of doing what he is interested in for a long time. This, in turn, helps the child develop and strengthen important qualities such as attention and will. The importance of music as an artistic and creative activity in the mental development of 3-7 year old children is also very great. Through music, children learn to sing and make rhythmic movements to the tune of music.

Play is such a multifaceted activity in children's lives that adult labor, thinking about different things, thinking about things, thinking about things, relaxing, and cheerfulness are all evident in the play. It should also be noted that the game is not only a means of learning about external events, but also a powerful means of education. Together with all the mental processes of children, their individual characteristics are formed in creative and subject games. So, the success of educational work in kindergarten largely depends on the ability to organize children's play activities in accordance with the purpose. So, the game is by children's imagination is not a created thing, on the contrary, it is the imagination of children itself, a mental process that arises and develops during the game. It is also worth noting that in the current era of unprecedented development of science and technology, surprising things seem like a miracle to children. As a result, in the course of their various games, they come up with all kinds of imaginary things (such as a flying horse, a man, a car, a talking tree) by simulating (that is, analogically). In addition, the fact that children come up with various imaginary objects means that in their various play activities, they are not only using what is around them, but also at the same time, they reflect their needs. The fact that children create various imaginary and mythical images in their play activities indicates that the reflection of things and events in the external environment is not a passive process of a person (including children), but an active, creative process. Another feature of children's play activities is that is that the child's actions and roles performed during the game often have a general character. This should be understood in the way that the child in his various games does not only the actions of a single driver, doctor, policeman, educator, pilot, but also of all the drivers, doctors, educators, and pilots. Reflects behavior.

Subject-role games develop in middle and high school age, but they differ greatly in terms of themes, roles, and rules of game actions that are included and implemented in games from the age of elementary school age. Many objects of a natural nature are replaced by conventional ones, and a symbolic game begins. For example, a simple cube symbolically represents furniture and cars, people and animals, regardless of the game and the role assigned to it are divided into, for example, subordination. In this, leadership appears for the first time, organizational skills and competencies develop in children. From creative activities, children of this age are fond of visual arts, especially drawing. Depending on what and how the child expresses, it is possible to reflect on the uniqueness of his perception of the world around him, his memory, imagination and thinking. Through pictures, children try to convey the impressions and knowledge they get from the outside world. Pictures can change according to the child's physical and psychological condition (illness, mood). It was found that the pictures drawn by sick children differ from those of healthy children in many ways.

Music is important in the artistic and creative activities of preschool age. Children enjoy listening to musical works, repeating musical lines and sounds on different instruments. At this young age, for the first time, an interest in serious music appears, which later becomes real helps to develop interest and musical ability. Children learn to sing, perform various rhythmic and dance movements to the music. Singing develops musical awareness and vocal skills.

Summary In addition to being a tool for learning about things and events around them, the games of kindergarten children have a high social value, in other words, the game is a powerful educational tool. Through children's games, it is possible to educate socially useful, that is, high human qualities. If we observe children's game activities from the outside, we will see that all their personal characteristics (character, who is more interested in what, ability, will, and

temperament) are clearly manifested during the game. Therefore, children's play activities are a very convenient tool for their v is to create tools.

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THE SIGNIFICANCE OF SADRIDDIN AINI'S RESEARCH ON NAVOI STUDIES

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ABSTRACT

The article discusses the life and scientific activities of Sadriiddin Aini. In particular, his research on Navoi Studies and his great contribution to science. Several examples can be seen that prove the importance of his work in literary criticism. In addition, it also examines Aini's analytical, interpretive and publishing works on Navoi Studies.

KEYWORDS: *Navoi, Foni, Development, Research, Manuscript, Ayni, Navoi Studies, Analysis, Text.*

INTRODUCTION

Sadriiddin Ainiy is recognized not only as a prominent writer of his time, but also as a talented scientist who worked extremely effectively in two languages: Uzbek and Tajik. During his career, he was the first president of the Tajikistan Sciences Academy (1951-1954), Hero of Tajikistan (1997), Honored Scientist of Tajikistan (1940), Honored Scientist of Uzbekistan (1949), doctor of philological sciences (1948), professor (1949), academician (1951) [1:89].

Ayni received his primary education in Bukhara madrasas of Uzbekistan. At first, he wrote poems in Tajik under the pseudonym "Sifli", "Muhtaji", "Jununi", and later (from 1896) "Aini".

It is known that Sadriiddin Aini lived in a complicated historical period as a writer and scientist and conducted his research. At the end of the 19th – beginning of the 20th century, he was beaten 75 times by the order of Bukhara's emir (king) and thrown into the "obkhona"¹ for his views contrary to the ideology of the Emirate. After his release, he moved to Samarkand. There he continues his scientific and creative activities in Tajik and Uzbek languages: he worked in Samarkand as a teacher and journalist. His first stories were published in the collection "Bukhara executioners" (1920) and "Revolution" (1922). In 1927-29, he published his major novel "Dokhunda" in Tajik. In 1928, his next book – "Kul Baba or two freed ones" was accepted very well by literary critics. This collection is significant because it contains information about the life and work of more than 200 poets, historians, scientists, and tazkiranavis who have a special place in Eastern literature. In 1934, he created the novel "Slaves" in Uzbek. There have been depicted in it the hundred-year past of the Uzbek and Tajik people. "The ancient school" was published in 1935. It tells about studying and teaching in the ancient school. A number of Ayni's satiric works were published in the twenties, including "where else did he come from", "If you earn your money with honest way, make wedding" (1924), "Mashrab bobo", "You are always

welcome my coat” (1925), “I didn’t have any idea”, “Uzbek feuilletons”, comic poems and articles such as “Meeting” (1926) [3:172], especially the comic story “Death of a loan shark” (1939) showed him as a skilled satirist. He also wrote literary scientific articles and historical essays reflecting the people’s uprising led by Mukanna and Temurmaliq. The past life of Bukhara was written “Memories” which contains of four books (1949-54).

Ayni as a literary critic, linguist, oriental scholar wrote “About Firdausi and his Shahnama” (1934), “Kamal Khojandi”, “Shaikhurrais Abu Ali ibn Sina” (1939), “Ustad Rudaki” (1940), “Sheikh Muslihiddin Sa’di Sherozi” (1942), “Alisher Navoi” (1948), “Zayniddin Vasifi” (about his work “Badoe ul-Waqae”) (1946), “Mirza Abdul Kadir Bedil” (1954) created [2:97]. He published articles about the work of Muqimi, Gafur Ghulam and Said Nazar. Scientific studies such as “About the Persian and Tajik languages”, “Tajik language” were an important research works for Tajik linguistics.

It is known that Aini’s first research on Navoi studies was written in 1938 during preparations for the 500th anniversary of the great poet’s birth. More precisely, the article “Mir Alisher Navoi” was published in “Tajikistoni surkh” (1938) and “Rūznomai muallimon”(1939) newspapers. It contains Navoi’s birth, teenage years, and his education in Mashhad; the political, social, cultural environment in which the great thinker lived, Navoi’s attitude to representatives of Tajik-Persian literature were discussed.

In 1941, the scientist’s next article entitled “Alisheri Navoi” dedicated to Navoi’s life and work was published in several issues of “Sharqi Surkh” magazine. This article became a solid foundation for writing his research entitled “Alisher Navoi”. This study is more than 200 pages long and was published in 1941 on the occasion of the 500th anniversary of Navoi’s birth. Many literary critics have appreciated and commented it for many times like important work of scientist. The book talks about Navoi’s life, literary, political, and social activities, as well as his literary works, while the last chapter focuses on the study of Navoi’s ghazals in the Persian-Tajik languages. There can be found a lot of interesting information which was carried on Navoi studies. According to Ayni the great poet’s Persian poems are collected in “Devoni Farsi” and shows samples written under the pseudonym Foni as an example. It should be said that at that time, Ayni made a mistake in choosing poems because he was not yet aware of Navoi’s “Devoni Foni”, and some of the ghazals he quoted were not written by Foni-Navoi, but by Foni-Kashmiri, as later proved by Ali Mohammadi Khurasani.

In classical literature, Ayni’s work is valued as an important source in Navoi studies. For instance, the publication of Navoi’s “Khamsa” by Ayni in 1940 was a huge literary and historical reality. In 1948, the scientific article “Alisher Navoi and Tajik literature” on the life of Alisher, a great thinker, was published and later included in the book “Great Uzbek poet”. It discusses the incomparable influence of Persian-Tajik literature on Navoi’s creative thinking. In general, Ayni is a mature scientist who made an important contribution to the formation and development of the science of Navoi studies in the 20th century. Many of his works, in particular “Dokhunda”, “Kullar”, “Death of the loan shark” and “Memories” have been translated into foreign languages. A number of cities, districts, streets, schools, libraries, art and cultural institutions in the Republics of Uzbekistan and Tajikistan are named after Ayni. Also, in 1967, the Ainy Memorial House-Museum was opened in Samarkand.

It should be noted that it is significant aspect of literary criticism to learn scientific work of scientist like Sadriddin Ayni because his heritage play major role in future research of Novoi studies.

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SUKANYA SAMRIDHI YOJANA INITIATIVE OF INDIAN GOVERNMENT: AN INTERSTATE ANALYSIS

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ABSTRACT

This study was undertaken in order to comprehend the Sukanya Samridhi Yojana (SSY) initiative announced by the Government of India (GOI) for girl children. This scheme is especially for Indian parents and guardians to design for a girl's higher education or marriage needs. The study analyses the Sukanya Samridhi Scheme (SSY) through its varied effect across the country, comprising all of Indian states and union territories. The SSY scheme has been analysed since the time of its inception based on calculation of average amount saved per account in different states and union territories. The time period under study is 2014-2015 to 2022-2023. The study aimed at analyzing the scheme in terms of the amount saved in the scheme per account on an average across various states and union territories by calculating the Spearman's rank correlation. The results, arrived at through rank correlation analysis showed that correlation among variables developed with passing of years.

KEYWORDS: *Sukanya Samridhi Yojna, Indian States and Union Territories, Girl Child, Women, Bank Account.*

INTRODUCTION:

India has had a long history of discrimination against women. Indian women had for long been unduly burdened only with household chores and not to contribute financially to her family. According to Annette Dixon, World Bank South Asia Vice President, only 27% of adult Indian women held a job or were actively looking for one, compared to 79% of men, according to Annette Dixon. Every year, millions of women quit their occupations. Only 17% of Indian women contribute to the economy, which is less than half the global average, and India ranks 120th out of 131 countries in terms of the percentage of women working. As part of the Skill India objective, women are being given the opportunity to learn valuable skills while also having access to secure transportation, flexible work hours, and childcare. The World Bank also supports women's self-help groups as a means of investing in girls' education and financial

development. It is pointless to advocate for females' education unless they are equipped with employable skills and attitudes. Many women quit their jobs even after they've learned the skills they need because of family pressure. When it comes to girls' education, it's imperative that their parents are encouraged and financially supported to do their part. Because of this, in 2015, the Sukanya Samridhi Yojana was launched by the central government with the aim of making the future of daughters bright. To get the benefits under this scheme, the account has to be opened before the daughter attains the age of 10 years. The minimum investment limit in this account is Rs. 250 and the maximum limit is Rs. 1.5 lacs. This investment can be made for your daughter's higher education or marriage. Through this scheme, interest at the rate of 7.6% will be provided by the government on the investment. Apart from this, tax exemption will also be provided on investments made under this scheme. This scheme is a small savings scheme launched by the Central Government. This scheme has been launched under the Beti Bachao Beti Padhao scheme.

Under Sukanya Samridhi Yojana 2022, only two daughters of a family can get benefits. If there are more than two daughters in a family, then only two daughters of that family can avail themselves of the benefit of this scheme. But if there are twin daughters in a family, then they will get the benefit of this scheme separately, i.e., then three daughters of that family will be able to take advantage. The count of twin daughters will be the same, but benefits will be given to them separately. Under this scheme, all those people who want to deposit money for their daughter's marriage and education can open their daughter's account. Let us tell you that under this scheme, the accounts of girls below the age of 10 years can be opened. The Sukanya Samridhi Yojana has been started by the government under the Beti Bachao, Beti Padhao scheme. Income tax exemption is also provided on investment under this scheme. The present article is going to provide all the important information related to PM Kanya Yojana with a special focus on Haryana. It further shows the process of applying under this scheme. Finally, the study analyses and interprets the related important data and discussion.

As the scheme was introduced with the intention of motivating parents to invest in their daughters' education and marriage with the provision of a good return on investment, we intended to find out if the scheme has been able to live up to its expectations. The purpose was to understand the thoughts and opinions of SSY investors. This will enable the government and policymakers to understand the perception of users of these schemes, and will aid in formulating policies, taking into consideration the feedback of the users. Prior to the questionnaire distribution, during the study, the author interacted with parents who had not yet invested in SSY. Most of these parents were either unaware of the scheme or had already made some alternate saving plans for their daughters. In either case, parents showed interest in the scheme and thought it to be a good alternative.

This scheme was launched under the Beti Bachao Beti Padhao scheme. A 7.6% interest rate is provided through this scheme, and income tax benefits are also provided under section 80C of the Income Tax Act 1961. Under this scheme, the accounts of two daughters of a family can be opened. Under this scheme, Rs. 250 can be deposited by the parents of the girl child and a maximum of Rs. 150000 can be deposited. This account can be opened in the name of the natural or legal guardian of the child. Until the child is 10 years old, to receive the benefits of the Sukanya Samridhi Yojana, account opening forms, birth certificates, photographs of parents, KYC documents, and so on must be submitted. If the amount is not paid by the account holder on time, then the account holder has to pay a penalty of Rs. 50. Money can be withdrawn from

this account after the child attains 18 years of age. After the age of 18, 50% of the amount can be withdrawn for the education of the child. If the account holder dies or the status of the account holder becomes NRI, then the account can be closed in this situation. No loan facility is provided under this scheme. This scheme account can be operated for up to 21 years.

LITERATURE REVIEW:

Bhattacharya, Sonali, and Aradhana Gandhi (2021) in their study based on the performance of various Indian states on SSY investment found out male literacy, labour, force, participation and women empowerment and positive predators of index of SSY. In-depth interviews were conducted to find out the respondents expectations of higher rate of interest than prevailing in the scheme. **Lamba, Payal (2018)** in their paper in that discussing and analyzing the impact of the scheme at the various district levels to raise awareness about gender imbalance and discrimination against girl child. **Gupta, Rajkumar A., and S. D. Talekar (2023)** in their research analyzed in detail, the north-eastern state of Tripura and Sukanya Samridhi Yojana's implementation and reasons for lack of formalization of financial sector in the north east.

An investor's decision is influenced by a variety of factors, including economic, societal, and psychic in nature. **Bellofatto, D'Hondt, and De Winne (2018)** found a strong correlation between financial education and returns and excess Sharpe ratios for investors. Researchers found that investors focus on a few stocks and diversify their portfolios via mutual funds. It has been found that those with higher financial literacy interact on the stock exchange more frequently than those with lower levels of financial education. As a result, people who are more financially literate spend less on their credit cards and invest more as a result (**Allgood & Walstad, 2013**). Women, kids, and the elderly have a higher rate of economic ignorance than men in these age groups (**Bateman et al., 2012**). Investing is a mysterious concept to those with little formal education (**Agnew & Szykman, 2005**). In addition, those who are well-versed in economic matters are overconfident in their own financial education and sophisticated investing possibilities (**Gallery, Newton, & Palm, 2011**). Investment and financial literacy, according to **Klapper, Lusardi, and Panos (2012)**, help people better handle financial turmoil like recession and inflation. Various authors in India's literary canon offer conflicting perspectives on the issue of gender disparity. A number of studies have demonstrated that men obtain more healthcare coverage than girls (**Basu, 1989; Ganatra & Hirve, 1994**), are nursed for extended periods of time (**Jayachandran & Kuziemko, 2011**), and are much more likely to be given vaccinations (**Borooah, 2004**). There is no proof that parents spend much more money on boys than girls, according to some research (**Harriss, 1990**). Immunization rates are identical for boys and girls (**Deaton, 2003**), and girls receive the same amount of nourishment as boys (**Duflo, 2005**).

For scheduled tribes, farm laborers, and low-income families in rural regions, the choice for a son is larger than the preference for a daughter, as per the findings of **Bharati (2017)**.

According to a study (**Dasgupta, 1987; Nag, 1991**), variation in the patriarchal family kinship services in India also contributes to regional differences in liking for sons. Exogamous weddings and property inherited wealth by men's heirs are examples of kinship in northern India (**Dyson & Moore, 1983**). Laws stating that sons and daughters have equal rights to the parents' property are the most common means by which men inherit wealth. Women's rights are generally respected in southern India because of the prevalence of endogamy marriages and women's inclusion in the transfer of wealth and possessions. In some parts of Haryana and Rajasthan, the Jat group adheres more strictly to the patrilineal kinship pattern (**Dasgupta, 1987**). "Women owning

property is not an issue." In most cases, "if she insists on her right to possess land equitably under the civil law, she stands a good chance of being murdered," is the law (Gupta, 1987). Even if education has no effect on a female's ability to participate in the staff (Srivastava & Srivastava, 2010), it would be the most significant determinant of higher-quality non-agricultural work for women who are already in it. An important enabler in their transition away from agriculture is the degree of autonomy women have in terms of land ownership and mobility, as well as their willingness to join self-help groups. According to Kishore and Gupta (2004), who calculated state empowerment indices, women in India are under-empowered in both absolute and relative terms compared to men. State-by-state variation persists despite progress in their empowerment. In the United States, only around half of women have a say in their own health care, visits to family members, and purchases of significant home goods (Gupta & Yesudian, 2006). More than two-thirds of these choices were made by women in states such as Himachal Pradesh, Punjab, Haryana, and Gujarat.

OBJECTIVES:

- To examine the Sukanya Smridhi Yojna in various states and union territories in India.
- To examine the relation between growth in SSY deposits over the years.

