

AN EXPOSURE TO NATURAL BACKGROUND RADIATION IN EASTERN NEPAL

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ABSTRACT

Monitoring natural background radiation is important to locate the high background area. The objective of the work is to find the average background radiation in the Morang district and to observe the effects of cosmic radiation at high altitudes. In this study, background radiation was measured in 17 different municipalities of Morang with the help of a GM counter of model GMC-300E plus. The result showed that the annual effective dose of Morang was 0.24 ± 0.02 mSv/y and was below the recommended value of 1 mSv/y set by ICRP for public health. The radiation level was slightly higher in the hospital area. The frequency distribution indicates that there is a good fit of observed data with a known Gaussian distribution. The variation of background radiation with an altitude from 381 to 2550m showed an increasing trend. The best-fitted line depicted that background radiation increased by 16% with 1000m in altitude and it was slightly higher than the literature's result of 10-12%. The comparative study of the present work showed that the effective dose was the least value in the Morang (0.24mSv/y) and the highest in the Pokhara Valley (0.81mSv/yr).

KEYWORDS: Ionizing radiation, Cosmic radiation, Effective dose, G.M. Counter, Gaussian distribution,

INTRODUCTION

Humans are constantly exposed to ionizing radiation from natural sources on the earth. Ionizing radiation has enough energy to knock out electrons from atoms, breaking chemical bonds and producing harmful effects on organisms. The ionizing radiation originated from cosmogenic and primordial sources (Sannappa et al., 2003; Omeje et al., 2018). Cosmogenic radionuclides are formed after the interaction of atmospheric molecules with cosmic radiation

and have a significant contribution to human health in areas at high altitudes. But, at low altitudes, the earth's atmosphere greatly protects us due to its shielding property (Sihver, et al., 2015). They are the dominant sources of ionizing radiation in the atmosphere from an altitude of 1km to 70km and become double for every 1.5km above the earth's surface (Bouville & Lowder, 1988). However, due to the balance between the pace at which they are created and decayed, cosmogenic radionuclides such as ^{32}P , ^{14}C , and ^3H are normally found in a consistent amount in the earth's environment (Balonov, 2008). On the other hand, primordial radionuclide, such as ^{238}U , ^{232}Th , ^{40}K , and their daughters naturally exist in the earth from its beginning and they have a long half-life period (Kasumović et al., 2018). They are not uniformly distributed in soils and vary significantly in various geography and geological formations (Osman et al., 2022; Wallova et al., 2010). However, both types of radiation are the main contributors to environmental background radiation. The ^{238}U , ^{232}Th , and ^{235}U decay series are the most prominent sources of ionizing radiation among terrestrial radionuclides, accounting for approximately 83 percent and the ^{40}K accounts for roughly 16 percent of the annual effective dose that the global population experienced (Asaduzzaman et al., 2015). On accounting the natural background radiation, cosmic radiation exposure is around 0.39 mSv/y, terrestrial radiation is 0.48 mSv/y, radiation from water and food is 0.29 mSv/y, radiation from the air is 1.26 mSv/y and artificial radiation is approximately 0.5mSv/year. As a result, the average human receives roughly 2.4mSv/year from natural sources and 0.5mSv/y from man-made sources. The guidelines set a dosage limit of 1 mSv/y for public exposure excluding dose due to natural radiation, which is roughly half of the global average of 2.4mSv/year for natural radiation exposure (Kadum et al., 2013). Different places on the earth have been recognized to have high natural background radiation. For example, Ramsar in Iran, Kerala and Madras states in India, Guarapari in Brazil, and Yangjiang County in China (Ghiassi-Nejad et al., 2002; Hendry, et al., 2009).

During the radiometric survey, when sandstone-type uranium deposition was found in the Siwalik hill of the Himalayan range of Pakistan during the 1970s. Nepali researchers were also inspired to conduct such work in the Siwalik range of Nepal. The first preliminary ground radiometric survey was conducted in 1977/1978 and confirmed the presence of deposition of the mineralized bodies in Tinbhangale, Makawanpur. The baseline data obtained from such a survey became very useful to locate the high background radiation area. It is also a regulatory prerequisite for the installation and operation of a research reactor and nuclear power plant and to test nuclear weapons. Therefore, the comprehensive investigation to assess background radiation levels across the country is the most important and immediate concern to the general population (Bhatt et al., 2012).

In some countries, there are no mountains or small mountain peaks just under 1km. As a result, the effect of altitude on doses from cosmic radiation exposure is disregarded (Colgan et al., 2007). In contrast, Nepal is situated in the Himalayas mountain range in the world and has numerous mountain peaks. There are 1310 mountain peaks over 6000m including the world's highest peak, Mt. Everest of height 8848m. Every year, many people climb the various mountain peaks in Nepal. Dho Tarap is the world's highest human settlement at 4,080 meters

that also exists in Nepal. People living in high-altitude regions and mountain climbers are receiving a higher dose of ionizing radiation. Therefore, radiation exposure to people at high altitudes has gained much attention in recent years due to the lack of information about radiation and limited knowledge on this topic. Hence, the main objective of the work is to evaluate the effective dose received by the human population in Morang district of Nepal and to calculate the effect of altitude on the background radiation.

MATERIALS AND METHODS

Description of Instrument

The GM counter of model GMC-300E plus is a nuclear radiation monitoring device that generates a pulse of electrical current each time when radiation passes through the tube and causes ionization. Each pulse is electronically detected by the instrument and registers as a count. The GMC-300E plus displays the counts in three different modes: counts per minute (CPM), milliroentgen per hour (mR/h), and microsievert per hour ($\mu\text{Sv/h}$). This fully portable battery-operated instrument counts high-energy alpha particles, beta particles, and gamma rays.

Study area

First of all, the background radiation of Morang district had been measured using GMC-300E detector. Morang district consists of 17 different municipalities. Measurements had been carried out in each municipality for 10 minutes in every 20 seconds interval of time. The number of observations at any municipality depends upon the available fields. Overall, 41 measurements had been carried out in Morang district. The detector was allowed to reset for 5 minutes for each measurement. For background measurement in each municipality, different fields such as paddy fields, banana fields, maize fields, forests, rivers, and the hospital area were chosen. In the hospital area, measurement was carried out just outside the hospital. Similarly, to observe the variation of the background radiation with altitude, measurement was conducted from Dharan to the base camp of Temke hill. The annual effective dose rate was calculated by using Eq. (1) (Begum et al., 2018).

$$\text{Dose rate (mSv/y)} = 0.2 \times 8760 \times \text{background radiation } (\mu\text{Sv/hr}) \dots (1)$$

The chi-square test was also carried out to check whether observed data fit the Gaussian distribution or not.

RESULTS AND DISCUSSION

The background radiation of Morang district was presented in Fig. 1. The lowest background radiation (0.10 ± 0.02) $\mu\text{Sv/h}$ was observed in Gramthan and highest radiation (0.15 ± 0.04) $\mu\text{Sv/h}$ was observed in Jadaha. The average background radiation of Morang district is 0.14 ± 0.01 $\mu\text{Sv/h}$. The background radiation was converted into equivalent dose rate using Eq. (1) and found to have 0.24 ± 0.02 mSv/y. It was below the

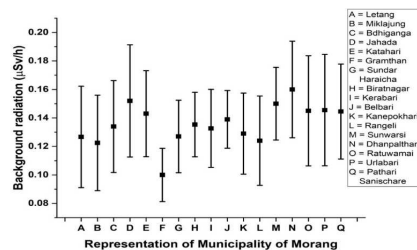


Fig. 1. Natural background radiation at different municipalities of Morang District

recommended value of 1 mSv/y set by International Commission on Radiological Protection (ICRP) for non-radiation workers and the public (Charles, 2001). On observing the error bar, it was found that the fluctuation of background radiation was nearly the same in all places.

The background radiation was also measured in the different fields such as paddy field, banana field, maize field, forest, bank of rivers and hospital area and displayed in Fig. 2. The highest background radiation ($0.15 \pm 0.01 \mu\text{Sv/h}$) was observed in the hospital area. It may be due to the radiation emitted during CT scans and X-ray operations. It also showed that the hospital is the area where there is a higher activity of radiation.

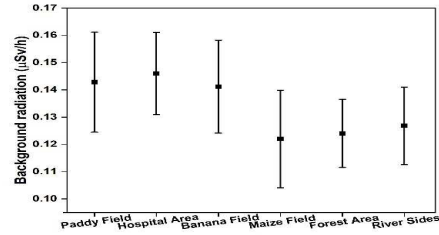


Fig. 2. Natural background radiation in different fields and areas

The second higher background radiation ($0.14 \pm 0.02 \mu\text{Sv/h}$) was measured in the banana field. It may be due to the presence of ^{40}K . The banana has a relatively higher amount of ^{40}K radioisotopes and contributes to increasing the background radiation. It is one of the major sources to increase the internal radiation of the human body (Ilori & Chetty, 2020). The least background radiation ($0.12 \pm 0.02 \mu\text{Sv/h}$) was observed in the maize field. During the measurement, it was an off-season of maize and obtained only recently planted maize in Kerabari. It may be a result to have the least value of background radiation.

The frequency distribution of the observed background radiation at Pathari Sanischare was plotted against the observed dose rates and presented in Fig. 3 along with Gaussian fit at 0.05 level of significance. The Gaussian distribution has the mean value of background radiation $0.16 \mu\text{Sv/h}$ with a standard deviation of 0.12. The Chi-square test for the set of observed data was carried out and the reduced chi-square test value was found to have 5.82, very close to 1. It indicates that there is a good fit of the observed data with a known Gaussian distribution.

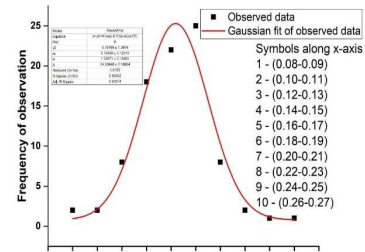


Fig. 3. The frequency distribution of the observed background radiation at Pathari, Sanischare

To observe the variation of background radiation with altitude, the measurement was conducted from Dharan to the base camp of Temke hill, the highest peak in province 01 of Nepal. The observed data set and the best fit line have been presented in Fig. 4. The best-fit line showed that there is an increasing trend of background radiation with altitude. Mulghat was the lowest altitude of 381m and Temke base camp was the highest altitude of 2550m from sea level.

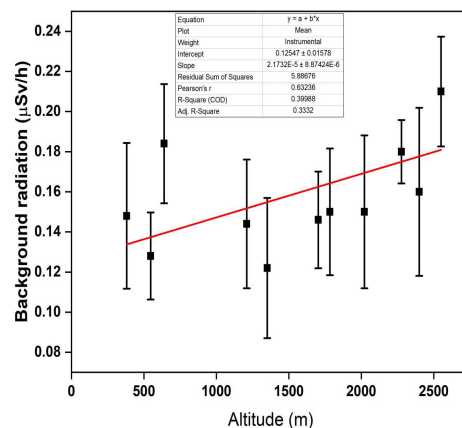


Fig. 4. The variation of natural background radiation with altitude .

was $0.21 \pm 0.03 \mu\text{Sv/h}$. Similarly, the best-fit line depicted that the percentage change in background radiation with 1000m altitude was 16%. It was slightly higher than the literature's result of 10-12% (Mishev & Hristova, 2012; Pooya et al., 2015) It also showed that the background radiation increased by $0.03 \mu\text{Sv/h}$ with the rise in 1.5km altitude. However, in literature, it has been mentioned that cosmic radiation becomes double for every 1.5km altitude above the earth's surface. In our case, we measured the ground base data and there is an influence of terrestrial radiation along with cosmic radiation. Assuming, that terrestrial radiation is the same everywhere in our study area and the terrestrial radiation should be reduced from the background radiation to obtain cosmic radiation. The background radiation at the lowest altitude given by the best-fit line is considered to be terrestrial radiation and it is $0.13 \mu\text{Sv/h}$. Hence, the cosmic radiation at an altitude of 381m became zero and at the peak of Temke base camp at an altitude of 2550m became $0.04 \mu\text{Sv/h}$. Calculation showed that the cosmic radiation increased by 2.5 times for every 1.5km altitude. It is in good agreement with literature data. Due to the geographical location of Nepal, it is difficult to measure the background radiation at higher altitudes. However, it is possible to predict the background radiation by extrapolating the best fit line even at a higher altitude.

Table 1. Three different modes of background radiation level

CPM	Background radiation ($\mu\text{Sv/h}$)	Background radiation (mR/h)	Action
5-50	0.03-0.33	0.003-0.033	Normal background. No action needed.
51-99	0.33-0.65	0.033-0.065	Medium level, check the level regularly.
More than 100	More than 0.65	More than 0.065	High level, closely watch reading find out why.
More than 1000	More than 6.50	More than 0.650	Very high, leave the area ASAP and find out why.
More than 2000	More than 13	More than 1.30	Extremely high. Evacuate immediately, report to the government.

Three different modes of background radiation such as count per minute, $\mu\text{Sv/h}$, and mR/h have been shown in Table 1 with the level of radiation. In our cases, all the background radiation was below $0.33 \mu\text{Sv/h}$. It means it is normal background radiation and no action is needed. However, if the background radiation is greater than $13 \mu\text{Sv/h}$, it is considered to have extremely high and should report to the government immediately to take necessary action.

Table 2. Comparative study of annual effective dose measured in a different part of Nepal

SN	City/Country	Effective dose (mSv/y)	Authors
1	Morang, Nepal	0.24	Present study
2	Kathmandu, Nepal	0.47	(Pantha et al., 2018)
3	Pokhara Valley, Nepal	0.81	(Gautam et al., 2020)
4	Kanchanpur, Nepal	0.27	(Dhami et al., 2020)

The comparative study of the present work with other works conducted in Nepal was carried out and presented in Table 2. It showed the effective dose measured in Morang, Kathmandu, Pokhara, and Kanchanpur. The lowest effective dose (0.24mSv/y) was recorded in Morang and the highest dose (0.81mSv/yr) in Pokhara. Morang and Kanchanpur are the two districts that are situated in the plain region and have nearly the same dose rate. However, Kathmandu and Pokhara are situated in the mountain region and have relatively higher dose rates. It may be due to the effect of terrestrial as well as cosmic radiation.

CONCLUSION

In this study, the natural background radiation in Morang district had been monitored and the result showed that the annual effective dose was 0.24 ± 0.02 mSv/y. It was below the recommended value of 1 mSv/y set by ICRP for public health. Similarly, the variation of background radiation with an altitude from 381 to 2550m showed an increasing trend. The best-fitted line depicted that background radiation increased by 16% with 1000m and it was slightly higher than the literature's result of 10-12%. The comparative study of the present work was carried out with other works conducted in Nepal and the result showed that the effective dose (0.24mSv/y) in the study area was relatively low as compared to other places and the highest dose (0.81mSv/yr) was monitored in Pokhara Valley.

Conflicts of Interest: The authors declare that there are no conflicts of interest regarding the publication of this paper.

Data Availability: These data used to support the findings of this study are available from the corresponding author upon request.

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CULTURAL CONFRONTATIONS AND ITS IMPACTS IN HENRY JAMES' *DAISY MILLER*

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ABSTRACT

Everyone stands on his / her own ground absorbing own shadow. This shadow always stands amid us and it has more or less influences on our being. This shadow, in fact, is culture; the set of thoughts, rules, norms, and values that the people assimilate in the particular place and time; and this most ambiguous term is culture. As a matter of fact, literary study is understood as 'cultural study'. The most inevitable issue of culture is its differences. The differences appear in the disguise of shock, clash, collision, confrontation, differences and cultural dimensions.

This article proposes the bicultural study of America and Europe through the American visitors in Europe and cultural clash in Henry James's narrative novella *Daisy Miller*. The characters of this novella young Daisy Miller, her brother Randolph Miller and her mother Mrs. Miller culturally confront while visiting Europe. They embody both tradition and translation; and fail to assimilate themselves in the 'host land'. Within tradition, they represent American culture, visible in the kind of cultural proximity they establish, as Daisy establishes with Winterbourne. Within translation, they try to reflect European culture, symbolized by the sort of affective relationship they keep, as Daisy keeps with young Italian Giovanelli. As migrant selves, they are able to conciliate Schenectady and Vevey, they transform tradition and translation into cultural identities that mutually nurture one another in spite the fact that they are judged vaguely through the European eyes.

KEY WORDS: culture, privacy, individualism, taboo, shock, vulgar, clash

INTRODUCTION

Henry James (1843–1916) was born into an affluent family of intellectuals in New York City. His father, Henry James Sr., was a theologian who counted Thoreau, Emerson, and Hawthorne among his friends and James learnt manners through the path of metaphysics. Educated mostly by tutors during the family's travels in Europe, and this way of his life since childhood later motivated him to write *Daisy Miller* (1870). James attended Harvard Law School for the short period when he was nineteen, but decided that he would rather study literature. James, then, moved to Europe — first to Paris, then to London, and finally to Rye in Sussex, England, where he lived for most of the rest of his life. He published his first short story *A Tragedy of Errors* in 1864 and soon became a regular contributor to the *Nation* and *Atlantic Monthly*; and this made James be famous. His best-known novels include *The Portrait of a*

Lady (1881), *The Turn of the Screw* (1898), *The Wings of the Dove* (1902), and *The Ambassadors* (1903).

James wrote literary and art criticism, travel books, and a two-volume autobiography. In James's work, the most apparent conflicts of moral character are the ones that feature Americans in Europe. James was fascinated by the obvious distinctions in social class among Europeans as well as their self-confidence about culture. Many of his novels and novellas — including *Daisy Miller* — involve American protagonists who are intrepid, and full of dangerous illusions about the complex European order.

James is not only a writer but also a cultural critic (Von, 2018). His family background, early exposure to European culture and he had great influence of great writers who had been writing on the cultural issues which he has reflected in his novels *The American* (1877), *The Ambassadors* (1903). James wanted to promote total tolerance, acceptance of differences, recognition of similarities and undermining the nationalistic arrogance.

His writing career started from *The Atlantic Monthly* where he would write after he came from travelling to Europe and he wrote *Daisy Miller* after he came back from Europe in 1978 (Rifa'i, 2003).

James seems like one sitting on a fence; he left America for a long time seeking for better home in Europe, but he was not totally at home with his action and he questioned himself oft whether he made the wise decision or rather he regretted. His dilemma are reflected in his novels . In *Daisy Miller*, Winterbourne could not judge *Daisy* rightly because '...he had stayed too long abroad...'. James seems to be telling his sad stories or expressing his dissatisfaction in his search for culture through his characters. James's term is much closer to the earlier, non-sociological definition of culture.

The highly civilized of the 18th century looked to the East as their standard i.e. in search of natural knowledge and wisdom but James stayed in his own civilisation and looked for it there. He loved Europe as the repository of western civilisation, and saw America as a recent and tentative addition (he saw no other). He was so fond of this civilisation that he saw no better way of man's existence, unless this same civilisation is improved still to such ideal standard as he tried to show in his novels, which mostly leads to the disappointment of expectation because of it's often high unattainable level. James saw his characters through the mediation which can redeem them, or at least show them redemption, from their own and from others worst possibilities: their naked drives and passions. He maintained thereby that civilisation poses a set of measurements and conventions by means of which we arrive at moral value.

In *The Art of Fiction* (1884), James argues that 'the only reason for the existence of a novel is that it does attempt to present life.' He considered the novelist's job similar to the historian's but felt that beyond having a working idea, it was important only that the novel 'be interesting.' He writes, 'There is no such thing as a moral or immoral book. Books are well or badly written. That is all. *Daisy Miller* admits 'aesthetic' movement of art. This novella makes issue of *Daisy's* unconventional manners, the author moves ahead of it and makes the novella readable, pleasurable, delighting, attractive and shocking. The work of art creates such mixed

feelings, it makes no matter whether it is moral or not. Literature is not ethics. Ethics does the job of ethics; it is not the job of literature.

James saw Europe as the ideal ground for the pursuit of culture and so he moved Daisy Miller from America to Europe; first to Switzerland, and later to Rome. As James perceived it, modern American society no longer believed in the cultural process, since it was dedicated to utilitarian and materialistic goals. On the basis of this standard, American civilization was for him a non-culture. He was concerned with the threat posed to his cultural ideal by unbridled democracy and materialism. The 'page' of America is blank because democracy continuously erases whatever traces history leaves. The American Civil War compelled Americans to follow material prosperity and and live a 'vulgar' life. James focused it in *Daisy Miller*.

Moral values and human inner feelings are main issues in James fictions. This is more or less a cultural affiliation:

.....the best novels show characters, feelings and events rather than tell them.....James describes various kinds of narrator whose lack of knowledge makes for great sense of moral interest. (Selden, 1992: 323)

Identification problem

After reading the novella Daisy Miller, the author finds the following problems:

- a. there are cultural issues in *Daisy Miller*
- b. people carry on different moral values due to the different cultures
- c. due to the cultural differences, there was cultural gap between Americans and Europeans

Statement of the problem

Based on identification of problem, the author formulates the statement of problem as follows:

- a. What are the dimensions of cultural confrontations in Daisy Miller?
- b. How does the European community in Daisy Miller view Daisy Miller and her family members?

Research objectives

According to the statement of the problem mentioned above, the author will determine objectives of research in this way:

- a. To discover the circumstances and dimensions of the cultural clash in *Daisy Miller*
- b. To describe the view of European community towards Daisy Miller in *Daisy Miller*

Literature review

The famous American writer of fiction, Henry James often presents how American and European confront due to the differences in culture. These confrontations are now known as 'cultural shock'. These differences provide a glimpse to assimilate that literature is an integral part of culture. Previous researches have focused on the *Daisy Miller's* structural properties and moral values by Rezky Ramadhani (2015), structural approach of *Daisy Miller* by Wellek and Rene (1096), characterization of Daisy in *Daisy Miller* by Gerber (1948: 68), analysis of Daisy Miller as per the analysis of plot by Perrine (1983:41). 2020 Daisy Miller: A Study of Patriarchal Perception Teddy Duncan Jr. University of Central Florida These researches

encourage to find out how cultural differences can be an important issue in life, and how it can move life ahead.

Research methodology

Research is a process of looking for something systematically using the scientific method to solve problems along with supporting data as the basis of the conclusion. The scientific method can be applied in a research study design according to what it is needed. The study design is a process that is required in the planning and execution of the research (Semi, 1993: 99). Methodological design used in researching novella *Daisy Miller* by Henry James is the application of methods of analysis of literary works to find the 'cultural clash' in the novella. Data are collected from the library books, internet, research journals, thesis dissemination and the the novella *Daisy Miller* and they are cited from the sources for evidences in order to draw conclusion. Data are analyzed in the descriptive method. Data are presented in the research procedure; reading the sources and documented them through intext citation and mentioning them in References. After analysing the data, the conclusion is drawn that the cultural differences make much differences in life foreshadowing the undesirable and painful consequences of life.

CULTURE AND LITERATURE

In the development of human civilisation, human being created material and nonmaterial aspects; and this sum is culture. In material culture, it includes home, weapons, dresses, food, possessions, commodities or belongings, roads, vehicles and pets. In non-material culture, it includes habits, tradition, language, customs, rituals, beliefs, thoughts, and behaviours.

E.B. Tylor states 'culture is that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by men as a member of society' (Acharya, 2070 p-9).

Culture is wide dimension as handiwork, human creation with the use of symbols and artifacts. These aspects constitute human life and society including manners, codes, taboos, language, dress, rituals, norms. What a person thinks and behave is the impact of the person's particular culture.

Living culture consists the following features (Acharya, 2070 p-10):

- Culture is man made
- Culture is learnt behaviour
- Culture is transmitted
- Culture is dynamic
- Culture is ideal
- Language is the vehicle of culture
- Culture reflects the human needs
- Culture is symbolic

Like literature, culture is a unconsciously guided phenomenon which is understood to mean different things by different groups. Culture is the 'integrated pattern of human knowledge, belief and behaviour'. Culture embodies languages, ideas, beliefs, customs, taboos, codes, institutions, tools, techniques, works of art, rituals and so on. Culture consists of shared values, beliefs, knowledge, skills and practices that underpin behaviour by members of a social group at a particular point in time. It is creative expression, skills, traditional knowledge and resources. These include, craft and design, oral and written history and literature, music, drama, dance, visual arts, celebrations, indigenous knowledge of botanical properties and medicinal applications, architectural forms, historic sites, and traditional technologies, traditional healing methods, traditional natural resource management, celebrations, and patterns of social interaction that contribute to group and individual welfare and identity. It is generally accepted that culture embodies the way humans live with and treat others and how they develop or react to changes in their environments.

Literature is the expressive statement that removes reality and displays through figurative language. Literature is a very readable explanations of the elements of all the forms of writing and excellent chapters on critical thinking and writing (Meyer, 2003). Literature is any creative, factual and imaginative work about people and what they have done, believe, and have created or are willing to create. Literature is a multitude of works; written in books, journals, newspapers and magazines; spoken; acted; sung; filmed; drawn as cartoons or shown on television. Literature should not only portray the positive side of human activities but the negative consequences with the view to command a reversal for the better. This implies a balanced representation of the realities of human existence. Literature can be experienced through a variety of media; oral, audio, audiovisual and so on. It is an expression of culture because it documents human knowledge, belief and behaviour. Every culture assimilates social values to pave an individual to go ahead.

'The development of book production and distribution, class structure, the formal and informal institutions for the dissemination of 'taste' or ideas, and prevailing social values, are just some of the 'social' conditions which will affect the viability of authors' career.' (Selden, 1988: 441)

CULTURAL ANALYSIS OF LITERARY TEXT

Human beings learn, behave and think in the particular way. It is as per the expectation of the society. What society expects, its members behave and think to meet this expectation. Individual's particular manners and thoughts are culture. Culture is learned, adapted and admired in practice. The group of people share culture, and it solves the problems of the complexities of life, and passes to the new generation. No culture is constant, it is flexible, dynamic. Many cultural manners fade, improve and change. Culture is the ideal patterns of behaviour which the members are expected to follow. Culture is diverse; each is different and whole connected by the social fragments, as marriage, schooling, parent-child relation etc. culture allows certain patterns of behaviour to its members though the 'golden rules'. Mary Grace Dacayanan writes:

'Every culture allows a range of ways in which men can be men and women can be women. Culture also tells us how different activities should be conducted, such as how one should act as a husband, wife, parent, child, etc. these rules of permissible behavior are usually flexible to a degree- the are some alternatives rather than the hard rules. For instance, culture tells us how we should dress based on our gender, but it allows us to dress in different ways in different situations in order to communicate varied messages and statuses. The clothing patterns of women in this society can be particularly rich and complex. Their clothing can be intentionally businesslike, recreational, as well as sexually attractive, ambiguous, neutral, or even repulsive' (http://anthro.Palomar.edu/culture/_htm).

Culture is the process, it is not the product. Culture is a lived experience and it cannot absolutely be defined. It is the collection of interactive cultures, which either keep on growing or changing or constituted by the interaction of gender, race, ethnicity, sexual orientation, occupation and overall social milieu that contribute to the experience of the members. Cultural criticism supports oppressed groups, draws other theories to analyse society and it is interested in popular culture.

Literature is expressiveness of written art; though language and its properties. Language property results in the cultural interpretation of the social being, i. e. human being or the readers. As a starting point, literature can be defined as written texts with artistic value, including the traditional literary genres of poems, fiction and drama. Besides the 'canon' of culturally and literary accepted texts, a broader concept of literature, is needed to reflect the wider cultural horizon of text - mediation. Thus non - fiction narratives such as diaries, autobiographies and letters are included as well as children's literature and folklore narratives. Literature should also be understood as a social and communicative system in the human society. This wide concept allows for a much more empirical description of actions that are being performed in the field of literature, the main four sectors being production, distribution, reception and processing of literary texts and other literary products. It serves as a basis to understand literature as a set of more or less social activities that mostly can be learned and fostered as literary competences.

The uniqueness of the work of art is inseparable from its being imbedded in the fabric of tradition. This tradition itself is thoroughly live and extremely changeable (Selden,1988: 451)

Culture is a wider concept than literature; so, in this context it will be considered in terms of its relationship with literature, i.e. as a combination of literature and culture. Thus, in the teaching of culture, literature serves either as illustration or a starting point for the study and mediation of cultural phenomena. It is understood as part of a specific foreign civilization, thus by learning about the social, historical, linguistic and other cultural implementations in literary texts specifics of culture are being mediated.

Cultural Studies has been defined as an interdisciplinary endeavour 'concerned with the analysis of cultural forms and activities in the context of the relations of power which condition their production, circulation, deployment and, of course, effects.' (Bennett, 1998:60)

Cultural studies is a research orientation emphasizing contexts and opposing text-centered analysis, and sometimes it becomes 'over-textualization', but cultural activities become text to be read, rather than institutions or acts to be analyzed.

Cultural studies focuses on contextualization to the extent that it neglects the specific properties of texts and genres. (Kovla, 2002)

There are four reasons why textual analysis is both useful and to some extent even necessary in studies of social context. The theoretical reason is that the social structures which are the focus of attention of many social scientists, and texts, which constitute one very important form of social action. Language does function in producing, reproducing or transforming social structures, relations and identities, and is routinely overlooked. The methodological reason is that texts constitute a major source of evidence for grounding claims about social structures, relations and processes. The analysis of ideology should be preferable to the detailed properties of text. The historical reason for the importance of textual analysis is that texts are sensitive barometers of social processes, movement and diversity, and textual analysis can provide particularly good indicators of social change. Finally, the political reason relates to social science with critical object.