HYPOTHESIS:

Null hypothesis	Alternative hypothesis
There is no correlation	There is a correlation

RESEARCH METHODOLOGY:

The study is based on the use of secondary data to assess the performance of SSY in various Indian states and union territories. Secondary data has been collected from government website of National Saving Institute (www.nsiindia.gov.in).The study has accounted for data pertaining to total number of sukanya samriddhi accounts (in absolute numbers) in the time period under study from 2014-2015 to 2022-20203 in different states and union territories and the total investment in the scheme for the same time frame (in rupees). Indexes have been calculated and statistical tools have been used to analyse the performance of SSY. Spearman's rank correlation test has been used to analyse the questions under study.

Index for finding out average amount saved per account has been accounted for all states and union territories under study so as to analyse in depth the state wise effect eliminating absolute numbers which could be higher due to the population factor.

AVERAGE AMOUNT SAVED IN AN SSY ACCOUNT PER STATE OR UNION TERRITORY = Amount Saved per state or union territory / Registered subscribers per state or union territory

SPEARMAN'S RANK CORRELATION has been used to analyse the trend in average amount saved in SSY account in different states and union territories. Spearman's correlation is used when the relationship between variables is not linear or when the data is not normally distributed. It is frequently employed when the data is rated or when there are outliers in the data. The Spearman correlation can range from -1 to 1, with -1 denoting a perfect negative correlation, 1 denoting a perfect positive correlation, and 0 denoting no connection at all between the variables.

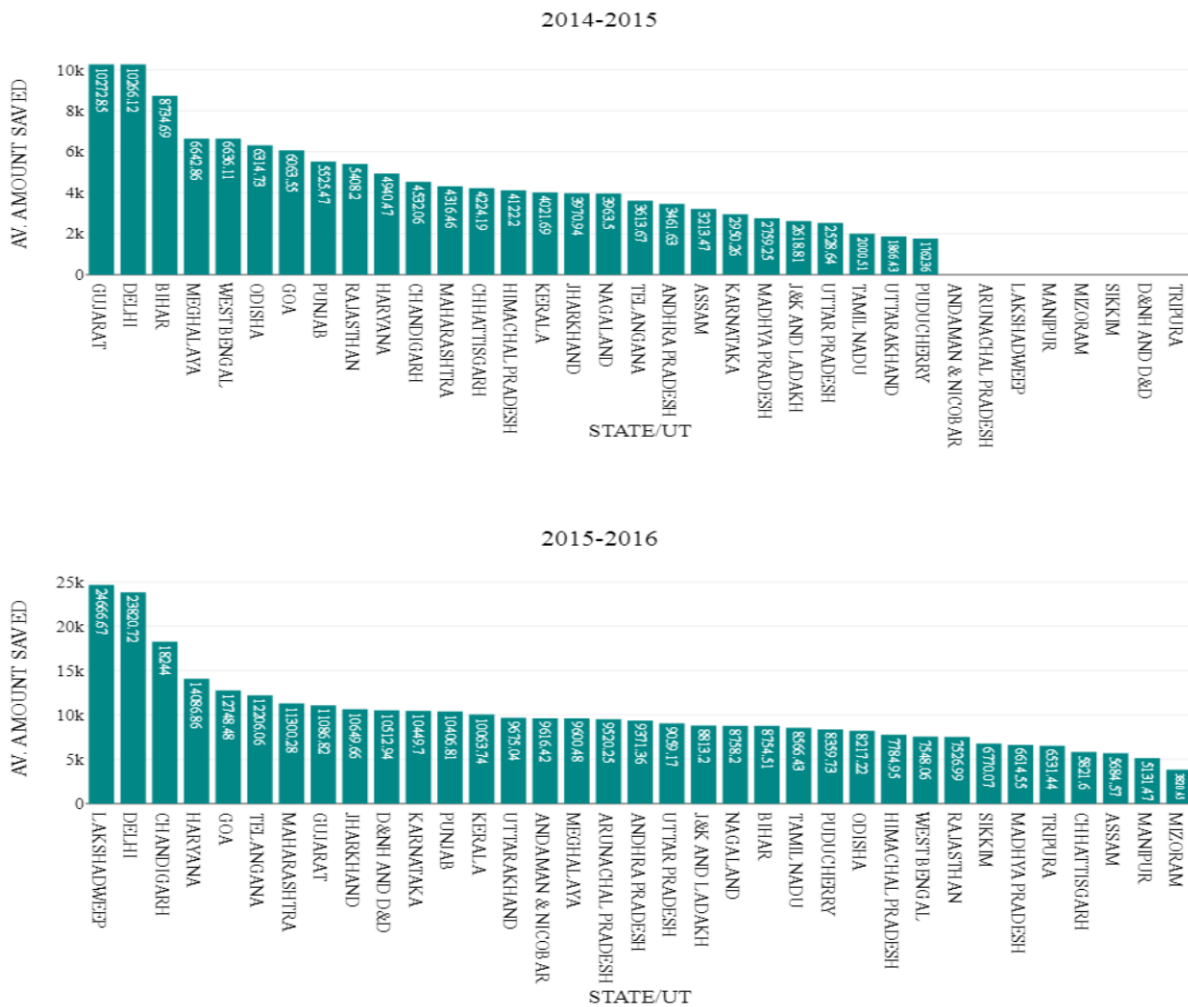
$$\rho = 1 - \frac{6\sum d_i^2}{n(n^2 - 1)}$$

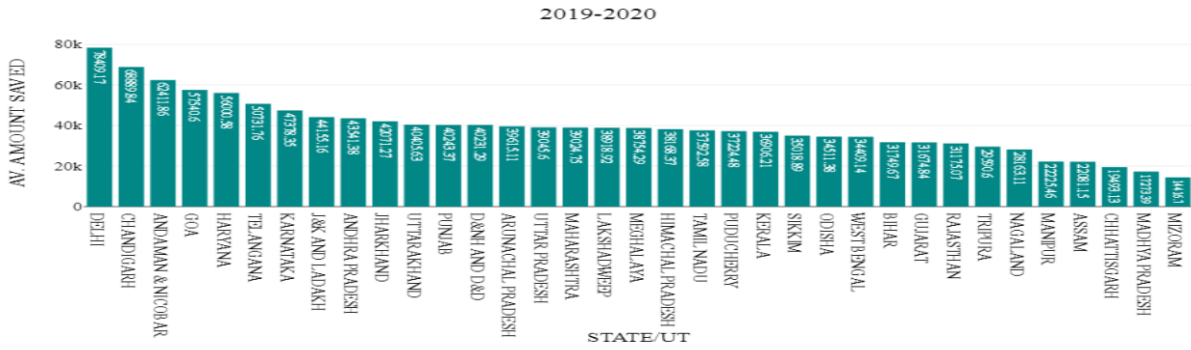
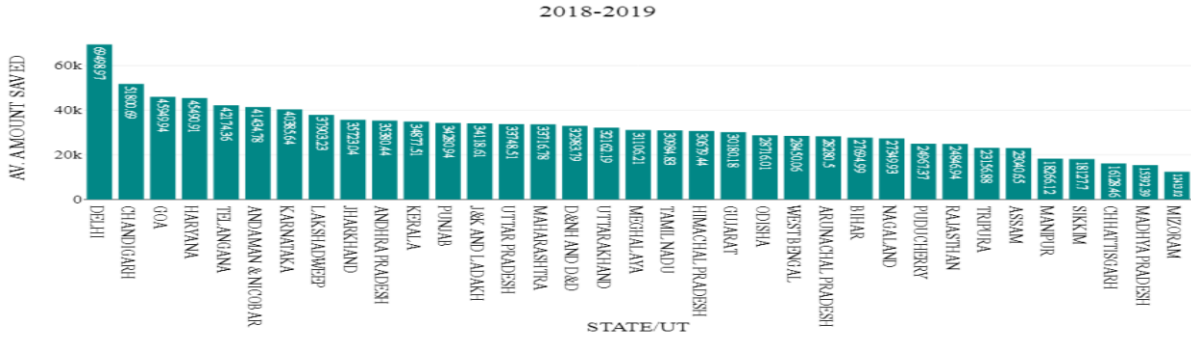
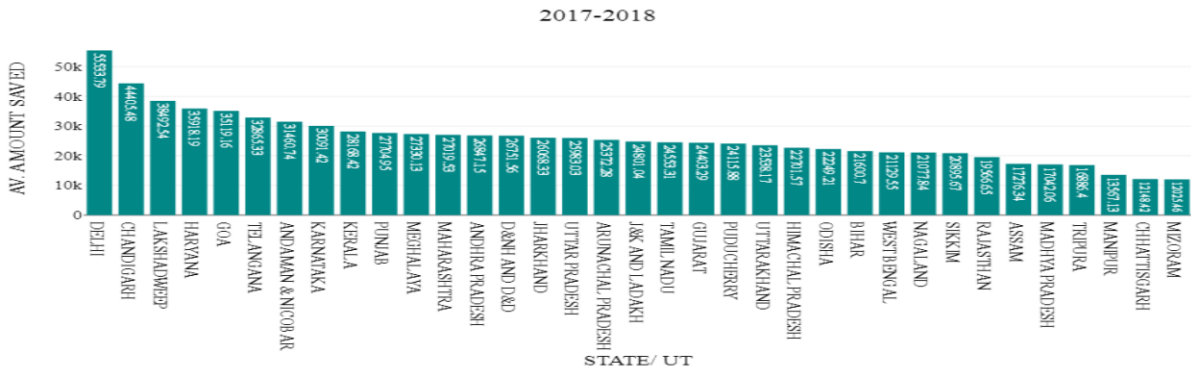
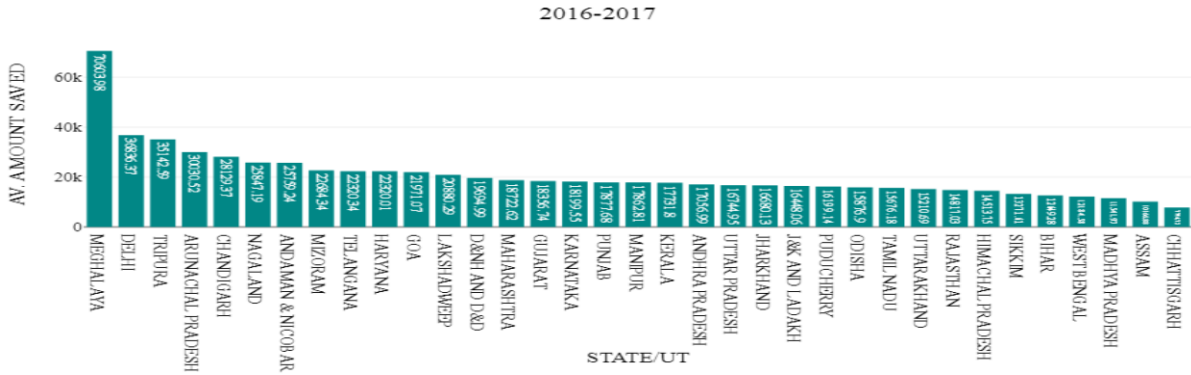
DATA ANALYSIS:

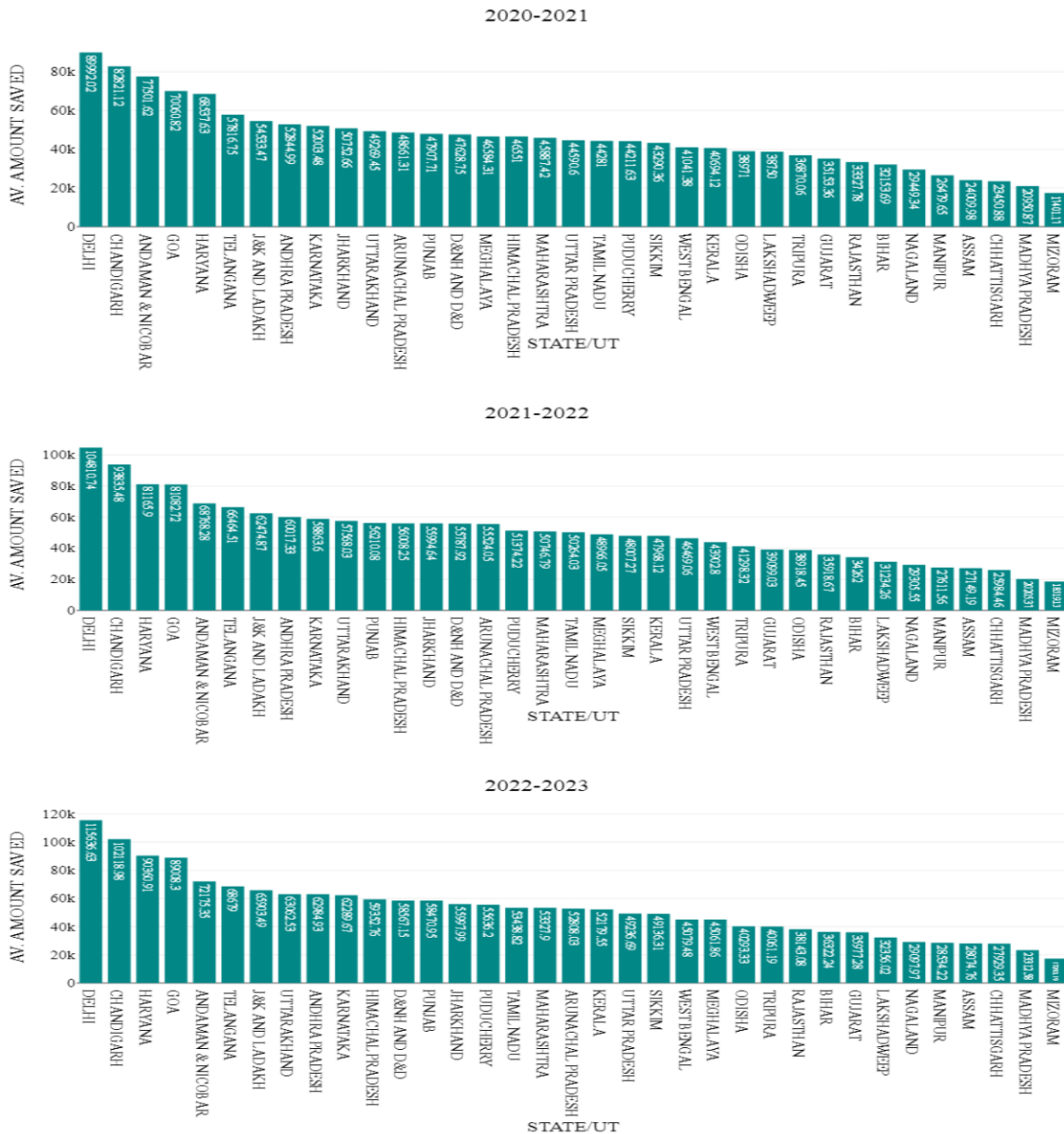
To analyse the data under study in regards to the registered subscribers and amount saved in various states and union territories across India from 20 14–2015 to 20 22–23, an index was developed to analyse the amount saved her account in Sukanya Samriddhi Yojana scheme so as to do away with the effect of increased total amount saved due to number of subscribers in each state as this is highly related to the total population. The study has been undertaken on the basis of an index addressing average amount saved in the Sukanya Samriddhi account in each state and union territory under study.

The charts below highlights a summary of the best and least performing states and union territories on the basis of average amount saved in SSY account per state or union territory (in rupees) across all years under study since the inception of the scheme.

GRAPH 1, 2, 3, 4, 5, 6, 7, 8: RANKING STATES AND UNION TERRITORIES ON AVERAGE AMOUNT SAVED PER ACCOUNT







The graphs show the states and union territories’ average amount saved per account in Sukanya Samridhi Yojana. For the year 2014–15, when the scheme was launched by the government, the western state of Gujarat, the national capital Delhi, Bihar and Meghalaya ranked among the top scorers while in certain other states like Tripura, Daman and Diu and Dadra Nagar, Haveli, Sikkim, Mizoram, etc no accounts were opened in the year of inception of SSY. For the year 2015–16, Lakshadweep, Delhi, Chandigarh, Haryana and Goa ranked in the top bracket while the eastern states of Mizoram, Manipur and Assam ranked in the lowest brackets with minimum amount saved per account. For the year 2016–17, Meghalaya, Delhi, Tripura And Arunachal Pradesh ranked among the top savers while Chhattisgarh, Assam, Madhya Pradesh and West Bengal ranked the lowest in the tally. For the year 2017–18, Delhi, Chandigarh, Lakshadweep, Haryana and Goa were the top performing states with the maximum amount saved per account

in Sukanya Samriddhi Yojana on an average, while Mizoram Chhattisgarh, Manipur, Tripura and Madhya Pradesh ranked last in the tally. For the year 2018–19, Delhi, Chandigarh, Goa, Haryana and Telangana, outperformed all other states and union territories, while Mizoram, Madhya Pradesh, Chhattisgarh and Sikkim ranked among the lowest. The year 2019–20, Delhi, Chandigarh, Andaman, Nicobar and Goa ranked among the top performers, while Mizoram, Madhya Pradesh, Chhattisgarh and Assam were the lowest performers. For the year 2020–21, Delhi, Chandigarh, Andaman Nicobar and Goa again topped, while Mizoram Madhya Pradesh and Chhattisgarh ranked among lowest performing states as the previous year. The year 20 21–22 again saw the state of Delhi topping the charts followed by Chhattisgarh, Haryana and Goa, while Mizoram again remained the state with lowest average amount saved in Sukanya Samriddhi Yojana account while Madhya Pradesh and Chhattisgarh followed. For the year 2022–23, again, Delhi, Chandigarh, Haryana and Goa ranked much ahead of the rest of the states and union territories while Mizoram, Madhya Pradesh, Chhattisgarh and Assam fell in the lowest bracket.

A Spearman rank correlation was performed to determine if there is a correlation between variables showing savings on an average in SSY account in different states and union territories. With a significance level at 0.05 and 35 valid cases, the study would help find out the pattern of investment in SSY scheme and the state wise performance relation.