The first characteristic of cultural analysis of texts, obviously, is that textual analysis be contextual. But 'context' is so encompassive; that to say that an approach is contextual does not mean much. Or rather, the determination of relevant context is itself a contextual matter. Textual analysis pays heed to social contexts, notably social and cultural differences and relations of power. Secondly, post-cultural studies textual analysis acknowledges the existence of multiple frames of interpretation within culture and the need to avoid reducing texts to any one of these comparative Literature and Culture are of particular relevance. Thirdly, all aspects and levels of the communication situation should be taken into account.

Cultural criticism tries to analyse enforcing type of behaviour and models of practice, readers feeling of compels, difference between my values and implicit values in the work, work's dependence on social understanding, freedom of thoughts, social structures connected with the text's ethical orientation.

'...our analysis is always incomplete, partial, and our perspective is always subjective. We cannot stand outside our own culture and analyse texts from objective vintage point. We can write only from within our own historical moment' (Tyson, 2006: 299).

Literary text functions as a part of cultural description; codes, birthing, education, treatment with other people, art forms, attitude to sexuality, human experience, and individual identity. Literary texts map the cultural and traditional discourses, ideologies and power structures within the culture in given time and place. Literary texts focus on the experiences of the groups to portray their identity, relationships with the audience and shaped ideologies by the culture.

CONTRARY IN AMERICAN AND EUROPEAN CULTURE

Manners to Henry James are something more than patrician decorum. 'He knew too well how much conventions of behavior vary with time and place to make them an absolute

index of right and wrong' (Wegelin 17). In the nineteenth century, manners differ greatly in Europe and America due to their different history and social systems. Tocqueville makes a very detailed comparison between manners in aristocracy and democracy and Democracy in America. In 'Some Reflections on American Manners,' Tocqueville observes that in democracies no such thing as a regular code of good breeding can be laid down:

The men who live in democracies are too fluctuating for a certain number of them ever to succeed in laying down a code of good breeding, and in forcing people to follow it. Every man therefore behaves after his own fashion, and there is always a certain incoherence in the manners of such times, because they are moulded upon the feelings and notions of each individual, rather than upon an ideal model proposed for general imitation. (177) Thus it may be said, in one sense, that the effect of democracy is not exactly to give men any particular manners, but to prevent them from having manners at all. (179)

Richard Wike (2016) has listed contrasts between American and European culture:

- Americans are more likely to believe they control their own destiny.
- https://www.pewresearch.org/?attachment_id=279442Americans tend to prioritize individual liberty, while Europeans tend to value the role of the state to ensure no one in society is in need
- There is greater tolerance in the U.S. than in Europe for offensive speech.
- Religion is significantly less important to Europeans than to Americans
- Americans and Europeans don't always agree on questions about morality,

Similarly, Maciamo Hay (2018) has prescribed the differences between American and European culture:

On feeling of time and emotions, Europeans consider ancient as new but it is antique for Americans. Europeans travel abroad from childhood and has a little emotions than Americans. Americans have absolute 'free environment' in school and colleges, and even in homes, and making friends.

Americans are liberal for soft drugs, drinks, prostitution, alcohol, abortion whereas Europeans have a very little space for it. Americans are more patriotic, open, friendly, helpful, hypocritical; whereas Europeans are more reserved. Americans are famed for this well-meaning habit of not telling everything we think and expressing everything we feel in order to avoid conflicts or to avoid unnecessary disagreements. Europeans instead aren't as a whole that afraid of expressing themselves and of being nice to others only if and when they really feel like (not because that's the polite thing to do). They weren't culturally taught to save face by adjusting their behavior to not annoy other people. Instead they value their self-expression, self-esteem and individuality above even things like social peace, good relations with neighbors and mates and their social face. One could say that Americans value more agreeableness, while Europeans favour outspokenness. American political correctness is a result of this cultural propensity to agreeableness. They may be even more reserved than the European average, but their generally polite and friendly attitude makes them much less blunt than the majority of Europeans.

While marriage is increasingly seen as a completely optional 'folkloric tradition' in Europe, it is still quite important in the USA (probably because religion is also more important there). Statistically Americans marry much more than Europeans, but also divorce more. Furthermore, there are some strong nationwide American traditions regarding wedding ceremonies, like bringing 'something old, something new, something borrowed, and something blue'. There is obviously no equivalent thing at a European level.

In fact, even the way of dating tends to follow so well-defined rules in the USA. For instance, there are widely followed conventions about sleeping on mainly on the third date. Men know they should not expect to see a woman again if she insists to split the bill at the end of their first date. The way to propose (the staging), or the act of buying an expensive engagement ring (often corresponding to one or several months of salary!) are, in general, more important to Americans than Europeans. In Europe, the way of doing things is more informal and spontaneous.

Gary Althens (2003) in 'American Values and Assumptions' mentions nine characteristics of Americans; and these features are rarely found in Europeans; are:

- Individualism
- Competition
- Privacy
- Equality
- Informality
- The future, change and progress
- Time
- Achievement, action, work and materialism
- Directness and assertiveness

PLOT OVERVIEW OF *DAISY MILLER*

Winterbourne goes to a Swiss resort to visit his aunt Mrs. Costello. He meets a cute American girl Daisy. He also meets the rest of her family; her brother and her mother. Daisy is a free spirit and not a tight-ass like the Europeans. Winterbourne is attracted by Daisy and she tells him she wants to go to visit some castles. Winterbourne takes her there.

Winterbourne is shocked that Daisy allowed going alone with a boy to the castle without a chaperone. Winterbourne is a conventional guy, and has very strict rules and behavior when it comes to men and women. Winterbourne meets her mother and her mother lets her go with him alone. Winterbourne is really shocked because this is so strange. Nothing really hot and heavy happens on the castle trip. Winterbourne wants Daisy to meet his aunt but his aunt refuses because she thinks Daisy, the American, is a disgusting, rude girl and doesn't want to meet her. Winterbourne then leaves the resort and her guidance. Daisy is sad because she wants to hang out with him more. They plan to meet that winter in Rome.

Winterbourne goes to Rome to meet Daisy. When he gets there, he finds that there has been a lot of gossip about Daisy and how much of a whore she is. Winterbourne's aunt tells him she is a slut, and has been hanging around some sleazy Italians. Winterbourne and Daisy hang

out at Mrs. Walker's house. Daisy leaves to meet her Italian boyfriend Mr. Giovanelli. He is led to believe that they are engaged. Winterbourne comes with her because he thinks a man and a woman being alone is improper. Winterbourne thinks Daisy is an innocent girl that is just confusing for him. He wants to save her. In reality though, she's really a big whore.

Daisy comes to a party at Mrs. Walker's house. She is very rude, and she leaves. Mrs. Walker tells Winterbourne that Daisy is a rude girl, and that he should forget about her. He still likes her though and won't give up trying to help her.

One day, he walks by the Colosseum. It is a dark, and disgusting place. He catches Daisy and Mr. Giovanelli involving in the sensual act. Then he finally realizes that she is a big slut and he was wrong all along.

Later Daisy Miller gets 'Roman Fever' and dies. Before she dies, she sends Winterbourne a message that she was never engaged to Mr. Giovanelli. Winterbourne does not understand it at first but then figures out the message means she liked him all along and even though she was a slut, she wanted him to treat her nice and give her respect which he could not deliver. He was victim of suspicions and so-called moral dilemma.

CULTURAL CONFRONTATIONS IN *DAISY MILLER*

In the novella *Daisy Miller*, Henry James has showcased two different cultures; free American culture and conventional and conservative European culture.

The Miller family is presented as affluent American family. This is reflected in the exposition of the novella in which Miller family has booked a 'luxury hotel' or a 'comfortable hotel' (Jago et.al, 2011: 1166) in Vevey, Switzerland. The hotel is 'grand' where 'American travellers are extremely numerous' (1167) which displays dance music and other recreating facilities. Winterbourne comments Daisy's bother Randolph 'I don't think sugar is good for little boys' (1168) and Randolph declared 'American men are the best.' This shows American assertiveness, individualism and confidence.

When Daisy introduces herself with the hosts in Geneva, James glimpses European culture in this way:

In Geneva, as he had been perfectly aware, a young man was not at liberty to speak to a young unmarried lady...(1169)

Daisy's brother Randolph C. Miller compares Europe and America, with great pride, 'My father is rich, you bet.....he does not like Europe.'

Daisy is charming, pure, innocent, pretty and 'flirt', and winterbourne comments her 'She is completely uncultivated' (1176).

When Winterbourne's aunt Mrs. Costello finds out that Daisy is going out with a young boy, she comments, 'to be shocked' (1177).

Daisy's mother is described as elegant American woman:

'Her her was a small, spare, light person, with a wandering eye, a very exiguous nose, and a large forehead, decorated with a certain amount of thin, muchfrizzled hair. Like her daughter, Mrs. Miller was dressed with extreme elegance; she had enormous diamonds in her ears.'

Miller family is portrayed as American extravagant life. Other characters, who are American, now settling in Europe and adapting European culture.

The clash started when Daisy and her family encounter Europeans. The Europeans judge Americans are vulgar, innocent, odd with European norms. When Daisy travelled with a man without other's consent. Both Americans and Europeans fail to comprehend each other, fail to apprise. Their understanding is superficial; Winterbourne admires Daisy indiscriminately that she is fascinated, delighted because she spoke to him openly, unbiasedly, confidently and without any hesitation:

Poor Winterbourne was amused, perplexed, and decidedly charmed. He had never yet heard a young girl express herself in just this fashion, never, at least, save in case where to say such things seemed a kind of demonstrative evidence of a certain laxity of deportment.(1174)

Young women of upper class would generally do not speak openly with the unacquainted male, but Daisy not only does this, but also tells about her male friends and friendships. Winterbourne makes some conclusions about daisy on this hollow ground. He thought her to be flirt, innocent, hypocritic, vulgar, unsophisticated, and ready to go sightseeing without chaperone, which is improper act. Daisy wants to go out with her 'new friend' rather than with courier.

Daisy and Winterbourne represent two ideals in this way:

She came tripping downstairs, buttoning her long gloves, squeezing her folded parasol against her pretty figure, dressed in the perfection of a soberly elegant travelling-costume. Winterbourne was a man of imagination and, as our ancestors used to say, sensibility; as he looked at her dress and, on the great staircase, her little rapid, confiding step, he felt as if there were something romantic going forward. He could have believed he was going to elope with her (1184).

Both Winterbourne and Mrs. Costello judge Daisy quite negatively, Mrs. Costello concludes:

'They are hopelessly vulgar,' said Mrs. Costello. 'Whether or no being hopelessly vulgar is being 'bad' is a question for the metaphysicians. They are bad enough to dislike, at any rate; and for this short life that is quite enough.'(1186).

Individual freedom is protected in the American society but European societies have limitations to personal freedom,:

Mrs. Miller prepared to take her leave. "I guess we'll go back to the hotel," she said. "You may go back to the hotel, mother, but I'm going to take a walk," said Daisy.

"She's going to walk with Mr. Giovanelli," Randolph proclaimed.

"I am going to the Pincio," said Daisy, smiling.

"Alone, my dear — at this hour?" Mrs. Walker asked. The afternoon was drawing to a close — it was the hour for the throng of carriages and of contemplative pedestrians. "I don't think it's safe, my dear," said Mrs. Walker" (1189).

American freedom is flourished by Daisy's declaration in this way:

The young girl looked at him more gravely, but with eyes that were prettier than ever. "I have never allowed a gentleman to dictate to me, or to interfere with anything I do."

“I think you have made a mistake,” said Winterbourne. “You should sometimes listen to a gentleman — the right one.”

Daisy began to laugh again. “I do nothing but listen to gentlemen!” she exclaimed. “Tell me if Mr. Giovanelli is the right one?” (1191)

Mrs. Walker tells Winterbourne about Daisy that 'she is very reckless girl' (1193) and she should stop thinking about that girl. Daisy obtains European taboos expressed by Mrs. Walker:

Everything that is not done here. Flirting with any man she could pick up; sitting in corners with mysterious Italians; dancing all the evening with the same partners; receiving visits at eleven o'clock at night. Her mother goes away when visitors come (1194).

American girls love young guys who have trendy qualities. Mr. Giovanelli, with whom Daisy gets attracted, has these features according to Mrs. Walker:

This is Mr. Giovanelli; you know I introduced him to you; he's got the most lovely voice and he knows the most charming set of songs. I made him go over them this evening, on purpose; we had the greatest time at the hotel."..... This gentleman bore himself gallantly. He smiled and bowed and showed his white teeth, he curled his moustaches and rolled his eyes, and performed all the proper functions of a handsome Italian at an evening party. He sang, very prettily, half-a-dozen songs (1196).

Winterbourne directly confronts American culture with Daisy:

Well,” said Winterbourne, “when you deal with natives you must go by the custom of the place. Flirting is a purely American custom; it doesn't exist here. So when you show yourself in public with Mr. Giovanelli and without your mother —” (1197)

The Europeans misbehaved Daisy family:

They ceased to invite her, and they intimated that they desired to express to observant Europeans the great truth that, though Miss Daisy Miller was a young American lady, her behaviour was not representative — was regarded by her compatriots as abnormal (1201).

When Daisy gets Roman Fever and becomes sick, her brother comments:

"It's going round at night," said Randolph — “that's what made her sick. She's always going round at night." (1205)

The clash of the two cultures, two ideals never cease even after Daisy's decease. Winterbourne has dilemma about Daisy and Giovanelli has remorselessness, which proves his hollow feelings about Daisy, but Daisy had true feelings about them:

The subtle Roman again dropped his eyes. “If she had lived, I should have got nothing. She would never have married me, I am sure” (1206).

Similarly, Mrs. Miller is presented as 'non-European' mother who neither controls her children nor gives them proper guidance. Nor her children follow her advice. She is 'helpless' mother in the novella. She cannot dictate her daughter about having affairs, having get ups, having adult behaviour. Rather she lets Daisy go out with a male at night.

Mrs. Miller seems to be helpless regarding her son Randolph. He does not sleep till midnight, he takes excessive sugar, he does not read, he seems to be disloyal to seniors, gets up

late in the morning but mother does nothing to change such behaviours which the Europeans do not like, but such behaviours are quite common in American culture.

Daisy's positive qualities are shadowed by the European conservative and restrictive nature of the social living. Winterbourne judges Daisy as a 'pretty American flirt' because he was conscious about American culture; which contrasted European culture, calls her 'innocence' and he is 'positive' to Daisy. When he saw her with Giovanelli in the castle, he thought she does not love him. When he gets message about her death that she loves him and she is not engaged with Giovanelli, Winterbourne regrets.

Randolph and Daisy behave there in Europe reflecting American cultures and values unmistakably, value individualism, freedom, and even the girls can be slut. Everything the reader knows about Daisy comes strictly from Winterbourne's perspective or from what he hears about her from others. She exists primarily to be the object of his desire and to inspire his internal struggle about social customs and propriety, which is the novella's major conflict. Daisy contrasts with other characters who are Americans such as Winterbourne, Mrs. Walker, and Mrs. Costello. They seem to be controlled and be conscious about European culture but Daisy was easygoing in the new place. Yet it could be argued that this 19th-century etiquette was so restrictive that it did more social harm than good. Daisy is excluded from European society because she violates its unspoken rules, with which she is unfamiliar.

Daisy's family tour to Europe was considered essential activities of wealthy Americans. The Americans value individual freedom, having affair (even sex) before marriage, make boyfriends, loose parental control, ignore what people think about them or even family seniors and choose own way to go ahead. They perform these activities which other people do not like except Winterbourne.

Daisy criticizes 'society', mainly European, because it neither respects individual rights and freedom nor allows people act as per their own conscience. So, she comments 'There is no society..' Daisy intends that society should not harness unnecessarily to its people, rather respect its members. Daisy is badly criticized and judged negatively. It is the criticism of society. Although Daisy criticizes the society, she fails to know that she is in the same society. Throughout the novella, Daisy visits several historical sites. Daisy visit these sites that they are symbolically valuable to her life events, and the hobbies of the Americans. The Americans living in Europe seem to have a double standard. Mrs. Costello, for example, considers Daisy's behavior — but not Winterbourne's — wrong when the two go to visit the Château de Chillon. Winterbourne apply a double standard to Daisy (paragraphs. 96–134). He might have tried to escape from being criticized, as all were negative to Daisy except he and he made double standard. He, in fact had complete faith on her, and he just called her 'innocent'. But he has veiled some of the deviant behaviours of Daisy to his aunt. This is due to her faith and deep understanding to American culture.

Daisy is frequently referred as 'innocent' and I think she is not innocent. She wants to 'consume' her life in the full phage violating the social ethics there. It is her holiday recreation, and her boyfriend accompanies her. Others think her to be innocent, because she was performing unpredictable activity. Wealthy American community in Rome snubbed Daisy but

she generally does not mind. She does what she wants. Winterbourne thinks himself as real 'gentleman' who has conscience to know the truth behind Daisy. He defines Daisy as 'nice girl', maybe she is determined, open, she acts like a bold American, flirting (seducing) with the boys and hooking up with them. Winterbourne, too, is American and respects her deviance.

The main characters of the novella present the conflict between two cultures, two formula of life – compromising with the differences and the accepting what heart wants. Daisy becomes the victim of this conflict, and so Winterbourne is. The truth is subjective, beyond belief. Veiling Daisy's name, mysterious name, points out that she is mysterious. Her name daisy refers to 'a numerous composite plant with flower heads and well-developed ray flowers arranged in the single whorl'. This means she is beautiful and strong.

Daisy's brother Randolph represents the author Henry James himself. He was American from New York and had visited Europe with family. His sister Alice was a controversial feminist icon. In his visit to Europe, he went to Paris and England and wrote travels. What he faced in Europe as a young man, Daisy's brother faces same thing in this story.

CONCLUSION

Henry James's *Daisy Miller* reflects later nineteenth century American and European cultures; their dimensions, contradictions and impacts. The Miller family's visit to Europe exposes mismatch with the host, i.e. Europeans. James presents Daisy, her mother and her brother in the 'host land' which creates 'odds in the evens world'. Daisy is grown and accustomed with American life styles to be free, to value individualism, to expose assertiveness, to be familiar with the stranger males and these acts are not entertained in Switzerland and Italy. Her desire to live free life leads her alienation and eventually her own consequential death.

Daisy's mother is judged as a reckless woman who does nothing to give 'proper' guidance of her son and daughter, lets her daughter go alone in the trip with a single man even at night, does not do anything to make her son got to bed early, to reduce taking sugar, to cross her words amid conversations.

Daisy's brother is presented as the hypocrite boy who has hollow pride of being an American, and claiming 'Americans are the best'. But his habits and behaviours are not entertained, rather criticized. He declares his father does not like Europe, so he is in America.

The Americans living in Europe like Mrs. Walker, Mrs. Costello, and Winterbourne a little bit reflect themselves as snob people and make negative judgement against Miller family. The Miller family, especially Daisy ignores the social taboo, and prefers to live freely as per her own consent. This confrontation overshadows human sentiments, humanitarian values, human sentiments, feelings and emotions. Life is first and primary, we are first human, and only after we are under the associations; that is secondary aspect of life. This novella has strangled this primary aspect of life, and focused on secondary aspect of life.

Moreover, Daisy's New World's Americanness strives to fit in the Old World's Europeanness of Vevey and Rome. She fails to get real response of real living she expects in visiting Europe, rather ironically, she gets death as a response there. Daisy gets hostility, negatively judged though she had two great qualities; audacity and innocence which enable her

to win the heart of Winterbourne and Giovanelli. She does no harm to none, yet she is not heartily welcome in the new society. She maintains double voiced relationship with two young gentlemen, and gets her own space. The American snubs like Mrs. Walker and Mrs. Costello see nothing in Daisy's positive qualities, yet Daisy has charming looks, perfect way of dressing, pretty, innocent, pure, common, treats mother's courier like a gentleman.

Despite having good qualities, Daisy is victim of cultural snobbery and its fundamental differences. Human genuine qualities have more chances to be strangled and stabbed in the name of cultural differences. Absolute cultural tolerance is only the way of civilized society and cultured human life.

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CREDIT RISK AND ITS IMPACT ON EARNINGS OF NEPALESE FINANCE COMPANY

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ABSTRACT

This study has examined the impact of credit risk on earning performance of Nepalese finance companies. The descriptive and causal-comparative research designs have been adopted for the study. The pooled data of four finance companies out of seventeen for the period of 2074/75 to 2078/79 have been analyzed using a regression model via SPSS. Impairment charge ratio and non-performing loan ratio are independent variables whereas interest spread rate, profit margin, and return on assets are the dependent variable. The regression results revealed that there is a significant and positive relationship between interest spread rate and credit risk indicators, the non-performing loan ratio has an insignificant and negative effect on earnings performance and the impairment charge ratio has an insignificant but somewhat positive effect on the earnings performance of finance companies of Nepal. Nepalese finance companies should strictly follow the prevailing NRB Directive as well as Basel II Accord while managing credit risk and finance companies should use their effort to reduce non-performing loans.

Keywords: Impairment charge, Non-performing loan, Interest spread, Profit margin, Return on assets

INTRODUCTION

A credit risk is the risk of default on a debt that may arise from a borrower failing to make required payments on time. In the first resort, the risk is that of the lender and includes lost principal and interest, disruption to cash flows, and increased collection costs. Factors for its risk include counterparty risk and concentration risk. The Finance has applied mitigates for the management of credit risk factors are independent and ongoing credit quality review, limiting credit exposures, problem credit management system, diversification of risk asset portfolio among several sectors and sub-sectors of the economy over a large number of customers, the deposit of borrower in the bank, cash margin and additional collateral at an individual level (Annual report of Goodwill Finance Ltd – 2078/79, page 76). Such mitigates are monitored by the Board of Directors, the Risk Management Committee which is the Board Level Committee, the Credit Risk Management Department, the NRB Inspection team, and the Internal Audit Department of Finance.

Credit risk is the possibility of a loss resulting from a borrower's failure to repay a loan or meet contractual obligations. Traditionally, it refers to the risk that a lender may not receive the owed principal and interest, which results in an interruption of cash flows and increased costs for collection. It is a risk of a financial loss if a borrower or counterparty fails to honor commitments under an agreement and any such failure has an adverse effect on the financial performance of the bank. Coyle (2000) defines credit risk as losses from the refusal or inability of credit customers to pay what is owed in full and on time. It arises mainly from direct lending and certain off-balance sheet products such as guarantees, letters of credit, foreign exchange, forward contracts & derivatives, and also from the bank's holding of assets in the form of debt securities. It may take the form of delivery or settlement risk. Generally, the credit risk of financial institutions is measured by impairment charge ratio (i.e., provision for loan loss) and non-performing loan ratio. It is critical to bank survival or failure because banks traditionally earn huge profits from interest on their risk exposures. The management of credit risk is a critical component of a comprehensive approach to risk management and is essential to the long-term success of a bank (Bhattarai, 2019).

The importance of credit risk management to finance companies cannot be overemphasized and it forms an integral part of the loan process. Loans and advances provided to borrowers may be at risk of default, whereas banks extend the credit on the understanding that borrowers will repay their loans. Some borrowers usually default, and as a result, the bank's income decreases due to the need to increase loan loss provisions for such loans. Where commercial banks do not have an indication of what proportion of their borrowers will default, earnings will vary thus exposing the banks to an additional risk of the variability of their profits (Onyiriuba, 2009). Effective management of credit risk can enhance banks' goodwill and depositors' confidence. Good performance can be achieved with good governance.

A finance company is a specialized financial institution that supplies credit for the purchase of consumer goods and services by purchasing the time-sales contracts of merchants or by granting small loans directly to consumers. Nepal Rastra Bank has categorized finance companies into the national level and province level. It has prescribed eighty crore rupees minimum paid-up capital for national-level finance companies and fifty crore rupees for province-level companies (Poudel et al, 2022).

There have been some improvements in the non-performing loans (NPL) of finance companies in recent years due to the effective regulations and supervision made by the regulatory agency. The NRB needs to be committed to its work of leading the financial sector development with the object of creating a sound, healthy and competitive environment in which non-bank financial institutions will be able to compete in this globalized market (Dhungana, 2011). Finance companies are exposed to high-risk loans. The higher accumulation of unpaid loans implies that these loan losses have produced lower returns for many banks. Most Nepalese finance companies are found to approve loans that are not well-examined.

This study is mainly concerned with the impact of credit risk on the earnings capacity of Nepalese finance companies (Class C financial institutions as per Nepal Rastra Bank classification). It may lead to the position of loan loss provision and non-performing loans. This

study addresses how credit risk affects finance companies' earnings using a robust sample and how to tackle the effect of credit risk in order to enhance the quality of finance companies' risky assets.

Research Objectives

The main objective of this study is to evaluate the relationship and impact between credit risk and the bank's earnings performance of finance companies in Nepal. The specific purpose of the study is to analyze the relationship and impact among non-performing loan & impairment charges (loan loss provision) with interest spread rate, profit margin, and return on assets ratio of finance companies in Nepal.

Literature Review

Credit risk plays an important role in finance company revenue accrues from loans from which interest is derived. However, credit risk may be a serious threat to the performance of finance companies. Therefore, various researchers have examined the impact of credit risk on commercial banks in varying dimensions. The major studies related to the issue of credit risk and bank performance have been reviewed as follows:

Kithinji (2010) has assessed the effect of credit risk management on the profitability of commercial banks in Kenya. Data on the amount of credit, level of non-performing loans, and profits were collected for the period 2004 to 2008. The findings revealed that the profits of commercial banks are influenced by the amount of non-performing loans.

Dhungana (2011) has studied the overview of finance companies in Nepal. The major finding of the article is overall non-performing loan status of finance companies is 1.98 percent which reflects the satisfactory situation of the lending policy of finance companies. There have been some improvements in the non-performing loans (NPL) of finance companies in recent years due to the effective regulations and supervision made by the regulatory agency.

Bhattarai (2019) has observed the effect of credit risk on the performance of Nepalese commercial banks. The study concludes that credit risk management is crucial to bank performance since it has a significant relationship with bank performance.

Khadka (2021) has studied the credit risk management of commercial banks in Nepal. This study aims to examine the impact of credit risk management on the profitability of banks in Nepal. Secondary data was gathered from commercial banks of Nepal for ten years periods (2010/11-2019/20). The study revealed that there is a negative correlation between non-performing loans and net profit.

Most of the related empirical studies reported that there is a negative impact of non-performing loan and loan loss provisions on the profitability of sample banks.

METHODOLOGY

The study is based on descriptive and causal-comparative research designs. This study establishes the cause-and-effect relationship between selected finance companies' credit risk variables—impairment charge ratio and non-performing loan ratio and the earnings performance

– interest spread rate, profit margin, and returns on assets. The study is based on secondary data from sample finance companies by using financial and statistical tools. For this study out of seventeen finance companies of Nepal, four finance companies (24%) are selected as a sample for the period of 2074/75 to 2078/79. They are Nepal Finance Limited, Goodwill Finance Limited, Pokhara Finance Limited, and Manjushree Finance Limited.

Nepal Finance Limited, NEFINSCO, is the first and most matured Finance Company in Nepal among the private sector established in 2049/05/14. It has been the trendsetter in the market for innovating some of the very first products launched in Nepal like Hire Purchase and Margin Lending which became very famous later on. The Finance was incorporated under Company Act and acquired a license from Nepal Rastra Bank to perform financial transactions with its Head office at New Road, Kathmandu (Source: Home page of Nepal Finance Limited).

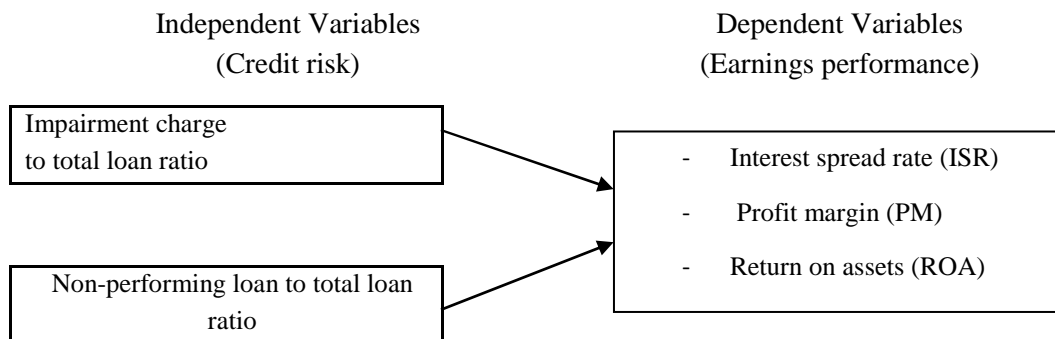
Goodwill Finance Limited is the leading provider of financial solutions with a unique mix of dedication and perfect execution. With the vision of providing the best financial services for success, Goodwill Finance Limited started its operation as a financial institution under the license of Nepal Rastra Bank in 2051 BS. It is a public limited company established under the Financial Company Act (Source: Home page of Goodwill Finance Limited).

Pokhara Finance Limited, a licensed financial institution by Nepal Rastra Bank (Central Bank of Nepal), was established in 2053 B.S. The prime objective of this finance company is to render banking services to the different sectors like industries, trade, business, priority sector, small entrepreneurship, deprived sector of the society, and every other people who need banking services (Source: of Pokhara Finance Limited).

Manjushree is a Class 'C' Financial Institution licensed by Nepal Rastra Bank, established on 28 Ashoj 2064 as a National Level Finance Company with the paid-up capital of NRs. 1.35 billion, Manjushree today is one of the largest finance companies in the country (Source: Home page of Manjushree Finance Limited).

Research Framework and Hypotheses

The dependent variables and independent variables used in this study are as follows:



Description of Dependent Variables

In theoretical literature, finance companies' earnings capacity could be found such as traditional measures of earnings – profit margin (net profit after tax to gross operating income)

& return on assets (net profit after tax to total assets) and modern measures of earnings – interest spread rate (difference between average interest income rate and interest expenses rate). Profit margin (PM) indicates the earnings capacity of finance companies from the sum of major operating incomes like interest income, fee & commission income, and other operating income. Profit margin examines the quality of income to generate the net income of a firm. Return on assets (ROA) expresses the risk-taking behavior of bank management in obtaining the satisfied level of profit per unit of total resources. It shows the effectiveness of management in the utilization of assets. The interest rate spread is the difference between the average yield that a financial institution receives from loans along with other interest-accruing activities and the average rate it pays on deposits and borrowings which is a key determinant of a financial institution's earnings performance. Thus, profit margin, return on assets and interest spread rate are chosen as the earnings performance for this study. It is hypothesized that finance companies' earnings performance is influenced by credit risk elements.

Description of Independent Variable

Non-performing loan ratio (NPLR)

Non-performing loan ratio reflects the bank's credit quality and is considered as an indicator of credit risk management. According to NRB Directives 2/077, bank loans are classified into two categories *viz.* performing loans and non-performing loans. Pass loans (Not overdue/Overdue up to 1 month) and watch list loans (Overdue up to 3 months) are classified as performing loans and sub-standard loans (Overdue up to 6 months), doubtful loans (Overdue up to 1 year), and loss loan (Overdue for more than 1 year) are classified as a non-performing loan. Non-performing loan ratio, in particular, indicates how banks manage their credit risk because it defines the proportion of loan losses amount in relation to the total loan amount (Hosna *et al.*, 2009). NPLR has been used as the default rate on total loans and advances. Gizaw, Kebede, and Selvaraj (2015) assert that the non-performing loan ratio (NPLR) is the major indicator of commercial banks' credit risk. They find that NPLR which measures the extent of credit default risk sustained by the banks showed a statistically significant large negative effect on profitability measured by ROA. Since it measures the default rate, a negative relationship could be expected between the non-performing loan ratio and the financial performance of commercial banks. However, empirical studies produce mixed results. Li and Zou (2014) and Ashanti (2015) found a positive effect of the ratio of the non-performing / gross loan on the financial performance of banks. Contrary to these findings, Felix and Claudine (2008), Kargi (2011) , and Kodithuwakku (2015) found an adverse impact of non-performing loans on profitability. However, Kithinji (2020) asserted that the bulk of the profits of commercial banks is not influenced by the amount of non-performing loans. Jha and Hui (2021) found a negative association between the NPL ratio and ROA but the coefficient is statistically insignificant. Although there is conflicting evidence on this issue, in view of the theory and the majority of the empirical literature, a negative relationship is expected between non-performing loans and the earnings performance of finance companies.

Impairment charge ratio - ICR or Loan loss provision ratio-LLP

Banks are required to account for potential loan defaults and expenses to ensure they are presenting an accurate assessment of their overall financial health. According to NRB Directives 2/077, loan loss provision rates for pass loans, watchlist loans, sub-standard loans, doubtful loans, and loss loans are 1%, 5%, 25%, 50%, and 100% respectively of gross loans. Bank loan loss provision continue to receive much attention from bank regulators/supervisors and accounting standard setters because (i) banks' large amount of loan on their balance sheet makes them vulnerable to loan default arising from deteriorating economic conditions which affects borrowers' ability to repay, requiring banks to keep sufficient LLPs in anticipation of loan losses (Laeven & Mainoni, 2008), (ii) LLPs are often could worsen an existing recession if unanticipated, and this was evident at the peak of the 2008 global financial crisis as many banks significantly increased their LLP estimates which further eroded bank profit and led to losses that depleted bank capital, requiring Central Bank intervention, (iii) bank LLP is a significant accrual and bank managers have significant discretion in the determination of LLP estimates and such discretion can be exploited to meet opportunistic financial reporting objectives rather than solely for credit risk purposes (Wahlen, 1994), (iv) bank LLP estimate is a crucial micro-prudential surveillance tool that bank supervisors use to assess the quality of banks' loan portfolio, (v) bank LLP is also a crucial indicator of the informativeness of bank accruals from an accounting standard-setting perspective, and (vi) bank LLP has become the most debated accounting number in bank financial reporting after bank profitability and derivatives since the 2008 global financial crisis (Bhattarai, 2019).

Bank LLPs play a crucial role for bank stability and soundness while fulfilling their lending function to individuals and other firms. Therefore, bank regulators require banks to keep adequate LLPs to mitigate expected losses although there is no agreement among banks for what constitutes 'adequate' loan loss provisioning. Shah and Vongbusin (2019) assert that loan loss provision has a negative relationship with the profitability of banks. In view of the theory, a negative relationship is expected between non-performing loans and the earnings performance of finance companies.

Hypotheses

A hypothesis is a proposed explanation of the phenomenon regarding the parameters of the population on the basis of the sample drawn. In this article, hypothesis testing is used to test the significance of the relationship between dependent and independent variables.

Hypothesis 1: Interest spread rate significantly depends on the impairment charge ratio and non-performing loan ratio

Hypothesis 2: Profit margin significantly depends on impairment charge ratio and non-performing loan ratio

Hypothesis 3: Return on assets significantly depends on impairment charge ratio and non-performing loan ratio

Research Model

The models employed in this study intend to analyze the relationship between credit risk elements and earnings performance. The following regression model is used in this study in an attempt to examine the empirical relationship between the impacts of credit risk management on earnings performance of finance companies. Therefore, the following model equation is designed to test the hypothesis.

$$ISR = \alpha + \beta_1 ICR + \beta_2 NPLR + e$$

$$PM = \alpha + \beta_3 ICR + \beta_4 NPLR + e$$

$$ROA = \alpha + \beta_5 ICR + \beta_6 NPLR + e$$

Where,

α = Constant term

ICR = Impairment charge ratio [Impairment charge (provision for loan loss) to total loan ratio]

NPLR = Non-performing loan to total loan ratio

e = Error term

ISR = Interest spread rate

PM = Profit margin

ROA = Return on assets

β = Beta coefficient

PRESENTATION AND DATA ANALYSIS

Descriptive Analysis

The descriptive statistics used in this study consists of mean, median, standard deviation, minimum and maximum values associated with the variables under consideration. Table 1 summarizes the descriptive statistics of variables used in this study during the period 2074/75 through 2078/79 for 4 sample finance companies of Nepal.

Table 1
Descriptive Statistics (%)

	N	Minimum	Maximum	Mean	Std. deviation
Impairment charge ratio (Provision for loan loss ratio)	20	0.95	100	18.15	31.29
Non-performing loan to total loan ratio	20	0.79	100	19.28	35.46
Interest spread rate	20	3.61	7.64	4.78	0.91
Profit margin	20	-13.08	81.86	22.96	21.52
Return on assets	20	-0.99	5.82	1.70	1.48

The average impairment charge of sample finance companies' during the sample period is 18.15%. It indicates the banks set aside a portion of the expected loan repayments from all loans in their portfolio. It is an estimation of potential losses that a finance company might experience due to credit risk. Similarly, the average non-performing loan ratio of the sample companies is 19.28% that express the borrower is unlikely to repay the loan, or if more than 90 days have passed without the borrower paying the agreed installments. Non-performing loan

ratio is more volatile but the spread rate is more constant. The average interest spread rate is 4,78% which means the average interest income is more than interest expenses by 4.78%. The average net profit after tax to gross income is 22.96% which shows the strong profit-earning capacity of finance companies but the return on assets is comparatively low. It shows the quality of income and income statement position is strong but assets mobilization or balance sheet performance is poor.

Test of Normality

Normality tests are tests of whether a set of data is distributed in a way that is consistent with a normal distribution or not. Typically, they are tests of a null hypothesis that the data are drawn from a normal population, specifically a regression analysis. Test distribution of dependent variables should be normal in the regression analysis.

Table 2

Kolmogorov-Smirnov Normality Test				
		Interest spread rate	Net profit margin	Return on assets
Normal parameters ^a	N	20	20	20
	Mean	4.7785	22.9640	1.6995
	Std. Deviation	.90792	21.52163	1.47760
	Test Statistic	.262	.246	.203
	Asymp. Sig. (2-tailed)	.001	.003	.031

a. Test distribution is Normal.

The above table shows that the test distribution is normal and the parametric test is eligible for analysis.

Correlation Analysis

Correlation is a relationship between two variables. Correlation analysis is a statistical approach used to determine the level of association between two variables. It shows the direction of the change or movement between variables. A strong, or high, correlation means two or more variables have a strong relationship with each other while a weak, or low, correlation means that the variables are hardly related. Thus, Pearson's correlation has been performed between dependent and independent variables and the results are presented in Table 2.

Table 3

Karl Pearson's correlation coefficient

		Impairment charge ratio (Provision for loan loss to total loan ratio)	Non-performing loan to total loan ratio
Interest spread rate	Correlation	0.831	0.758
	Sig. (2-tailed)	0.000	0.000
Profit margin	Correlation	0.357	0.332
	Sig. (2-tailed)	0.123	0.152
Return on assets	Correlation	0.367	0.357
	Sig. (2-tailed)	0.112	0.123

Correlation is significant at the 0.01 (i.e. 1%) level (2-tailed) as per SPSS

Pearson correlation of interest spread rate and impairment charge ratio is found to be a high degree positive correlation and statistically significant ($r = 0.832, p < 0.01$). Similarly, the correlation between interest spread rate and non-performing loan ratio is also found high degree of positive correlation and is statistically significant ($r = 0.758, p < 0.01$). It shows that an increase in impairment charge ratio and non-performing loan ratio would lead to a higher interest spread rate and non-performing loan also earns interest income.

The correlation of profit margin and impairment charge ratio is found to be a low degree positive correlation but statistically insignificant ($r = 0.357, p > 0.01$). Similarly, the correlation between profit margin and non-performing loan ratio is also found low degree of positive correlation and statistically insignificant ($r = 0.332, p > 0.01$).

The correlation of return on assets and impairment charge ratio is found to be a low degree positive correlation but statistically insignificant ($r = 0.367, p > 0.01$). Similarly, the correlation between return on assets and non-performing loan ratio is also found low degree of positive correlation and statistically insignificant ($r = 0.357, p > 0.01$). In the previous literature, the relationship between return on assets and non-performing loan ratio was negative, but in this study, such a relationship seems low degree positive.

Regression Result

Regression analysis is a quantitative research method that is used when the study involves modeling and analyzing several variables, where the relationship includes a dependent variable and one or more independent variables.

Testing of hypothesis 1: *Interest spread rate significantly depends on impairment charge ratio and non-performing loan ratio*

Table 4
Model Summary

	Coefficients		F-Value (2,17)	P – value (Significant)	Adjusted R ²
	Unstandardized Beta	Standardized Beta			
Constant (α)	4.288		38.474	0.000	0.798
Impairment charge	0.084	20887			
Non-performing loan	0.053	-2.087			

Source: Annual report of sample companies and results are drawn from SPSS-26.

Table 4 presents the regression results of the effect of credit risk (impairment charge ratio and non-performing loan ratio) on earnings performance (interest spread rate) of sample finance companies of Nepal. The value of adjusted R² is 0.798 or 79.8%. The overall explanatory power of the regression model is fair. This indicates that 79.8% of the variation in earnings performance of finance companies can be explained by the variation in the explanatory variables and the remaining 20.8% is explained by other factors. The model with a higher value of adjusted R-squared is considered to be a better model.

The calculated F-value (2, 17) is 38.474 which is more than the tabulated F-value of 3.59 at a 5% level of significance, and the p-value for F statistics in the model is 0.000 which is less than 0.05 representing that the model is fairly fitted well statistically. Hence, hypothesis 1

is accepted and it is concluded that the interest spread rate significantly depends on the impairment charge ratio and non-performing loan ratio.

The impact of the impairment charge ratio and non-performing loan ratio on the interest spread rate are 0.084 and 0.053 (unstandardized beta) respectively. It means a 1% increase in impairment charge ratio and non-performing loan ratio positively affects the interest spread rate by 0.084% and 0.053% respectively. The impairment charge ratio more affects to interest spread rate because the standardized beta of ICR is more than NPLR. The independent variables chosen for the model are best suited for regression analysis. The model can fit:

$$\begin{aligned} \text{ISR} &= \alpha + \beta_1 \text{ICR} + \beta_2 \text{NPLR} + e \\ &= 4.288 + 0.084 \text{ICR} + 0.053 \text{NPLR} + e \end{aligned}$$

Testing of hypothesis 2: *Profit margin significantly depends on impairment charge ratio and non-performing loan ratio*

Table 5
Model Summary

	Coefficients		F-Value (2,17)	P – value (Significant)	Adjusted R ²
	Unstandardized Beta	Standardized Beta			
Constant (α)	18.121		1.382	0.278	0.039
Impairment charge ratio	0.69	1.003			
Non-performing loan	- 0.398	0.656			

Source: Annual report of sample companies and results are drawn from SPSS-26.

Table 5 presents the regression results for the effect of credit risk (impairment charge ratio and non-performing loan ratio) on the earnings performance (i.e. profit margin) of sample finance companies. The value of adjusted R² is 0.039 or 3.9%. It indicates that only 3.9% of the variation in earnings performance of finance companies can be explained by the predictor variables and the remaining 96.1% is explained by other factors. The model with a lower value of adjusted R-squared is not considered to be a better model.

The calculated F-value (2, 17) is 1.382 which is less than the tabulated F-value of 3.59 at a 5% level of significance, and the p-value for F statistics in the model is 0.278 which is greater than 0.05 represent that the model is not satisfied and there is insignificant relationship between independent and dependent variables. Hence, hypothesis 2 is rejected and it is concluded that the profit margin does not depend on the impairment charge ratio and non-performing loan ratio.

Unstandardized beta shows that the impact of the impairment charge ratio on the interest spread rate is 0.69 but the non-performing loan ratio's impact on the interest spread rate is - 0.398. The independent variables chosen for the model are not suited for regression analysis. The model can be expressed as:

$$\begin{aligned} \text{PM} &= \alpha + \beta_3 \text{ICR} + \beta_4 \text{NPLR} + e \\ &= 18.121 + 0.69 \text{ICR} - 0.398 \text{NPLR} + e \end{aligned}$$

Testing of hypothesis 3: *Return on assets significantly depends on impairment charge ratio and non-performing loan ratio*

Table 6
Model Summary

	Coefficients		F-Value (2,17)	P – value (Significant)	Adjusted R ²
	Unstandardized Beta	Standardized Beta			
Constant (α)	1.379		1.328	0.291	0.033
Impairment charge ratio –	0.024	0.516			
Non-performing loan ratio	- 0.006	-0.152			

Source: Annual report of sample companies and results are drawn from SPSS-26.

The value of adjusted R² is 0.033 or 3.3%. It directs that only 3.3% of the variation in return on assets can be explained by the predictor or independent variables and the remaining 96.7% is explained by other factors. The model with a lower value of adjusted R-squared is not considered to be an appropriate model. The calculated F-value (2, 17) is 1.328 which is less than the tabulated F-value of 3.59 at 5% level of significance, and the p-value for F statistics in the model is 0.291 which is greater than 0.05 represent that the model is not fulfilled and there is insignificant relationship between independent and dependent variables. Hence, hypothesis 3 is rejected and it is concluded that return on assets does not depend on the impairment charge ratio and non-performing loan ratio.

Unstandardized beta shows that the impact of the impairment charge ratio on return on assets is 0.024 but the non-performing loan ratio's impact on the interest spread rate is - 0.006. The independent variables selected for the model are not suitable for regression analysis. The model can be stated as:

$$\begin{aligned}
 PM &= \alpha + \beta_3 ICR + \beta_4 NPLR + e \\
 &= 1.379 + 0.024 ICR - 0.006 NPLR + e
 \end{aligned}$$

Findings and Discussion

The finding of this study supports hypothesis 1 but does not support hypotheses 2 and 3. As expected, impairment charge ratio and non-performing loan ratio significantly affect finance companies' interest spread rate but profit margin and return on assets are not associated with impairment charge ratio and non-performing loan ratio. The result is similar to the findings of Fredrick (2012); Kargi (2011); Kodithuwakku (2015), Shah and Vongbusin (2019), where they found a negative association between non-performing loans and banks' performance who found loan loss provision and non-performing loan ratio has a negative relationship with return on assets of banks. The result is contrary to the findings of Li and Zou (2014) and Ashanti (2015) who found the positive effect of non-performing /gross loans ratio on the financial performance of banks.

CONCLUSION

The main purpose of this study is to investigate the impact of credit risk on the earnings performance of Nepalese finance companies. Four finance companies' 20 observations for the period of 2074/75 to 2078/79 have been used for the analysis. The regression model exposed that impairment charge ratio and non-performing loan ratio are independent variables whereas interest spread rate, profit margin, and return on assets are the dependent variable

This study has found a significant and positive relationship between interest spread rate and credit risk indicators, non-performing loan ratio has an insignificant and negative effect on earnings performance and impairment charge ratio (i.e. loan loss provision ratio) has an insignificant but somewhat positive effect on earnings performance of finance companies of Nepal.

Policy Implications

Based on the findings from the empirical analysis, the study offers the following recommendations through which they can work to improve credit risk management and have an effective role in achieving better earning performance, especially return on assets. The negative coefficient of the 'non-performing loan ratio' with finance companies' earnings performance indicates that there is a higher level of loan loss provision charged against profit and eventually reduces performance (ROA). Thus, Nepalese finance companies should strictly follow the prevailing NRB Directive as well as Basel II Accord while managing credit risk, and finance companies should use their effort to reduce the non-performing loan.

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OBTRUSIVE PLAGIARISM AND DATA FALSIFICATION IN BIOLOGICAL SCIENCES: TRENDS AND REMEDIES

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ABSTRACT

Scientific misconduct includes plagiarism, falsification and fabrication. The intentional presentation of other's work as own work without any authority is referred as plagiarism. Plagiarism also contains other's images, structure and designed elements. It affects both published and unpublished materials obtained through evaluation of dissertations, peer review process or grant proposals. Fabrication is an another research misconduct in which some fake activities are committed such as making up data, results and reporting them. If there is no any experimentation, it is also called fabrication. The Study shows that 60% of articles published in predatory journals are not found to be cited over the five-year period from the date of publication . A clear ethical standards should be made for assuring the researchers whether their work break certain codes or not. The investigation of organizations must be transparent, fair and prompt into research irregularities

Key words: plagiarism, falsification, fabrication., predatory, publication

INTRODUCTION

Scientific misconduct is the violation of the ethical behavior and standard codes of scholarly culture in a professional scientific research. It includes plagiarism, falsification and fabrication. Plagiarism is derived from the Latin word plagiaries that means to kidnap or abduct. The intentional presentation of other's work as own work without any authority is referred as plagiarism (Chaudhuri 2008). It is a serious form of cheating . According to United States Department of Education (2005), Plagiarism is an activity of appropriating another person's words, ideas, results and processes without giving proper credit. Plagiarism also contains other's images, structure and design elements. It affects both published and unpublished materials obtained through evaluation of dissertations, peer review process or grant proposals. The authors are harmed by ignoring to acknowledge them and their contribution for knowledge generation. Plagiarism is a burning issue for colleges and universities throughout the world. Research shows that overwhelming number of academicians are admitted to stealing at some point of their career. Self-plagiarism is a fake activity, thus itself a controversial issue. It is

stealing from oneself. Both plagiarism and self-plagiarism are worst, presenting the documents by copying original one. Duplicate or overlapping publication are the most common forms of self-plagiarism. Duplicate publication means a paper that does not give clear reference to the previous publication but overlaps substantially with that. Duplicate papers are slightly different from the original in content or the order of the authors. Hence it becomes tough to find out the duplication. On the other hand, falsification is the attempt of manipulating research papers, equipment, omitting or changing data. It is quite difficult to detect such practice because of very subtle presentation and artful manipulation. It is usually done to please their bosses by providing the desired data they believe. Fabrication is another research misconduct in which some fake activities are committed such as making up data, results and reporting them. If there is no any experimentation, it is also called fabrication.

The predatory journal has the features like poor quality, legitimacy, charging publication fees to authors, missing other editorial and publishing services. Study shows that 60% of articles published in such journals are not found to be cited over the five-year period from the date of publication. Hence predatory journals provide false or misleading information, lack of transparency, deviation from best editorial and publication practices. The open access movement in biological science at the beginning of this century brought revolution in communications thereby, free access to the published articles without copyright or economic restrictions. Open access journals allow free access and reutilisation of their contents. Such journals depend on the payment of article processing charges due to lack of funding. It opens a path for corruption by profiting from the fees without providing any of the services like peer review expected from a scientific journal. The names and cover design are similar to the reputed journals of international prestige with high impact factor.

MATERIALS AND METHODS

This review article was prepared from secondary sources like google scholar, Sci-Hub, Shodh-Ganga, DOAZ, PubMed and SHERPA/RoMEO. Various Scimago indexed articles were downloaded from these sources by searching through the key words and title.

RESULTS AND DISCUSSION

There are found various levels of research misconduct such as institution, department, journals, individual researchers and funding bodies. The major reasons for research misconduct are fear of failure and internal desire to be successful. Other reasons are to secure grants and financial incentives from donor agencies. The departments and researchers are diverted to the concept of quantity rather than quality as research success. Meanwhile there is the correlation between the number of publications and career promotion or opportunity of funding. Most such criticism has come from current editorial and peer review processes that fail to prevent fake research getting printed even in the reputed journals (Adam 2002). We have a perception that papers published in high impact factor journals are almost true. The training and education of supervisors and individual researchers are very important to combat the misconduct. An environment should also be created to speak out the wrong issues. Research quality is ensured

and identified by peer review process. Any doubt on data should be discussed with the editor for verification. Auto-plagiarism is being practiced with different forms. An author firstly writes an article to publish in a journal. The same author once again rewrites them and submits to another journal without giving the reference of the first publication. It is commonly found that the same article is published in different-language journals. It was more commonly practiced at the time before modern tools of internet facility. It is absolutely unethical that an author writes a no. of papers from the same database. Hence the text of the methods is recycled by elaborating results or discussion making more chance of acceptance of the paper. It is a challenge to authors and editors for writing review article. Recycling of text easily appears which is still unacceptable. So it is necessary for a review author to find out new data and literature for producing a new synthesis. Scientific dishonesty is the action leading to false or distorted scientific results. It gives the false information about an individual contribution to research field. Scientific dishonesty is problematic for a number of reasons. The vulnerable research participants are directly or indirectly harmed by such practice. It may harm the trust in scientists and science in future days. Traditionally the norms of science are learned by witnessing exemplary behaviour. Mentors, supervisors and institutions played a significant role in promoting such norms. The basic spirit of biological science has changed due to increases in the number of researchers and time pressure. Research has become global and interdisciplinary as per the ties between private industry, academia and governmental research agencies. In addition, there is the pressure for increasing publications and achieving grants.

On the other hand, scientific fraud is often referred as intentional misrepresentation of the procedures, methods or results of scientific research. It includes all the behaviours like plagiarism, fabrication and falsification. It is almost illegal and scientific career of researcher may end by proven fraud. The attractive financial and reputational rewards might have induced some scientists to engage in scientific fraud. Plagiarism usually takes the form of copying another's theories, ideas and replacing key words to make new document while fraud is the intentional fabrication or falsification of data, methods, results and findings.. It is even possible to plagiarize oneself by not citing the source of the ideas. We can find many predatory journals of biology and falsified articles from within the last few years. The researchers are committed to these acts ignoring the risk factor because they are pushed to publish as often as possible. There may be huge pressure from bosses and supervisors to publish results. The other reason is frustration since many researchers have invested countless resources and hours to develop a theory and they think that the theory must be right. As a result, research may be weak or get falsified. Plagiarizing work have been found long before the use of Internet. Actually plagiarism occurred much more in pre-internet period than post-Internet period (Ison 2015). Although internet is a good source that provides unlimited access to information easily and instantly, the most common type of plagiarism through the internet are copying and pasting the material. There is significant consequences both academically and professionally for plagiarizing someone else's work. It may include civil and criminal penalties (Sheehan 2014) as well as academic penalties like failed class, failed assignments, removal from institution and even retracted degrees. The scientific misconduct consists of codes of responsible conduct i.e.

rules or guidelines for proper scientific and professional practice (Gunsalus 1993). For the sake of reducing academic dishonesty like plagiarism, the use of honor codes has been a long traditional and successful method. Study shows that reported cheating at institutions has decreased almost 20% with honor codes (Rettinger & Searcy 2012). Nowadays most of the institutions use plagiarism detection software to check plagiarism because of the increased writing and submission of assignments through online mode. The softwares like Plag Spotter and Turnitin may be used to compare the papers to a information database for searching similar, resubmitted, matching or plagiarized document (Bailey 2013, Brown *et al.* 2010).

CONCLUSION

In fact, there are a number of reasons for research misconduct such as academic pressure, financial gain, personal desire for fame, sloppy science and an inability to distinguish right from wrong. It definitely needs investigation, prevention and awareness to research misconduct. Only then general public will trust and respect biological research. Further discussion on its single, universal definition and various facets is required to prevent research misconduct. Moreover, clear ethical standards should be made for assuring the researchers whether their work break certain codes or not. The investigation of organizations must be transparent, fair and prompt into research irregularities . The organization or an individual should be punished when evidence of misconduct is confirmed. The whistleblowers standing this agenda should be protected for ensuring a right of appeal. Based upon the degree of misconduct, the inquiry may be operated at both institutional or national level. The integrity of the scientific system is being threatened by predatory journals . It has undermined the open access by creating confusion around the ethically operated journals. The reputation of editors and reviewers are harmed by including their name without permission. The quality of published content is compromised as they do not proceed sufficient peer review processes. Thus predatory journals are themselves becoming a reservoir of scientific misconduct.

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REVENUE RELATION WITH VAT IN NEPAL GOVERNMENT BUDGET STRUCTURE

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ABSTRACT

Taxes are major fiscal policy instruments and important government policy tools have an important role in increasing the rate of capital formation and thereby a high rate of economic growth can be achieved. Globalization, privatization and liberalization have brought the huge change in the country budget and economic environment. The budget management of government is one of the important tasks which play very important role in the nation and international environment which influence the technology and changing business environment has posed many challenges before management. This study aims to find out the Nepal government budget status in economic sectors. Descriptive research has been conducted using annual report of economic survey of ministry of finance. Descriptive analysis suggested that is strong relationship between revenue and expenditure management of Nepal government budget. The main objective of this study is to determine the relationship between revenue and expenditure in the study made over the period 2073/74 to 2077/78 taken as a sample year in this research study among the various fiscal years of Nepal government budget. The statistical methods of trend analysis and descriptive statistics like mean, standard deviation, coefficient of variation and hypothesis test were used to analyze the study outcomes.

The results of the study indicated the revenue, expenditure and deficits conditions of Nepal government budget. This research articles report sources of revenue and structure of budget heads of Nepalese economic sector. It also reflects the whole revenue and expenditure positions of Nepal government and effective implementation of revenue estimation to manage deficits conditions. The revenue, expenditure and deficits conditions policy and strategies would also helps to manage deficits conditions by research studying.

Keywords: Revenue, Expenditure, Deficits, VAT, Tax Revenue

INTRODUCTION

The role of revenue in the development of a country is not less important than the role of oxygen for the existence of human body. Economic development has been one of the most popular slogans in almost all the developing countries all over the world. Similarly,

achievement of high rate of economic growth rate, reduction of income disparities and poverty and improvement of living standard of people are some development strategies towards which most of the government efforts have been directed in developing countries. It is known that government needs more revenue mobilization for overall economic development and state welfare. Besides this, for meeting day-to-day expenditure, the government also requires some sources of income which is called revenue. In this context, a government needs to mobilize a lot of internal resources to fulfill its responsibility towards its nation and people. In the developing country like Nepal, there is a necessity for raising a larger volume of funds for the development and administration expenses. The revenue collection is a challenging task in itself which demands increasing necessity of regular expenditure in general and development expenditure in particular. However, resource mobilization is very low compelling the government to rely heavily on foreign assistance. Development expenditure has been dependent almost entirely on the foreign aid. External assistance is uncertain, precarious, inconvenient and not conducive to the healthy and overall development should there be heavy dependence on it. The foreign aids are not bad for economic development of the nation.