TABLE 1: CORRELATION

	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023
2014-2015	1	0.29	-0.06	0.22	0.26	0.1	0.12	0.14	0.12
2015-2016	0.29	1	0.53	0.92	0.89	0.8	0.72	0.68	0.66
2016-2017	-0.06	0.53	1	0.54	0.46	0.44	0.44	0.39	0.33
2017-2018	0.22	0.92	0.54	1	0.95	0.88	0.82	0.78	0.76
2018-2019	0.26	0.89	0.46	0.95	1	0.92	0.86	0.83	0.83
2019-2020	0.1	0.8	0.44	0.88	0.92	1	0.98	0.95	0.94
2020-2021	0.12	0.72	0.44	0.82	0.86	0.98	1	0.98	0.97
2021-2022	0.14	0.68	0.39	0.78	0.83	0.95	0.98	1	0.99
2022-2023	0.12	0.66	0.33	0.76	0.83	0.94	0.97	0.99	1

TABLE 2: CORRELATION AND SIGNIFICANCE

		2014	2015	2016	2017	2018	2019	2020	2021	2022
		-	-	-	-	-	-	-	-	-
		2015	2016	2017	2018	2019	2020	2021	2022	2023
2014	Correlation	1	0.29	-0.06	0.22	0.26	0.1	0.12	0.14	0.12
-	p		.092	.728	.196	.139	.571	.509	.438	.502
2015	Correlation	0.29	1	0.53	0.92	0.89	0.8	0.72	0.68	0.66
-	p	.092		.001	<.001	<.001	<.001	<.001	<.001	<.001
2016	Correlation	-0.06	0.53	1	0.54	0.46	0.44	0.44	0.39	0.33
-	p	.728	.001		.001	.005	.008	.009	.021	.054
2017	Correlation	0.22	0.92	0.54	1	0.95	0.88	0.82	0.78	0.76
-	p	.196	<.001	.001		<.001	<.001	<.001	<.001	<.001
2018	Correlation	0.26	0.89	0.46	0.95	1	0.92	0.86	0.83	0.83
-	p	.139	<.001	.005	<.001		<.001	<.001	<.001	<.001
2019	Correlation	0.1	0.8	0.44	0.88	0.92	1	0.98	0.95	0.94
-	p	.571	<.001	.008	<.001	<.001		<.001	<.001	<.001
2020	Correlation	0.12	0.72	0.44	0.82	0.86	0.98	1	0.98	0.97
-	p	.509	<.001	.009	<.001	<.001	<.001		<.001	<.001
2021	Correlation	0.14	0.68	0.39	0.78	0.83	0.95	0.98	1	0.99
-	p									

		2014	2015	2016	2017	2018	2019	2020	2021	2022
		-	-	-	-	-	-	-	-	-
		2015	2016	2017	2018	2019	2020	2021	2022	2023
2022										
	p	.438	<.00	.021	<.00	<.00	<.00	<.00	<.00	<.00
			1		1	1	1	1	1	1
2022	Correlatio	0.12	0.66	0.33	0.76	0.83	0.94	0.97	0.99	1
-	n									
2023										
	p	.502	<.00	.054	<.00	<.00	<.00	<.00	<.00	<.00
			1		1	1	1	1	1	1

There is a low, positive correlation between variables in 2014-2015 and 2015- 2016 RANK with $r= 0.29$. Thus, there is a low, positive association in this sample. The result of the Spearman correlation showed that there was no significant correlation between 2014-2015 and 2015-2016 values , $r(33) = 0.29, p = .092$. . There is no significant, negative correlation between variables 2014-2015 and 2016- 2017 RANK with $r= -0.06$. Thus, there is no significant, negative association between SSY 2015 RANK and SSY 2017 RANK in this sample. The result of the Spearman correlation showed that there was no significant correlation between 2014-2015 and 2016-2017, $r(33) = -0.06, p = .728$. There is a low, positive correlation between variables 2014-2015 and 2017-2018 with $r= 0.22$. Thus, there is a low, positive association between 2014-2015 and 2017-2018 in this sample. The result of the Spearman correlation showed that there was no significant correlation between 2014-2015 and 2017-2018, $r(33) = 0.22, p = .196$. There is a low, positive correlation between variables 2014-2015 and 2018-2019 with $r= 0.26$. Thus, there is a low, positive association between 2014-2015 and 2018-2019 in this sample. The result of the Spearman correlation showed that there was no significant correlation between 2014-2015 and 2018-2019, $r(33) = 0.26, p = .139$. There is no significant, positive correlation between variables 2014-2015 and 2019-2020 with $r= 0.1$. Thus, there is no significant, positive association between 2014-2015 and 2019-2020 in this sample. The result of the Spearman correlation showed that there was no significant correlation between 2014-2015 and 2019-2020, $r(33) = 0.1, p = .571$. There is a low, positive correlation between variables 2014-2015 and 2020-2021 with $r= 0.12$. Thus, there is a low, positive association between 2014-2015 and 2020-2021 in this sample. The result of the Spearman correlation showed that there was no significant correlation between 2014-2015 and 2020-2021, $r(33) = 0.12, p = .509$. There is a low, positive correlation between variables 2014-2015 and 2021-2022 with $r= 0.14$. Thus, there is a low, positive association between 2014-2015 and 2021-2022 in this sample. The result of the Spearman correlation showed that there was no significant correlation between 2014-2015 and 2021-2022, $r(33) = 0.14, p = .438$. There is a low, positive correlation between variables 2014-2015 and 2022-2023 with $r= 0.12$. Thus, there is a low, positive association between 2014-2015 and 2022-2023 in this sample. The result of the Spearman correlation showed that there was no significant correlation between 2014-2015 and 2022-2023, $r(33) = 0.12, p = .502$. There is a high, positive correlation between variables 2015-2016 and 2016-2017 with $r= 0.53$. Thus, there is a high, positive association between 2015-

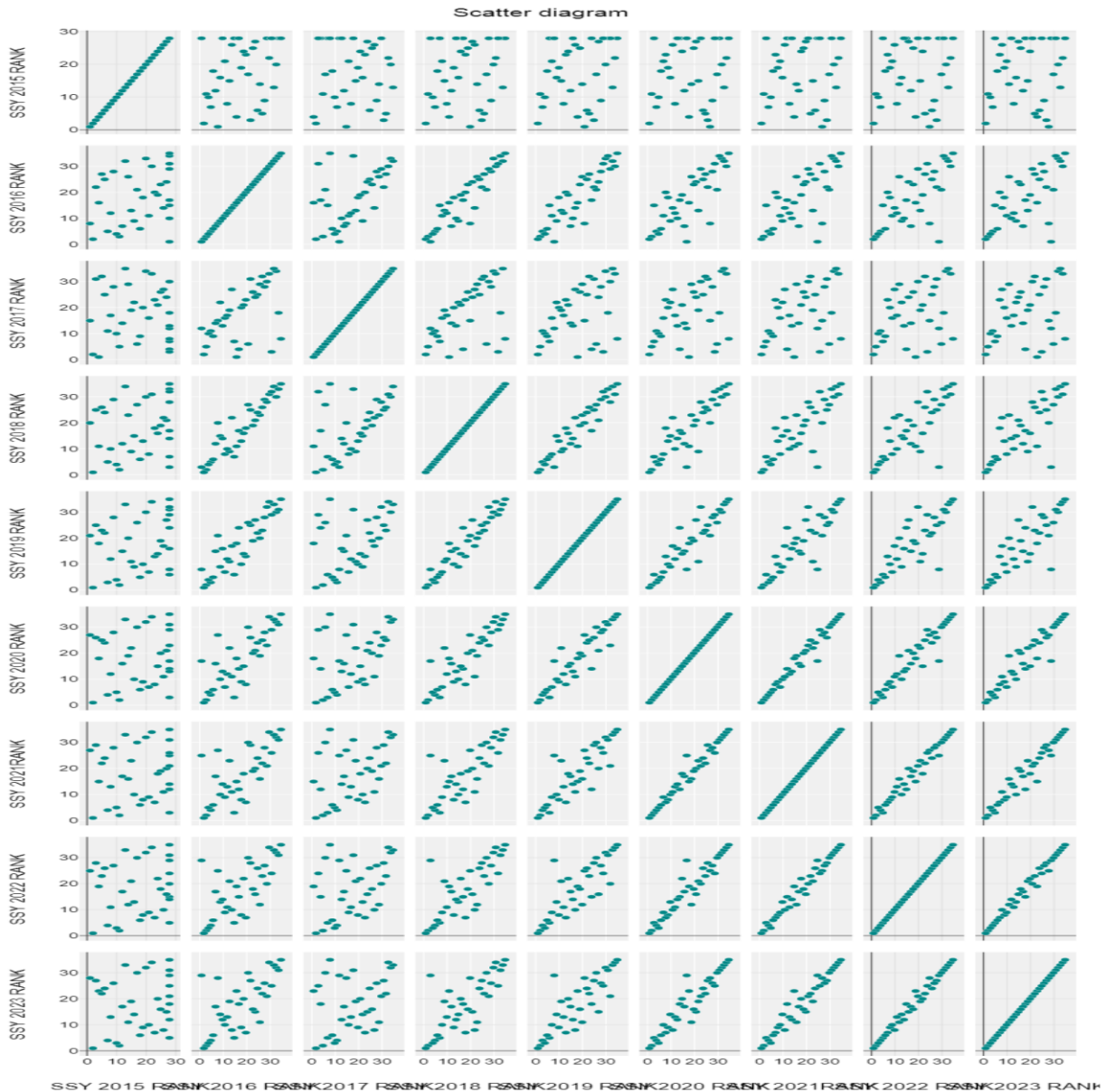
2016 and 2016-2017 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2015-2016 and 2016-2017, $r(33) = 0.53, p = .001$. There is a very high, positive correlation between variables 2015-2016 and 2017-2018 with $r = 0.92$. Thus, there is a very high, positive association between 2015-2016 and 2017-2018 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2015-2016 and 2017-2018, $r(33) = 0.92, p = <.001$. There is a very high, positive correlation between variables 2015-2016 and 2018-2019 with $r = 0.89$. Thus, there is a very high, positive association between 2015-2016 and 2018-2019 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2015-2016 and 2018-2019, $r(33) = 0.89, p = <.001$. There is a very high, positive correlation between variables 2015-2016 and 2019-2020 with $r = 0.8$. Thus, there is a very high, positive association between 2015-2016 and 2019-2020 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2015-2016 and 2019-2020, $r(33) = 0.8, p = <.001$. There is a very high, positive correlation between variables 2015-2016 and 2020-2021 with $r = 0.72$. Thus, there is a very high, positive association between 2015-2016 and 2020-2021 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2015-2016 and 2020-2021, $r(33) = 0.72, p = <.001$. There is a high, positive correlation between variables 2015-2016 and 2021-2022 with $r = 0.68$. Thus, there is a high, positive association between 2015-2016 and 2021-2022 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2015-2016 and 2021-2022, $r(33) = 0.68, p = <.001$. There is a high, positive correlation between variables 2015-2016 and 2022-2023 with $r = 0.66$. Thus, there is a high, positive association between 2015-2016 and 2022-2023 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2015-2016 and 2022-2023, $r(33) = 0.66, p = <.001$. There is a high, positive correlation between variables 2016-2017 and 2017-2018 with $r = 0.54$. Thus, there is a high, positive association between 2016-2017 and 2017-2018 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2016-2017 and 2017-2018, $r(33) = 0.54, p = .001$. There is a medium, positive correlation between variables 2016-2017 and 2018-2019 with $r = 0.46$. Thus, there is a medium, positive association between 2016-2017 and 2018-2019 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2016-2017 and 2018-2019, $r(33) = 0.46, p = .005$. There is a medium, positive correlation between variables 2016-2017 and 2019-2020 with $r = 0.44$. Thus, there is a medium, positive association between 2016-2017 and 2019-2020 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2016-2017 and 2019-2020, $r(33) = 0.44, p = .008$. There is a medium, positive correlation between variables 2016-2017 and 2020-2021 with $r = 0.44$. Thus, there is a medium, positive association between 2016-2017 and 2020-2021 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2016-2017 and 2020-2021, $r(33) = 0.44, p = .009$. There is a medium, positive correlation between variables 2016-2017 and 2021-2022 with $r = 0.39$. Thus, there is a medium, positive association between 2016-2017 and 2021-2022 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2016-2017 and 2021-2022, $r(33) = 0.39, p = .021$. There is a medium, positive correlation between variables 2016-2017 and 2022-2023 with $r = 0.33$. Thus, there is a medium, positive association between 2016-2017 and 2022-2023 in this sample. The result of the Spearman correlation showed that there was no significant correlation between 2016-2017 and 2022-2023, $r(33) = 0.33, p = .054$. There

is a very high, positive correlation between variables 2017-2018 and 2018-2019 with $r= 0.95$. Thus, there is a very high, positive association between 2017-2018 and 2018-2019 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2017-2018 and 2018-2019, $r(33) = 0.95, p = <.001$. There is a very high, positive correlation between variables 2017-2018 and 2019-2020 with $r= 0.88$. Thus, there is a very high, positive association between 2017-2018 and 2019-2020 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2017-2018 and 2019-2020, $r(33) = 0.88, p = <.001$. There is a very high, positive correlation between variables 2017-2018 and 2020-2021 with $r= 0.82$. Thus, there is a very high, positive association between 2017-2018 and 2020-2021 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2017-2018 and 2020-2021, $r(33) = 0.82, p = <.001$. There is a very high, positive correlation between variables 2017-2018 and 2021-2022 with $r= 0.78$. Thus, there is a very high, positive association between 2017-2018 and 2021-2022 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2017-2018 and 2021-2022, $r(33) = 0.78, p = <.001$. There is a very high, positive correlation between variables 2017-2018 and 2022-2023 with $r= 0.76$. Thus, there is a very high, positive association between 2017-2018 and 2022-2023 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2017-2018 and 2022-2023, $r(33) = 0.76, p = <.001$. There is a very high, positive correlation between variables 2018-2019 and 2019-2020 with $r= 0.92$. Thus, there is a very high, positive association between 2018-2019 and 2019-2020 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2018-2019 and 2019-2020, $r(33) = 0.92, p = <.001$. There is a very high, positive correlation between variables 2018-2019 and 2020-2021 with $r= 0.86$. Thus, there is a very high, positive association between 2018-2019 and 2020-2021 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2018-2019 and 2020-2021, $r(33) = 0.86, p = <.001$. There is a very high, positive correlation between variables 2018-2019 and 2021-2022 with $r= 0.83$. Thus, there is a very high, positive association between 2018-2019 and 2021-2022 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2018-2019 and 2021-2022, $r(33) = 0.83, p = <.001$. There is a very high, positive correlation between variables 2018-2019 and 2022-2023 with $r= 0.83$. Thus, there is a very high, positive association between 2018-2019 and 2022-2023 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2018-2019 and 2022-2023, $r(33) = 0.83, p = <.001$. There is a very high, positive correlation between variables 2019-2020 and 2020-2021 with $r= 0.98$. Thus, there is a very high, positive association between 2019-2020 and 2020-2021 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2019-2020 and 2020-2021, $r(33) = 0.98, p = <.001$. There is a very high, positive correlation between variables 2019-2020 and 2021-2022 with $r= 0.95$.

Thus, there is a very high, positive association between 2019-2020 and 2021-2022 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2019-2020 and 2021-2022, $r(33) = 0.95, p = <.001$. There is a very high, positive correlation between variables 2019-2020 and 2022-2023 with $r = 0.94$. Thus, there is a very high, positive association between 2019-2020 and 2022-2023 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2019-2020 and 2022-2023, $r(33) = 0.94, p = <.001$. There is a very high, positive correlation between variables 2020-2021 and 2021-2022 with $r = 0.98$. Thus, there is a very high, positive association between 2020-2021 and 2021-2022 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2020-2021 and 2021-2022, $r(33) = 0.98, p = <.001$. There is a very high, positive correlation between variables 2020-2021 and 2022-2023 with $r = 0.97$. Thus, there is a very high, positive association between 2020-2021 and 2022-2023 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2020-2021 and 2022-2023, $r(33) = 0.97, p = <.001$. There is a very high, positive correlation between variables 2021-2022 and 2022-2023 with $r = 0.99$. Thus, there is a very high, positive association between 2021-2022 and 2022-2023 in this sample. The result of the Spearman correlation showed that there was a significant correlation between 2021-2022 and 2022-2023, $r(33) = 0.99$.

The results clearly portray that over a period of time the correlation between the average amounts of accounts saved has grown. Initially, for the year 2015 no correlation existed with various years but the correlation between the variables has increased with the passing time. A graph pertaining to the same has been depicted showing the correlation between the variables.

GRAPH 9: CORRLATION SCATTER DIAGRAM



CONCLUSION:

The analysis puts light on the fact that for initial years correlation did not exist and hence null hypothesis was accepted but for later years the correlation existed, thus showing rejection of null hypothesis and acceptance of alternative hypothesis. It is observed from the findings that the SSY scheme will lead to financial inclusion and, thereby, it will affect women empowerment in a positive manner. This research paper clearly portrays that over the years certain states and union territories have reached a niche of higher average amounts saved per account like Delhi, Chandigarh, Haryana and Goa, while others have shown consistently lower amounts saved on an average including Mizoram, Madhya Pradesh, Chhattisgarh and Assam.

LIMITATIONS AND FUTURE SCOPE:

The study does not include a wider perspective of including views of beneficiaries and the sources of their encouragement towards SSY scheme. . This study remains inconclusive on whether the benefits of the scheme have reached rural India access to the same. A beneficiary perspective from various states and union territories can be useful to the government in revisiting its marketing strategy and amend it according to the regional variation across the socioeconomic and demographic strata of the population and evaluate the impact of the same.

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Appendices:

TABLE: AVERAGE AMOUNT SAVED IN AN SSY ACCOUNT PER STATE OR UNION TERRITORY (IN RUPEES)

NAME OF THE STATE	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023
ANDAMAN AND NICOBAR ISLANDS	0	9616.415	25759.24	31460.74	41434.78	62411.86	77501.62	68768.28	72175.35
ANDHRA PRADESH	3461.63	9371.356	17056.99	26847.15	35380.44	43541.38	52844.99	60017.33	62984.93
ARUNACHAL PRADESH	0	9520.253	30030.52	25372.28	28280.5	39615.11	48661.31	55524.05	52808.03
ASSAM	3213.468	5684.569	10166.88	17276.34	23040.65	22081.15	24009.98	27149.19	28074.76
BIHAR	8734.694	8754.51	12649.28	21600.7	27694.99	31749.67	32153.69	34262	36322.24
CHANDIGARH	4532.064	18244	28129.37	44405.48	51800.69	68889.84	82821.12	93835.48	102119
CHHATTISGARH	4224.187	5821.603	7796.725	12148.42	16128.46	19493.13	23450.88	25984.46	27929.35
DELHI	10266.12	23820.72	36836.37	55533.79	69498.97	78409.17	89992.02	10481.07	115636.6
GOA	6063.	12748	21971	35119	45949	57540	70060.	81082	89008.3

	549	.48	.07	.16	.94	.6	82	.72	
GUJARAT	10272 .85	11086 .82	18356 .74	24403 .29	30180 .18	31674 .84	35153. 36	39099 .03	35977.2 8
HARYAN A	4940. 469	14086 .86	22320 .01	35918 .19	45490 .91	56000 .58	68537. 63	81165 .9	90360.9 1
HIMACH AL PRADESH	4122. 204	7784. 951	14513 .75	22701 .57	30679 .44	38168 .37	46551	56008 .25	59352.7 6
JAMMU AND KASHMI R and LADAKH	2618. 812	8813. 2	16448 .06	24801 .04	34118 .61	44155 .16	54533. 47	62474 .87	65903.4 9
JHARKH AND	3970. 942	10649 .66	16680 .13	26068 .33	35723 .04	42071 .27	50752. 66	55994 .64	55997.9 9
KARNAT AKA	2950. 259	10449 .7	18199 .55	30091 .42	40385 .64	47378 .35	52003. 48	58863 .6	62289.6 7
KERALA	4021. 69	10063 .74	17731 .8	28168 .42	34877 .51	36906 .21	40694. 12	47968 .12	52179.5 5
LAKSHA DWEEP	0	24666 .67	20880 .29	38492 .54	37903 .23	38918 .92	38750	31234 .26	32356.0 2
MADHYA PRADESH	2759. 25	6614. 554	11541 .97	17042 .06	15392 .39	17273 .39	20950. 87	20205 .37	23312.5 8
MAHARA SHTRA	4316. 463	11300 .28	18722 .62	27019 .53	33716 .78	39024 .75	45887. 42	50746 .79	53327.9
MANIPU R	0	5131. 468	17862 .81	13567 .13	18266 .12	22225 .46	26479. 65	27611 .56	28534.2 2
MEGHAL AYA	6642. 857	9600. 482	70603 .98	27330 .13	31106 .21	38754 .29	46584. 31	48966 .05	45061.8 6
MIZORA M	0	3820. 446	22684 .34	12025 .46	12413 .02	14416 .7	17401. 17	18519 .13	17293.1 9
NAGALA ND	3963. 504	8758. 197	25847 .19	21077 .84	27349 .93	28163 .11	29449. 34	29305 .55	29097.9 7
ODISHA	6314. 729	8217. 217	15876 .9	22249 .21	28716 .01	34511 .38	38971	38918 .45	40293.3 3
PUDUCH ERRY	1762. 36	8359. 728	16199 .14	24115 .88	24967 .37	37224 .48	44211. 63	51374 .22	55636.2
PUNJAB	5525. 474	10406 .81	17877 .68	27704 .95	34280 .94	40243 .37	47907. 71	56210 .08	58470.9 5
RAJASTH AN	5408. 197	7526. 986	14817 .03	19566 .65	24846 .94	31175 .07	33327. 78	35918 .67	38143.0 8
SIKKIM	0	6770. 073	13271 .61	20895 .67	18127 .7	35018 .89	43290. 36	48007 .27	49136.3 1
TAMIL NADU	2000. 51	8566. 434	15676 .18	24553 .31	30984 .83	37592 .58	44281	50264 .03	53438.8 2

TELANGANA	3613.671	12206.06	22320.34	32865.33	42174.36	50731.76	57816.75	66464.51	68679
THE DADRA AND NAGAR HAVELI AND DAMAN AND DIU	0	10512.94	19694.99	26751.56	32983.79	40231.29	47628.75	55787.92	58567.15
TRIPURA	0	6531.437	35142.59	16886.4	23156.88	29590.6	36870.06	41298.32	40061.19
UTTAR PRADESH	2528.642	9059.166	16744.95	25983.03	33748.51	39045.6	44590.6	46469.06	49236.69
UTTARA KHAND	1866.431	9675.039	15210.69	23538.17	32162.19	40405.63	49269.45	57568.03	63062.53
WEST BENGAL	6636.106	7548.056	12184.58	21129.55	28450.06	34409.14	41041.38	43902.8	45079.48
INDIA	2928.241	9677.689	17012.79	25713.03	32330.7	37860.49	43518.04	47420.31	49990.46

TABLE: RANKING OF STATES BASED ON AVERAGE AMOUNT SAVED IN AN SSSY ACCOUNT PER STATE OR UNION TERRITORY

WORLD EXPERIENCE IN REINTEGRATING RADICALIZED INDIVIDUALS INTO A HEALTHY SOCIAL ENVIRONMENT

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ABSTRACT

The article highlights discusses the pressing issues of rehabilitation and reintegration into society of people involved in the ranks of some pseudo-religious groups, as well as important tasks posed to psychologists, islamic studies and religious scholars. At the same time, some aspects are described that need to be paid attention to when educating people who are influenced by destructive ideas.

KEYWORDS: *Religious Rehabilitation, "Basic Rehabilitation Programs", "Advanced Rehabilitation Programs", "Legal Rehabilitation", "Medical Rehabilitation", "Social Rehabilitation", Psychological Therapy, Deradicalization.*

INTRODUCTION

Today, the issue of re-adapting individuals who have joined the ranks of various disruptive currents into society is becoming more important. The process of rehabilitation of radicalized persons is carried out by the countries of the world based on different approaches. However, they can be broadly divided into two groups:

- I. "Basic rehabilitation programs".
- II. "Advanced Rehabilitation Programs".

Currently, in a number of countries, the rehabilitation system "Basic rehabilitation programs" has been established.

I. "Basic rehabilitation programs" consist of 3 components, which include religious, social and psychological rehabilitation approaches. In this process, a program, training, professional skills and practical measures are developed for a person who has experienced ideological and bloody trials.

1. Religious rehabilitation program. This includes dialogue, discussion and conversation on religious topics. Statistics show that most terrorists will have absolutely no religious knowledge or a very shallow level of knowledge. Therefore, it is necessary to carry out religious rehabilitation in order to discredit the theoretical and ideological foundations of various interpretations that have been embedded in the minds of terrorists.

The process of religious rehabilitation of radical individuals requires systematic work and professional Islamic and theological experts. Their work can be organized as follows:

a) It is explained that the destructive ideology instilled in the mind of a radical person is negative and that he, his family, society and the state will be harmed as a result;

b) The place of discredited negative ideology is filled with the right. In this process, a fanatical person is shown that his consciousness is poisoned by extremists on the basis of systematic manipulation technologies, and religious factors are masterfully used in this process;

c) The holy concepts and slogans of Islam are explained correctly. Religious scholars teach that Islam is a religion of creativity, and that the concepts of jihad, takfir, and caliphate have been interpreted by extremists for their own interests.

d) It is filled with verses and hadiths that it is correct to live in a society where representatives of many nationalities and religions. In this process, dialogue, debate and discussion on dogmatic, jurisprudential and other religious topics are conducted.

2. Social rehabilitation program. The role of social rehabilitation programs is incomparable in ensuring the smooth reintegration of people who have become victims of radical ideas into society. This process allows the fanatical person to engage in dialogue at the community level and to develop his thoughts in terms of family, future and peace building.

In the process of resocialization, a number of factors are taken into account:

a) Family relationships. It is important to preserve the family of persons arrested or influenced by fanaticism and to exert influence with the help of their support. This process focuses on strengthening family unity;

b) Restoration of social relations. The person participating in the rehabilitation program will be restored with the support and advice of experts, relations between the state, society and friends;

c) Social support. In this case, the person is provided medical (for treatment), material (money, household appliances, etc.) and spiritual (education and support of specialists) aspects;

d) Help to improve scientific and professional skills. Problems of employment and ensuring employment after release are also part of the social rehabilitation program.

1. Psychological rehabilitation program. Psychologists regularly meet radical persons undergoing rehabilitation, give them psychological counseling and study their mental state in prison. In doing so, they determine their ability to cope with stress, their tendency to hatred and violence, and their susceptibility to the influence of radical ideas (with the help of special tests and programs). Psychologists also study the success rate and cognitive aspects of inmate rehabilitation.

In addition, physical and psychological problems that prevent prisoners from fully participating in rehabilitation programs are identified in advance and classified according to their condition. Psychological testing, treatment, and a deradicalization program with the participation of qualified psychologists are important in this regard.

Psychological therapy courses are required for radical persons undergoing psychological rehabilitation. Prisoner during psychological therapy operations:

* Change behavior;

* Formation of psycho physiological adaptation skills;

* Decision making;

- * Improvement of social relations;
- * Self-respect;
- * Motivation to increase mental capacity and development;
- * Self-knowledge and understanding;
- * Change perception and mentality for a corrected lifestyle;
- * Emotional control and overcoming confusing concepts;
- * learns attitudes such as critical thinking and problem solving skills.

Treating rehabilitation program subjects well and seeing them as human beings is the first step in building positive relationships. Psychological treatment methods should be carried out based on the principle of continuity.

In the process of psychological rehabilitation, the prisoner's mental state, emotional experiences, level of hatred, tendency to violence and radicalization are constantly evaluated. At the same time, changes in behavior are monitored and the need to treat events realistically rather than emotionally is formed.

In Conclusion, it should be noted that no one claims that rehabilitation is an easy process. It is a combination of continuous and continuous mechanisms. A successful rehabilitation program requires the necessary conditions. Also, this program is implemented using the practice of religious, psychological, social and family rehabilitation. At the same time, local and national conditions are also taken into account. After their release, support programs will be launched. Such program mechanisms are interdependent, and the absence of one leads to a violation of the actions of others.

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DESCRIPTION OF THE NARRATIVES RELATED TO SANADISAHABA WRITTEN IN THE TA'WILAT AL-QUR'AN

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ABSTRACT

This article is part of Imam Moturidi's work "Ta'wilat al-Qur'an", in which the narrations related to the Prophet Muhammad (pbuh) are classified according to individuals, and the information in it is Tabari, Muqatil, Abu Lays has been compared with the works of commentators such as Samarkandi and Vahidi.

KEYWORDS: *Qur'an, Verse, Asbab Al-Nuzul, Narration, Rovey, Sanad, Wahidi, Suyuti.*

INTRODUCTION

In order for the reason of the sanad to be accepted as a revelation, it is necessary that it comes from the Sahabah first. Because the Companions were considered to be the ones who witnessed the revelation of the verses and who knew the connection between the verses and the events best. That is the reason why they have priority in the science of interpretation. For this reason, the number of Nuzul sanads is given in the sources in connection with the Companions.

Imam Moturidi attributed the 52 reasons of the sanad of revelation to the Companions in his work "Ta'wilat al-Qur'an". In the sanads he cited, there are names of companions such as Ibn Abbas, Aisha, Umar ibn Khattab, Abdullah ibn Umar, Abu Huraira, Jabir ibn Abdullah, Abdullah ibn Salam, Anas ibn Malik (r.a.). Among these, Maturidi has narrated 31 reasons from Ibn Abbas (r.a.) [3]. It was narrated from Ibn Abbas (RA) that the hypocrites will build a mosque. When it was over, he came to the Prophet (pbuh) who was preparing for the Tabuk raid and said: "O Messenger of God! We built a mosque because of our need and rainy nights. We want you to come and pray there." The Prophet (pbuh): "We are on a journey now, we are busy. Inshallah, if we return from the trip, we will go there and pray there for you." Because of this incident, Allah's Messenger was told, "There are also those who built mosques to harm (believers), disbelief, divide among believers, and to keep an eye on (one) who fought against Allah and (His) Messenger before." ..." revealed the verse [1].

Maturidi narrated three reasons from Aisha (r.a.). "If you fear that you will not be able to be fair (relative to) orphans, do not marry women whose (marriage) is lawful for you, two, three, four..." The author Aisha (r.a.) narrated two different reasons about the verse. quoted. The first of them has the following narration. According to him, this verse was revealed about orphan girls under the care of men. A man takes care of an ugly girl because of his lack of wealth, does not marry her because of her ugliness, and does not allow her to marry someone else in order not to give away his wealth. Because if the girl died, he thought of becoming the heir to his property. Because of this incident, Allah revealed this verse [1:307-308].

In "Ta'wilot al-Qur'an" three reasons are associated with Jabir ibn Abdullah (RA). It is narrated from him that when the Prophet (pbuh) performed funeral prayers for Najoshi, some hypocrites said: "He is performing funeral prayers for an Abyssinian who died in Abyssinia." Then Allah revealed the verse "Indeed, among the People of the Book there are those who believe in Allah, in what has been revealed to you (the Qur'an) and in what has been revealed to them (the Books), and bow to Allah in obedience..."³

It was narrated from Ibn Abbas (RA) that the hypocrites will build a mosque. When it was over, he came to the Prophet (pbuh) who was preparing for the Tabuk raid and said: "O Messenger of God! We built a mosque because of our need and rainy nights. We want you to come and pray there."

The Prophet (pbuh): "We are on a journey now, we are busy. Inshallah, if we return from the trip, we will go there and pray there for you." Because of this incident, Allah's Messenger was told, "There are also those who built mosques to harm (believers), disbelief, divide among believers, and to keep an eye on (one) who fought against Allah and (His) Messenger before." ..."(Surah Tawba, verse 107).

Maturidi narrated three reasons from Aisha (r.a.).(Surah Baqarah, verse 199; Surah An-Nisa, verse 3)

"If you fear that you will not be able to be fair to the orphans, then marry two, three, four women whose (marriage) is lawful for you..."(Surah An-Nisa, verse 3).About this verse, the author narrated two different reasons from Aisha (r.a.). The first of them has the following narration. According to him, this verse was revealed about orphan girls under my care. A man takes care of an ugly girl because of his lack of wealth, does not marry her because of her ugliness, and does not allow her to marry someone else in order not to give away his wealth. Because if the girl died, he thought of becoming the heir to his property. Because of this incident, Allah revealed this verse [1:307-308].

In Ta'wilot al-Qur'an, three reasons are associated with Jabir ibn Abdullah (r.a.) (Surah Ali Imran, verse 199; Surah An-Nisa, verses 11, 176).

It is narrated from him that when the Prophet (pbuh) performed funeral prayers for Najoshi, some hypocrites said: "He is performing funeral prayers for an Abyssinian who died in Abyssinia." Then Allah said, "Indeed, among the People of the Book there are those who believe in Allah, in what has been revealed to you (the Qur'an) and in what has been revealed to them (the Books), and bow to Allah in obedience..."(Oli Imron surasi, 199-oyat) reveals his verse (Tabari and Vahidi also cited this narration in their works. See: Jame' al-bayan and Ta'wili verse al-Qur'an. - J. IV. - B. 289; the instrument is the revelation of the Qur'an. – B. 143–144).

The three reasons mentioned in "Ta'wilot al-Qur'an" are attributed to Anas ibn Malik (r.a.) (Surah Ma'ida, verse 33; Surah Sajdah, verse 16; Surah Sajdah, verse 16). According to one of them, a group from Ukl or Urayna tribe came to the Prophet (pbuh) and complained of illness. The Prophet (pbuh) sent them a shepherd and milking camels. He says to them: "Drink their milk and heal with their urine." When they recover, they kill the shepherd, take the camels and run away, leaving Islam and becoming apostates. The Prophet (pbuh) sent people after them. At sunset they will be caught. The Prophet (pbuh) ordered to cut off their feet, hands and tongues, cut out their eyes and leave them in a place until they died. Because of this incident, God said, "Indeed, the punishment for those who fight against God and His Messenger and who commit mischief on

Earth is death or crucifixion or having their hands and feet cut off from the opposite side or banishment from the land (homeland) is to be done. This (punishment) is a shame for them in this world and a great punishment for them in the Hereafter (Surah al-Maida, verse 33.) Reveals his verse [3:209-210].

Maturidi cited two narrations in "Ta'wilot al-Qur'an" dating back to Abdullah ibn Umar (r.a.).(Surah Baqarah, verse 198; Surah Ali Imran, verse 128).

In one of these narrations, the Prophet (pbuh) said on the day of Uhud, "May God curse Abu Sufyan. Curse so-and-so," he cursed a group of them. On this matter, "There is no choice for you (O Muhammad!) In this matter. God Himself will (perhaps) accept their repentance or punish them..."(Surah Ali Imran, verse 128) the verse will be revealed [3:410].

The number of narrations of the Prophet (pbuh) narrated from Abu Saeed Khudri (r.a.) is two (Surah An-Nisa, verse 24; Surah Yasin, verse 12), in one of them, it is said that Abu Saeed Khudri (r.a.) was given a trophy in the battle of Avtos. When he was taking her away, he suddenly put his head out of the Haram (al-hill alh) and said, "This is my husband." Then Allah said: "Again, married women (marriage was also prohibited), except for your dependents (except for)..." (Surah An-Nisa, verse 24) reveals his verse [1:4-5].

There are two reasons for the narration of the sanad of Abu Umama Bohili (r.a.).(Surah Tawba, verse 103; Surah Anfal, verse 1) cited by Moturidi. According to one of them, Abu Umama said, "They will ask you (O Muhammad!) about the spoils. Say: "The booty belongs to Allah and His Messenger..."(Surah Anfal, verse 1) he asked Uboda bin Somit for the verse. And he reported that this verse was revealed about a group of the participants of Badr who had a dispute about themselves, i.e. about the booty. [3:166].

In Ta'wilot, one reason related to verse 215 of Surah Baqara was narrated from Amr ibn Jamuh Ansari (RA). According to him, Amr ibn Jamuh said: "O Messenger of Allah! How much should we spend and to whom?" When he asked, Allah said, "They ask you (O Muhammad!) how to donate. Say: "Whatever you give in charity, give it to parents, relatives, orphans, the needy, and the sojourner. God is all **He is the One who knows what you have done.**"(Surah Al-Baqara, verse 215) reveals his verse [3:15].

Only in one place of "Ta'vilot"(Surah al-Maida, verse 91).