According to Dalton, “A tax is a compulsory contribution imposed by a public authority irrespective of the exact amount of service render to the taxpayer in return and not imposed as a penalty for any legal offence.”

Bitable defined the term tax as “A compulsory contribution of the wealth of a person or body of persons for the services of the public powers.”

Adam smith in his own words defined tax as “A contribution from citizens for the support of the state.”

Development is the dynamic notion. It is a process of transformation of entire social structure into desired state of affairs. The social structure includes the economic, cultural, religious, political, and similar other factors. Development process includes working of certain forces in an interconnected and causal fashion. The certain forces are higher education, better health, improved technology, developed infrastructures, better planning, greater concern about time, modernized ideas and values developed instructions science and technology stable political system higher productivity higher income and freedom from all sorts of undesired circumstances.

Problem Statement

Nepal government is not being able to invest sufficiently in social overhead capital and operate required development project basically due to insufficiency of fund. Government expenditures are increasing day by day due to increase in price level, increased security requirement and many other causes. Government is practicing deficit budget and problem in balance of payment situation as there is huge trade imbalance. My study is based upon the Nepal government budget structure in Nepalese economy as well as those deficits problems associated with tax collection in Nepal.

The research problems on which my research is based upon are as follows:

1. What is the position of budget (revenue, expenditure and deficits) of Nepal government ?
2. What is the significance relation between VAT and Revenue?

Objective of the study

The objectives of this thesis are as follows:

1. To access the position of budget (revenue, expenditure and deficits) of Nepal government.
2. To analyze the significance relation between VAT and Revenue heads.

Literature Review

The main purpose of literature survey is found out what research studies have been conducted in ones chosen field of study and what remains to be done. It provides the foundation for developing a comprehension theoretical framework from which hypothesis can be formulating and minimize the risk of pursuing dead-ends in research with related research topic.

Conceptual Review and Framework

Revenue indicates the income of Nepal government from different heads. It is the backbone of the nation. Development of the nation depends up on revenue. Expenditure means administrative and development expenditure of the nation. it included the different expenditure heads. Deficits mean the negative differences between revenue and expenditure.

Public expenditure is development expenditure. These the expenditure made on providing education, health and public utility facilities to the community. So the government expenditures are increasing day to day. Because of demand of time, increase in price & national income, increase in population, social progress, war or preparation for war, government needs more money to run it successfully.

Classification of Tax

Because there are so many effects of taxation, no single tax is completely perfect. Consequently, there must be a structure of taxation, combining a number of taxes, which the government can vary from time to time according to changes in emphasis on different objectives. Depending on the methods of payment of taxes, taxes can be classified into two major categories, viz. direct taxes and indirect taxes.

Direct Taxes

Under direct taxes the person makes payment direct to the revenue authorities – the Inland Revenue Department (IRD) or the local authority. In the words of Dr. Dalton, “A direct tax is really paid by the person on whom it is legally imposed”. (Dhakal, 2001) Usually each individual’s tax liability is assessed separately.

Indirect Taxes

Indirect taxes on goods and services are so called because the revenue authority (the Department of Customs/Excise) collects them from the seller, who, as far as possible, passes the

burden on to the consumer by including the duty in the final selling price of the good. In the words of Dr. Dalton, “An indirect tax is imposed on one person but paid partly or wholly by another”. In other words, such tax is levied on one person who does not bear it from his/her own income. Instead, the tax liability is transferred by collecting it from customers by adding it to the price of goods or services. Indirect taxes may be specific or ad valorem.

Objectives of Tax

Tax is a permanent instrument for collecting revenues. It is a major source of revenue in developed world and has been appearing as an important source of revenue in the developing world like Nepal as well. It has been an instrument of social and economic policy for the government. However, the objective of taxation has been different for different periods. In ancient times, its objective was to strengthen the muscle of the state by raising more revenues for mobilizing these in security to an individual and society from violence, invasion, injustice and maintaining public institutions which can never be for the interest of an individual. In modern days, the objective of tax is shifted from the security perspective to the economic development. The modern objective of taxation is not only to main peace and security, but also to conduct development activities. From the above facts, we can enumerate the objectives of tax as given below:

1. To raise revenue for ensuring resource mobilization and distribute equally wealth and income in the society,
2. To encourage the production of certain products and encourage employment,
3. To ensure saving and investment and contribute to the enforcement of government policy,
4. To remove regional disparities and imbalances (Bhattarai & Koirala, 2075)

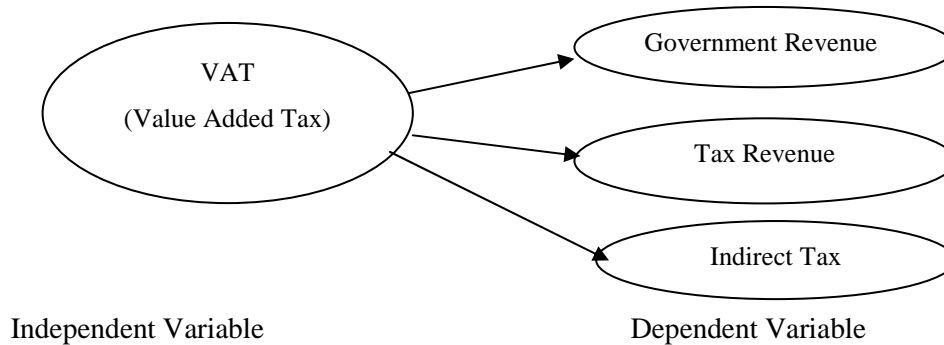
Meaning of VAT

Different experts and institutions have attempted to give the meaning of VAT according to their own interpretations. Here some of their definitions may be studied. VAT is a general consumption tax assessed on the value added to goods and services. It is a general tax that applies, in principle, to all commercial activities involving the production and distribution of goods and the provision of services. It is a consumption tax because it is borne ultimately by the final consumer. It is not a charge on companies. It is charged as a percentage of prices, which means that the actual tax burden is visible at each stage in the production and distribution chain. It is an indirect tax, in that the tax is collected from someone other than the person who actually bears the cost of the tax (namely the seller rather than the consumer). As VAT is intended as tax on consumption, exports (which are, by definition, consumed abroad) are usually not subject to VAT or VAT is refunded (Bhattarai & Koirala, 2019).

A VAT is an indirect tax, in the sense that the tax is collected from someone who does not bear the entire cost of the tax. To avoid double taxation on final consumption, exports (which by definition, are consumed abroad) are usually not subject to VAT and VAT charged under such circumstances is usually refundable ([www.economywatch.com/ business-and-economy/vat.html](http://www.economywatch.com/business-and-economy/vat.html)).

Research Framework

Nepal government Economic survey reports are the main sources which include total revenue, tax revenue, indirect tax revenue and VAT revenue are the research variables. The frame work is the conceptual relation show in chart



Empirical Review:

Researcher has gone through different literatures including books, expert articles, some study reports, web publications of source in Nepal or some other countries to frame study criteria. Methodologies used and principles, findings and recommendations provided by these studies will be presented to the extent researcher gets information in this regard. These are now categorically presented.

Bhattarai and Koirala, (2020). in their book “*Taxation in Nepal with Taxation & VAT*” have described the income tax system in depth. This book includes the separate chapter on Value Added Tax. It describes VAT practices in Nepal with several theoretical aspects and numerical examples. This book was specifically designed for the students of MBS 3rd years under Tribhuvan University. However, the book was failed to mention legal provisions with examples regarding taxation of income from insurance business in detail.

Agrawal, D. (2016). in his dissertation “*A Study on VAT: Implementation, Problems and its Effectiveness in the Nepalese Economy base on Morang district*” by suing the analytical and explanatory research design and having the objective of:

1. To examine the implementation, problems, and effectiveness of the VAT in Nepal.
2. To explore the level of knowledge about VAT and to examine the administration system of VAT
3. To analyze the mechanisms of making VAT system more effective
4. To analyze the structure of government revenue including VAT The major findings of the study are as follows:
 1. Nepalese VAT law is inappropriate and the administration is worse.
 2. There is shortcoming in the implementation.
 3. Problems relating to VAT system in Nepal cannot be solved and resources are not fully and effectively utilized.

METHODOLOGY

Research methodology refers to the various sequential steps (along with rationale of each such step) to be adopted by the researcher in studying a problem with certain objects in view. For the achievement of the objective of the study, certain methodology has been applied to conduct the whole study process.

Research Design

Research design is the plan structure and strategy of investigation conceived so as to obtain the answer to research question and to control variances. In this study, information required for fulfilling the objective of the study has been collected from various sources. While information on tax system and its development were collected from secondary information was collected from meetings, group discussions and checklists. Hence, descriptive and analytical research design is used in this research.

Population and Sample

Population is the whole size of related Nepal government budget structure in research study and this research covering only five years as a sample for research study of the population while five years data. The study gives more accurate finding and it is not possible due to various constraints like as time, money etc. so this study take sample from large population which was considered as taken as target sample.

Methods of Analysis

Various analytical tools to be used in this research for the study, the analysis of data will be done according to pattern of data available. The data analysis is made on the basis of the various financial and statistical tools to achieve the research objectives. The researcher has used the following tools and techniques. Mainly the analysis will be done by using simple statistical analysis.

RESULT AND DISCUSSION

Revenue indicates the income of Nepal government from different heads. It is the backbone of the nation. Development of the nation depends up on revenue. Expenditure means administrative and development expenditure of the nation. It included the different expenditure heads. Deficits mean the negative differences between revenue and expenditure.

Table: 1
Nepal Government Expenditure (NRs 10 millions)

Fiscal year	Expenditure (RS)	Percentage (%)	Increase/Decrease
2073/74	83724.78	100%	-
2074/75	108727.98	129.86%	29.86%
2075/76	111045.68	132.63%	2.77%
2076/77	109113.41	130.32%	-2.31%
2077/78	119667.59	142.93%	12.61%

(Sources: Economic survey of ministry of finance)

The Table 1 shows that Budget expenditure trend of the Nepal government is appearing in increasing trend from fiscal year 2068/69 to the year 2077/78 except fiscal year 2076/77 expenditure. It is firstly increases then decreases and again increases in percentage in the sample period. The Expenditure amount structure of government of Nepal shows that there is incremental figure in each year from 2068/69 to 2077/78 base on data of fiscal year 2073/74. The Expenditure is appearing in increasing means Nepal government current, capital and financial expenditure increase to developing sector and operating sector of the country. It is also said that Nepal government expand its activities to develop the nation and operate the nation smoothly.

Table: 2
Government Expenditure Structure (NRs 10 millions)

Fiscal Year	2073/74	2074/75	2075/76	2076/77	2077/78
Current Expenses	51861.61	69691.96	71641.76	78414.89	84621.73
Percentage	61.94%	64.10%	64.52%	71.87%	70.72%
Capital Expenses	20874.83	27071.37	24156.25	18908.47	22883.61
Percentage	24.93%	24.90%	21.75%	17.23%	19.12%
Financial Expenses	10988.33	11964.66	15247.67	11790.04	12162.27
Percentage	13.12%	11%	13.73%	10.81%	10.16%
Total Expenditure	83724.78	108727.98	111045.68	109113.41	119667.59
Percentage	100%	100%	100%	100%	100%

(Sources: Economic survey of ministry of finance)

The Table 2 shows that Expenditure structure of the Nepal government in fiscal year 2073/74 to the year 2077/78 respectively. The contribution of current expenses is highest in government expenditure and second contribution is capital expenditure. Similarly, the last contribution is financial expenditure. The current expenses are appearing in increasing trend but the capital expenditure and financial expenditure is appearing in irregular order in the sample years of research study. It is firstly increases in highly then slowly increases except in fiscal year 2076/77 in the sample period. The Expenditure amount structure of government of Nepal shows that there is incremental figure in each year from 2068/69 to 2075/76 than it is decrease and again increases in fiscal year 2077/78. The total expenditure of Nepal government and its contribution structure in percentage form. The contribution of recurrent expenditure is highest figure in each year. Its contribution is more than sixty percentages in each year. It is appear in decreasing order in each year. The Capital expenditure is slightly increasing form and domestic loan investment, foreign debt, share investments are general constant form. Domestic borrowing is slightly increases in each year. The total government expenditure is increase in figure in each year.

Table: 3
Government Revenue, Expenditure and Deficits structure (NRS 10 million)

Fiscal Year	Government Expenditure	Government Revenue	Budget Deficits
2073/74	64747.03	83724.78	18977.75
2074/75	77019.09	108727.98	31708.89
2075/76	87232.52	111045.68	33639.92
2076/77	86229.24	109113.41	31779.72
2077/78	100633.61	119667.59	30128.14

(Sources: Economic survey of ministry of finance)

The table 3 shows that the Expenditures and Revenues structure of Nepal government in sample period. It shows that there is incremental form of government expenditure and Revenue figure in each year respectively. The deficits value is Rs 18966.75(NRS 10 million) to Rs 30128.14 (NRS 10 million) values in fiscal year 2073/74 to fiscal year 2077/78 respectively. The deficits of the government are irregular form in each sample year. In table 5 also reflect the deficits are highest value is Rs 33639.92 (NRS 10 million) in year 2075/76 and the lowest deficits value are Rs 18977.75 (NRS 10 million) in the fiscal year 2073/74.

Table: 4
Nepal government Revenue structure details (NRS 10 million)

Revenue Details	Fiscal year				
	2073/74	2074/75	2075/76	2076/77	2077/78
Tax Revenue	60918	72672	82963	79375	93589
Foreign Grants	3193.2	3471.4	2958.4	1919.2	2679.2
Unclear bill and Cash balance	341.79	552.38	1004.11	4756.58	4043.30
Internal Debt & Investment Return	294.02	323.50	306.61	178.82	322.35
Federal Revenue	-	-	73136.6	70479.1	82494.64
Gov. Revenue	83724.78	108727.98	111045.68	109113.41	119667.59

(Sources: Economic survey of ministry of finance)

The table 4 shows the total revenue structure of Nepal government and its contribution in percentage in figure form. The contribution of tax revenue is highest contribution figure in government revenue in each fiscal sample year. Its contribution is more than fifty percentages in each fiscal sample year. It is appearing in irregular order in each sample year. The federal revenue is second highest contribution and it is also irregular form. The foreign grants have third position in Nepal government revenue and it is also irregular figure value. The internal debt and unclear bill, cash balances have low contribution in total government revenue in each sample year.

Table: 5
Revenue Collection from VAT (NRS 10 million)

Fiscal Year	VAT Collection	Increments %
2073/74	16106.83	100
2074/75	20680.98	128.40
2075/76	24012.13	149.08
2076/77	22401.65	139.08
2077/78	28201.91	175.09

(Sources: Economic survey of ministry of finance)

Table 5 shows that the total VAT collection and the irregular of VAT collection each year during the study period. Total VAT collection is has increased each year than previous year during the study period .At the beginning of the study period i.e. the amount of VAT is Rs. 16106.83 millions and increased to Rs.28201.91 million at the end of the study period i.e. in the fiscal year 2077/78.

Similarly, the increments rate of VAT collection is fluctuating each year than previous year during the study period. The increments rate was negative 128.40% in 2074/75 which is now 28.40% increase from 2073/74. Similarly the average VAT during the period is Rs 111403.50 million in coming year as compared to previous year and the coefficient of variation shows the degree of variation of VAT collection is 18.58%.

Table: 6
Nepal Government Revenue Composition in Nepalese Economy (NRs 10 millions)

Fiscal Year	Total Revenue	Budget Deficits	Tax Revenue	Indirect Tax	Government Expenditure	VAT
2073/74	83724.78	18977.75	55386.65	27857.89	83724.78	16106.83
2074/75	108727.98	31708.89	65949.15	34804.94	108727.98	20680.98
2075/76	111045.68	33639.92	73860.40	39564.28	111045.68	24012.13
2076/77	109113.41	31779.72	70005.55	35641.26	109113.41	22401.65
2077/78	119667.59	30128.14	87010.66	46278.67	119667.59	28201.91
Total	532279.44	146234.42	352212.41	184147.04	532279.44	111403.50
Average	106455.888	29246.88	70442.482	36829.408	106455.89	22280.70
S.D	11727.84	5873.82	11546.057	6759.56	13458.67	4437.03
C.V	11.02%	20.08%	16.39%	18.35%	12.64%	19.91%

(Sources: Economic survey of ministry of finance)

The table 6 shows the contribution of total revenue, deficits, tax revenue, indirect tax revenue and VAT revenue contribution in the year 2073/74 to 2077/78 of five years sample period. The total revenue, deficits, tax revenue, indirect tax revenue and VAT contribution are Rs 83724.78(10 million), Rs 18977.75(10 million), Rs 55386.65 (10 million), Rs 27857.89 (10 million) and Rs16106.83 (10 millions) in fiscal year 2073/74 respectively. The tax revenue indirect tax revenue and VAT contribution are Rs 87010.66 (10 millions) Rs 46278.67 (10 million) and Rs 28201.91 (10 million) in fiscal year 2077/78 respectively. The government revenue regular is appearing increasing order except four year data in the five sample period. The revenue is irregular due to reason of COVID-19 which is reflecting in government deficits budget. The means value of total government revenue, deficits, tax revenue, indirect tax revenues and VAT are Rs 106455.888 (10 million), Rs 29246.88(10 million), Rs 70442.482(10 million), Rs 36829.408 (10 million) and Rs 22280.70 (10 million) respectively. In the current years the collection of Total revenue, deficits, tax revenue, indirect tax revenues and VAT are good positions in the suffering of COVID – 19 by nation. It will be increased in order in coming year which show the risk position of revenue of Nepal government. The total revenue, tax

revenue indirect tax revenues and VAT of government reflect that the contribution of each tax indirect tax revenues and VAT structure are in good position in the Nepalese economy which means good performance of government for collection of revenue but deficits is the position of in sufficient of revenue it is not good position of the nation. Nepal government revenue is not sufficient to fulfill the deficits. The revenue of government shows that the contribution of each item in the Nepalese economy is acceptable conditions but not good. Deficits show the nation is not developing and dependent by own revenue. It represent the nation is developing country but not develop.

Significance Test

The correlation is a defined as the relationship between (among) the dependent variables and independent variables. The null hypothesis is the hypothesis the analyst believes to be true. Analyst believes the alternative hypothesis to be untrue making it effectively the opposite of a null hypothesis. This makes it so they are mutually exclusive and only one can be true. However, one of the two hypotheses will always be true. H_0 : defendant is innocent; H_1 : defendant is guilty. H_0 (innocent) is rejected if H_1 (guilty) is supported by evidence beyond “reasonable doubt.” Failure to reject H_0 (prove guilty) does not imply innocence, only that the evidence is insufficient to reject it.

Table: 7
Correlation and t- test of VAT and Total Government Revenue
(Rs. in 10 million)

Particular	Result
Correlation Co-efficient (r)	1
1. Null Hypothesis: ($H_0: \mu_1 = \mu_2$)	There is no significant difference in VAT and total government revenue.
2. Alternative Hypothesis: ($H_1: \mu_1 < \mu_2$)	There is significant difference VAT and government revenue
3. Calculated value of t (t_{cal})	∞ 3.182.
4. Tabulated Value	Calculated value of 't' is greater than tabulated value of 't'.
5. Decision:	Therefore, H_1 is accepted; i.e.; there is significant between VAT and Total government revenue.

(Sources: Economic survey of ministry of finance)

Table: 8
Correlation and t- test of VAT and Tax Revenue (Rs. in 10 million)

Particular	Result
Correlation Co-efficient (r)	0.99
1. Null Hypothesis:($H_0: \mu_1 = \mu_2$)	There is no significant difference in VAT and tax revenue.
2. Alternative Hypothesis: ($H_1: \mu_1 < \mu_2$);	There is significant difference VAT and tax revenue 12.25
3. Calculated Value of t (t_{cal})	3.182.
4. Tabulated Value	Calculated value of 't' is greater than tabulated value of 't'.
5. Decision:	Therefore, H_1 is accepted; i.e.; there is significant between VAT and Tax revenue.

(Sources: Economic survey of ministry of finance)

Table: 9
Correlation and t- test of VAT and Indirect Tax Revenue (Rs. in 10 million)

Particular	Result
Correlation Co-efficient (r)	0.99
1. Null Hypothesis: ($H_0: \mu_1 = \mu_2$)	There is no significant difference in VAT and Indirect tax revenue.
2. Alternative Hypothesis: ($H_1: \mu_1 < \mu_2$);	There is significant difference VAT and Indirect tax
3. Calculated Value of t (t_{cal})	12.25
4. Tabulated Value	3.182
5. Decision:	Calculated value of 't' is greater than tabulated value of 't'. Therefore, H_1 is accepted; i.e.; there is significant between VAT and Tax revenue.

(Sources: Economic survey of ministry of finance)

Following conclusion has been drawn out from these research findings. They are summarized below:

The Expenditure amount structure of government of Nepal shows that there is incremental figure in each year from 2073/74 to 2077/78 base on data of fiscal year 2073/74. The Expenditure is appearing in increasing means Nepal government current, capital and financial expenditure increase to developing sector and operating sector of the country. It is also said that Nepal government expand its activities to develop the nation and operate the nation smoothly. The contribution of current expenses is highest in government expenditure and second contribution is capital expenditure. Similarly, the last contribution is financial expenditure. The Expenditure and Revenue structure of government of Nepal. It shows that there is incremental form of government expenditure figures value and Revenue figure value in each year respectively. The averages of Expenditure value and Revenue value are Rs 83172.30 NRS 10 million and Rs 106455.89 (NRS 10 million) respectively. The expenditure and revenue are reflected as irregular form respectively which means that the Expenditure and Revenue may either increase or decrease by Rs 13304.89 and Rs 13458.67 in the sample coming years which show that the revenue and expenditure in future may vary up. The deficits value is Rs 18966.75(NRS 10 million) to Rs 30128.14 (NRS 10 million) values in fiscal year 2073/74 to fiscal year 2077/78 respectively. The deficits of the government are irregular form in each sample year. In table 5 also reflect the deficits are highest value is Rs 33639.92 (NRS 10 million) in year 2075/76 and the lowest deficits value are Rs 18977.75 (NRS 10 million) in the fiscal year 2073/74. The contribution of total revenue, tax revenue, indirect tax revenue and VAT revenue contribution in the year 2073/74 to 2077/78 of five years sample period. The tax revenue, indirect tax revenue and VAT contribution are Rs 55386.65 (10 million), Rs 27857.89 (10 million) and Rs16106.83 (10 millions) in fiscal year 2073/74 respectively. The tax revenue indirect tax revenue and VAT contribution are Rs 87010.66 (10 millions) Rs 46278.67 (10 million) and Rs 28201.91 (10 million) in fiscal year 2077/78 respectively. The total VAT collections are irregular of VAT collection each year during the study period. Total VAT collection is has increased each year than previous year during the study period .At the

beginning of the study period i.e. the amount of VAT is Rs. 16106.83 millions and increased to Rs.28201.91 million at the end of the study period i.e. in the fiscal year 2077/78. The increments rate of VAT collection is fluctuating each year than previous year during the study period. The increments rate was negative 128.40% in 2074/75 which is now 28.40% increase from 2073/74. Similarly the average VAT during the period is Rs 111403.50 million in coming year as compared to previous year and the coefficient of variation shows the degree of variation of VAT collection is 18.58%.

CONCLUSION

There are some major actors of society having distinct role in getting tax law effectively enforced in Nepal. Government being the most powerful and the most responsible institution it is the main agent whose functions determine whether laws including tax law get implemented. Ministers are said to be involved in corruptions, some cases of offering and many other cases of acceptance of bribes even by cabinet ministers are coming out through media. Involvement of politicians in corrupt practice uplifts the morale of corrupt administrators while officials sympathetic to people feel discouraged. The Expenditure and Revenue structure of government of Nepal. It shows that there is incremental form of government expenditure figures and Revenue figure in each year respectively. The revenue is lesser than expenditure each and every year respectively this means Nepal government budget is appears in deficits form. The Nepal government economic level is not good position. The government depends upon other country subsidies and donations so it is not good conditions of the nations. The government is not strongly management its resources as a result the government revenue is decreases and expenditure is high. The contribution of recurrent expenditure is highest figure in each year. Its contribution is more than fifty percentages in each year. It is appear in decreasing order in each year. The Capital expenditure is slightly increasing form and domestic loan investment, foreign debt, share investments are general constant form. Domestic borrowing is slightly increases in each year. The VAT administration also stated with a new vision. Human resource development, computerization, functional structure, decentralization etc were done by Nepalese government. The budget of Nepal government is totally depends up on internal revenue so it is not sufficient to restricted development in the country.

Recommendations

The modern objective of taxation is not only to main peace and security, but also to conduct development activities. But from the above study we came to know that our government tax collection is not satisfactory as well as there are many flaws associated with it. Unproductive, corrupted, inefficient staff lacking practical and specialized training is a serious problem. So, providing training to such staff is highly essential to collecting revenue through tax and non tax-revenue. The tax administration should be very watchful to prevent any kind of malpractice, fraud and tax evasion. Utmost care should be taken to prevent any kind of bribing and corruption. Tax officials should effectively be monitored to controlling the tax revenue all the government office. Most of the people are not satisfied with tax revenue. They

always have complaints against the collection office. The work performed by revenue collection sector should not be result oriented. Most of the countries follow the self assessment system of tax. So, Nepal should also follow it, but there should be establishing strong mechanism to check the fraud of businessman. The success of tax act is not only the success of the IRD, but also the success of nation as a whole. The government needs to focus its attention of strict rules, laws and punishment for nonpayment or the under payment of tax So that the tax payers feel scared to evade tax. To increasing the revenue Nepal government should be effectively controlled to prevent the illegal trade.

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SEVERAL APPROPRIATE STATISTICAL TECHNIQUES IN RESEARCH

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ABSTRACT

This paper has the main purpose to assist researchers and students in choosing the appropriate statistical test for studies that examine one variable or more variables. The aim of this article is to consider the role which statistical methods can sensibly take in some relevant fields. Other objective of writing this paper is to provide the algorithm of choosing the statistical techniques in the data analysis. This article is concentrated to define data analysis and the concept of data preparation. Then, the data analysis will be discussed. The article covers a brief outline of the variables, an understanding of quantitative and qualitative variables and measure of central tendency. This article will also try to apprise the reader with the basic research techniques that are utilized while conducting various studies. Finally, there is a focus on parametric and nonparametric tests for data analysis and various strategies in this concept.

Keywords: Vairable, dependent variable, independen variable, tex, significace

INTRODUCTION

The statistical analysis gives meaning to the meaningless numbers, thereby breathing life into a lifeless data. Nowadays statistics is the one of the most important parts in all sectors. Without of the knowledge on the tools and techniques of statistical nobody can write the quantitative research paper. Choosing an appropriate test is one of the most important tasks in search. So, the right test will give the valid conclusion and wrong test give the misleading inference. To choose the right statistical test, we should be familiar with different variables and their nature. The results and inferences are precise only if proper statistical tests are used. There are various rules in the statistics for the data analysis and condition for the choosing of suitable test statistics. The data collected for the information are not useful because they are referred to as raw data or intreated data until they are analyzed by using appropriate statistical tools. The collected data and research design of the study must fit appropriate data analysis.

Research objectives

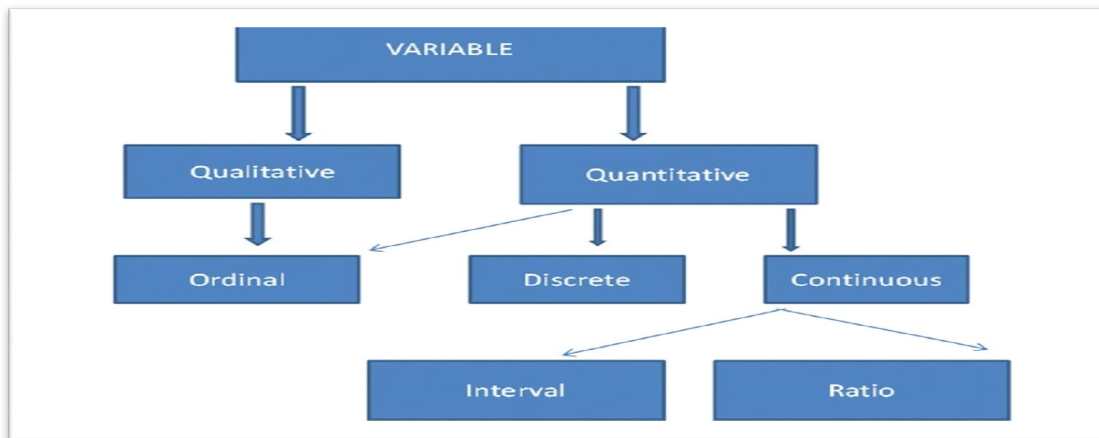
The following three basic questions to be answered:

- i. What type of research question did the study formulate or asked?
- ii. What type and number of variables does the study want to analysis?
- iii. What nature and characteristics of variables does the study have?