From Umar (r.a.) the following narration of the reason is given. According to him, Umar (r.a.): "Allah! When he prayed, "Send us a letter about your clear cure for drinking." Say: In both of them there is a great sin and (some) benefits for people. The sin of both of them is greater than their benefit..." the verse was revealed(Surah Al-Baqara, verse 219)the verse was revealed. Despite the fact that this verse was revealed to him, Umar (r.a.) said again: "Allah! "Send us a statement about your clear recovery from drinking." Then he said, "O you who believe! Do not approach the prayer drunk until you know what you are saying. And even in your junub (unclean) state, do not (approach the prayer) until you are purified..."(Surah An-Nisa, verse 43) the verse will be revealed. Umar (r.a.) is called and the verse is read. And he said again: "Allah! "Send us a statement about your clear recovery from drinking." Then, "Satan wants to create enmity and hatred between you with the help of gambling and turn you away from the remembrance of Allah and prayer. So now, do you refrain from (drinking oil)?"(Surah al-Maida, verse 91) the verse will be revealed. Umar (r.a.) is called again and the verse is recited. "Are you

abstinent now?" when he hears that, he says, "we refrained, we refrained" (Tabari and Vahidi also mentioned this reason. See: Jame' al-bayan an Ta'wili verse al-Qur'an. - J. VII. - B. 44-45);

Maturidi narrated one narration from Abdullah ibn Salam (r.a.). According to him, Abdullah ibn Salam (r.a.) "...Say: "Those among you and me who have knowledge of Allah and the Book (Qur'an) are sufficient as witnesses."(Surah Ra'd, verse 43) said that the verse was revealed about him [3:452].

Author Ka'b ibn Ujra (r.a.) has also narrated the narration of one reason, according to which, "...If you are surrounded (due to illness or robbers), you can take something that you can afford (a bush, a cow, (like a sheep) slaughter alive..."(Surah Baqarah, verse 196) about the verse, he mentions his own experience as follows: According to the narration, the Prophet (pbuh) said to Ka'b, "O Ka'b! Do head lice bother you? says. Ka'b replies: "Yes." The Prophet (pbuh) said to him: "Then take your hair, sacrifice a sheep or marry sixty poor people." After this narration narrated by Ka'b, he reports that the relevant verse was revealed about him [8:171-172]. In Ta'wilot, there is one narration related to Sa'd ibn Abu Waqqas (r.a.), which was narrated by Mus'ab, the son of Sa'd (r.a.). According to him, Sa'd ibn Abu Waqqas (r.a.) said: "Four verses were revealed about me. I won a sword on the day of Badr. I brought him to the Prophet and said, "Give him to me as a prey." The Prophet (pbuh) said: "Put it down" and stood up. I said again: "O Prophet of God, give me that sword as a reward, will I be considered innocent?" I said. The Prophet (pbuh) said: "Put the sword where you took it" and then "They will ask you (O Muhammad!) (Surah Anfal, verse 1) about the spoils. Say: "The booty belongs to Allah and His Messenger..."the verse was revealed" (Tabari also recorded this narration in his works. See: Jame' al-bayan an Ta'wili verse al-Qur'an. - J. IX. - B. 231-232). Maturidi cited the narration of the revelation from Abu Huraira (r.a.) for one reason. It says that the Prophet (pbuh) said: "No black-headed nation before you was given lawful booty. A fire fell from the sky and devoured the prey. On the day of Badr, when the people ran to the prey, Allah said, "If it were not for the letter of Allah (forgiving the mistake in destiny), surely there would have been a great punishment for what you received (compensation). * Eat the spoils you have taken honestly..."(Surah Anfal, verses 68-69) revealed his verses" [3:169].

Maturidi mentioned only one companion in almost all of his Nuzul narrations. Only Surah Yasin says, "Indeed, We raise the dead and record their deeds (before their death) and their consequences (deeds beneficial or harmful to the public)..." (Surah Yasin, verse 12). In the place where the reason of the said verse was narrated, he attributed the chain of narrations to two companions, namely Ibn Abbas and Abu Said Khudri (r.a.). According to him, the houses of the Ansaris are far from the mosque, so they want to move to a place near the mosque. Then this verse will be revealed. After the revelation of the verse, the Prophet (pbuh) said: "Your steps are being recorded." And they remain in their places without moving [1:184-185].

So, Maturidi gave the sanad of 52 out of 302 narrations of revelation in "Ta'wilot al-Qur'an" by linking it to the Companions. 31 of them were given to Ibn Abbas (r.a.), Aisha (r.a.), Jabir ibn Abdullah (r.a.), Anas ibn Malik (r.a.), 3 each to Abdullah ibn Umar (r.a.), Abu Said Khudri (r.a.), Abu Umama Bohili (2 each, Amr ibn Jamuh Ansari (r.a.), Umar (r.a.), Abdullah ibn Salam (r.a.), Ka'b ibn Ujra (r.a.), Sa'd ibn Abu Waqqas (r.a.) and Abu Hurairah (r.a.) is connected by one to .

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MAPPING CHEMICAL PROPERTIES OF SOIL AT VILLAGE LEVEL: A CASE STUDY OF RINCENPONG, SIKKIM

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ABSTRACT

Digital Soil Mapping at farmland scale or even at village scale is rare. With the initiative of government of India to implement soil health card at farm scale it becomes imperative to map soil properties at village level and suggest sustainable management practices. Rinchenpong village, in West Sikkim. was surveyed and randomly 20 soil samples were collected for their chemical analysis to estimate pH, Electrical Conductivity (EC), Soil Organic Carbon (SOC), Nitrogen (N), Phosphate (P), Potash (K) and micronutrients like Sulfur (S), Manganese (Mn), Copper (Cu), Zinc (Zn) and Iron (Fe) using state-of -the art laboratory facilities and norms. The values of different soil parameters were then interpolated using ordinary kriging technique and mapped in ArcGIS 10.4.1. The data were validated with the Soil Series of Sikkim data which is a National Bureau of Soil Survey and Land use planning (NBSSLUP) publication. The various chemical parameters show good correlation, except for the micronutrient concentrations in soil, but match perfectly with the test results of Soil Health Card scheme.

KEYWORDS: *Digital soil mapping, soil health card, Rinchenpong, Eastern Himalayas.*

INTRODUCTION

The Indian economy is heavily dependent on agriculture. Almost 20% of the Gross Domestic Product comes from this sector and 60% of the population rely on it as a source of livelihood (National Statistical Office (NSO), Ministry of Statistics and Programme Implementation). However, agriculture in India is conditioned by the poor fertility of the soil, which depends upon the level of nutrients. The physical, chemical and biological properties of the soil are useful to evaluate its fertility, to design cultivation plan and predict the crop productivity. Under the ongoing scenario of environmental degradation and global climate change leading to food insecurity, the digital soil mapping (DSM) becomes imperative in order to accurately quantify spatial soil information and understand the temporal changes and identify the causes behind soil degradation (Dharumarajan et al., 2019). Poor soil fertility is the primary bio-physical constraint that results in poor yields (Sanhez, 2010). In the past digital soil mapping has seldom been

utilised to guide soil nutrient management in small holder farm settings. Dash et al., 2022 has done an extensive review of (DSM) comprising of papers from 2000 onwards. They found only two articles to have prepared digital soil maps at the national extent. Dash et al., 2022 also mentioned that very few local and regional extent DSM have been carried out and over 50% of the states and Union Territories have no DSM studies. Listed in Table 1 are some of the studies on DSM in India.

TABLE 1 LITERATURES ON DIGITAL SOIL MAPPING IN INDIA

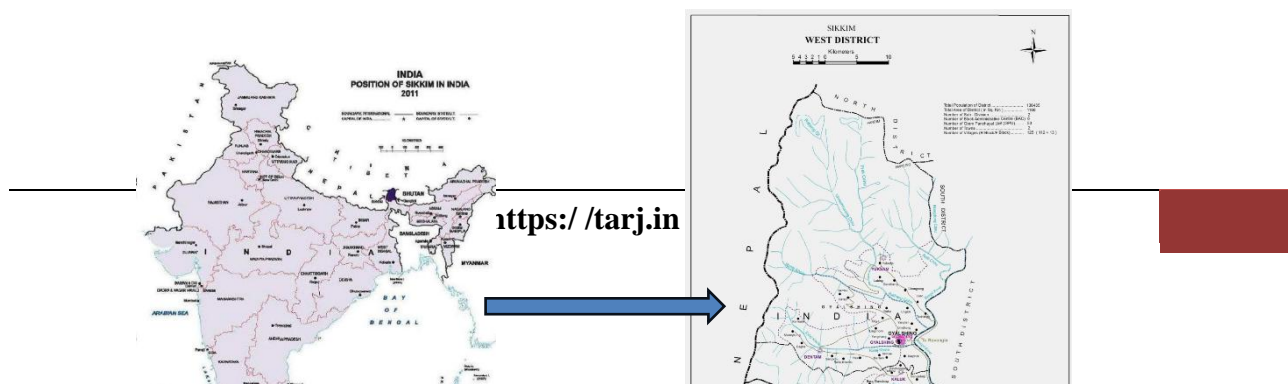
Citations	Region	Properties
Luca-Belle et al., 2022	South Western India	SOC
Reddy et al, 2021	India	pH, Soil Organic Carbon (SOC), Clay and Sand content
Dharumarajan et al., 2020	Parts of Koppal and Gadag districts of Northern Karnataka Plateau	pH, OC, CEC, clay, sand, silt, field capacity and permanent wilting point
Kalambukattu et al, 2018	Hilly watershed located in the Mandi district of Himachal Pradesh	SOC, nitrogen (N) and phosphorus (P)
Kumar et al., 2018	Watershed in Uttar Pradesh	SOC
Dharumarajan et al., 2017	Village in Telegana district	SOC, pH and EC
Santra et al., 2017	Western India	Sand content
Sreenivas et al, 2016	India	Organic and Inorganic carbon
Dhillon and Dhillon, 2014	North Western India	Selenium
Sreenivas et al., 2014	Andhra Pradesh and Karnataka	SOC
Santra et al., 2011	Watershed in Orissa	Soil particle size distribution, pH, water retention behaviour, saturated hydraulic conductivity

It has been evident from the literatures reviewed in Table 1 that very little research endeavours have gone into digitally mapping soil not only at national level but also at regional and micro levels, especially villages where agricultural activities are predominant. Moreover, soil mapping has also been inadequate for Himalayan regions as well. But Himalayan regions too contribute greatly to the Indian agricultural sector. Partap, 2011 states that approximately 76 per cent of the gross cropped area of the entire Himalayan region is under staple food grain crops. Wheat, rice and maize are the dominant food crops in the Himalayan region, especially in the Kashmir Valley, Kangra Valley through terrace cultivation. In eastern Himalaya, rice is the staple food crop occupying about 81 per cent of the food-cropland. Nichols, 2015 writes that these areas are facing deteriorating land productivity and declining yield. A study by Shukla et al., 2018 reveals the causes behind the deteriorating agricultural yield in the Western Himalayas especially, Uttarakhand. They identified male out migration, marginal fragmented land holdings, extreme climatic events and anthropogenic disruptions leading to soil infertility as the main culprits. Mukherjee et al., 2018 writes about how the agricultural productivity is facing challenges in the Central Himalayas. Similarly, Singh et al., 2021; Babu et al., 2020; Das et al., 2017; have elaborately discussed the

declining crop productivity in the eastern Himalayas, especially Sikkim (Mishra et al, 2021). Under such circumstances of soil mapping initiatives together with training farmers to practice climate resilient agriculture becomes the need of the hour. It can help small land holder i.e., marginal farmers to identify soil nutrient status and implement site specific soil management schemes. This paper attempts to take up a case study of a Gram Panchayat in West Sikkim District, in order to showcase the importance of DSM at village level.

STUDY AREA

The study area of this paper is Rinchenpong mouza, a typical remote Gram Panchayat in the Eastern Himalayas. It is located in the Soreng sub division of West Sikkim district and is 25 km from Gyalsing, the district headquarter. Figure 1 shows the location map of Rinchenpong. The latitudinal extension of Rinchenpong is from 27°14'00"N to 27°15'00" N. The longitudinal extension is 88°16'00" E and 88°16'30"E encompassing an area of 541394.23 m². The contour map derived from SRTM DEM (Shuttle Radar Topographic Mission, Digital Elevation Model) as shown in Figure 2 (d) depicts that the highest elevation is 1770 m towards the south of the village and the lowest is 1547.78 m towards the north of the study area. The average slope of the area ranges from 21-25 degrees as can be seen in Figure 2 (b). The steepest slope in the area ranges from 51-55 degrees and are found in the



<https://tarj.in>

Figure1 Location of study area, Rinchenpong Village

northern boundary of the mouza. The aspect map is shown in Figure 2 (a). Most of the hillslopes face towards North West and Western direction. The recorded history of Rinchenpong dates back to 1860, when the British army had attacked Sikkim. It is mentioned in historic literatures

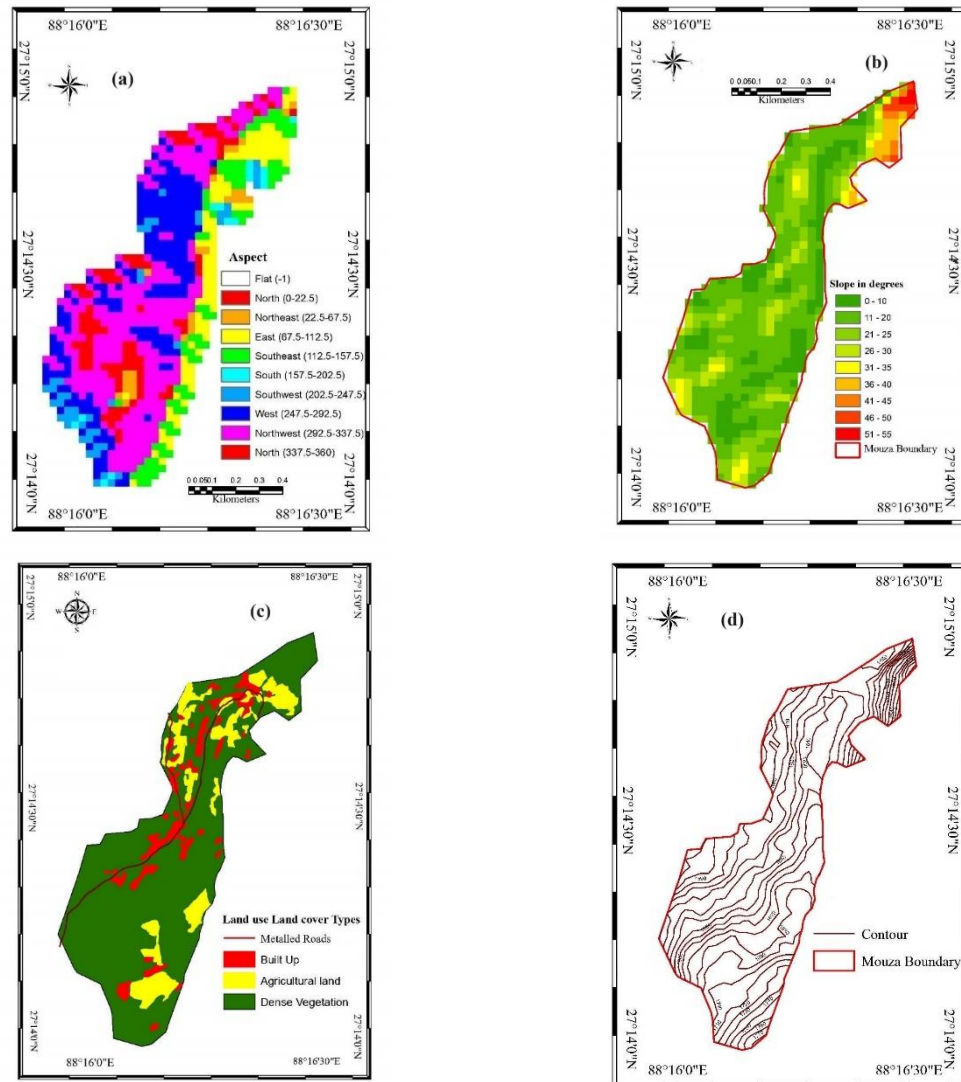
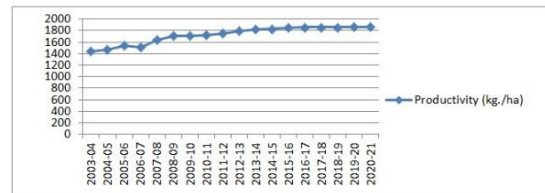
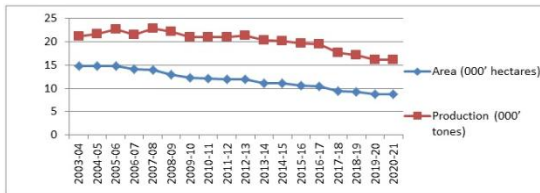


Figure 2 (a) Aspect map, (b) Slope map, (c) Land use land cover map, (d) contours of Rinchenpong

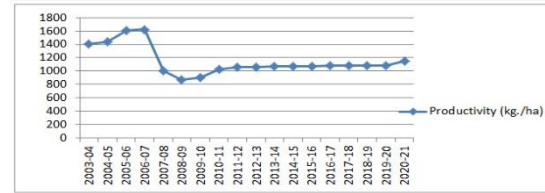
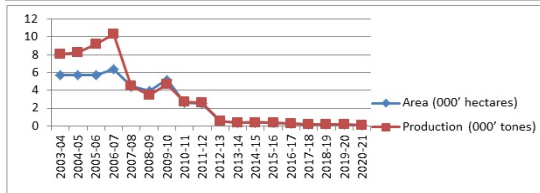
that when the army reached Rinchenpong, the Lepchas poisoned the water of a pond, which was the only source of drinking water then. As a result, many army men died, forcing them to retreat. The lake still exists in the name of "Poison Pokhri" and is of major tourist attraction since it had attained a prominence in the tourism scenario in this decade (Chakraborty, 2012). The majestic view of the Kanchenjunga in the pristine landscape is another reason for its growing tourism business. The settlement is well connected with Jorethang, Siliguri by roadways. The nearest railway station is New Jalpaiguri and the nearest airport is Bagdogra. The nearest IMD (India Meteorological Department) Station, Manga-Geyzing which showed that the daily maximum temperature reaches 27.1°C during July and the daily minimum temperature declined to 6.6°C in January. The rainfall data showed the Monsoon onset takes place in May and withdraws towards September. The highest rainfall amounted to 549.7 mm in June and the lowest in December is 18.5 mm. The number of rainy days in the area often reaches to 26.6 days in July.

According to Census, 2011 the total population of the village is 1458 persons of which 737 are male and 721 are female. There are 298 households.

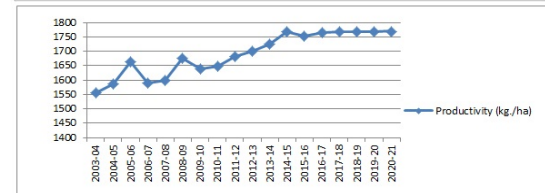
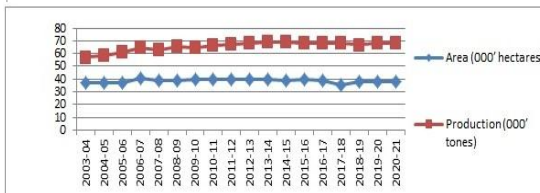
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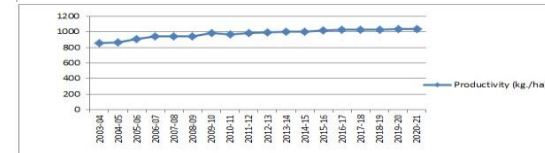
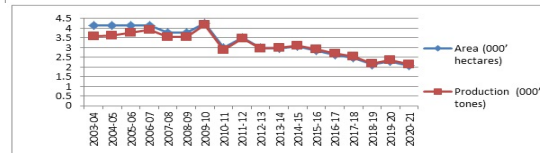
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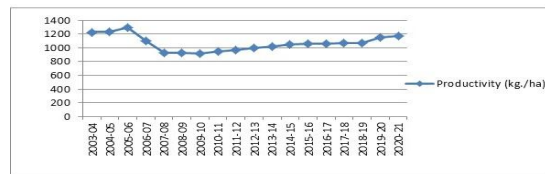
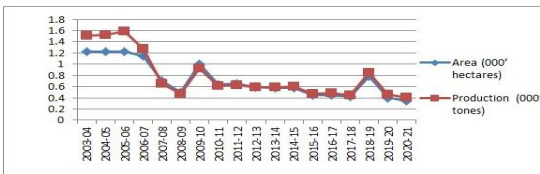
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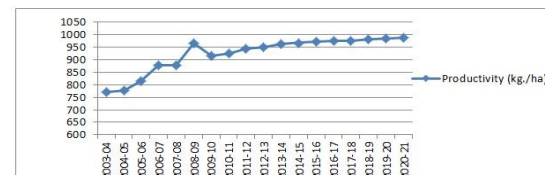
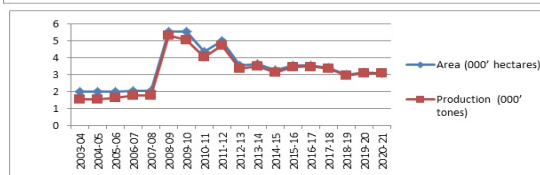
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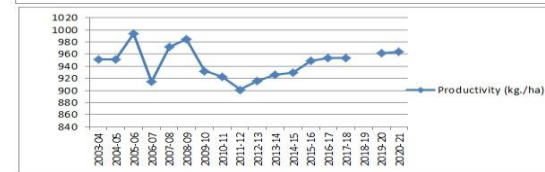
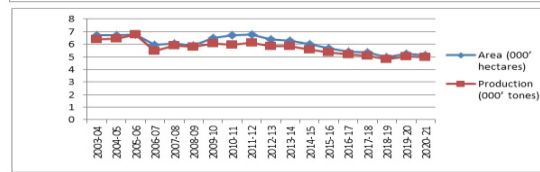
Barley



Buckwheat



Pulses



Oilseeds

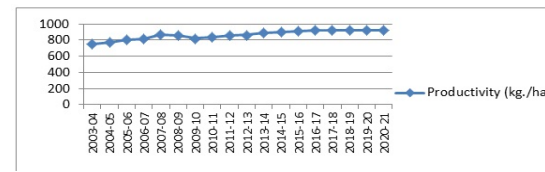
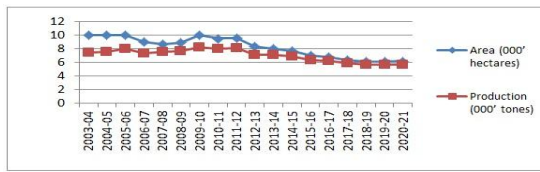


Figure 3 Area under major crops, their production and productivity in Sikkim

(Source: https://sikenvis.nic.in/Database/Agriculture_777.aspx)

A primary questionnaire-based survey was carried out among 50 households randomly in order to assess the livelihood dependency scenario. Under the circumstances of recently growing economy based on tourism it has been found from primary survey that still 51% villagers were farmers, 11% were working in the educational sector, 5 % as carpenter, 24% were shop owners and only 9% were involved in tourism related

business. But the livelihood of the people which is based on agriculture earn meagre amount of Rs. 2000-5000 per month from it and hence have a very low standards of living. Figure 3 shows the trends in the production, area under cultivation and yield of major crops cultivated in Sikkim from 2003-2021. Production per hectare is important as it directly reflects the efficiency of the farming practices on a per-unit-area basis. It helps them understand how effectively the farmers are using their land resources. Whereas total production is more crucial when assessing overall regional agricultural output, trade, or economic impact. It provides a broader view of the volume of produce available for consumption, export, or industrial use. From the graphs it can be observed that over the last decade there has been a steady decline in the area under cultivation of most crops as well in the amount of production though yield has been stagnant for most of the crops. In order to increase yield it's important to manage the available land resource in the optimum way possible, without increasing area under cultivation in a forested and fragile ecosystem like that of Sikkim. Soil testing and suggestion for sustainable management practice at field levels becomes crucial in this juncture.

MATERIAL AND METHODS

A gridded soil sample technique which is mostly followed has not been implemented in this case study. According to Schoeneberger et al., 2012 in locations with varied slope, landform, drainage conditions and erosional rate soil sampling can be done on the basis of required targets. In Rinchenpong soil samples have been collected from agricultural plots based on slope, vicinity of forests, in orchards, fallow especially based on management practices as shown in Figure 4. According to USDA's Soil sampling Guidelines Sampling depth for most soils is characteristically the tillage depth in 6-inch (15 centimetres) intervals. The top six inches or 15 centimetres of soil has the most root activity and fertilizer applications are generally delimited to this depth. These surface soil samples (0 to 6 inches/ 15centimetres) are typically used for conventional tests of organic matter, phosphorus, potassium, pH, and salt levels. Deep-rooted crops such as wheat and barley require deeper samples if nitrogen fertilizer doses are anticipated. It's also essential to discard surface litter. Subsoil samples from the 6- to 24-inch/60 centimetres depth are desirable to evaluate available nitrogen and in some cases sulphur. Nitrate- nitrogen and sulphate-sulphur are mobile in the soil and will move below the six-inch/15 centimetres tillage layer. If leaching has not lodged these nutrients below the rooting depth, they will be accessible for plant uptake. Both surface and subsurface soil samples are needed to test for available nutrients in the root zone. Thus, soil sampling 0-30centimetres were done in Rinchenpong mouza. Soil cores collected for each sampling point were stored in zipped plastic pouches with proper labelling of the latitude longitude, elevation and land use land cover details. Moist soil samples were air dried at room temperature and was brought to the Agricultural Ministry, Government of West Bengal, Soil Testing Laboratory at Nutanchati, Bankura. The soil samples were tested for pH, EC (Electrical Conductivity), SOC (Soil Organic Carbon), NPK (Nitrogen, Phosphate and Potash) and Micronutrients. Many sampling techniques, testing procedures for different parameters and mapping techniques have been employed.

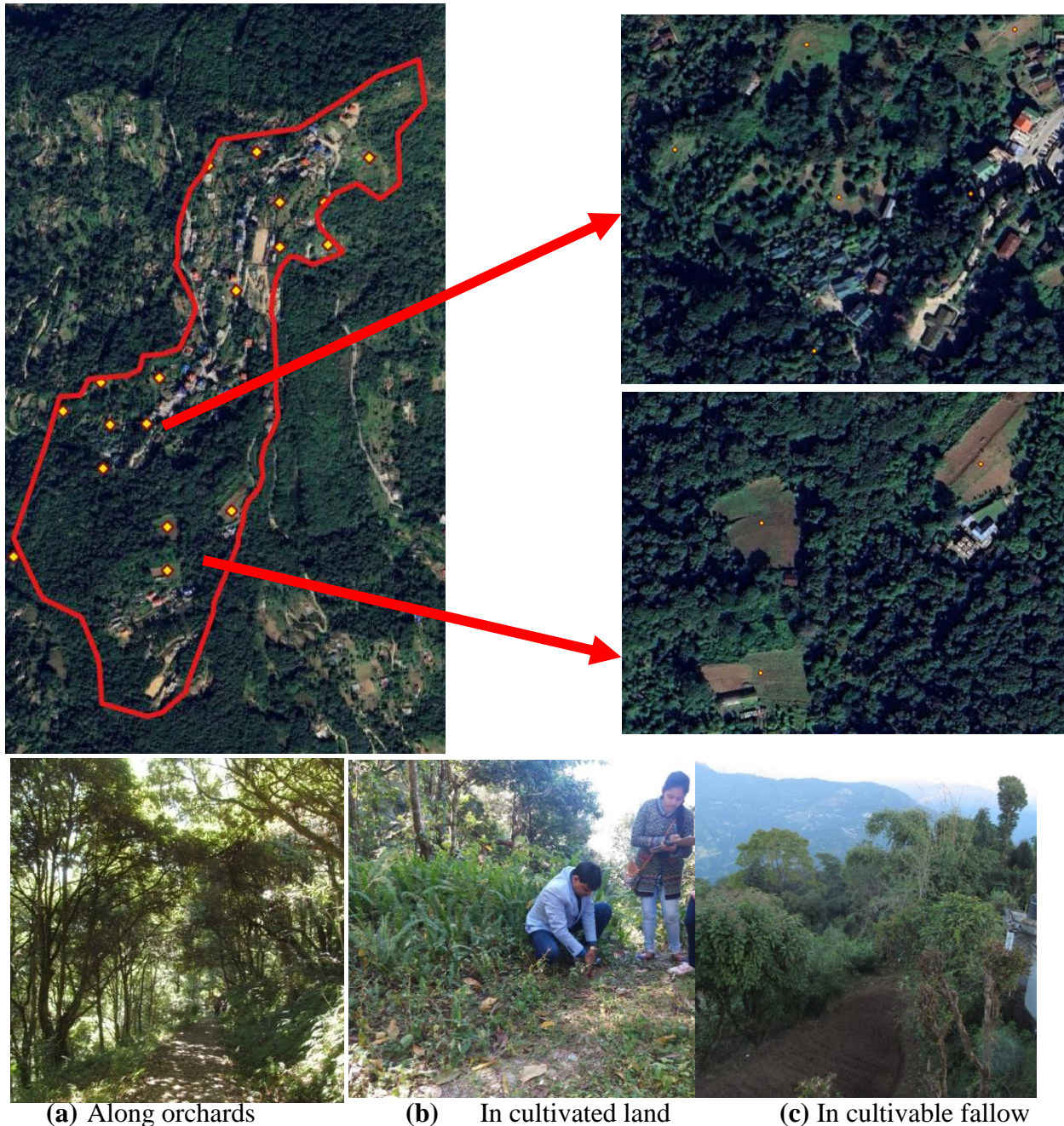


Figure 4 Soil sampling points and field photographs in Rinchenpong in 2022

For carrying out the pH test the following steps were followed. To make a 1:2 soil water suspension, 20 g of airdried, 0.2 mm sieved soil sample is placed in a 100 ml beaker, and 40 ml of distilled water is added. For thirty minutes, the suspension is shaken at regular intervals. To give it time to warm up, the pH metre must be turned on at least fifteen minutes in advance. The temperature compensation knob is used to adjust the pH metre to room temperature. The electrode is then submerged in several buffer solutions with pH values of 4.0, 7.0, and 9.2 to calibrate the device. By dipping the electrodes into the soil suspension, the pH of the mixture is

measured and recorded. However, the sample suspension is agitated with a glass rod just prior to submerging the electrode into the solution. In order to allow the pH meter's reading to stabilise, the electrode is submerged in the solution for at least 30 seconds. The electrodes need to be cleaned with regular filter paper and distilled water after every determination. A 0.01 (M) CaCl solution should be used to evaluate the pH of soils with a high salt concentration (Peveirill et al., 1999).

In order to test the Electrical conductivity, weighed into a 100 ml glass beaker was 50 g of air-dry soil (less than 2 mm). To make a 1:5 soil: water suspension, 50 ml of deionized water was added to it using a graduated cylinder or 50-mL volumetric flask. After thoroughly mixing the suspension with a glass rod, it was let to stand for half an hour. For an hour, the suspension was swirled at regular intervals. Following an hour, the suspension was filtered via a Buchner funnel in a dry beaker using Whatman No. 42 filter paper. Using the KCl reference solution, the conductivity metre was calibrated in accordance with the manufacturer's instructions to get the cell constant. After submerging the conductivity cell in the soil suspension, the measurement was recorded. At the same temperature, the electrical conductivity of the 0.01M KCl and soil suspensions was observed (Peveirill et al., 1999).

$$[EC]_{2.5} (dS/m) = (S \times 1.413)/K,$$

K= Measured EC of KCl solution, S= Measured EC of Suspension

For measuring SOC, the in a 500 ml conical flask, 1 g of the 0.2 mm sieved soil sample was obtained. Using a pipette, 10 ml of 1(N) K₂Cr₇O₇ was added to it. After that, 20 ml of concentrated H₂SO₄ (including Ag₇SO₄) was added and well combined. To give the reaction time to finish, the flask was placed on an asbestos pad for thirty minutes. 200 millilitres of distilled water were used to dilute the reaction mixture. It was mixed with 10 millilitres of 85% orthophosphoric acid and 1 millilitre of diphenylamine indicator. There will be a blue-violet colour. 0.5 N ferrous ammonium sulphate solution was added to the solution until the colour changed from blue violet to green. In tandem with the sample, a blank was created using the same reagents as the sample but without any soil sample. This is known as the Walkley Black method. Equation 2 was used to calculate the percentage of SOC (Peveirill et al., 1999).

$$SOC \% = (10 \times (B - T) \times 0.003 \times 100) / (B \times W),$$

B = ml of ferrous ammonium sulphate (FAS) solution required for blank titration.

T = ml of ferrous ammonium sulphate (FAS) solution required sample titration.

W = weight of soil sample in g.

The amount of Available Nitrogen present in the soil was calculated by first using kjeldahl flask is filled with a 5 g sample of soil. Ten millilitres or so of distilled water are used to wet the soil. It is mixed with 25 millilitres of 0.32% KMnO₄ solution and 25 millilitres of 2.5% NaOH solution. The Kjeldahl flask is filled with a few glass beads. A 250 ml conical flask filled with 20 ml of 2% boric acid is put beneath the Kjeldahl flask's reception tube. The boric acid solution is dipped into the receiver tube. Following the addition of alkali, the distillation equipment is attached, and the contents are steadily distilled in a Kjeldahl flask. Until the distillation process is finished and around 100 ml of the distillate is collected, the ammonia gas is distilled from the distillation flask. Ammonia absorption causes the pinkish colour to become green. The distillate, which is green in hue, is titrated against 0.02 N H₂SO₄ till it becomes pink. A blank and a soil sample are carried out simultaneously (Peveirill et al., 1999).

The available Nitrogen will be calculated using equation 3

$$(Available\ nitrogen) = \frac{(S-B) \times Normality\ of\ acid \times Atomic\ weight\ of\ N \times Wt.\ of\ one\ ha\ soil}{Weight\ of\ soil\ sample \times 1000}$$

Where.

S = Sample titration reading

B = Blank titration reading

For assessing the phosphate concentration in the soil about 50 ml of water was added to a 250 mL volumetric flask. Next, slowly 5 ml of concentrated sulfuric acid was poured after adding 0.75 g of ammonium sulphate and allowing it to dissolve. The mixture heated up. After letting it cool, distilled water was used to dilute it to the mark on the flask. Following this 200 mL of your sulfuric acid/ammonium sulphate combination and 10 g of dry soil was put into a plastic flask. The flask was periodically shaken for 30 minutes. The soil sample was placed aside after filtering it through fine filter paper. It might be a little brown in hue, but it would turn clear. In order to prepare standard solutions of phosphates. First, 0.220 g of solid KH₂PO₄ weighed precisely was poured into a 500 ml volumetric flask to create a 300-ppm solution and diluting it out to the appropriate amount. 10ml of the standard phosphate was pipetted into volumetric flasks measuring 200, 250, 500, and 1 l, and filled to the brim. Phosphate solutions of 15, 12, 6, and 3 ppm solution resulted from this. A 4.5 ppm solution was obtained by pipetting 15 ml of the standard solution into a 1 l volumetric flask. 5g of ammonium molybdate in 100ml of water was dissolved. This was transferred to a 500 ml volumetric flask. 160 mL of concentrated sulfuric acid was very gradually added to this. The flask was allowed to cool down for 15 minutes. After adding all of the acid, the mixture was diluted with 500 ml of water, adding it gradually while stirring in appropriate amount. In a 150 ml conical flask, 10 mL of the sample, 20 ml of water, 2 ml of the molybdate solution, and a spatula full of crystals of ascorbic acid was mixed. This developed a strong blue/green hue as it steadily heated to boiling, after which it was cooler. The steps listed below serve as a helpful guide on what to do. When dealing with colorimetry, a colorimetric tube was filled with water (referred to as a blank) and inserted it into the colorimeter. An absorbance reading was taken with the absorbance set at 650 nm (reddish light). This water sample was used to set zero in the colorimeter. A reading was noted after adding the lowest concentration solution (3 ppm from above) to the sample tube. Once the absorbance was recorded, the tube was cleaned and to measure the next most concentrated standard was continued, and so on, until all the standards have been measured. All the samples were inserted into the tube of the colorimeter and the absorbance reading was recorded (Peeverill et al., 1999).