Nature of Variables and Types of Data

A variable is any characteristics, number, or quantity that can be measured, or counted. A variable may also be called a data item. A variable may be also called a data item. Age, sex, business, income, expenses, capital, eye color, vehicle type, are examples of variables. Any research that deals with the manipulation of variables which are basically of two types; these are numerical (**quantitative**) and categorical (**qualitative**). Numerical variables are recoded as numbers such as height, age, score, weight etc. Categorical variables could be dichotomy (for example: male or female), trichotomy (for example: high, low, medium and low economic status) or polychotomy (for example: birth places).

Quantitative variable can be further classified into two groups: discrete and continuous. Discrete variables assume values that can be counted such as 0, 1, 2, 3, ... using integers. Continuous variables, by comparison, can assume all values in an interval between any two specific values. Pages is discrete variable and temperature is a continuous variable since it can assume all values between any two given temperatures.



MATERIAL AND METHODS

Dependent Variable: A variable that may depend on the other factor is termed as dependent variables. e.g., exam score is a variable may change depending on the student's age.

Independent Variable: A variable that does not depend on the other factor is termed as independent variable. e.g., student's age does not change depending upon exam score.

Random Variable: A random variable is a rule that assigns a numerical value to each outcome in a sample space. Random variable may be either discrete or continuous.

Data Measurement Scales

Measurement of statistical data is essential for further statistical analysis. Measurement is a process of assigning numbers or symbols to any facts or objects or product or terms

Statistics and its area

Statistics is a branch of mathematics that deals with collecting, organizing, analyzing, and interpreting, and presenting data. It is used in a wide range of fields, including business, economics, psychology, biology, and engineering, to make informed decisions based on data. There are several areas within statistics, including:

- **Descriptive Statistics:** deals with summarizing and describing the main features of a set of data.
- **Inferential Statistics:** deals with drawing conclusions about a population based on a sample of data.
- **Probability:** deals with quantifying the likelihood of an event occurring.
- **Hypothesis Testing:** deals with the process of testing claims or hypothesis about a population based on sample data.
- **Regression Analysis:** deals with finding the relationship between two or more variables.
- **Bayesian Statistics:** deals with the incorporation of prior knowledge and updating beliefs based on new data.
- **Time Series Analysis:** deals with analyzing and modeling data collected over time.
- **Multivariate Statistics:** deals with analyzing and modeling data with multiple variables.

Statistical Analysis and its types

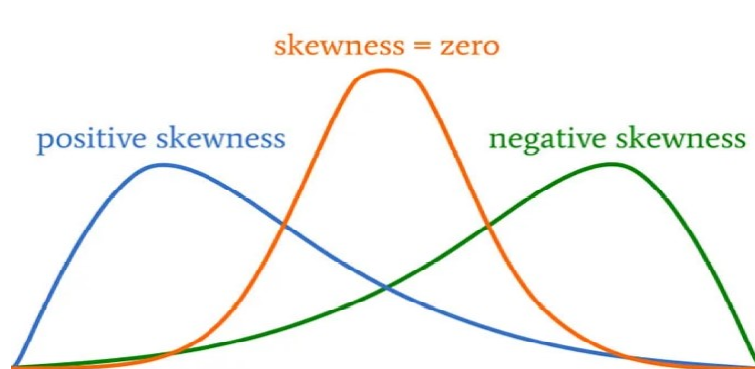
Statistics is a set of scientific principles and techniques that are useful in reaching conclusions about population and process when the available information is both limited and variable; that is, statistics is the science of learning from data. The objective of statistics is to make inferences about a population of interest based on information obtained from a sample of measurements from that population. Statistical Analysis is the process of collecting and analyzing data to discern pattern and trends. In simple words, statistical analysis is a data analysis tool that helps draw meaningful conclusions from raw and unstructured with numbers and is used by business and other institutions to make use of data to derive meaningful information. Here we discuss six types of statistical analysis.

- **Descriptive Analysis:** Descriptive statistical analysis involves collecting, interpreting, analyzing, and summarizing data to present them in the form of charts, graphs, and tables. Rather than drawing conclusions, it simply makes the complex data easy to read and understand.
- **Inferential Analysis:** The inferential statistics analysis focuses on drawing meaningful conclusions on the basis of the data analyzed. It studies the relationship between different variable or makes prediction for the whole population.
- **Predictive Analysis:** Predictive statistical analysis is a type of analysis that analyzes data to derive past trends and predicts future events on the basis of them. It uses machine learning algorithms, data mining, data modelling and artificial intelligence to conduct the statistical analysis of data.

- **Prescriptive Analysis:** The prescriptive analysis conducts the analysis of data and prescribes the best course of action based on the results. It is a type of statistical analysis that helps to make an informed decision.
- **Exploratory Data Analysis:** Exploratory analysis is like inferential analysis, but the difference is that it involves exploring the unknown data association. It analyzes the potential relationships within the data.
- **Casual Analysis:** The casual statistical analysis focuses on determining the cause-and-effect relationship between different variables within the raw data. In simple words, it determines why something happens its effect on the other variables. This methodology can be used by business to determine the reason for failure.

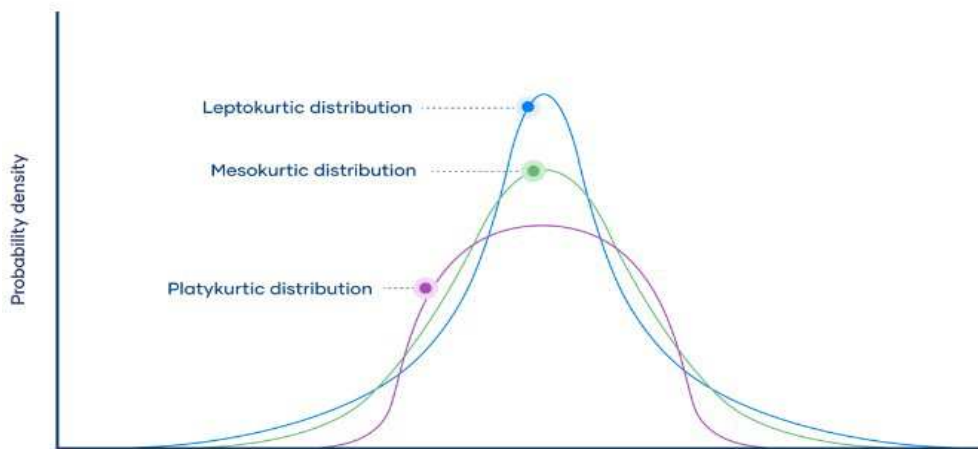
Statistics can be very broadly classified into two categories, viz, descriptive statistics and inferential statistics. Descriptive statistics refers to the type of statistics which deal with collection, organizing, summarizing describing qualitative data. It deals to any forms whereby data are displayed for easier understanding.

Descriptive statistics summarize the numerical data through frequency distribution, central tendency, variation and data shape. Skewness is an important measure of the shape of a distribution. It measures the degree of departure from symmetry. It is used to determine the nature and extent of the concentration of the observations towards higher or lower values of the variable. If in a distribution mean = median = mode, then that distribution is known as symmetrical distribution. If in a distribution mean \neq median \neq mode, then it is not a symmetrical distribution and it is called a skewed distribution and such a distribution could be either be positively skewed or negatively skewed.



Depiction of positive skewness, zero skewness and negative skewness

Kurtosis measure provide information about the peakness of the distribution. Zero or near to zero value indicate that the distribution is normal or mesokurtic. Positive kurtosis (Leptokurtic) values indicates that the distribution is relatively peaked because many cases cluster in the center. Negative kurtosis (Platykurtic) values indicates that the distribution is a relatively flat because too many cases in the extremes.



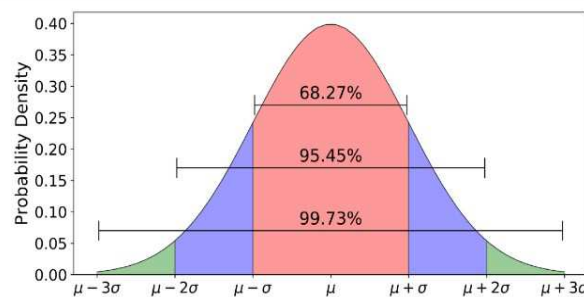
General forms of Kurtosis

Inferential statistics deals with the methods by which inferences are made on the population based on the observations made on the smaller sample. Any procedure of making generalization that goes beyond the original data is called inferential statistics. These statistics provide a way of testing the significance of results obtained when data are collected. Examples of inferential statistics are Student t-test, Analysis of variance, Analysis of covariance, Correlation Analysis, Multiple regression analysis, multivariate Analysis of variance etc. The attempt to choose the right test to compare measurements may however a bit difficult, since we must choose between two families of tests: Parametric and Non-parametric.

Parametric and Non-parametric Tests

Many statistical tests are based upon the assumption that the data are sampled from a normal distribution. Parametric statistics are statistics where the population is assumed to fit any parametrized distributions (mostly typically the normal distribution). These tests are referred to as parametric tests. The normal distribution, also called the Gaussian distribution is a continuous probability distribution for a real valued random variable X with the probability density function.

$$f(x) = \int_{-\infty}^{\infty} \frac{1}{\sigma\sqrt{2\pi}} e^{-\left(\frac{x-\mu}{\sigma}\right)^2} dx; \quad -\infty < x < \infty.$$



Normal Distribution

In this distribution, each member of the family may be defined by two parameters, the mean (μ) and the variance (σ^2) wherein values lie in a symmetrical fashion mostly situated around the mean (μ). Commonly used parametric test include the mean, the standard deviation, the t-test, the one-way ANOVA, the Pearson product moment correlation, the simple linear regression, the Multiple linear regression etc.

Although parametric techniques are robust, that is, they often retain considerable power to detect difference or similarities even when these assumptions are violated, some distributions violate the assumptions so markedly that a non-parametric alternative is more likely to detect a difference or similarity. Hence, tests that do not make assumptions about the population distribution are referred to as non-parametric tests. Specially, non-parametric methods were developed to be used in cases when the researcher knows nothing about the parameters of the variable of interest in the population (hence, the name non-parametric. In more technical terms, non-parametric methods don't rely on the estimation of parameters (such as the estimation or the standard deviation) describing the distribution of the variable of interest in the population. Therefore, these methods are also sometimes (and more appropriately) called parameter-free methods or distribution-free methods. Commonly used non-parametric test include the median, the interquartile range, the Wilcoxon test, the Mann-Whitney test, the Kruskal-Walli's test, The Freidman test for dependent samples, the Chi-square test, the Spearman correlation etc.

Basic Statistical Techniques

Statistical techniques can be used to describe data, compare two or more data sets, determine if a relationship exists between variables, test hypothesis and make estimates about population measures. Some well-known statistical test and procedure for research observations are discussed here briefly.

FINDINGS AND DISCUSSION

The t-test

The t-test is the mostly commonly used method to estimate the difference in means between two groups. Theoretically, the t-test can be used even if the sample sizes are very small (e.g., as small as 10) as long as the variables as the variables are normally distributed within each group and the variables of score in the two groups is not reliably different. There are specific assumptions underlying the use of the t-test:

- The sample data should be normally distributed.
- The sample must be representative of the population so that we can generalized at the end of the analysis.
- Equal variances are assumed when two independent samples are used to test a hypothesis.
- The dependent measurement involved in the calculation of the means must come from either interval or ratios.

A fundamental issue in the use of the t-test is often whether the samples are independent or dependent. Independent samples typically consist of two groups with no relationship while dependent samples typically consist of a matched sample or one group that

has been tested twice (repeated measures). The p-value reported with a t-test represents the probability of error involved in accepting the research hypothesis about existence of a difference. It is the probability of error associated with rejecting the hypothesis of no difference between the two categories of observations in the population when, in fact, the hypothesis is true. If the calculated p-value is below the threshold chosen for statistical significance (usually the 0.05 level); then the null hypothesis which usually states that the two groups do not differ is rejected in favor of an alternative hypothesis; which typically states that the groups do differ.

ANOVA/ANCOVA/MCA

The purpose of analysis of variance (ANOVA) is to test differences in means (for groups or variables) for statistical significance. This is accomplished by analyzing the variance, that is, by partitioning the total variance into the component that is due to true random error and the components that are due to differences between means. These latter variances components are then tested for statistical significance, and if significant, we reject the null hypothesis of no difference between means and accept the alternative hypothesis that means (in the population) are different from each other.

Analysis of covariance (ANCOVA) is a general linear model with one continuous explanatory variable and one or more factors. It is a merger of ANOVA and regression for continuous variables.

Multiple Classification Analysis (MCA) is a technique for examining the interrelationship between several predictor variables and one dependent variable in the content of an additive model.

Multivariate Analysis of Variance (MNOVA)

The Multivariate Analysis of Variance (MNOVA) is designed to test the significance of group difference. Multi various analysis (MNOVA) is a is a statistical method to analyze the relationship between multiple dependent and one or more independent variables. MNOVA can include several dependent variables, whereas ANOVA can handle only one dependent, whereas ANOVA can handle only on dependent variable. In MANOVA, the dependent variables are analyzed together as a set, rather than separately as in ANOVA. The goal is to determine whether there is significant differences between the groups on the set of dependent variables, whole taking into accounts the correlations between the dependent variables. MNOVA is based on the following assumptions:

- The observations within each sample must be randomly sampled and must be independent of each other.
- The observations on all dependent variables follow a multivariate normal distribution in each group.
- The observations on all dependent variables follow a multivariate normal distribution in each group.
- The population covariance matrices for the dependent variables in each group must be equal.
- The relationship among all pairs of dependent variables for each cell in the data matrix must be linear.

Regression Analysis

Regression analysis is a statistical technique used for the modeling and analysis of numerical data consisting of values of a dependent variable (responsive variables) and of one or more independent variables (explanatory variables). The dependent variable in the regression equation is modeled as a function of the independent variables, corresponding parameters (constants), and an error term. The error terms represent unexplained variation in the dependent variable. The parameters are estimated so as to give a best fit of the data. Most commonly the best fit is estimated by using the least squares methods. Regression can be used for prediction (including forecasting of time-series data), inference, hypothesis testing, and modeling of causal relationships. The best of underlying assumptions in regression analysis is that:

- The sample must be representative of the population for the inference prediction.
- The dependent variable is subject to error. This error is assumed to be a random variable with mean zero.
- The independent variable is error free.
- The predictors must be linearly independent. That is, it must not be possible to express any predictor as a linear combination of the other.
- The errors are uncorrelated.
- The variable of the errors is uncorrelated.
- The variance of the errors is constant.
- The errors follow a normal distribution.

For example, a multiple regression model is

$$y = m_0 + m_1x_1 + m_2x_2 + \dots + m_nx_n \quad \text{--- [1]}$$

Where, y is the dependent variable; x_1, x_2, \dots, x_n are the independent variables; and m_0, m_1, \dots, m_n are the parameters. Further, m_0 is the intercept of the regression line and m_1, m_2, \dots, m_n are referred to as the partial regression coefficients. These values are then used to create predicted values of the outcome, with the observed or true value from the data designated as y and the predicted value as \hat{y} .

Furthermore, in equation (1), the value m_1 measures the casual effect of a one unit increase of x_1 on the value of y . The parameter m_1 is also referred to as the regression coefficient for x_1 and is the average amount of the dependent variable increase when the independent variable increases one unit and other independent variables are held constant. Thus, when the independent variable x_1 increases by 1, the dependent variable y increases by m_1 units.

Hypothesis testing are conducted to show whether the parameters that have been estimated are statistically significant or, whether the independent variables contribute to the explanation of variation in the dependent variable. If we are able to reject the null hypothesis at an acceptance significance level, then we conclude that the parameter is not statistically significant.

The quality of fitness of the model is determined by the R^2 . It lies in between 0 and 1. High value of R^2 will indicate that the model fits the data well. A limitation in the use of R^2 is that its value increases with the number of explanatory variables. The power of the test is therefore affected. Thus, the adjusted R-square (\bar{R}^2) was developed to take care of the inadequacies.

Correlation

Correlation is a measure of the relation between two or more variables. It indicates the strength and direction of a linear relation between two or more variables. It is denoted by the symbol 'r' and can take values between -1 and 1. If the value of r is closer to 1, it indicates a strong positive correlation, which means that when one variable increases, the other variable also tends to increase. On the other hand, if the value of r is closer to -1, it indicates a strong negative correlation, which means that when one variable increases, the other variable tends to decrease. A value of r close to 0 indicates that there is no linear relationship between the two variables. The closer the value of r is to 0, the weaker the correlation between the variables.

Regression Analysis

Regression analysis is a statistical method that is used to investigate the relationship between a dependent variable and one or more independent variables. The goal of regression analysis is to create a mathematical model that can be used to predict the values of the dependent variables based on the values of the independent variables. Regression analysis can be used for both linear and non-linear relationships between the variables. Regression analysis involves estimating the coefficients of the mathematical model, which can be done using various methods such as least squares, maximum likelihood, or Bayesian estimation. Once the coefficients are estimated, they can be used to predict the values of the dependent variable for any given values of the independent variables.

There are several types of regression analysis, including simple linear regression, multiple linear regression, logistic regression, and polynomial regression. Simple linear regression involves a single independent variable, while multiple linear regression involves two or more independent variables. Logistic regression is used when the dependent variable is categorical, and polynomial regression is used when the relationship between the variables is non-linear.

Choosing Appropriate Statistical Techniques in a research Enterprise:

Statistical techniques can be used to describe data, compare two or more data sets, determine if a relationship exists between variables, test hypothesis and make estimates about population measures. Not only it is important to have sample size that is large enough, but also it is necessary to see how the subjects in the sample were selected. Volunteers generally do not represent the population at large.

The computer merely gives numerical answer and save time and effort of doing calculation by hand. It will be our duty to understand and interpret computer printout correctly. Note that data can be subjected to parametric and nonparametric statistics depending on the nature of data.

The variable type determines to some extent the type of statistical (descriptive or inferential) method that it will support. To find out whether the performance is significantly different, there need to make inference of the parametric statistics: t-test. When we compare two mean scores, determination f F- ratio is involved: ANOVA or ANCOVA depending on the design employed for the study. If a study involves determination of relationship, we can use Spearman Rank order correlation, Pearson Product moment correlation, Chi-square statistics or even multiple regression analysis. All depends on the nature of research. Chi-square shows the degree of association between two different bases of classification. The Z-test is used only when the population parameters are known and the variable of interest is normally distributed in the parent population. If the two condition are met, Z-test is used as an exact test, even for small samples ($n < 30$). However, if the variable is not normally distributed, a large sample permits the use of a Z-test. In most research, the Z-test for single mean is rarely encountered because the conditions of normality and known parameters (σ) are rarely met. Normality, Z-test is used to test for mean of a large sample, and t-test for the mean of small sample.

The collected data and research design of the study has to fit appropriate analysis. The following three basic questions to be answered.

- i. What type of research question did the study formulate or asked?
- ii. What type and number of variable of variables does the study want to analysis?
- III. What nature and characteristics of variable does the study have?
- iv. Does it need for parametric or non-parametric?

Independent Sample T-test

An independent sample t-test, also known as a two-sample t-test, is a statistical hypothesis test used to compare the means of two independent groups. It is parametric test, meaning it assumes that the data follows a normal distribution and that the variances of the two groups are equal. Example: Are there significant difference in SME's outputs between male and female? For this we need two variables

- One categorical independent variable with two groups {Gender: male and female}
- One continuous dependent variable {SME's output}

Its non-parametric alternative is Mann-Whitney U Test.

Paired Sample (or dependent) T-test

It is used to compare how a group of subjects perform under two different test conditioned. It could involve before and after measurement of the same continuous variable. Example: What effect does training classes have on performance results of staff? For this we need two variables

- One categorical independent variable {scores from two different periods}
- One continuous dependent variable {performance result of staff}

Its non-parametric alternative is Wilcoxon Signed Tank-test.

One sample T-test

It is used when we have data from a single sample of participants and we wish to know whether the mean of the population from which the sample is drawn is the same as the hypothesized mean. It is used to determine whether a sample comes from a population with a specific mean. Example: A researcher might to test whether the average IQ score for a group of students differs from 100 at 95% confidence level.

Its non-parametric alternative is one- sampled Wilcoxon Signed Rank test.

One way ANOVA Test

This is used to compare the difference between the means of a continuous outcome variable of three or more groups. Example: What impact does food choices have on body weights?

For this we need two variables

- One categorical independent variable with three or more distinct categories of food such as fast food, fruits, protein packed food etc.
- Other continuous dependent variable such as body weights

Its non-parametric alternative is Kruskal – Wallis Test.

Two-way ANOVA Test

This technique allows allow us to look at the individual and joint effect of two independent variables on one dependent variables. It is used for comparing mean combination of two independent categorical variables on a continuous dependent variable. Example: What impact does gender and work experience have on sales volume? For this we need three variables.

- Two categorical independent variables such as gender and work experiences
- And one continuous dependent variable such as sales volume.

MNOVA Test

Multivariate analysis of variance (MNOVA) is used when we want to compare groups on a number of different, but related dependent variables. Example: What impact does job categories have on salaries and expenses of workers?

For this we need

- One categorical independent variable {Job categories: Clerk, Supervisor, Manager etc.}
- Two (or more) continuous dependent variables {Salaries and expenses of workers}

Pearson Correlation Coefficient Test

The Pearson correlation coefficient describes the strength and polarity of a linear relationship between two continuous variables. Example: What is the correlation between income and savings? For this we need

- Two continuous variables {Income and Savings} The t-test is used to check the significance of the correlation coefficient. Its non-parametric alternative is Spearman Rank correlation.

Linear Regression Test

In a linear regression, the relationship between two or more continuous or categorical variables is modelled with a line of best fit. It is used to explore the predictive ability of a single or set of independent variables. Example: What is the impact of advertisement budget and taxes on sales revenue? For this we need

- Two continuous independent variables {advertisement budget and taxes}
- One continuous dependent variable {sales revenue}. Its non-parametric alternative is Ordinal or Multinomial logistic regression.

Multivariate Linear Regression Test

This method is used to measure the degree at which more than one independent variable (predictors) and more than one dependent variable (responses) are linearly related. It is broadly used to predict behavior of the response's variables associated with changes in the predictor's variables, once a desired degree of relation has been established. Example: What effect do taxes, salaries and expenses have on revenue, sales output and profits? For this we need

- Three continuous independent variables {taxes, salaries, expenses}
- Three continuous dependent variables {revenue, salaries, outputs, and profits}

Its non-parametric alternative is Multivariate Logistic Regression.

Logistic Regression Test

In logistic regression, the relationship between two or more continuous or categorical outcome (or dependent) variable is modelled with a line of best fit. The types of logistic regression are:

- Binary logistic regression is utilized in those cases when a researcher is modeling a predictive relationship between one or more independent variables and a dichotomous dependent variable.
- Simple logistic regression analysis applies when there is a single dichotomous outcome and more than one independent variable.
- Multiple logistic regression analysis applies when there is a single dichotomous outcome and more than one independent variable.

Multinomial Logistic Regression Test

This is used when we have a categorical dependent variable with two or more uncorrelated levels (i.e., two or more discrete outcomes) and one or more continuous or categorical independent variables. This is a simple extension of binary logistic regression that allows for more than two categories of a dependent or outcome variable. It is often considered an attractive analysis because it does not assume normality, linearity or homoscedasticity. Example: What effect do salaries and education levels have on food choices?

For this we need:

- Two independent variables (continuous and categorical) {Salaries and education levels}.
- One unordered (categorical) dependent variable: different food choices {fast food, fruits, protein, packed food etc.} Its parametric alternative is Linear Regression.

Ordinal Logistic Regression (OLR)

This is generally used when we have categorical categories for the dependent variables that are ordered (i.e., are ranked) and one or more continuous or categorical independent variables. OLR yields only a single set of regression coefficients to estimate relationship between independent (continuous or categorical) variables and ranked (categorical) dependent variables. Example: What effect does salaries and education levels have on job performance? For this we need:

- Two independent variables (continuous and categorical) {salaries and education levels}
 - One ordered (categorical) dependent variable: ranked job performance levels: very high, high, moderate, low, very low etc.}
- Its parametric alternative is Linear Regression.

Chi-square test for independence

This test is ideal for comparing two categorical (nominal) variables regardless of the number of subgroups or levels per variable. This chi-square test identifies whether the observations differ significantly from what would be expected by chance and thus tests for statistical significance. Example: What is the relationship between gender distribution and job categories?

For this we need:

- Two categorical variables with one or more categories in each {gender distribution}
- Independent variables {male and female and job categories}
- Dependent variables {clerical, custodian, manager etc.}

Chi-square test for Goodness of fit

This test explores the proportion of cases that fall into the various categories of a single variable and compares these with hypothesized values. It is also referred to as one- sample chi-square. For this we need one categorical variable with fine distinct categories.

CONCLUSION

This article provided a summary of the most common data analysis techniques. The common methods are revived, and the tools for the most important techniques are discussed. Also, there is a summary of parametric and non-parametric tests for data analysis.

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TRENDS OF UTILIZATION PLANTS RESOURCES AMONG SANTHAL OF NEPAL

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ABSTRACT

An ethnobotanical survey was conducted in Gauradaha municipality of Jhapa, Nepal. The objectives of study were documentation of ethnobotanical practices of santhal tribes. Some common ethnobotanical methodologies and techniques were applied during the course of study. Altogether 30 households were surveyed. 56 peoples were participated among them 8 were informants of age ranged from 40 to 90 years. Total 88 varieties of plants were listed which are used for different purpose and these species were distributed among 76 genera of 49 families. The highly represented family was Poaceae (7 species), Solanaceae (6 species), Compositae (5 species). The remaining families comprise very few species of identified plants. Distribution of plants according to habit were reported, among them herbs (42%), shrubs (27%), trees (24%) and climbers (7%). The majority of the plant species were reported to be used for medicinal purpose (36%) followed by multiple used i.e. a plant used for different purpose (27%), vegetable (12%), fodder (6%), food (6%), ornamental (5%), religious (5%) and fruit (3%). Distribution of plants according to part used were reported i.e. leaf (30%), multiple part i.e. different parts of a plant used (17%), fruit (16%), whole part (10%), stem (9%), seed (6%), root (6%), flower (4%) and bark (2%) for various purpose. So, from this study it is clear that this tribe has good knowledge about the importance of plant available in the study area.

Keywords: Ethnobotany, Santhal, Medicinal, Indigenous, Gauradaha

INTRODUCTION

Ethnobotany is the study of the biological and cultural interactions between people and plants in a given place. Thousands of plant species are present throughout the world which is used by different ethnic communities for medicinal, religious and other purpose. The study of such native plants used by particular ethnic groups is known as ethnobotany (Richard Evans Schultes, 1940s). Human beings of every ethnic groups directly or indirectly depends upon plants to fulfill their basic needs. Therefore, there is in-separable inter-relationship between ethnic group and plants. It's a field study including aboriginals' direct interactions with the environment's vegetation (Kunwar, R. M., & Bussmann, R. W. 20080 . It is, without a doubt, a very vast field that encompasses many aspects of botany as well as many other disciplines. It has also been constructed to include studies of those life forms traditionally, but no longer, considered as plant: algae, lichen and fungi.

Unity in diversity is one of the most spectacular features amongst the population of Nepal. Here, most of the tribal people with long history of ethnobotanical practices are dating back thousands of years ago. Nepal has 59 number of tribes like, Dhimal, Tharu, Danuwar, Kisan, Gurung, Magar, Hyolmo, Santhal, Thakali, Bhote, Raute, Rajbanshi, Sherpa, Meche, etc. The objectives of our study is the documentation of ethnobotanical practices of santhal tribes of Gauradaha municipality. The santhals are one of the 59 indigenous groups recognized by Nepalese government (Global Press Journal, 2012). The Santhal community is one of the most excluded ethnic groups in Nepal. More than 97% of Santhal people of Nepal lives in the Eastern terai including Jhapa, morang and Sunsari district where their population is only 0.19% of total population of country but are rich in cultural practices (CBS, 2011). Santhals are dark in complexion with curly, thick and short hair, flat nose like those of Negro and the size and shape of skull is like those of Aryan. They were strong to fight against the hostile climatic condition of terai region. They survive there because of their strong physical strength and capacity to adapt in dense forest area of eastern terai. (Santhal people, Wikipedia). Most of the Santhali people still rely on their own traditional medicinal practitioners for treatment of various ailments with medicinal plants. So, the current research is a report on the ethnobotanical usage of plant species for various purpose by Santhal tribes of Jhapa district. The current application of listed plant species were compared to finding from prior research conducted among the santhal tribes of Alipurduar district, West Bengal, India. While santhal tribes of West Bengal were found to use 73 medicinal plants (Mandal, A., Adhikary, et al. 2020), the santhals of Nepal (jhapa district) used 32 medicinal plants. Some of the plants were found to be common use where some are used differently or even then there were variances in how plant component were used. To introduce novel drugs, new compound that are derived from plant species with new medicinal uses can be screened for their bioactive properties and pharmacological activities.

MATERIALS AND METHODS

Study Area

Geography

Gauradaha municipality is located in (26.30°N and 87.40°E) with an area 151 square kilometer of Jhapa District. The population of this area is 53,033 according to census 2011 (DDC Jhapa, 2068).