To estimate the amount of potassium in the soil sample, in a 50 ml volumetric flask 5, 10, 15, 20, and 40 ppm K solutions were prepared by diluting the stock solution (1000 ppm K) with 1 N NH₄OAc solution. The flame photometer's gas and air pressures were prepared, and a suitable filter for K. was installed. With the blank (ppm), the flame photometer reading was set to zero, and with the 40 ppm, it was set to 100. Plotting the flame photometer readings along the Y-axis and the various concentrations (ppm) along the X-axis resulted in the standard curve. 0.4 mg/kg of K, or a factor of 1, will result from this flame photometer value. For calculating the potassium level in a soil sample 1 a 25 ml conical flask containing 5 g of 0.2 mm sieved soil sample was taken. After adding 25 millilitres of neutral normal ammonium acetate (pH = 7), the mixture was agitated for a duration of 25 minutes. Whatman No. 1 filter paper was used to filter the contents, and the filtrate was collected. The extract's potassium concentration flame photometrically

requires the instrument to be configured and calibrated. The potassium content in the unidentified sample is ascertained by fitting the standard curve obtained from the stock K solution (Peverill et al., 1999).

For assessment of present of Sulphur in soil sample 10g of air-dried soil sample was weighed and placed in a 50cm³ flask or extraction vessel. Pipette of 25cm³ of the monocalcium phosphate extraction reagent was poured into the container. For thirty minutes, the mixture was shaken. To the shaken liquid, 0.15 g, or ¼ tea spoon, of powdered charcoal was added, and stirred for an additional three minutes. After filtering the mixture, an aliquot of 10 cm³ of the filtrate was transferred to a different flask. To the aliquot above, 1 cm³ of the seed solution was poured, and then the flask was given a good shake. After setting the flask on a magnetic stirrer and adding 0.3 g of barium chloride crystals, swirling was done for approximately 60 seconds. A turbid solution was obtained. Using a calibrated UV-VIS spectrophotometer (zero absorbance with blank), an aliquot was transferred to a spectrophotometric tube or cuvette and the absorbance at 420 nm was measured. The observation table was noted. Six 100 cm³ volumetric flasks with the following labels: 0 (blank), 10, 20, 30, 40, and 50 mg dm⁻³, were labelled. 0, 1, 2, 3, 4, and 5 cm³ of the standard stock solution were added, respectively, to the flasks with the above labels. Then, using EDTA solution, the volumes was adjusted. The solutions, referred to as the standard series, each had a S concentration of 0, 10, 20, 30, 40, and 50 mg dm⁻³. One by one, 10 cm³ of each of these solutions were taken, used to create the turbidity (just like with the soil extract). The absorbance of these solutions were measured and recorded in a table after setting the spectrophotometer to zero absorbance using a blank. The blank, the standards, and the sample all were processed at once (Peverill et al., 1999).

A generally accepted extractive technique for determining total free iron is the citrate bicarbonate dithionite (CBD) approach (Mehra and Jackson, 1960). 0.5 g of soil that has been dried and sieved into a 100 ml polypropylene centrifuge tube was added. 5 ml of sodium carbonate (1 M) and 40 ml of sodium citrate (0.3 M) was poured in it. The mixture was heated for 30 minutes at 80°C in a water bath. For ten minutes, while constantly stirring to the heated solution, 0.5 g of sodium dithionite was added. To improve flocculation, 10 ml of sodium saturated sodium chloride and 10 ml of acetone was added. The mixture was centrifuged at 3500 rpm for 10 minutes once it was cooled to room temperature, and the suspension was then syphoned off into a 200 ml volumetric flask. To ensure that all of the free iron has been removed, the solid residue was cleaned with distilled water. Next, the suspension was transferred to the previously used volumetric flask and filtered using a Teflon filter with a pore size of 0.2 µm, resulting in a total suspension volume of 150 ml. To determine the amount of iron in the filtered suspension, an atomic absorption spectrophotometer was used. For each sample, duplicate measurements were taken.

An µAUTOLAB analyzer (ECO CHIMIE, Netherlands) was used to do the voltammetric measurements for assessment of manganese in soil. The reference electrode was a KCl saturated calomel electrode (SCE) made by Radiometer (Denmark), the working electrode was a hanging mercury drop electrode (HMDE) with a surface area of 3 mm² made by Laboratorni Pristroje (Czech Republic), and the counter electrode was Pt wire. A 250 cm³ bottle was filled with 10g of soil. After adding 100 cm³ of 1mol·dm⁻³ HCl, the soil was agitated on a mechanical shaker for one hour. Next, the extract was filtered. A 25cm³ standard flask was filled with 1 to 3cm³ of the extract. A buffer solution containing 0.2 mol·dm⁻³ ammonia/ammonium chloride was used to dilute the residue. A measuring vessel was filled with 20cm³ of solution after the pH was

adjusted to 8.5. Manganese was deposited on the electrode surface for 15 to 30 seconds (depending on the predicted manganese concentration) at -1.70V in a stirred solution following the deaeration of the solution with pure nitrogen. The potential was changed to -1.15V five seconds after the stirrer, and the reformed manganese (II) ions were measured using differential pulse cathodic voltammetry, within the potential range of -1.15 to -1.70. It was done three times in this cycle. Triple standard addition was used to determine the concentrations of Mn (II).

In order to determine the amount of copper present in soil as micro nutrient boiling perchloric acid was used to carry out the mineralization process. Twenty centimetres of concentrated perchloric acid were introduced to a Kjeldahl flask containing two-gram soil samples, each of which had been precisely weighed to within 0.001 grammes. They were then heated for eight to nine hours under a reflux condenser in a sand bath. Following mineralization, the mixture was filtered and then redistilled water was added to 50cm³ measuring flasks until the mark was reached. The concentration of copper in the samples was measured. In order to determine the microgram quantities of copper (II), spectrophotometric analysis requires extracting the produced copper (II) diethyldithiocarbamate using CCl₄ or CHCl₃, then measuring the absorbance of the solution at wavelength 436 nm. The determination is hampered by metal ions that combine with cupral to generate coloured complexes (such as Fe (III), Bi(III), Mn (II), Ni(II), and Co(II)). By adding tartrate or citrate to an EDTA solution at pH 8–9, the interfering ions were hidden. To find out how much copper was in the soil, 10 cm³ of the solution left over after the samples were mineralized was put into a separatory funnel. All of the reagents were added one after the other, except for the copper standard solution, in a manner akin to that of plotting the calibration line. Chloroform was used to extract the solution, and the complex's absorbance at the organic phase was evaluated in comparison to a reagent blank (Jankiewicz et al., 1999). The calibration line was used to determine the copper C_x concentration [in mg/50 cm³]. The following formula was used to compute the amount of copper (II) x in the soil:

$$x = C_x \frac{V_1 * 1000}{V_2 * m}$$

Where: C_x - concentration of copper read from the calibration line [mg/50 cm³];

V₁ - total volume of solution after mineralization [cm³];

V₂ - volume of the solution after mineralization taken for analysis [cm³]; m - weighed sample of soil [g].

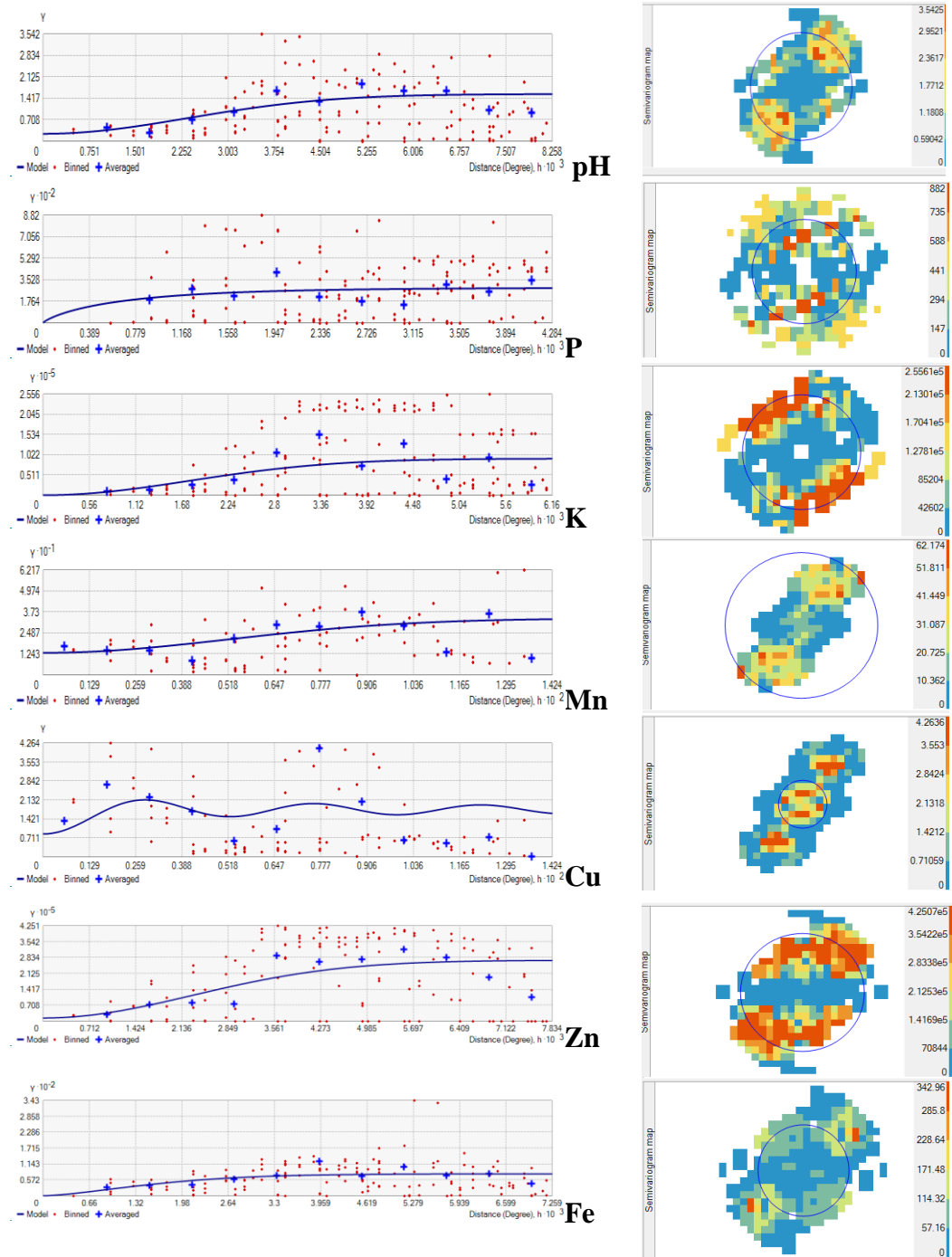
Extensive literature review on the techniques and process followed for digital soil mapping has been carried out by Arrouays et al., 2021; Nikiforova et al., 2020, Zhang et al., 2017. Targeted sampling and Kriging method of interpolation of soil data were found to be the most used technique in mapping soil properties (Liu et al., 2021; Chabala et al., 2017; Heuvelink et al., 2006). The results of the chemical analysis are given in Table 2. According to the OK kriging approach (Cressie, 1990), the mathematical expectation of the regional variable Z(x) is an unknown constant. Data having a trend can be processed using the OK approach. An un-interpolated position x₀'s value of variable Z is approximated using the i samples that surround it. The following is the formula for the process:

$$Z(x_0) = \sum_{i=1}^n \lambda_i Z(x_i)$$

Where the contribution of each Z(x_i) variable to Z(x₀) is shown by the weighting coefficient λ_i, which is linked to Z(x_i). Next, using the semivariogram [γ(h)], one may estimate λ_i:

$$\lambda_i(h) = 1 / (2 N(h)) \sum_{i=1}^n (i-1) N[Z(x_i) - Z(x_i+h)]^2$$

Where h is the separation distance, $N(h)$ is the number of sample point pairs separated by h , and $Z(x_i)$ and $Z(x_i + h)$ are the observed values of variable Z at locations x_i and $x_i + h$. The semivariogram was computed in this work, and the variogram was then fitted using stable, spherical, Gaussian, and exponential models as shown in Figure 5.



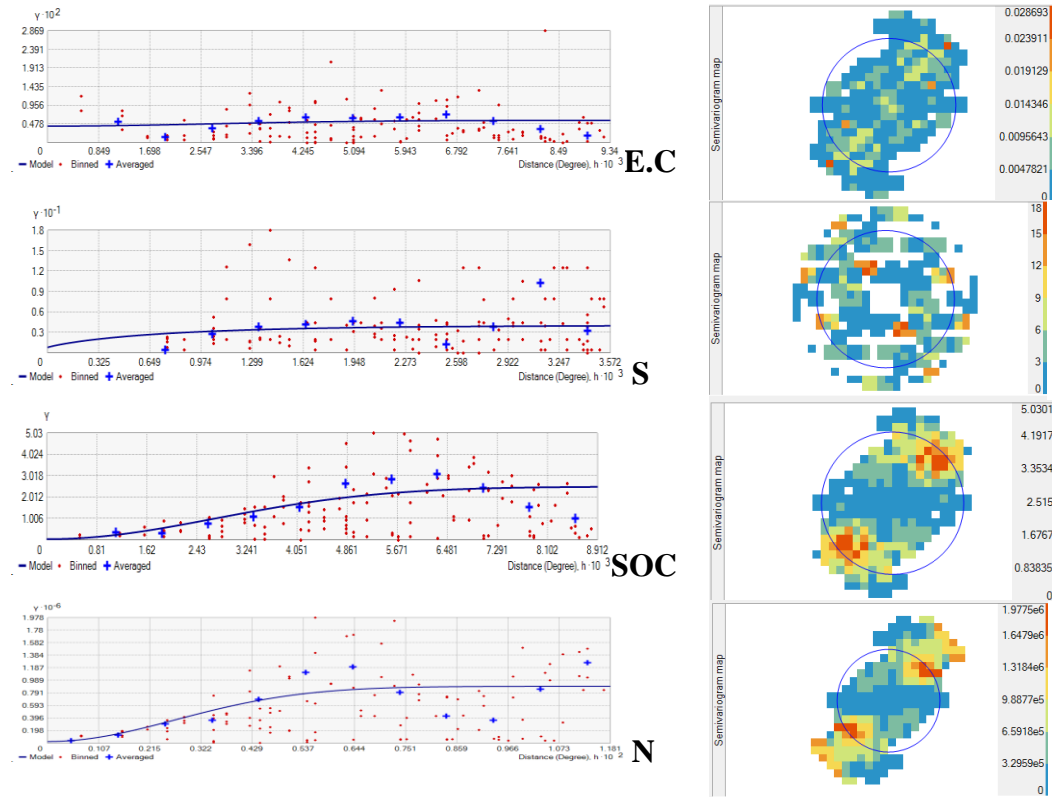


Figure 5 variogram semivariogram of the chemical properties of the soil samples computed for Ordinary Kriging

The Ordinary kriging showed better predictability, lesser RMSE and better fit than the Inverse Distance weighted method and hence was used for spatial mapping

RESULTS AND DISCUSSION

The soil samples were tested and the results are summarised as shown in Table 2. Kriging interpolation was used to map the spatial variation in the various soil characteristics.

pH

pH level in the Rinchenpong mouza varied from 4 to 7, which signifies that the soil samples are mostly acidic in nature. The northern and southern portions have less than 5.5 Ph value whereas the pH is highest at the sampling point no.1, which is situated near the dense vegetation cover along the way to the orchards. The pH value reduces outwards from the

TABLE 2 SOIL TEST RESULTS FOR THE SAMPLED POINTS

Sl_no_	Latitude	Longitude	Elevation (m)	pH	Phosphate (P)	Potash (K)	Manganese (Mn)	Copper (Cu)	Zinc (Zn)	Iron (Fe)	Electrical Conductivity (EC)	Sulphur (S)	Soil Organic Carbon (SOC)	Nitrogen (N)
1	27.2	88.26	150	7.1	59	142	3.78	2.0	93	26.1	0.10	10	0.44	246

	40	9	7	0				6	2	6				
2	27.2 39	88.26 8	150 0	6.1 0	21	151	4.54	7.3 2	12	28.9 6	0.07	8	1.22	732
3	27.2 37	88.26 6	149 0	4.1 0	31	835	7.14	2.4 4	2	39.8 4	0.05	12	2.14	1284
4	27.2 36	88.26 5	148 1	5.0 0	37	456	11.70	1.5 8	2	33.5 0	0.02	9	0.62	372
5	27.2 38	88.26 4	145 2	5.1 0	31	244	4.92	3.0 0	12	40.4 8	0.04	10	1.58	948
6	27.2 43	88.27 1	152 4	4.8 0	42	105	4.68	3.2 0	6	41.4 6	0.04	11	2.71	1626
7	27.2 45	88.27 3	163 3	5.1 0	51	243	3.40	2.8 4	6	33.5 8	0.02	13	3.01	1806
8	27.2 45	88.27 2	165 5	5.7 0	60	106	15.50	2.7 4	13	44.9 8	0.14	9	4.20	2520
9	27.2 44	88.27 2	168 5	4.2 0	20	444	2.90	1.1 4	3	51.0 6	0.07	12	4.50	2700
10	27.2 46	88.27 4	160 8	4.6 0	17	176	16.20	1.3 2	2	37.8 6	0.06	14	2.86	1716
11	27.2 46	88.27 1	163 2	4.3 0	19	164	15.50	1.0 6	3	34.6 0	0.03	15	3.01	1563
12	27.2 46	88.27 0	161 5	4.5 0	22	175	13.20	1.1 7	3	33.6 0	0.05	13	2.67	1666
13	27.2 44	88.27 3	160 6	5.3 0	40	406	10.30	2.1 1	11	27.5 2	0.08	11	3.50	2620
14	27.2 41	88.26 9	162 7	6.5 0	62	141	3.57	2.3 1	91 5	25.5 1	0.20	8	0.33	257
15	27.2 41	88.26 8	159 8	7.0 0	60	139	3.69	1.6 8	86 5	24.8 7	0.10	11	0.28	287
16	27.2 40	88.26 7	161 5	6.1 0	63	146	2.80	1.6 1	81 5	25.6 7	0.14	13	0.98	656
19	27.2 40	88.26 8	162 1	7.4 0	57	127	3.25	1.9 9	91 1	26.0 4	0.30	9	0.45	230
20	27.2 38	88.26 9	169 5	5.0 0	32	801	7.16	2.5 6	2	40.6 9	0.06	11	2.37	1256
21	27.2 38	88.27 1	170 9	4.7 0	29	820	7.32	2.2 1	1	41.0 8	0.10	13	2.00	1300
22	27.2 37	88.26 9	171 4	6.2 0	33	798	7.00	2.3 2	2	38.7 2	0.15	11	2.15	1278

sampling point 1. Acidic soils are predominantly found here because rainwater leaches away basic ions of sodium, calcium, potassium and magnesium Bolan et al., 2005. Moreover, decomposed leaves and root respiration generates weak humic acid and nitric acids. As compared to the report of NBSSLUP, the pH value of the soil samples of our study are found to be similar. Figure 6 (a) shows the spatial distribution of pH across the mouza.

EC (Electrical Conductivity)

The soil electrical conductivity is measure of the amount of salts present in the soil. Values of EC below 1 are considered as a benchmark and values beyond 1 and ranging till 2 are considered to be critical in soils. In soils with low pH values, it is natural to have less than 1, EC values. The EC level in the soils of Rinchenpong mouza ranges from 0.078 to 0.098. Figure 6 (b) shows the distribution of EC which is mostly homogeneous across the study area.

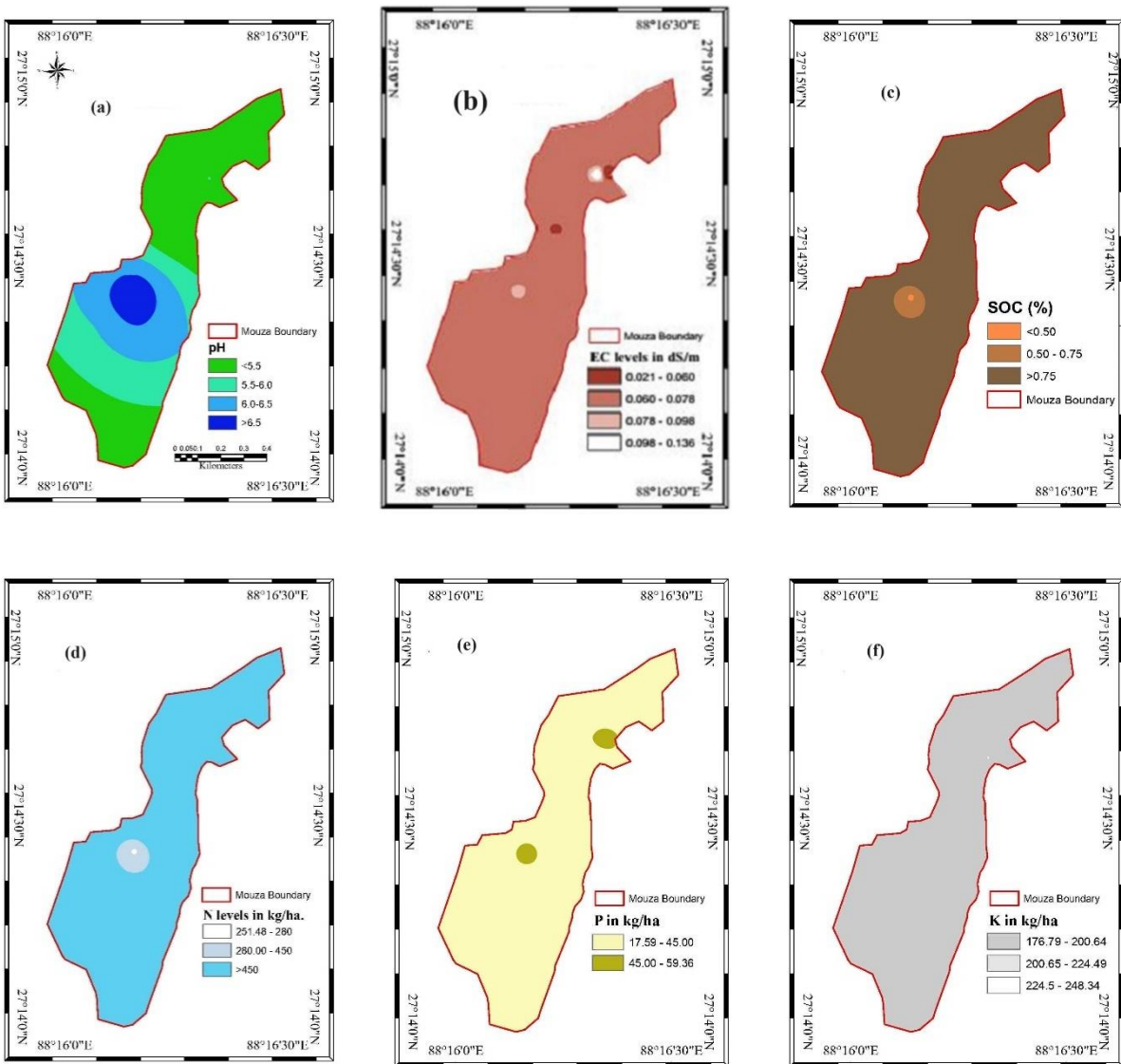


Figure 6 Interpolation (a) pH levels, (b) EC, (c) SOC, (d) N, (e) P, (f) K level in the soil samples of Rinchenpong

SOC (Soil Organic Carbon)

Organic matter constitutes just 2-10% of the soil mass but has a huge impact on the physical, chemical and biological functions of the soil. Above 58% of this organic matter exist as carbon. The Rinchenpong mouza contains more than 0.75 % of SOC which means it has high organic

carbon present in the soil. The dense vegetation cover is the cause behind high carbon content in the soil. Figure 6 (c) shows the distribution of SOC in the area.

NPK (Nitrogen, Phosphate and Potash)

Nitrogen is a key component in many of the processes needed to carry out growth in plants. Nitrogen is required for chlorophyll which helps in photosynthesis and helps in development of amino acids which is the basis of proteins (Bassi et al., 2018). Nitrogen saturation causes soil acidification too (Bhattacharya, 2019). Phosphorous gives structural strength enhances crop quality, production, blooming and growth of roots. Potassium helps in betterment of quality, shape, colour and taste of any crop (Liu and Chen, 2014). It has been observed that Nitrogen levels have been exceptionally high in the study area showing a concentration of > 450kg/ ha. Though the villagers reported less or no use of chemical fertilizers but decomposed manuring could also result in such high concentration due to nitrogen fixation. Very low levels of phosphate have been found in the soils of Rinchenpong. The phosphate in the soil has ranged from 17.59 to 45.00 kg/ ha except in few locations having 59.36 kg/ ha. Even potassium content in the soil has been very low ranging from 176.79-200.64kg/ ha.

Micronutrients:

The micronutrients that were analysed during the soil test were sulphur, manganese, copper, zinc and iron. The normal concentration in soils is reported to be within 10-40 ppm for copper, 30-500 ppm for iron, 300-1000 ppm for manganese, 10-300 ppm for zinc (Pendias and Mukherjee, 2007; Prasad, 2008; Blum., et al, 2012, Ozturk et al., 2017). The laboratory test reports especially high ppm of micro nutrients. The table 3 shows the functions of different micro nutrients in plants (Neenu and Ramesh, 2020).

TABLE 3 ROLE OF MICRO NUTRIENTS IN PLANT GROWTH

Element	Function in plant
Cu	Components of enzymes, involved with photosynthesis
Fe	Components of enzymes, involved with photosynthesis, Essential for chlorophyll synthesis
Mn	Chloroplast production, co factor in many plant reactions, activates enzymes
Zn	Component of many enzymes, essential for plant hormone balance and auxim activity
S	Sulphur is the building block of protein and is essential for chlorophyll formation

The concentration of copper (Cu) is maximum in the centre and towards the north of Rinchenpong (1.57-3.28 ppm). Its content in the soil is moderately high towards the east of the mouza. The maximum concentration of 6.71 ppm of Cu is found on the west and south western part of the study area. The sampling points of 7, 8, and 9 have the highest concentration of Iron (Fe) in its soil. The Fe in the soil gradually decreases towards the west of the study area. But the areas around sampling point 1 and 2 have Fe levels lower than the desired values. Manganese (Mn) concentration of 8.2 to 9.2 ppm was found in the soil samples belonging to the north of Rinchenpong and lesser in amount in the soils of central and southern Rinchenpong. The top soil

of the entire mouza is severely deprived of required amount of Mn. Low Mn values are common in organic soils. A similar pattern of distribution

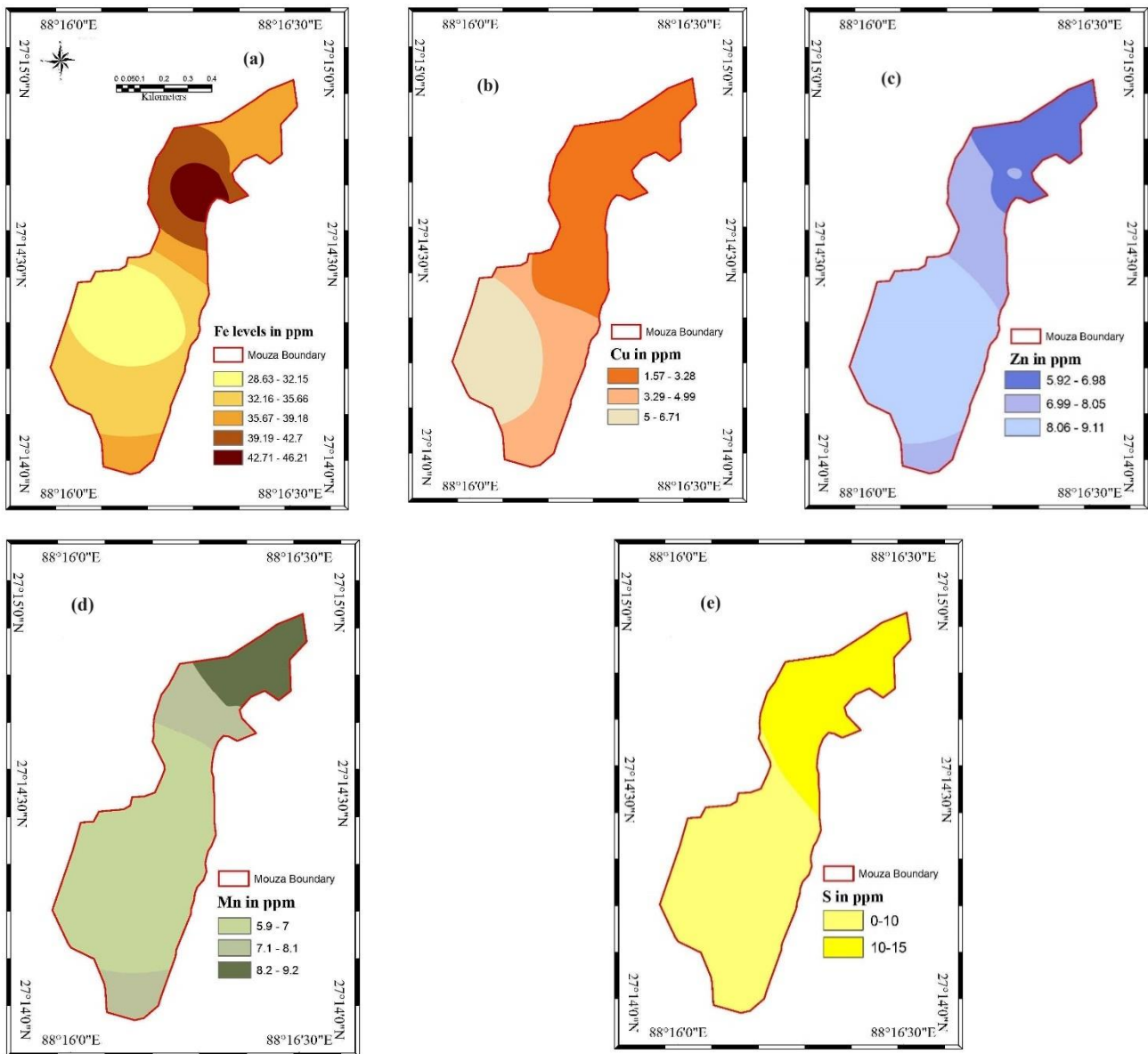


Figure 7 (a) Fe levels, (b) Cu, (c) Zn, (d) Mn and (e) S levels in soils sampled from Rinchenpong mouza.

of zinc is found in the soils. Sampling points 3,4, 6 and 9 have Zn lesser than the desired amount. 10-15 ppm of sulphur is found in the soils of northern Rinchenpong and 0-10 ppm in central as well as southern Rinchenpong.

The hill of West Sikkim mainly consists of Gneissose and schistose rocks, producing generally poor and shallow clayey soils (Gangyopadhyay et al., 2021). The soils are mainly coarse, with large concentrations of iron oxide which makes the soil colour reddish brown. The soil ranges from neutral to acidic and lacks organic as well as mineral nutrients except under thick

vegetation cover. According to the Soil Series of Sikkim, NBSSLUP Publication 105, technical bulletin, the soil found in the Rinchenpong Mouza area belongs to the Chongrang series. It is a coarse loamy, mixed, Thermic Entic Hapludolls. The soil is excessively drained and moderately permeable. The depth of a horizon varied from 25-50cm. The colour of the soil is 10 YR as per the Munsell soil chart. The textural classification is silty loam. The depth of C horizon is around 100cm with colour 10YR. Some physical and chemical properties of the soil horizons as per Soil Series of Sikkim, NBSSLUP Publication 105, and technical bulletin have been tabulated in Table 4.

TABLE 4 SOIL CHARACTERISTIC OF RINCENPONG GRAM PANCHAYAT

Horizon	Depth (cm)	Particle size			% of the whole soil	pH	Organic Carbon %	Exchangeable bases					CEC	Base Saturation
		Sand diameter (mm)	Silt	Clay				Coarse fragments >2mm	Ca	Mg	Na	K		
		2-0.5	.05-.002	<0.002										
Ap	0-28	26.4	52.9	20.7	10	4.4	2.5	3.5	2.5	0.4	.4	6.3	12.8	53
Ac	28-47	43.6	36.7	19.7	15	4.5	0.85	3.1	2.3	0.4	.3	5.8	11.5	53
C11	47-70	50.0	33.3	16.7	25	5.8	0.42	2.9	1.8	0.4	.3	5.4	8.7	62
C12	70-100	55.6	32.7	11.7	35	5.9	0.42	2.2	0.9	0.3	.4	3.8	5.9	64

(Source: NBSSLUP)

The values show similarity with the test results obtained from the soil sample tests. Higher number of soil samples provide more accuracy and spatial variability being mapped gives an added advantage for decision making in land resource management.

CONCLUSION

The Ministry of Agriculture and Farmers Welfare, Government of India had introduced the Soil Health Card (SHC) scheme in the year 2015. The card contains test results of 12 soil parameters, N, P, K (Macro-nutrients); S (Secondary- nutrient); Zn, Fe, Cu, Mn, Bo (Micro - nutrients); and pH, EC, OC (Physical parameters), on the basis of which the fertilizer recommendations and soil conservation measures are suggested in the cards. The initiative has been an excellent one where the farmers would be able to assess the health of the soil once in every three years. Of 64,9,481 villages (2011 Census) in India, 20,18,522 soil samples of soil has been collected as given in <https://www.soilhealth.dac.gov.in/> under the SHC scheme by the year 2019-2020 and 19,64, 783 soil samples have been tested. In Sikkim 2936 samples has been collected and tested. In <https://soilhealth.dac.gov.in/PublicReports/nutrientstatussamplesurveywise> it has been shown the around 40 farmers in Rinchenpong village have enlisted themselves to attain the benefits of SHC scheme. From the <https://www.soilhealth.dac.gov.in/NewHomePage/StateWiseNPKChart> website it can also be observed that in the Rinchenpong village 44% of the soil samples have low Nitrogen (N), and 56% have medium N concentration. 52% of the tested soil has medium Phosphorous (P) content, 40.8% has high P and 7.1% has very high P values. Similarly, 74 % of the soil has medium Potassium (K), 21% has high K and 5% of the soils tested have very low K values. The Graphs from the website are shown in Figure 8.



Figure 8 Soil Test results of the samples from Rinchenpong Village as per SHC scheme

The pH values of the soil samples as seen from <https://www.soilhealth.dac.gov.in/NewHomePage/StateWiseNPKChart> prove the soils of Rinchenpong are acidic in nature. 51% of the soils tested were moderately acidic, 12% highly acidic, 23% slightly acidic, 9 % of the soil is neutral and 5% of the soil is moderately alkaline. In case of presence of micro nutrients except for Sulphur most soil samples have shown sufficiency in the soil. Grid wise soil analysis has also been conducted for 113 sites and has been uploaded in <https://soilhealth.dac.gov.in/PublicReports/GridFormNSVW> which also matches to a great extent with the test results of this study. But low in literacy and technically not sound enough the farmers of Rinchenpong do not have access to these data sets and hence the research works do not prove to be effective in managing the problem at the grass root level or reaching the target audience. Trivedi and Dutta, 2020 writes most of the farmers have an issue that the soil is not from their fields. So, apart from grid sampling, point sampling procedure should be followed to minimize the inter-field heterogeneity leading to farmer-specific recommendations. Trivedi and Dutta, 2020 has also enlisted several loopholes in the SHC schemes such as lack of infrastructure, man-power in soil testing which has resulted in humungous gap between the soils sampled, soil tested, cards printed and distributed. Moreover, large numbers of marginal farmers are not aware about the SHC scheme. In order to reduce the time gap and fasten the deliberation of test results, interactive village soil maps like the one in this study and even at cadastral level enabled with WebGIS or MobileGIS would be the most fruitful. The Digital India drive, narrowing digital divide post covid pandemic and with smartphone access in most households' digital soil maps will prove to be a game changer. Training of farmers in sampling the soil and using the map is essential. Added with the maps, the recommendations of soil, water and fertilizer management will enable the fast as well as sustainable soil conservation and agricultural practices.

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