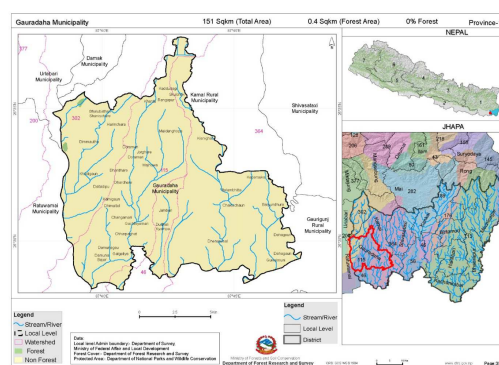


Fig1. Map of Gauradaha municipality (source, Google Map)

Climate

The weather is hot and humid summer and chilling cold winter. Average temperature in summer is around 26.8°C (DDC Jhapa, 2068).

Ethnographic Background

People of different tribes with their own indigenous particular tradition and language i.e. Brahmin, Chhetri, Newar, Limbu, Rajbanshi, Tajpuria, Santhal, etc. comprises of 12070 household (CBS, Nepal).

METHODS

Data Collection

The ethnobotanical data is obtained by gathering information from the people of santhal tribes residing in Gauradaha municipality of Jhapa through primary and secondary data collection.

Primary Data Collection

Primary data were collected from main source through interviews with informants, questionnaire surveys, etc. We were collecting data and information from the respondents by questioning and dealing with the related topic. For this a detailed structure of questionnaire was prepared.

Secondary Data Collection

Secondary data was gathered from a variety of published and unpublished sources, including books, magazines, newspapers, and journals.

RESULT

Total 88 plants species were listed which were used for different purpose and these species were distributed among 76 genera of 49 families (Table-1). The highly represented family was Poaceae (7 species), Solanaceae (6 species), Compositae (5 species). The remaining families comprise very few species of identified plants. Distribution of plants according to habit were reported, among them herbs (42%), shrubs (27%), trees (24%) and climbers (7%). The majority of the plant species were reported to be used for medicinal purpose (36%) followed by multiple used i.e. a plant used for different purpose (27%), vegetable (12%), fodder (6%), food (6%), ornamental (5%), religious (5%) and fruit (3%). Distribution of plants according to part used were reported i.e. leaf (30%), multiple part i.e. different parts of a plant used (17%), fruit (16%), whole part (10%), stem (9%), seed (6%), root (6%), flower (4%) and bark (2%) for various purpose.

Table 3. Plants used by santhal tribe for various purpose in the study area.

S. N.	Vernacular name(s)	Local name	Scientific name	Family	Habit	Part used	Method of use
1	Neem	Neem	<i>Azadirachta indica</i> A.Juss	Meliaceae	Tree	Leaf	cooked with rice to treat stomach worm.
2	Ool	Aap	<i>Mangifera indica</i> L.	Anacardiaceae	Tree	Bark and fruit	juice from bark is used to treat diarrhoea and jaundice
3	Kayara	kera	<i>Musa paradisiaca</i> L.	Musaceae	Shrub	Fruit and leaf	fruit for religious use and leaf as fodder
4	Pattharjatta	Pattharjatta	<i>Bryophyllum pinnatum</i> (Lam.) Oken	Crassulaceae	Herb	Leaf	leaf is eaten to treat stone.

5	Relli	Ban Paan	<i>Hedera helix L.</i>	Araliaceae	climber	Root	paste of root is mixed with milk and crystal sugar to treat diarrhoea of infants
6	Aalakjedi	Pahelolahara	<i>Cuscuta abyssinica A. Rich.</i>	Convolvulaceae	climber	whole part	juice is used to treat jaundice and sugar
7	Haadjoda	Haadjoda	<i>Cissus quadrangularis L.</i>	Vitaceae	Shrub	Leaf and stem	used to treat bone fractures
8	Garudeada		<i>Amaranthus blitoides S.Watson</i>	Amaranthaceae	Herb	young leaf and root	young leaves are used as vegetable and paste of root is used to treat pneumonia
9	Meedi	Mendi	<i>Lawsonia inermis L.</i>	Lythraceae	Shrub	Leaf	paste of leaf is used to treat skin burning
10	Jhepni	Lajjawati jhaar	<i>Mimosa pudica L.</i>	Leguminosae	Herb	root	paste of root is used to treat pneumonia and juice is used to treat uterus ulcer
11	Aaraada	Aaitinjhar	<i>Strobilanthes abbreviate Y.F. Deng & J.R.I. Wood ; Syn: Strobilanthes alternata</i>	Acanthaceae	Herb	Leaf	Paste of leaf is used to treat cutting wound
12	Jenum	Bayar	<i>Prunus domestica L.</i>	Rosaceae	Tree	Leafy bud and fruit	Paste of leaf is used to reduce body temperature also used as fruit
13	Eedel Dar	Simal	<i>Bombax ceiba L.</i>	Malvaceae	Tree	Spiny bark	juice is used to treat measles
14	Jiyanti	Pirrejhar	<i>Persicaria hydropiper (L.) Delarbre</i>	Polygonaceae	Herb	Whole plant	used to harvest fish
15	Birchatam	Ghodtapre	<i>Centella asiatica (L.) Urb.</i>	Apiaceae	Herb	Whole plant	juice is used to treat jaundice and diarrhoea of infants
16	Chinidaari	chinijhaar	<i>Scoparia dulcis L.</i>	Plantaginaceae	Herb	Leaf	juice is used to treat jaundice and to reduce body temperature
17	Bhang	Ganja	<i>Cannabis sativa L.</i>	Cannabaceae	Shrub	leaf	used to treat indigestion of domestic animals
18	Pod	Khasreto	<i>Ficus hispida L.f.</i>	Moraceae	Tree	Leaf	used as fodder
19	Bakaino	Bakaino	<i>Melia azedarach L.</i>	Meliaceae	Tree	Leaf	used as fodder
20	Sadha	Thangne	<i>Streblus asper Lour.</i>	Moraceae	Herb	Root	juice is used to treat urinary problem and used as fodder
21	Saru	Mane	<i>Colocasia antiquorum Schott</i>	Araceae	Shrub	leaf	used as fodder
22	AdheGandhari	Jungali latte			Herb	young leaf	used as vegetable and fodder
23	Sarjyom	Sakhuwa	<i>Shorea robusta Gaertn.</i>	Dipterocarpaceae	Tree	Leaf and stem	used for religious purpose and timber
24	Allu Ada	AaluJhar	<i>Spermacoce alata Aubl.</i>	Rubiaceae	Herb	Leaf	Used as fodder
25	Tulsi Dari	Tulsi	<i>Ocimum tenuiflorum L.</i>	Lamiaceae	Herb	Whole part	Used for religious and medicinal purpose
26	Kapurmuli	Babari	<i>Ocimum basilicum L.</i>	Lamiaceae	Herb	Leaf	juice from leaf is used to treat ear ache
27	DeunaBaha	TitePati	<i>Artemisia vulgaris L.</i>	Compositae	Herb	Leaf	Used to treat stomach ache
28	KuswiBaha	Sayapatri	<i>Tagetes erecta L.</i>	Compositae	Shrub	Flower	Used as ornamental
29	Banahata	Totala	<i>Oroxylum indicum (L.) Kurz</i>	Bignoniaceae	Tree	bark and flower	used to treat jaundice and used as vegetable
30	KakadaLatta	Datyun	<i>Achyranthes bidentata Blume</i>	Amaranthaceae	Herb	stem	Used for religious purpose
31	Kanda Soru	Kachhu	<i>Dioscorea alata L.</i>	Dioscoreaceae	Shrub	Young Leaf and stem	used as vegetable and fodder
32	Padin Ada	Pudina	<i>Mentha spicata L.</i>	Lamiaceae	Herb	Leaf	Juice from leaf is used to reduce body temperature and use as vegetable.

33	Dhatur	Dhaturo	<i>Datura stramonium</i> L.	Solanaceae	Shrub	Fruit	Used to treat diseases of domestic animals
34	Edkei	Siudi	<i>Cactus acantho phlegmus</i> (Lehm.) Kuntze	Cactaceae	Shrub	Stem	Used for religious purpose
35	Mirich	Khursani	<i>Capsicum annum</i> L.	Solanaceae	Shrub	Fruit	Used as spices
36	Sapsang	Besar	<i>Curcuma longa</i> L.	Zingiberaceae	Shrub	Stem	Powder is used as spices and used to treat cough, stomach ache, etc
37	Badidari	Bar	<i>Ficus benghalensis</i> L.	Moraceae	Tree	Leaf	Used for religious purpose
38	Kudche	Tamatar	<i>Solanum lycopersicum</i> L.	Solanaceae	Shrub	Fruit	Used as vegetable
39	Allu	Aalu	<i>Solanum tuberosum</i> L.	Solanaceae	Shrub	Stem	Used as vegetable
40	Adey	Aduwa	<i>Zingiber officinale</i> Roscoe	Zingiberaceae	Shrub	Stem	Used as spices and medicine
41	Rasun	Lasun	<i>Allium sativum</i> L.	Amaryllidaceae	Herb	Stem	Used as spices and medicine
42	Kundaha	Farsi	<i>Cucurbita pepo</i> L.	Cucurbitaceae	climber	Fruit	Used as vegetable
43	Hathat	Lauka	<i>Lagenaria siceraria</i> (Molina) Standl.	Cucurbitaceae	climber	Fruit	Used as vegetable
44	Kaadam	Kadam	<i>Neolamarckia cadamba</i> (Roxb.) Bosser	Rubiaceae	Tree	Stem and Bark	Used for timber, paper making and medicine for diabetes also used as fodder.
45	Tudi	Tori	<i>Brassica campestris</i> L. (Syn)	Brassicaceae	Herb	Seed and leaf	Used for making oil and used as vegetable
46	Kidar	Kurilo	<i>Asparagus officinalis</i> L.	Asparagaceae	Herb	Young stem	Used as medicine for cancer and other disease also as vegetable.
47	Karla	Karela	<i>Momordica charantia</i> L.	Cucurbitaceae	climber	Fruit	Used as vegetable
48	Sindhuaari	Simali	<i>Vitex negundo</i> L.	Lamiaceae	Shrub	Young leaf	Used to treat pinas, cough , cold etc
49	Haadpoha	Khirro	<i>Falconeria insignis</i> Royle	Euphorbiaceae	Tree	Bark	Juice of bark is used to treat piles and stomach ache
50	Juba baha	Ghantiful	<i>Hibiscus rosa-sinensis</i> L.	Malvaceae	Shrub	Flower	Used as ornamental
51	Duryo	Golijhar	<i>Sphaeranthus indicus</i> L.	Compositae	Herb	Young leaf	Used to treat epilepsy
52	TawenBaha	Barhamaseful	<i>Catharanthus roseus</i> (L.) G.Don	Apocynaceae	Shrub	Flower and leaf	Used to treat Sugar and stone also as ornamental.
53	KhetKisari	Bhringiraj	<i>Eclipta prostrate</i> (L.) L. Syn: <i>Eclipta alba</i>	Compositae	Herb	Leaf	Used to treat cutting wound
54	Meral	Amala	<i>Phyllanthus emblica</i> L.	Phyllanthaceae	Tree	Fruit	used for the treatment of diarrhoea, jaundice and inflammation also as fruit.
55	SitaDhinki	Uniu	<i>Pterisparkeri hort.</i> ; Gard.Chr.(unresolved)	Pteridaceae	Herb	Whole part	Used as fodder
56	Henje	Bii	<i>Solanum carolinense</i> L.	Solanaceae	Shrub	Fruit	Used as vegetable
57	Hissa	Pipal	<i>Ficus religiosa</i> L.	Moraceae	Tree	Leaf	Used for religious purpose
58	Rui Ada	Rayo	<i>Brassica juncea</i> (L.) Czern.	Brassicaceae	Herb	Leaf	Used as vegetable
59	Jhinga	Ghiraula	<i>Luffa acutangula</i> (L.) Roxb.	Cucurbitaceae	climber	Fruit	Used as vegetable
60	Dhinkiada	Niguro	<i>Matteuccia struthiopteris</i> (L.) Tod.	Onocleaceae	Herb	Young stem	Used as vegetable
61	Mattha	Timur	<i>Zanthoxylum armatum</i> DC.	Rutaceae	Shrub	Fruit, seeds and bark	Paste or powders is used as medicine for fever and dental troubles

62	Kamaigum Ada	Kaløjhar	<i>Solanum nigrum</i> (syn)	Solanaceae	Herb	Whole part	Juice of plant is used on ulcer and skin disease and fruit is used to treat Asthma
63	Dangrakatta	Aank	<i>Calotropis gigantea</i> (L.) Dryand.	Apocynaceae	Shrub	Leaf	Used to treat fracture bone
64	Chip chidip	Dallekuro	<i>Urena lobata</i> L.	Malvaceae	Herb	Root	used to treat cold of infants
65	Uud	Chyau	<i>Agaricus campestris</i> L. (unresolved).Syn: <i>Agaricus alba</i>	Agaricaceae	Herb	Whole part	Used as vegetable
66	Siram	Siru	<i>Cortaderia araucana</i> Stapf	Poaceae	Herb	Leaf	Used to make broom
67	Chukwiada	Chari amilo	<i>Oxalis articulata</i> Savigny	Oxalidaceae	Herb	Leaf, Stem and root	Used as medicine for the treatment of influenza, urinary tract infection , diarrhoea and scurvy
68	Huddu	Dhan	<i>Oryza sativa</i> L.	Poaceae	Herb	seed	seed is used as staple food
69	Guhum	Gahu	<i>Triticum aestivum</i> L.	Poaceae	Herb	seed	seed is used as staple food
70	Kanthar	Katar	<i>Artocarpus heterophyllus</i> Lam.	Moraceae	Tree	Fruit and leaf	Used as fruit and fodder
71	Kudisundui	UdaseJhar	<i>Galinsoga parviflora</i> Cav.	Compositae	Herb	Leaf	Juice from leaf is used to treat nettle sting and skin inflammation
72	Maa	Baas	<i>Bambusa vulgaris</i> Schrad.	Poaceae	Tree	Whole part	Used for construction, furniture, vegetable, biofuel and fodder.
73	Ghiukuwar	Ghiukumari	<i>Aloe vera</i> (L.) Burm.f.	Liliaceae	Herb	Leaf	Used to heal burn,improve digestive health and clear acnes
74	Papita	Mewa	<i>Carica papaya</i> L.	Caricaceae	Tree	Fruit	Used as fruit
75	Opdi sang	Ambak	<i>Psidium guajava</i> L.	Myrtaceae	Tree	Fruit	Used as fruit
76	Purai Ada	Poi saag	<i>Basella alba</i> L.	Basellaceae	Herb	Leaf	Used to heal burn
77	Doan Baha	Parijat	<i>Nyctanthes arbor-tristis</i> L.	Oleaceae	Tree	Flowerand leaf	Used to treat fever,dry cough, immunity booster also as ornamental.
78	Dhubi	Dubo	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	Herb	Whole part	Used to treat urinary tract problem, prostatitis, and used to heal burn also as religious.
79	Toba Baha	Chameli	<i>Jasminum sambac</i> (L.) Aiton	Oleaceae	Shrub	Flower	Used to treat Stomach ache and ornamental.
80	Lapang	Barro	<i>Terminalia actinophylla</i> Mart. Syn: <i>Terminalia bellerica</i>	Combretaceae	Tree	Fruit	used to treat jaundice, vomiting, ulcer
81	Gub	Supari	<i>Areca catechu</i> L.	Areaceae	Tree	Fruit	used to treat bile disease
82	Kitthahuri				Shrub	Root	Paste of root is kept in thread and bind the thread in hand to treat hydrosil
83	Bardamand aari	Daadpatta	<i>Senna didymobotrya</i> (Fresen.) H.S.Irwin&Barneby	Leguminosae	Shrub	Leaf	Paste of leaf is used to treat ringworm
84	Gulabbaha	Gulafful	<i>Rosa indica</i> L.	Rosaceae	Shrub	Flower	Used as ornamental
85	Lichchu	Litchi	<i>Litchi chinensis</i> Sonn.	Sapindaceae	Tree	Fruit	Used as Fruit.
86	Kade	Kodo	<i>Paspalum scrobiculatum</i> L.	Poaceae	Herb	seed	Used as food
87	Jundra	Makai	<i>Zea mays</i> L.	Poaceae	Herb	Seed	Used as food
88	Fapar	Fapar	<i>Fagopyrum esculentum</i> Moench	Polygonaceae	Herb	Seed	Used as food

Distribution of Plant According to Habit

Distribution of plants according to habit was reported, among them herbs (42.04%), shrubs (27.27%), trees (23.86%) and climbers (6.86%).

Table 2. Distribution of plant according to habit.

S.N.	Habit	No. of species	Percentage
1.	Herbs	37	42.04%
2.	Shrub	24	27.27%
3.	Tree	21	23.86%
4.	Climber	6	6.85%
	Total	88	100%

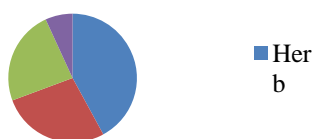


Fig 2. Distribution of plant according to habit

Distribution of Plant According to Uses

The majority of the plant species were reported to be used for medicinal purpose (36.36%) followed by multiple used i.e. a plant used for different purpose (26.13%), vegetable (12.5%), fodder (5.68%), food (5.68%), ornamental(4.54%), religious (4.54%) and fruit (3.40%).

Table3. Distribution of plants according to uses.

S.No	Use as	No of species	Percentage
1.	Medicinal	32	36.36%
2.	Multiple uses	24	27.27%
3.	Vegetable	11	12.5%
4.	Fodder	5	5.68%
5.	Food	5	5.68%
6.	Ornamental	4	4.54%
7.	Religious	4	4.54%
8.	Fruit	3	3.40%
9.	Total	88	100%

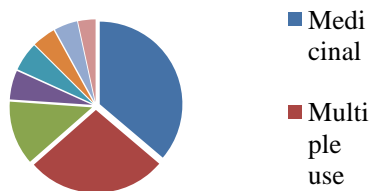


Fig 3 : Distribution of plant according to uses

Distribution of Plant According to Part Used

Distribution of plants according to part used were reported i.e. leaf (29.54%), multiple part i.e. different parts of a plant used (17.04%), fruit (15.90%), whole part (10.22%), stem (9.09%), seed (5.68%), root (5.68%), flower (4.54%) and bark (2.27%) for various purpose.

Table 4.Distribution of plant according to part used.

S.No	Part used	No of species	Percentage
1.	Leaf	26	29.54%
2.	Multiple parts	15	17.04%
3.	Fruit	14	15.90%
4.	Whole part	9	10.22%
5.	Stem	8	9.09%
6.	Seed	5	5.68%
7.	Root	5	5.68%
8.	Flower	4	4.54%
9.	Bark	2	2.27%
	Total	88	100%

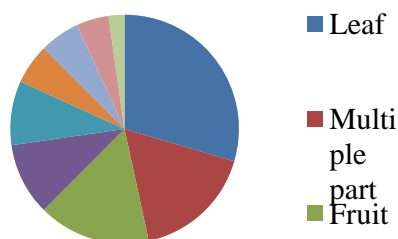


Fig 4.Distribution of plant according to part used

DISCUSSION

The santhal people have rich indigenous knowledge on the application of plant resources for their livelihood (Santhal people, Wikipedia). Due to traditional knowledge as well as closely related to nature, they depend highly on plants and their product for daily needs. A comparison of the present survey conducted among santhal tribes of jhapa district (Gauradaha municipality) strongly focuses the differences with previous survey conducted between the santhal tribes of Alipurduar district, West Bengal, India. While santhal tribes of West Bengal were found to use 73 medicinal plants, the santhals of Nepal (jhapa district) used 32 medicinal plants (Biswas, S., & Chatterjee, M. (2018). Some of the plants were found to be common use where some are used differently or even various parts were used for different purpose. Most of the vernacular names are also different from those of Nepal. For example, they called 'pattharkuchi' in India and pattharjatta in Nepal for the same plant 'Bryophyllum pinnatum', 'aam' in India and 'ool' in Nepal for '*Mangifera indica*', 'simul' in India and 'eedeldar' in

Nepal for 'Bombaxceiba', 'rote ara' in India and 'birchatam' in Nepal for 'Centellaasiatica', 'akana' in India and 'dangrakatta' in Nepal for '*Calotropis gigantea*' and so on. Several possible reasons for the differences may be lost of their traditional knowledge in younger generation, due to biodiversity loss, modernization etc.

CONCLUSION

An ethnobotanical survey on different application of plants in an area showed that the community frequently use various species for medicinal purpose, religious purpose, as food and fodder etc. The research resulted in identification 88 plant species from 49 different families. Some species like *Azadirachta indica*, *Cissus quadrangularis*, *Artemisia vulgaris*, *Sphaeranthus indicus*, etc. are used frequently by santhal tribe. The traditional knowledge regarding use of plant resources is fast disappearing. The knowledgeable person had given a high degree of level regarding use of plant species. So, from this study it is clear that this tribe has good knowledge about the importance of plant available in study area. However, traditional knowledge on plant resources is greatly threatened by rapid economic development for various reasons. Therefore, there is urgent need of plant protection. The policies and practices for conservation of plant related traditional knowledge are necessary to be considered. So that this ethnic knowledge and their bearers, who struggling for their existence can be saved.

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TAX PAYERS MORAL BEHAVIOR IN NEPAL

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ABSTRACT

This study analysis the Tax Payers' moral behavior In Nepal. Further, the Study attempts to deal in the underlying reasons for non-compliance. Data was gathered through Questioner with four hundred participants, and analyses using thematic analysis. Results suggest .Those taxpayers have inadequate technical knowledge and perceive VAT system as complex. Tax Knowledge and tax complexity are viewed as contributing factors towards non-compliance Behavior among taxpayers. The data are collected through well structured questionnaire. For the Purpose of analysis and interpretation the researcher has used the following statistical tools of SPSS. On the basis of analysis and interpretation the researcher introduces the major findings that the majority of the consumers pay tax but, they are not much aware of the VAT. Due to the High tendency of VAT the consumers try to avoid the payment of tax in Nepal.

Keywords: Tax payer's awareness, tax perception, tax knowledge and tax ethics.

INTRODUCTION

Value-added tax is regarded as one of the approaches adopted by countries in developing countries especially Nepal in raising revenue to fund development projects. Being one of the indirect taxes, it is attributed with 80% contribution of total tax revenue (Saleemi, 2015). Compliance to VAT has been the key concern among developing and developed countries of the world for the last decade. It is argued that the rationale behind economic development of any country is based on VAT compliance. Despite high cases of non-compliance to VAT from industry players including micro and small enterprises and large firms, developing countries should strive to develop mechanisms that will enhance VAT compliance from the formal and informal sector for socio-economic developments. Tax compliance as the taxpayers' willingness to obey tax laws in order to attain economic development and goal. From a wider perspective, tax compliance requires a degree of honesty; adequate tax knowledge and capability to use this knowledge, timeliness, accuracy, and adequate records in order to complete the tax returns and associated tax documentation.

A key component of any tax system is the manner in which it is administered. No tax is better than its administration, so tax administration matters a lot. An essential objective of tax administration is to ensure the maximum possible compliance by taxpayers of all types with their tax obligations. Unfortunately, in many developing countries, tax administration is usually weak and characterized by extensive evasion, corruption and coercion. In many cases, overall tax compliance levels are low and large proportion of the informal sector of the economy escapes the tax net entirely.

Economic development and growth are important indicators to reflect the real situation of a country in overall development of the nation. Therefore, it has been an important concern and target of the government policy tools in any underdeveloped countries like Nepal. Achievement of high rate of economic growth, reduction of income disparities and poverty are few development strategies towards which most of government efforts have been directed in the developing countries (Acharya, 2019).

Taxation is the most effective and powerful tool reserved in the hands of government of a country. It is taxation, which invest paramount power in the government to hold over the economy of country. The major objective of taxation is to make fund available for the economic development and economic stability. A major part of government revenue comes from taxation is much better than external resource mobilization. It is better for developing countries to maximize revenue through domestic source, which is much safer and fruitful as well. Taxation not only contributes in economic development and stability but also helps equal distribution of national income of a country (Adesola, 2021).

Taxes are usually classified into direct taxes and indirect taxes. There is a predominant role of indirect taxes in Nepalese tax structure. Value Added Tax (VAT) system has been considered as an attractive alternative to exist as an indirect tax system spreading around the world. Although it is the youngest form of taxation which; was innovated in the second half of the twentieth century. It has been emerging as a main element of the worldwide tax reform, in every attempt of tax reform; VAT is now gaining the primary preference (Adesola, 2021).

Tax becomes the main source of revenue of the state. Value Added Tax is the latest innovation in the field of taxation. VAT is considered as the reform tax system of the 21st century, which has already been implemented popularly in more than 135 countries in the world. VAT is multi staged, commodity and services based tax which is levied on the value added of business at different stages of production and distribution. It is imposed on different stages. It is imposed on additional value of goods and services. The value added tax is indirect tax depends upon consumer (Gwali, 2018 and Adhikari. 2020).

Especially it is supplementary of sales tax or improved form of sales tax. Since VAT generates less cost to the economy than other taxes, including customs duties and other domestic trade taxes except retail level sales tax, it is considered an efficient way of generating revenue. The goods are passed through different channels (i.e. producer-agent-whole seller-retailer-consumer) by adding the value in each channel. In this process, after beginning government has charged 10% on the added value that is called VAT. Therefore, at present, VAT rate is 13% collected at every stage of selling goods and services.

VAT is a recent and an important innovation in the field of modern taxation system. After its origin in France, it gained worldwide popularity at the academic level as well as practical level. After France adopted VAT for the first time in 1954.

Taxes as a major fiscal policy instrument and important government policy tools have an important role in increasing the rate of capital formation and thereby achieving the rate of economic growth. The role of taxation in economic development of country lies in its function of resources that country's productive capacity is enhanced. So every states needs resources whether to pay salary to government employees or to conduct development work, i.e. huge amount of money called revenue. The major source of revenue is tax.

Economic development and growth are important indicators to reflect the real situation of a country in overall development of the nation. Therefore, it has been an important concern and target of the government policy tools in any underdeveloped countries like Nepal. Achievement of high rate of economic growth, reduction of income disparities and poverty are few development strategies towards which most of government efforts have been directed in the developing countries (Dewi, 2019).

Taxation is the most effective and powerful tool reserved in the hands of government of a country. It is taxation, which invest paramount power in the government to hold over the economy of country. The major objective of taxation is to make fund available for the economic development and economic stability. A major part of government revenue comes from taxation is much better than external resource mobilization. It is better for developing countries to maximize revenue through domestic source, which is much safer and fruitful as well. Taxation not only contributes in economic development and stability but also helps equal distribution of national income of a country.

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Value added tax usually shortened to VAT) is a levy on the amount a business add to the price (hence the name "value added") of goods during their production and distribution. Since it is a tax on commodities purchased, ultimately for consumption, rather than on the income of an individual or corporation, it is essentially a consumption tax.

The VAT is usually collected by the tax credit method; each firm applies the tax rate to its taxable sales, but is allowed a credit for value-added tax paid on its purchases of goods and services for business use, including the tax paid on purchases of capital equipment under a consumption-type value-added tax. As a result, the only tax for which no credit would be allowed would be that collected on sales made to households, rather than to businesses.

Since the sum of the values added at all stages in the production and distribution of a good are equal to the retail selling price of the good, the revenue base of a retail sales tax and a value-added tax with the same coverage are theoretically identical, and a given tax rate will

yield the same amount of tax revenue under either approach and under equal conditions of implementation, in other words, no exceptions or exemptions.

This is a study on contribution of Value Added Tax (VAT) in government's total revenue. The VAT refers to an indirect tax. VAT is a general consumption tax assessed on the value added to goods and services by the business enterprises at the successive stage of production and distribution. Value added for a firm is the gross receipt from the sales after subtracting all expenditure on goods and services purchased from other firm (Dewi, 2019).

It is a sales tax, hotel tax, contract tax, and entertainment tax. The type of VAT is determined on the basis of treatment of capital goods of a firm. Input tax paid for capital goods is allowed or not is the fundamental questions in the study of types of VAT. There are three types of VAT. Consumption, income, and gross national product types VAT. It is the major sources of public income by imposing to people in consumed goods and services.

Especially it is supplementary of sales tax or improved form of sales tax. Since VAT generates less cost to the economy than other taxes, including customs duties and other domestic trade taxes except retail level sales tax, it is considered an efficient way of generating revenue. The goods are passed through different channels (i.e. producer-agent-whole seller-retailer-consumer) by adding the value in each channel. In this process, after beginning government has charged 10% on the added value that is called VAT. Therefore, at present, VAT rate is 13% collected at every stage of selling goods and services.

VAT is a recent and an important innovation in the field of modern taxation system. After its origin in France, it gained worldwide popularity at the academic level as well as practical level. After France adopted VAT for the first time in 1954, the Ivory Coast adopted it in 1960 and then Senegal in 1961. Since 1967 onwards VAT gained worldwide momentum and as a result from that time to 2001, with the exception of 1974, 1978, 1979 and 1981, each year some or the other country has been adopting VAT. In Nepal VAT was introduced in mid-November 1997 as a major part of tax reform program and in the process of implementation various other reform- oriented activities have taken place.

Formulation of VAT Act and regulation, establishment of an appropriate organizational structure and personnel system, computerization system, imparting knowledge regarding various aspect of this tax to potential tax payers and to various sections of the society, etc. VAT is a modern tax that is based on the principle of self- assessment. VAT has done with administrative procedures such as taking approval of the price of the purpose of sales tax, submission of annual statement of accounts tax, assessment by the tax officer stamping of invoice, submission of the invoice at the tax office along with the tax returns.

VAT is the transparence tax system that is based on the taxpayer's transaction. VAT is not only transparent but also it demands transparency as other tax system as well. Unless such environment is created vat cannot be implemented effectively. VAT is the youngest member of the sales tax family, which is broad based. Since the base of the VAT is extensive, under this tax resume more revenue can be collected through lower rates. The effective implementation of this tax can help in reducing the rates of custom duties and income tax along with reducing

smuggling of imported goods and hence improves the balance of payment, reduces the unintended distortions, services horizontal equity in a greater degree and makes the tax system simple and natural. In similar manner VAT has many provisions to correct its regressive nature.

“VAT is levied on all goods and services, unless specifically exempt by the law and collected at different stages in the process of production and distribution” (Dewi, 2019).

“VAT is a modern and scientific tax system. It is not similar to custom, excise duty, income tax, or sales tax that has born the tradition and historical heritage. It is not a tax that has imposed and amended and accordingly inserted or deleted. It is a tax of the 21st century since it highly developed and refined. It is a tax that suits the present speeds of knowledge, development and skills .Moreover; it present context of liberalization, privatization and globalization. It is easily adoptable with the open economy system and matches with the private sectors and the market economy of present days. It is a tax that is transparent and has an in-built system of self control” (Dewi, 2019).

Tax is the price individuals pay to government for the law and order (Hughes, 2020). Tax compliance entails filing taxes on time and accurately reporting tax liability in accordance with tax law and court decisions (Roth, 1989). The taxpayer should follow the tax law, report the real tax base, compute correct the tax liability, submit tax statement on specified time, and pay due amount on time (Freanzoni , 2000).

Tax avoidance reduced tax liability using loopholes of tax law and creative designing income and deduction, so it is not illegal. Tax evasion is the purposeful breaking of the law in order to reduce the tax amount. Evasion is the act of not reporting or reporting falsely (Wenley, 2004). The evasion is willful act with the intention to reduce tax liability (Sour, 2004).

The annual report of IRD disclosed that less than 1 per cent of population is registered at the tax office. The IRD has been selecting less than 1 per cent of registered taxpayers for full audit, and IRD selected 3800 taxpayers for the full audit in the fiscal year 2021/22.

Objectives of the study

The study aims at uncovering the Tax Payers’ moral behavior In Nepal. Further, the study also has some other objectives:

1. To analyze the major determinants of tax payers behavior among in Nepal.
2. To analyze the effect of marital status and education level on tax payers behavior in Nepal.
3. To analyze the moderating role of religiousness in explaining tax payers behavior with the change in economic deterrence, tax justice and tax knowledge in Nepal.

Review of literature

Literature Survey presents the theoretical concepts and empirical studies related to this study. This has enabled to develop ideas, which are served as a ground for comparing findings and finally concluding the aim of this study. Tax becomes the main source of revenue of the state. Value Added Tax is the latest innovation in the field of taxation. VAT is considered as the

reform tax system of the 21st century, which has already been implemented popularly in more than 135 countries in the world. VAT is multi staged, commodity and services based tax which is levied on the value added of business at different stages of production and distribution. It is imposed on different stages. It is imposed on additional value of goods and services. The value added tax is indirect tax depends upon consumer. Conducting the literature survey helps to know the theoretical aspects of the research topic and the tax compliance behavior has helped to develop a strategy for the higher-level tax compliance. Theoretical review. The following theories and empirical studies have been carried out for the study.

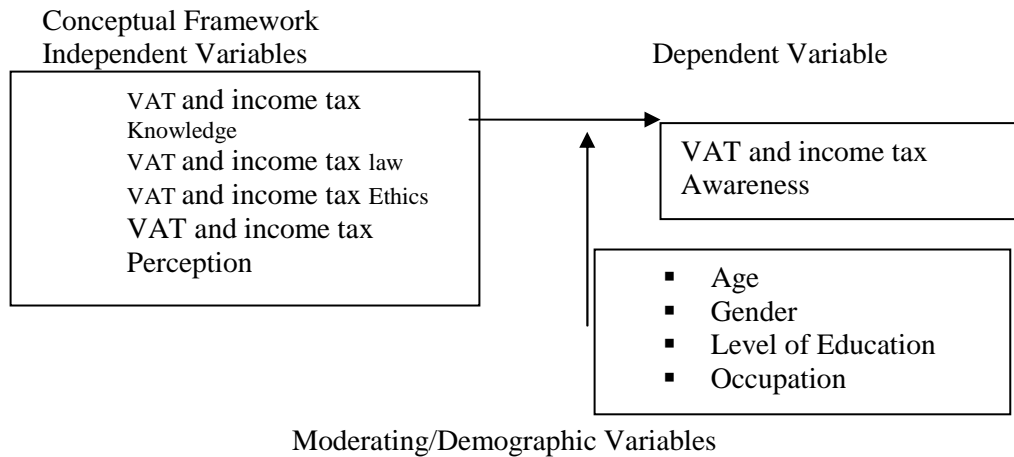
Economic crime model Becker (1968) introduced tools for developing optimal public and private policies to reduce social loss and combat illegal behavior, such as injuries, apprehension costs, conviction costs, and imprisonment costs. The study took into account behavioral factors, the number of offenses and costs, the corresponding punishments, public expenditures on police and the judicial system, the number of sentences, and the money spent on security and arrests. Tax evasion was one of the 15 violations covered by the model.

Fisher model of tax compliance Jackson and Milliron (1986) developed tax compliance research model by identifying 14 key factors used as a base for developing the research framework. The major factors were classified into four main categories naming as demographics, noncompliance opportunities, attitude & perception, and tax system and structure. Further, Fischer, Wartick, and Mark, (1992) incorporated economic, sociological, and psychological factors into a comprehensive one in the Fisher model of tax compliance.

The model depicted the relationship between demographic variables and tax compliance and major personal characteristics for which there is evidence of a relationship are age, gender, and education. The model suggested that demographic variables indirectly affect taxpayer compliance with the impacts on noncompliance opportunities and attitudes and perceptions. Likewise, the model also apprehended that noncompliance opportunity can affect taxpayer compliance directly through income level, income source, and occupation and indirectly through attitudes and perceptions. Major considerations for altering taxpayers' attitudes and perceptions of tax compliance are the fairness of the tax system and peer influence. Finally, the model also suggested that the tax load, easy tax system, high chance of caught and high fine and interest determine tax compliance.

Empirical review

Several international empirical studies have been carried out for the describing for the tax compliance behaviors in the world. The empirical studies are also carried out based on various theories such as crime model, fisher model, Institutional trust model, fiscal exchange, justice theory are major common for the analysis of taxpayers compliance. The crime model is found most effective in the developing countries and tax morale and ethics are playing greater role in developed world. The almost studies has been carried out in developed world rather than developing world. In this regard, review has been conducted based on following basically four variables Economic deterrence, tax justice, tax knowledge and religiousness.



RESEARCH METHODOLOGY

Considering the theoretical and empirical review on the tax compliance behavior, the study has developed the research framework as presented in Figure 1. In the research framework, tax compliance behavior (TxC) is the response behavior, and economic deterrence (ECD), tax justice (JUST), tax knowledge (TXK), and religiousness (REL) are the explanatory variables. Likewise, marital status and education level are the controlled variables. Finally, religiousness (REL) is also the moderating variable with two levels i.e., religious and non-religious.

Tax justice Tax justice, often known as tax law or enforcement fairness, and government spending (Kirchler, 2007). Tax systems are created and administered in a fair and competent manner. Tax compliance behavior if they believe the tax authority is conducting good and fair tax operations and procedures. Just treatment is far more valuable than justice in the form of benefits or punishment. Trust in tax administration can be enhanced by a sense of justice.

Tax knowledge Knowledge about tax law is assumed to be of importance for preferences and attitudes towards taxation. Tax knowledge covers fiscal, knowledge in evasion opportunities, general educational attainment or knowledge of tax law (Devos, 2016). Tax knowledge is defined perception in ability to obey tax laws, including technical tax knowledge and general tax knowledge about the tax system and tax compliance (Wong & Lo, 2015). Bornman (2019) stressed that taxpayer should have knowledge

Controlled variable A control variable is any variable that's held constant in a research study and which is not a variable of interest in the study, but it's controlled because it could influence the outcomes. Thus, it has two controlled variables namely marital status (married and unmarried), and education level (up to school, under graduate and post graduate). The study also used marital status and education level to see whether these have significant effect on tax compliance behavior when used individually. Further, these variables have also been used as controlled variables to measure the effect of ECD, JUST, TXK and REL.

Tax compliance behavior Tax compliance refers to the tax payer's ability to file all required tax returns on time and accurately report tax liability in accordance with the Internal Revenue Code, regulations, and court decisions in effect at the time the return is filed (Roth, 1989). By weighing the benefits of successful tax evasion against the risk of detection and punishment, a rational person is seen as maximizing the expected utility of the tax evasion gamble. The individual pays taxes as a result of this process because he or she is afraid of being caught and penalized if they do not report all of their income. Research design

Population and sample, and sampling design

The study determined 400 sample size as per the recommendation of Yamane (1967) which follows the rule that requires sampling it at a 95 percent confidence level .The sampling process took the period of 3 weeks in the month February 2022. Among them, 76 questionnaires (78.22 percent) were found useable.

Nature and sources of data and the instrument of data collection

This research is based on the primary data. The primary source of the data has been used to determine the perception of the taxpayers regarding tax compliance behavior of Nepalese entrepreneurs and how the economic tax deterrence, tax justice, tax knowledge, and religiousness affect the tax compliance behavior and how this behavior changes when controlling the controlled variables: marital status and education level. The data has been collected by distributing the questionnaire to 225 entrepreneurs of three industrial estates in Kathmandu valley with a valid response of 176 representing 78.22 response rate.

Method of analysis & tools used

The study employed descriptive and inferential statistics. The descriptive statistical tools such as frequency, percentage, bar diagram, mean, median, standard deviation, minimum and maximum has been used to describe the nature and characteristics of the data. Likewise, an independent sample t-test, ANOVA, correlation, and regression analysis has been employed as the inferential statistical tools to answer the research questions and test the formulated hypotheses under study. Likewise, the study has also used the Cronbach's alpha test for the reliability analysis of the scales, correlation analysis for testing the divergent validity of the scales, histogram and normal P-P plot of standardized residual for multivariate normality of response variable and Kolmogorov and Smirnov, and Shapiro Willk test for statistical test of multivariate normality of the outcome variable under study.

DATA Analysis

Gender of the respondents

The study has 124 male and 52 female respondents. This is equivalent to 70.5% male respondents and 29.5 % female respondents. This data is similar to the national data of central bureau of statistics, which presented that national average female entrepreneurs were 29.8 percentage (CBS, 2018). The detail frequency of the gender data, per centage and cumulative per centage

Descriptive and inferential analysis the descriptive statistics of the variables under study: economic deterrence, justice, tax knowledge, and tax compliance behavior of the

industries owners in industrial estates in Nepal. The mean value among the predictors understudy was highest for the economic deterrence (3.39, median =3.33) and tax knowledge (3.35, median =3.40). It was observed lowest for the variable justice (3.03, median=3.00). The standard error of the mean from zero-mean was 0.05, 0.07, and 0.07, respectively, for the variables: economic deterrence, tax knowledge, and justice, which are the evidence for the low deviation. The mean value of the response variable tax compliance was 3.72, and the standard error of the mean from zero-mean was 0.06. Likewise, the Table also depicts the per centile values of the variables under study. The per centile values of economic deterrence at the 25th, 50th, and 75th per centile are 3.00, 3.33, and 3.83, 2.40, 3.40, and 4.0 for tax knowledge, 2.50, 3.0, 3.75 for justice, and 3.05, 3.60, and 4.40 for tax compliance behavior.

Descriptive statistics

Statistics		Economic deterrence	Justice	Tax knowledge	Tax compliance
Mean		3.39	3.03	3.35	3.72
Std. Error of Mean		0.05	0.07	0.07	0.06
Median		3.33	3.00	3.4	3.60
Minimum		1.67	1.00	2.00	2.80
Maximum		4.67	5.00	5.00	5.00
Per centiles	25	3.00	2.50	2.40	3.05
	50	3.33	3.00	3.40	3.60
	75	3.83	3.75	4.00	4.40

Table depicts the linear regression analysis with tax compliance as the response variable and marital status, i.e., dummy variable (measured in nominal scale) as the predictor variable. The unmarried was coded as zero and married as 1. The intercept value of 3.433 is the mean value of tax compliance for unmarried (sig.=0.001). The coefficient value of 0.371 indicates the mean value of tax compliance for married is 0.371 higher than 3.433 (sig.= 0.014). For robustness check, the study conducted the independent sample t-test. The result in Appendix 14 supports the regression outputs, i.e., the mean value of tax compliance behavior is 3.805 (3.433+0.371) for the married business owners.

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	3.433	0.13	26.337	0.001	3.176	3.691
Married	0.371	0.149	2.484	0.014	0.076	0.666
Unmarried	0	.	.	.	.	.

Exhibits the linear regression analysis with tax compliance as the response variable and education level, i.e., dummy variable (measured in nominal scale) with three levels as the predictor variable. The postgraduate was coded as zero and others as 1. The intercept value of 4.156 is the mean value of tax compliance for postgraduate (sig. =0.001). The coefficient value of -0.788 indicates the mean value of tax compliance for undergraduates is -0.788, lower than 4.156 (sig.= 0.001). Finally, the coefficient of -0.931 indicates the tax compliance is lower by - 0.931 (sig.=0.001) in comparison to the tax compliance of postgraduate respondents. For robustness check, the study conducted the one-way ANOVA. The result in Appendix 15

supports the regression outputs. However, the post hoc result does not support the existence of differences in tax compliance across up to school level and undergraduate business owners.

Effect of education level on tax payers behavior 95 % Confidence Interval

Parameter	B	Std. Error	t	Sig.	Lower Bound	Upper Bound
Intercept	4.156	0.083	49.882	0.001	3.992	4.321
Up to school	-0.931	0.175	-5.318	0.001	-1.277	-0.585
Under graduate	-0.788	0.123	-6.414	0.001	-1.03	-0.545
Post graduate	0	.	.	.	.	.

With two levels as the predictor variable. The non-religious were coded as zero and religious as 1. The intercept value of 3.148 is the mean value of tax compliance for non-religious (sig. =0.001), and the coefficient value of 0.746 indicates the mean value of tax compliance for religious is 0.746 higher than 3.148 (sig.= 0.001. For robustness check, the study conducted the independent sample t-test. The result in Appendix 16 supports the regression outputs, i.e., the mean value of tax compliance behavior is 3.894 (3.148+0.746) for religious business owners. Effect of religiousness on taxpayer's behavior.

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	3.148	0.123	25.565	0.001	2.905	3.391
Religious	0.746	0.141	5.29	0.001	0.468	1.025
Non-religious	0	.	.	.	.	.

The ECD, JUST, and TXK were correlated with TXC. As exhibited in the Table, the correlation for all the samples between TXC and ECD (0.755**), JUST (0.479**), and TXK (0.217**) are observed to be positive and significant, which means as the level of economic deterrence, justice and tax knowledge increases the tax compliance behavior also increases significantly.

Exhibits the relationship between the variables across the religious and non-religious respondents. The relationship between economic deterrence and tax compliance is positive and significant for both types of respondents based on religiousness. However, the association is higher for religious respondents than non-religious respondents, i.e., 0.779** and 0.588**. Likewise, the relationship between justice and tax compliance is almost similar, i.e., positive and significant, i.e., 0.521** and 0.525**. However, the relationship between tax knowledge and tax compliance is negative and insignificant at -0.173 for non-religious business owners, which was positive and significant at 0.237** for religious business owners. Relationship between variables across level of religiousness

Religiousness	Variables	ECD	JUST	TXK	TXC
Religious	ECD	1			
	JUST	.427**	1		
	TXK	0.149	.194*	1	
	TXC	.779**	.521**	.237**	1
Non-religious	ECD	1			
	JUST	0.27	1		
	TXK	-0.095	-.359*	1	
	TXC	.588**	.525**	-0.173	1

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

The study also attempts to analyze the effect of economic deterrence (ECD), justice (JUST), and tax knowledge (TSK) on tax compliance behavior. The exhibits the regression analysis for all samples. In model 1, the effect was positive and significant when regressing tax compliance on economic deterrence (0.986*). The study also observed the impact of justice, tax knowledge and religiousness as positive and significant (0.421*, 0.004*, and 0.746*) in models 2, 3 and 4. This result shows that economic deterrence is the most influencing factor for tax compliance behavior among business owners. All the four three simple regression models fit the model well, as the F statistics (230.8, 51.673, 8.609, and 27.982) were significant at the 0.01 level. Likewise, when two predictors were used in the regression model, the regression coefficients of economic deterrence and justice were positive and significant (0.875* and 0.193*) in model 5. The regression coefficients of economic deterrence and tax knowledge also were positive and significant (0.966* and 0.113) in model 6. In both of these models (models 5 and 6), the coefficients of economic deterrence were comparatively higher than the effect of justice and tax knowledge. Regression analysis without controlling variables

Model	Constant	ECD	JUST	TXK	REL	Adjusted R ²	F	Sig
1	0.372	0.986*				0.568	230.8	0.001
2	2.441*		0.421*			0.225	51.673	0.001
3	3.089*			0.004*		0.042	8.609	0.004
4	2.401*				0.746*	0.134	27.982	0.001
5	0.163	0.875*	0.193*			0.607	135.991	0.001
6	0.062	0.966*		0.113*		0.58	121.993	0.001
7	1.908*		0.41*	0.169*		0.254	30.834	0.001
8	-0.133	0.857*	0.191*	0.109*		0.619	95.576	0.001
9	-0.641	0.789*	0.205*	0.087*	0.436*	0.661	86.493	0.001

*Significant at 0.05 level

Similarly, when relaxing the effect of economic deterrence, the impact of justice and tax knowledge were also positive and significant on tax compliance behavior (0.410* and 0.169*). Regression models 5, 6, and 7 fit the model well, as the F statistics (135.991, 121.993, and 95.576) were significant at the 0.01 level. Likewise, The results were similar to the findings of simple and two predictors' models (model 1 to 7), i.e., economic deterrence has the highest effect on tax compliance behavior and then justice and tax knowledge of the business owners. The variance extraction on tax compliance behavior by economic deterrence, justice, and tax knowledge by considering the co-variances among these variables is 61.9 per cent. The regression model fits well the data with significant F statistics of 95.576 (sig.=0.001). Test of multicollinearity

Parameters	Collinearity Statistics		Collinearity diagnostics		Condition Index
	Tolerance	VIF	Dimension	Eigenvalue	
(Constant)			1	4.816	1
ECD	0.799	1.251	2	0.083	7.639
JUST	0.846	1.182	3	0.057	9.212
TXK	0.972	1.029	4	0.029	12.953
REL	0.934	1.071	5	0.016	17.33

Dependent Variable: Tax compliance

For the regression result to be best and unbiased estimator, the regression result is free from multicollinearity among the predictors under study. Table 10 depicts collinearity statistics of all the predictors. Tolerance is used in applied regression analysis to assess levels of multicollinearity. Tolerance measures for how much beta coefficients are affected by the presence of other predictor variables in a model. Smaller values of tolerance denote higher levels of multicollinearity. Since the tolerance values were greater than 0.25, there is no problem of multicollinearity (Huber & Stephens, 1993). Distribution of the residuals for normality test it is evidence that the regression analysis fulfills the multivariate normality. The standardized residual was plotted on the Y-axis, and the standardized predicted value was plotted on the X-axis. The plot almost passes through the regression line for supporting the multivariate normality.

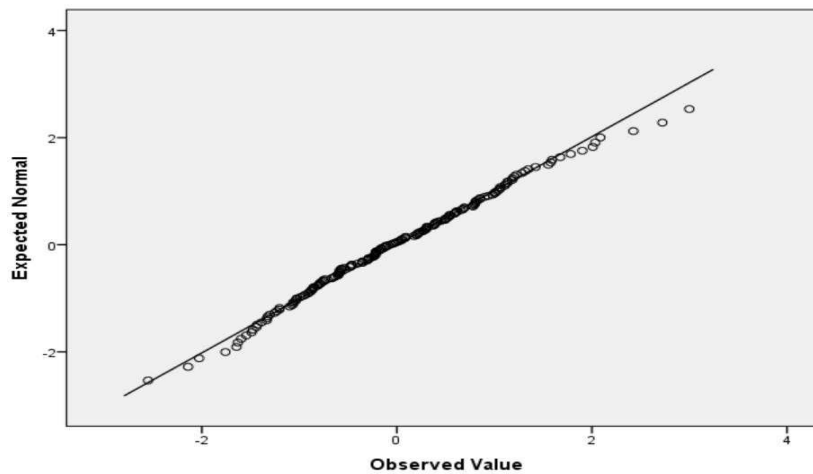


Figure 13: Normal P-P plot of standardized regression residual

Residual statistics

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.848	5.136	3.716	0.678	176
Residual	-2.351	2.588	0.000	0.525	176
Std. Predicted Value	-2.904	2.095	0.000	1.00	176
Std. Residual	-2.551	2.999	0.000	0.991	176

Dependent variable: Tax compliance

The predicted and residual mean values of tax compliance behavior are 3.716 and zero, with a minimum value of 2.848 and -2.351 and a maximum of 5.136 and

2.588. The dispersion in the predicted and residual values of tax compliance behavior were 0.678 and 0.525. Likewise, the dispersion in mean values of standardized predicted and standardized residual is almost 1.

For robustness check, the study also attempted to analyze the multivariate normality assumption statistically. The study performed Kolmogorov Smirnov and Shapiro-Wilk test. The Kolmogorov-Smirnov test assumes that the parameters of the test distribution are specified in advance. This procedure estimates the parameters from the sample and estimates the sample

mean, and sample standard deviation are the parameters for a normal distribution. The Shapiro-Wilks test for normality is designed to detect departures from normality for the variables under study. The Kolmogorov-Smirnov (0.046, sig.=0.200) and Shapiro-Wilk (0.993, sig.=0.626) statistic values in Table 12 evidence that the tax compliance does not departure from normality at 176 degrees of freedom. Statistical test of multivariate normality

Tax compliance	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
Standardized Residual	0.046	176	.200*	0.993	176	0.626
* This is a lower bound of the true significance. ^a Lilliefors Significance Correction						

The marital status with two levels (married and unmarried) is controlled variable in the study. The Table 5 is the evidence that married level of the marital status has on average 0.371 higher tax compliance behavior. Likewise, the economic deterrence, justice and tax knowledge also have the positive and significant effect on tax compliance behavior(See Table 9).The Table 13 depicts the positive and significant effect of four covariates: economic deterrence (0.785, Sig.=0.001), justice (0.206, Sig.= 0.001), tax knowledge (0.089, Sig.=0.032) and religious (0.407, Sig.=0.001), when controlling the effect of marital status. The significant and negative effect of the marital status (-0.214, Sig. = 0.023) indicates that when the marital status shifts from married to unmarried, the tax compliance behavior tends to decline.

The education level with three levels (up to school, undergraduate and postgraduate) is another controlled variable in the study. Table 6 is the evidence that undergraduate respondents' level of the education level status has on average -0.788 lower tax compliance behavior compared to postgraduate respondents. Similarly, up to school respondents' level of the education level status has on average -0.931 lower tax compliance behavior compared to post graduate respondents. Likewise, the economic deterrence, justice and tax knowledge also have the positive and significant effect on tax compliance behaviors in Table

behavior. Likewise, Model 2 and 3 also exhibits the positive and significant moderation effect of religiousness on tax compliance behavior, with the increment in perceived level of tax justice and tax knowledge of the respondents (0.241* and 0.226*) and effect size of 0.187 and 0.142 respectively.

Analysis of moderation effect of religiousness

Model	Intercept	ECD	JUST	TXK	REL*ECD	REL*JUST	REL*TXK	Adjusted 2
1	0.622* (0.046)	0.796* (0.419)			0.15* -0.13			0.622
2	2.451* (0.550)		0.234* (0.079)			0.241* (0.187)		0.366
3	3.21* (0.549)			-0.025 (0.001)			0.226* (0.142)	0.174
4	0.139* (0.002)	0.557* (0.129)	0.258* (0.062)	0.151* (0.023)	0.292* (0.034)	-0.066 (0.003)	-0.084 (0.006)	0.672

*Significant at 0.05 level. Values in Parentheses are partial eta square

Similarly, the final Model 4 depicts the positive and significant moderation effect of religiousness on tax compliance behavior (0.292*) with the effect size of 0.034, when the economic deterrence is high. However, the impact of justice and tax knowledge on tax compliance behavior is negative but insignificant (-0.066 and - 0.084), when there is a shift from non-religious to religious, indicating no moderation effect of religiousness on tax compliance behavior with increase in perceived level of tax justice and tax knowledge. Thus, the study concludes that there is at least a moderation effect of religiousness on the tax compliance behavior with the practices of economic deterrence.

CONCLUSION

Tax compliance has been linked to economic and behavioral factors that influence the process of raising public levies. This is why governments are paying more attention to and considering economic and behavioral models of tax compliance. As suggested in prior studies, the tax compliance rate is higher when the taxpayer has a stronger moral belief that tax evasion is not ethical. This study aimed to investigate the tax compliance behavior and the extent to which economic deterrence, tax justice, tax knowledge and religiousness can explain tax compliance behavior among Nepalese entrepreneurs. In addition, the study ascertains the extent to which predictors influence tax compliance and verify the kind of relationship/influence it has on the tax compliance behavior of Nepalese entrepreneurs.

In addition, the study also concludes that more vital tax justice and perceived fairness and educating the entrepreneurs about tax knowledge might positively affect tax compliance. The perceived behavior of justice with tax administration can enhance tax compliance. To encourage tax compliance, fair treatment is more significant than fair advantages or penalty received by taxpayers. This conclusion supports the Fischer model. Noncompliance opportunity can affect taxpayer compliance directly through income level, income source, and occupation and indirectly through attitudes and perceptions and concludes that major considerations for altering taxpayers' attitudes and perceptions of tax compliance are the tax system's fairness and peer influence. This perception of justice will also raise taxpayers' trust in the tax authority, which can improve tax compliance behavior.. Thus, the study recommends that future tax policies be fully projected by taking the negative impact on tax justice.

The study also covered the crucial role of religious belief in maintaining a high degree of tax compliance and suggested that demographic variables, to some extent, directly affect taxpayer compliance by their impacts on noncompliance opportunities and attitudes and perceptions. Thus, tax policies should be concentrated on ethics and religion to avoid further tax evasion tendencies of the subject and encourage tax compliance. Therefore, the study suggests introducing general ethics education, including the practices of fairness and justice for all entrepreneurs in Nepal to enhance level of moral development to improve tax compliance at large.

Major finding

- During the research period, most business people and consumers remained unaware and ignorant about TAX. Therefore, it is necessary to organize his TAX program through training courses, seminars, report presentations, paper publications, journal publications and media to raise awareness of his TAX among the general public.

- Many taxable entrepreneurs are still outside the tax net. Therefore, there is a need to make enforcement more effective and encourage voluntary compliance. Here, taxpayer education and taxpayer services are key functions of modern tax administration to promote voluntary compliance.
- As registered taxpayers are both sellers and buyers of goods and services, invoices must be fair and transparent when transacting. To that end, governments and their professional organizations have launched awareness programs to educate vendors about billing systems and help people become more competent, rational, selective, and watchful for vendor fraud. and should be promoted.
- Suppliers are required to make accounts transparent through appropriate and up-to-date billing systems. They must develop professional skills not only in marketing, but also in accounting and reporting, taking into account the law. In this regard, both state and private institutions should organize training courses on accounting and tax issues.

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AWARNESS ON PESTICIDE EXPOSURE AND SAFETY PRACTICES AT HIMALAYA TEA ESTATE DAMAK-4

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ABSTRACT

Pests control is one of the major problems in tea plantation and may exert harmful impact to the environment and health if unhealthy practice prevails. Himalaya Tea estate situated in Damak cover a huge area of about 500 hectors of land where agricultural activity is continuously performed over years. This study was done to examine awareness on safety practices and use of Personal Protection Equipment (PPE) while handling pesticides by the workers in the Himalaya tea estate. For this a structured closed ended questionnaire survey was conducted among 30 respondents who were randomly sampled and an unstructured open ended key informant survey was conducted among the parties concerned with the subject from administrative level. This was supported by field observation.

From the study it was found that among many Integrated Pest Management (IPM) techniques of pest control chemical method was being practiced in the study area. Similarly during the survey safety and awareness it was revealed that despite of the availability PPE, none were found using a full set of it. Similarly majority of field workers i.e. nearly 99% were found unaware about IPM, Good Agricultural Practice (GAP), toxicity, banned pesticides, classes of pesticides etc. and had never taken any training related to the subject. During key informant survey it was revealed that the workers of administrative level had taken a few training programs. This highlights the gap in communication between them and suggests the need of awareness raising training programs regarding IPM and related topics among all level of workers.

Keywords: Pesticide safety; Pesticide exposure; pesticides awareness; PPE

INTRODUCTION

Tea is one of the best significant exportable cash crops among all cash crops, a major source of foreign currency and mostly produced in the eastern section of the country. (Khanal, 2013) Pests are one of the most serious issues in every agricultural practice. Pesticides are frequently employed to overcome this problem. (Thapa *et al.*, 2021) Properly applied, a pesticide contribute to higher yields, improves product quality and meet the demand of agriculture by controlling weeds, domestic pests, disease bug vectors, and home gardening. (Rani & *et al.*, 2020; PPC, 2020)

However, they are extremely poisonous causing serious health and environmental dangers. Important factors of concern that determine health risks associated with pesticide exposure are pesticide's toxicity, the amount of pesticide a person is exposed to, the duration of exposure, and the method of exposure. (Carson, 1962) These chemicals when used widely and without safeguards may have a severe impact especially on agricultural workers who are frequently exposed to it on the job. (Rani, *et al.*, 2020; Damalas & Eleftherohorinos, 2011) Such exposure to toxic toxins, directly and indirectly, due to leaking and floating pesticides poses major health risks such as diabetes, reproductive diseases, neurological dysfunction, cancer, and respiratory illnesses. (Rani, *et al.*, 2020) It poses major health hazard to agriculture communities, particularly children because of their hand-to-mouth habits, than for children in general in low-income countries. (Dawson, 2015; Alfaris, 2007) It was reported that to the exposure of Ops, the most common insecticides since 1940s, alters neurobehavioral performance in children as well as adults and in some countries it was causing factor of developing cancer at an alarming rate. (Rasoul, 2008; Costa, 2006; Richardson *et al.*, 1998) Many countries have banned the use of certain pesticides as a result of the Rotterdam Convention, noting health and environmental concerns. (CIBRC, 2014)

Thus, when it comes to pesticides, safety is always a concern. The use of pesticides in a safe method decreases the risk of harm to applicators, the general population, and the environment. (Gupta, 2004) General principles and safety standards for various application techniques, as well as medical measures of prevention, are all included in the safe use of pesticides. (ILO, 1991) The safety process begins with selecting the appropriate product, the storage, transportation, mixing, and loading of the pesticides respectively. To minimize exposure related threats, use of PPE during work, cleaning and maintaining equipment must be done in a safe manner. (Fitz & Andreasen, 2002) Safety precautions should be reviewed on a regular basis by pesticide handlers which also include reviewing pesticide label or a leaflet attached to the packaging or container with specific PPE required for application. (Salameh *et al.*, 2004; Sumner, 2010; Waichman *et al.*, 2007) Moreover, to reduce the detrimental impacts of pesticides on the environment and public health, their manufacture, use, storage, and disposal of pesticides that are no longer in use and empty pesticide container should be strictly regulated in environment friendly manner. (Gyawali, 2018; Fitz & Andreasen, 2002) In addition, another important aspect in reducing the potential health hazard is by training people who work with pesticides in how to use them safely. (Sumner, 2010)

Our country Nepal is an agro based country where large portion of population rely on agricultural activity and its yield. Pesticide on the other hand helps to increase the yield by excluding the factors that hampers the yield. But excess use of it has degraded the land and has caused threat to human health. Himalaya Tea estate situated in Damak cover a huge area of about 500 hectors of land where agricultural activity is continuously performed over years. But only few researches have been done in this topic in the study area. The need of monitoring awarness on pesticide safety practices, availability of safety equipment and its proper implementation practically in the study area was critical to be studied. Thus, this study aimed to examine the level of awareness on safety practices and use of Personal Protection Equipment (PPE) while handling pesticides by the workers in the study area.

MATERIAL AND METHODS

Study Area and Data Collection

Himalaya Tea estate is located at Damak municipality in Jhapa districts in Province No. 1 the Mechi Zone of Eastern Nepal. It covers around 500 hectare of total land and was established in 2018 B.S. (Khawas, 2022) It has employed total 301 workers at different post, primarily for field based labor work. Among them 268 are female workers and 33 are male workers. It is located between 98 meters - 232 meters above sea level at 26°6569°N and 87°6655°E. In Damak the climate is warm and temperate in winter. Rainfall is much less in winter than in summer with an average rainfall of 2391mm recorded at Damak. (Pokhrel, 2019)



Figure 1: Map of Himalaya Tea Estate (Source: Google Map)

Data were collected from several sources depending on their availability. For this study primary and secondary data were alluded. Primary data, both qualitative and quantitative, were collected through questionnaire survey and key informant interview with manager, accountant and workers of tea estate to collect information regarding pest control practices and pesticides safety measures supported by field observation. In questionnaire survey among the field workers, semi- structured closed ended questionnaire was prepared to obtain maximum information that supports the objectives. Unstructured open ended interview was performed among the workers of administrative level including manager, accountant, office head, supervisor, assistant supervisor and factory incharge. While direct field observation of the storage of pesticide, preparation of mixture, application of pesticide, PPE application etc. were observed visiting the site. The sample size was determined using a formula devised by Arkin and Colton (1963), whose confidence and error are 95 percent and 5 percent respectively. Similarly, literature review method was used for the collection of information related to the topic of interest as secondary data source. For these reliable science journals, different books, articles, internet, previous research, published and unpublished journal and publication from relevant sources were reviewed.

Data Analysis

All the crucial qualitative data were interpreted into quantitative data. So collected quantitative data were further analyzed and interpreted with the help of MS-excel 2007. For the interpretation, appropriate analytical tools like charts, graphs, figures, tables and bar diagram were generated with the help of Ms-excel.

RESULTS AND DISCUSSION

Awareness on Pesticide

On the concept that safe use of pesticides starts with the basic level of knowledge on pesticide, this study was done for understanding the level of basic knowledge on pesticide and its potential harm. To determine this, a survey on classes of pesticide (types), its impact on health, banned pesticides, toxicity, and participation on pesticide related training were conducted among the respondents, basically working on field. During the survey 80% respondents stated that they knew about classes of pesticides and its impact on health while 20% respondents stated that they did not know about it which signifies majority of respondent were aware about classes of pesticides i.e insecticides, herbicides, fungicides, etc and its impact on health. They were aware about the possible health issue due to direct and indirect exposure of chemicals.

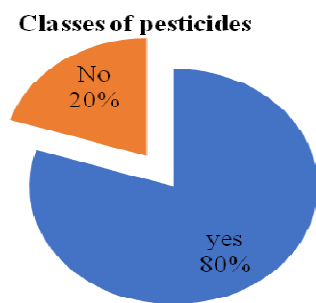


Figure 2: Knowledge on class of pesticides

Similarly, on questionnaire regarding banned pesticides, only 27% respondents said that they knew about banned pesticides while majority of respondents about 73% respondents said that they did not know about banned pesticides. They claimed the use of available chemicals provided by the administration and management team.

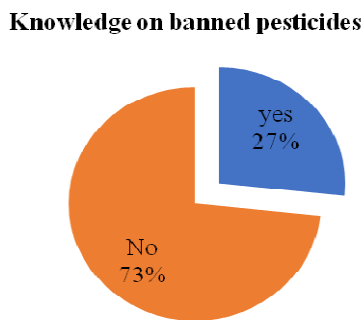


Figure 3: Knowledge on banned pesticides

During the questionnaire concerning about understanding on toxicity of pesticides in use, about 37% respondents stated that they had understanding on the subject whereas 63% stated that they did not have understanding on it. On contradict to the result where majority of respondent stated about their knowledge on the probable impact of pesticides, it was noted that

majority of respondents did not have knowledge and understanding about toxicity of pesticides in use. This could be due to lack of concern or negligence prevailing among the group regarding health or chemicals they are using. Similar result was reported in a case study by Rijal *et al.* conducted in Chitwan in 2006 where most of the farmers had limited awareness on health impact of pesticide, very less aware of the banned pesticides and rely on Agro-vets who have no technical experience as the key sources of information regarding pesticides.

Understanding on toxicity

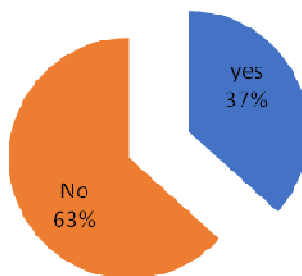


Figure 4: Understanding on Toxicity

It was found that cent percent numbers of respondents were unaware of GAP and had never taken any training regarding pesticide, use and safety measures. While during key informant survey, it was noted that few of the workers from administrative and management level have taken training about pesticide, IPM and safety measures from India. This suggests there is communication gap among the administrative and field workers. Also, overall result depict due to lack of training majority of the respondent though having knowledge on possible impact of pesticide exposure are not concerned about the harmful or banned pesticides and toxicity of pesticides.

Availability and Use of PPE

When the question regarding Personal Protective Equipment (PPE) availability in the tea farming was asked, 100% respondents stated that PPE was available in the farm. However, in the questionnaire survey conducted concerning about the use of protective equipment among workers of tea estate , 93% respondents said that they used boots only while 7% respondents said that they used mask only. Despite of availability of PPE none of respondents use all protective gears (Gloves, hats, goggles, long sleeve clothes).

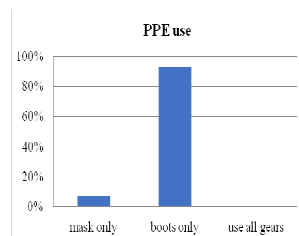


Figure 5: PPE Use

According to survey regardless of the availability of PPE, not a single respondent mentioned the use of whole set of gadget for checking the exposure to chemical. This advocates higher health hazard risk among the workers. Despite knowing about the pesticides' negative health effects, the usage of preventative measures were found inadequate in the similar study of Bhaktapur (Thapa *et al.*, 2021) and of Gaza (Yassin M *et al.*, 2002). Poor pesticide safety and use situation in the study area is attributed to weak safety enforcement system in the study area. This also supports the finding that lack of training on pesticide use, risk and safety measure might be the driving factor that has created negligence among the workers regarding health and use of PPE.

CONCLUSION

Current study was conducted to assess level of awareness on safety practices and use of PPE while handling pesticides by the workers in the study area. The study reveals lack of adequate knowledge or awareness resulted ignorance among the workers. Insufficient use of available PPE for saving time can increase health related risk among them. Thus, it illustrates the importance of effective regularity and enforcement system on pesticide use and safety practices in the study area. The study found that most of the workers knowledge on pesticide use, risk and safety measure is limited. It emphasizes the need of regular awareness raising programs and training related to the use and importance of PPE to minimize health hazard among the users. This information will guide Municipality to prioritize developing and implementing educational pesticide safety and certification programs for farmers and agriculture workers. Also, put focus on tightening the enforcement mechanism to regular surveillance and monitoring pesticide safety conformity to minimize the potential risk on environment and public health at both retailer and farm levels.

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DYES AND THEIR IMPORTANCE : A REVIEW

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ABSTRACT

The global market for pigments and dyes is forecast to reach 9.9 million tons and \$26.53 billion by the year 2017, driven by the growth in key end-use industries. Before synthetic dyes and pigments were discovered, limited number of natural colorant has been obtained from plants, animals and minerals. The classification of colorants has become mandatory due to huge increase in kind and number of colorants. For this reason, colorants are classified based on their structure, source, color, solubility and application methods. In this chapter, dyes will be investigated in two different groups as accordance with chemical structures and

application methods. The basic classification groups were determined as azo, anthraquinone, indigo, phthalocyanine, sulfur, nitro and nitroso dyes by considering their chemical structures. According to application method, they were grouped as reactive, disperse, acid, basic, direct, and vat dyes. However, the classification of pigments as organic and inorganic pigments is also regarded as an appropriate way.

Keywords : Dye, Classification , color, synthetic, natural

INTRODUCTION

Dyes (D)

Dyes are organic colored compounds imparting the color to substrates like hair, drugs, paints, paper, wax etc.

These are colored because absorbs visible light at certain wavelength. All colored compounds are not dyes but dyes are colored.

Basic Requirement for Dyes:

1. Dyes are usually soluble in water.
2. Ability to impart the color.
3. Ability to standing with washing, drying, cleaning or exposure to light.
4. They should be chemically stable.
5. Dyes should be absorbed and retained to material to be dyed.

Autochrome and chromophore-functional groupings are present in dyes, which are organic compounds. Their structure is unique, and they bond in a certain way (www.xtremePaper.com). Dyes exhibit characteristics such as color, solubility in water, ability

to absorb and hold fiber, ability to expose to light, ability to withstand dry cleaning, and ability to withstand washing. According to their source, structure, and functional groups, dyes can be divided into a number of different types.

Classification of dyes

Natural Dyes

Natural dyes are those that are derived from plants, minerals, invertebrates, etc. These dyes can be made from a variety of plant parts, including roots, berries, bark, leaves, and wood. Fungi and lichens are also sources of dyes. Dyes are obtained from plants like leaves, root, bark etc. and animals are called Natural Dyes. For example Alizarine (obtained from the Madder plant), Blue dye (Indigo), Red dye or Carmine red (Carmic acid) obtained from coccus cacti, and cochineal (obtained from Insects). Natural dyes are few in number and have limited shades/colors.

Synthetic Dyes (artificially man-made dyes)

The synthetic dyes prepared in the laboratory have huge numbers/Shades. The starting material for synthetic dyes can be obtained from coal tar distillation. Artificial dyes (Synthetic dyes), These are dyes created in a lab or manufactured for usage in various industries. Examples include dyes that are acidic, azo, basic, mordant, etc (Barni et al., 1991).

Natural and synthetic dyes are the two main groups of colors used in textile dyeing. Natural dyes have been used to color food materials, leather, and textiles including wool, silk, and cotton since prehistoric times. Due to the rising environmental consciousness to avoid some hazardous synthetic dyes, the use of non-allergic, non-toxic, and environmentally friendly natural dyes on textiles has assumed major relevance. Currently, synthetic compounds are used to dye textile textiles, and because they are non-biodegradable and carcinogenic, they contribute to water contamination as well as issues with waste management. Natural dye can be used to address these issues. The majority of natural dyes—also referred to as natural pigments—come from plant roots, stems, leaves, flowers, fruits, animals, or naturally colored ores. Colorants used in natural dyes are derived from plants, invertebrates, insects, fungi, or minerals. Vegetable dyes, the majority of which are natural, are mostly derived from various plant parts, including roots, stems, seeds, barks, leaves, and wood. Insects, snails, fungi, and other biological sources are also available. Before chemical dyeing, natural sources accounted for the majority of textile dye supplies.

To counter the harm that synthetic dyes do to the environment, many commercial dyers have recently begun employing natural dyes. Most of the plants used to extract dyes are considered medicinal, and recent research has shown that several of these plants have an antibacterial impact. The antibacterial qualities of these plant dyes help the textile materials last longer when they are applied to textiles. Color has played a significant impact in the emergence of various human cultures all over the world. Color has a big impact on our lives, our wardrobes, and the furniture in our houses. Natural colors are determined to be environmentally beneficial and to have no carcinogenic or allergy effects when compared to synthetic dyes.

History of natural dyes

Around 2600 BC, the first natural dye was discovered. To dye skin, jewelry, and clothing in the past, natural pigments were combined with water and oil. In the past, caverns in areas like Spain were painted with natural dyes. According to data, herbs, barks, and insects were used as dyes in China about 5000 years ago. A two-step procedure for making green dye was invented by Navajo textile artist Nona bah Gorman Bryan. The Churro wool yarn is first dyed yellow with *Artemisia tridentata*, a sage plant, and then given a black dye bath afterward. Bright pink pigment was found in rocks recovered from far beneath the Sahara in Africa by the research team. The pigment's age was determined to be 1.1 billion years.

Natural Dye

Natural dyes are colorants derived from organic materials. Up to the middle of the nineteenth century, natural dyes were utilized for all kinds of textile dyeing and printing. The introduction of synthetic dyes led to a decrease in the usage of natural dyes, despite the fact that they were more affordable and had superior fastness properties. However, the resurgence of natural dyes is due to increased consumer knowledge of the negative effects of synthetic dyes, global environmental concern, and strict environmental laws. The beauty of natural colors is breathtaking. Different expectations can be made of the coloring material that is collected from the roots, stems, leaves, or flowers of different plants.

Advantages of natural dyes

Natural dyes like turmeric have anti-microbial properties, protecting the fabrics and wearers from microbial attack. Some natural dyes have mosquito repellent and flame resistant properties. Natural dyes are environmentally friendly because they are extracted from natural sources and produce soft, calming colors. They also offer excellent protection from UV rays.

- **Minimal Environmental Impact** - Because natural dyes are derived from sources that are not damaging to the environment, consumers find them to be quite appealing. Natural colors are biodegradable, and their disposal doesn't harm the environment.

Natural colors are obtained from renewable resources that can be used without causing environmental harm.

- **Safe** - When swallowed, some natural colors, including the carmine found in lipsticks, do not hurt or pose health risks.

Disadvantages of natural dyes

Natural dyes have a number of drawbacks, including: difficulty in storing, time-consuming dye extraction, difficulty in reproducing the same color shade, fading of created color due to impurities in natural dyes, and seasonal availability.

- It is challenging to standardize the natural dyeing procedure

Classification of natural dyes

Natural dyes are classified into three types based on the source of origin namely vegetable dyes, animal dyes, and mineral dyes.

Plant dyes

Inadvertently staining clothing with fruit or plant fluids led to the discovery of the earliest dyes, which were of botanical origin. Plants can produce vegetable dyes in a variety of

ways, including through the production of leaves, flowers, fruits, pods, bark, etc. These vegetable dyes can be used either directly or in conjunction with other mordants.

Henna: The dried leaves of the Henna plant, *Lawsoniainermis*, are used to make the dye. It results in orange-yellow color. It works well for dyeing silk and woolen fabrics.

Blue dye indigo is referred to as the "monarch of all-natural dyestuffs." It gives off a blue tint. It is derived from *Indigofera tinctoria*, a leguminous plant, and its leaves. It works well for dyeing wool and cotton.

Indian Madder: It causes various colors of red to appear on textiles. Fabrics made of cotton and wool can be dyed with it. It is taken out of *Rubia tinctoria* roots.

Turmeric: It causes various yellow hues to appear on textiles. It works well for coloring wool, silk, and cotton. The turmeric plant's ground root (rhizome) is used to make the yellow dye (*Curcuma longa*).

Marigold: It is made from the flower of the *calendula officinalis* plant, which has yellow or orange petals. It works well for coloring wool and silk fibers.

Tea: To extract the dye, tea leaves (*Camellia sinensis*) or tea powder are employed. It generates various brown hues.

Onion: The onion's outermost skin or peel is used to extract the colour (*Allium cepa*). If dried properly, onion skins can be used for a year.

Senegalia catechu: The resin is used to extract the dye. the plant material that comes from acacia trees. Brown hues are produced.

Old fustic, also known as yellowwood, is made from the heartwood of the dyer's mulberry, a sizable tropical American tree (*Chlorophora tinctoria*, or *Maclura tinctoria*), which belongs to the mulberry family, *Moraceae*

The dye produces yellows on wool mordanted (fixed) with chromium salts.

Animal dyes

According to the study, the red-mouthed rock shell collapse was caused by the sea's warming, which was one of the main sources of Tyrian purple. The most regal and revered of all ancient dyes, Phoenician purples and BIBLICAL BLUES were made from Levantine sea snails of the *Muricidae* family. It's possible that these mollusks were used to make the royal purple color.

Cochineal dye

The dried bodies of female red bugs are used to make cochineal dye (*Dactylopius coccus*). With mordants like aluminum and tin oxide, it creates the colors crimson and scarlet. The majority of the time, this dye was used to color wool and silk. These colors have exceptional fastness characteristics.

Tyrian Purple

The Mediterranean Sea's sea snails are used to make this color. Because the amount of dye produced was so small, it was also exceedingly expensive. As a result, it is known as Royal purple.

lac dye

The liquid released by the lac bug (*Lauiferlacca*), which inhabits the twigs of various types of plants including banyan trees, is used to make this color. This dye is extracted from the sea snails found in the Mediterranean Sea. The amount of dye produced was very limited and therefore very expensive. Hence, it is called Royal purple.

Mineral dyes

Mineral dyes are dyes that have been derived from mineral sources. Chrome green is derived from a chromium and oxygen molecule, Chrome red is derived from a chrome and lead compound, Chrome yellow is derived from a chromic acid and lead compound, while Prussian blue is derived from an iron and cyanide complex. The term "natural dye," which encompasses all colors made from natural materials, is more accurate because minerals are utilized to fix or improve the fastness of vegetable dye. Additionally, some minerals are employed to provide a coloring substance.

Synthetic Dyes

Direct or substantive dyes (soluble in water)

These colors were aqueously applied straight to the cloth. It involves soaking the fabric in an aqueous dye solution, taking it out, wiping off any extra solution, and then letting it air dry. Strongly polar direct dyes, like wool, are used to colorize polar or moderately polar materials (e.g., cotton, rayon). Since common salt is used throughout the dyeing process, some dyes, like Congo red, are sometimes referred to as salt dyes.

These dyes are further subdivided into two groups:

Acidic dyes

Acidic dyes include nitro naphthols such as acid orange-7 (orange-II), picric acid, and martius yellow. These dyes, which are of a proteinous type like wool and silk, come forth as a result of the interaction between the polar acidic group of the dye and the basic ($-NH_2$) group of the fiber. For example, orange-II.

Basic dyes

These are the cationic dyes with basic groups like $-NH_2$, $-NHR$, and $-NR_2$, as well as their salts (mostly in the form of HCl and $ZnCl_2$ salts). These are employed for immediately dyeing animal fibers, however cotton (vegetable fibers) is first moderated with tannin. Malachite green, magenta, para-rosaniline, etc. are a few examples. Aniline yellow and butter yellow, two azo dyes having a $-NH_2$ group, are now also regarded as basic dyes because of their fundamental makeup.

Vat dyes (insoluble in water) "Vat means vessel"

These dyes are sprayed just onto the fabric. These work best with cotton and rayon; silk and wool cannot be utilized. In this instance, the dyeing is done continuously in a big container called a vat. These colors are known as vat dyes for this reason. For instance, Tyrian purple and Indigo blue (6,6'-dibromoindigo).

These dyes are insoluble in water and are first reduced (also known as "vatting") in an alkaline medium, where they are then transformed into a form that is soluble in water (leuco compound).

Mordant dyes (or indirect or adjective dyes) (insoluble in water)

These dyes cannot be dissolved in water, so a third ingredient is added to bond the dye to the fiber. These dyes are referred to as mordant dyes, as is the third substance. Fiber is dipped in mordant, dried, and then dipped once more into the dye solution during the dyeing process. The mordant and dye combine to create a complex that is then placed on the fiber, giving it a lasting color. An acid mordant, such as tannic acid, is used for basic dyes while a basic mordant, such as metal salts $\text{Fe}(\text{OH})_3$ and $\text{Al}(\text{OH})_3$, is used for acid dyes. An illustration of a mordant dye is alizarin. When combined with different materials, it produces various hues. With Al and Sn salts, it produces a red tint with brownish red undertones.

Azo dyes (or ingrain or developed dyes) (insoluble in water)

These are put on the fiber right away. The procedure involves low-temperature diazotization and coupling reaction on the fiber itself. The fabric is first soaked in an alkaline phenol solution, dried, and then submerged in a cold diazonium salt solution. On the fiber itself, the azo dye is created. Due to the fact that these dyes, also known as developed dyes, produced inside the cloth at a low temperature, they are also referred to as Ice colors. An example of such a produced dye is para-red. These dyes can also be created in reverse. The fabric is soaked in an alkaline solution of phenol after being impregnated with an amine, which is subsequently diazotized and developed. The term "ingrain dye" is also used to describe such dye.

Disperse dyes (insoluble in water)

Although these colors are insoluble in water, they can dissolve some synthetic fibers. Disperse dyes are typically used in the presence of a solubilizing agent, such as phenol, cresol, or benzoic acid, as a dispersion of finely divided dye in a soap solution. High heat and pressures are used to carry out the absorption into the fiber. Acetate rayons, Dacron, Nylon, and other synthetic fibers are dyed using disperse dyes. Examples include Celliton Fast Blue B and Celliton Fast Pink B, both of which contain 1,4-N,N'-dimethylaminoanthraquinone.

Importance**Significance of dyes effect on surfactants**

Surfactants are used in a variety of industrial settings, including the dye industry because they can wet materials and aid in the dispersion of dyes, particularly those that are poorly soluble. By wetting and leveling or dispersing low solubility dyes, surfactants help with dyeing. Below the CMC, a true ion association complex forms between the ionic surfactant and dye. Interaction occurs due to the opposing charge in surfactant and dye (Hautala et al., 1973)

Dye – surfactants interaction

When dyeing textile fibers, the interactions between surfactants and dyes are extremely important from a practical standpoint. Surfactants perform a variety of functions in the dyebath. They can delay dye adsorption, enhance the solubility of less soluble dyes, and act as wetting and antifoaming agents. The latter is especially important when looking for a textile substrate with consistent coloration. Recently, surfactant mixtures have been used as leveling agents. Ionic and nonionic surfactants are combined to form mixtures, with nonionic surfactant concentrations above the critical micelle concentration (c.m.c.) and ionic surfactant

concentrations falling below the c.m.c. Ionic surfactants can function as a substrate for fiber or dye [Datyner., 1983]. It is possible for dye-surfactant complexes to develop when a surfactant has a charge that is opposite to that of the dye. As a result, a textile substrate can be colored uniformly at low temperatures by reducing dye adsorption onto textile fibers. Insufficient bath exhaustion could happen if the strength of complexes is too strong to prevent them from disintegrating as the temperature rises. When an ionic surfactant with the opposite charge is added to an ionic dye solution, it frequently results in the development of insoluble complexes, which take the form of precipitates. The ionic surfactant can be added in amounts greater than stoichiometric amounts to prevent precipitation, or nonionic surfactant concentration higher than the c.m.c. of the solution.

The interactions between dye and surfactant in aqueous solutions have been the subject of several investigations due to their enormous technological relevance. By allowing for a more rational application of surfactants as leveling agents in dyebaths, understanding how they work can considerably aid in the creation of dyeing processes that are more acceptable from a technological, ecological, and economic standpoint. In the framework of our study on the intermolecular interactions taking place between dyes and surfactants in dyebaths, the impacts of different factions on the strength and stability of the dye-surfactant complexes are detailed.

CONCLUSION

Hence this review presents gives the classification of dyes by dye class, their applications, Principles, follow the preparation of substrates for dyeing and the thermodynamics of dyeing systems. Each dye class is described in detail giving more specific information regarding the chemistry of the dye class and the most common mode of application.

ACKNOWLEDGMENTS

In order to prepare this article, the authors are very grateful to Prof. Dr. Amar Prasad Yadav, Prof. Dr. Ajaya Bhattarai, Dr. Tulashi Prasad Dahal, Dr. Shova Neupane, Electrochemical Laboratory (Kirtipur, Kathmandu) and Damak Multiple Campus.

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नेपालको विकासमा सन्थालको भूमिका

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सार

पूर्वी नेपालका भाषा, मोरङ र सुनसरी जिल्लामा परापूर्व कालदेखि वस्दै आएका सन्थाल अत्यन्तै गरिव र अभावको जिन्दगी व्यतित गर्दै आएका छन्। सन्थालले बोल्ने भाषा सन्थाली हो र यो भाषा आग्नेय एसीयाली भाषामा पर्दछ। २०६८ सालको जनगणना अनुसार सन्थालको जनसंख्या ५१७३५ रहेको छ। कामको सिलसिलामा यिनीहरू देशका अन्य क्षेत्रमा समेत बसोवास गर्दछन्। अन्य भाषा परिवारका प्रभावमा आएर लगभग १५०० जति सन्थालले आफ्नो मातृभाषा छोडीसकेको पाइन्छ। मलेरिया र जङ्गली जनावरको आतङ्कलाई भेलेका सन्थाल जातिले नेपालको माटोमा रगत बगाएका छन्। जङ्गला मुलुकलाई कृषियोग्य बनाए। खेती किसानी गरेर देशलाई उर्वर बनाउन महत्वपूर्ण योगदान दिएका छन्। सस्ता, भरपर्दा र इमान्दार मजदूरका रूपमा यिनको गणना हुन्छ। यिनीहरू स्वावलम्बी हुन्छन्, भिक्षा मागेर खाँदैनन्। आफ्नो जातिको अर्कालाई सहयोग गर्दा रमाउँछन्। विक्रमसम्बत् २० को दशकतिर सन्थाल अगुवाले सामाजिक र राजनीतिक क्षेत्रमा अतुलनीय योगदान दिएका छन्। प्रजातान्त्रिक आन्दोलन होस् या जनजीविकाका क्षेत्रमा होस् यी सन्थालले भरपर्दो काम गरेका छन्। तुरसा हेम्ब्रम, मंगल सोरेन जस्ता सन्थाली अगुवाका योगदान धेरै छन्। हालको अवस्थामा आफ्नो संस्कृति, भाषा, धर्मको जगेर्ना गर्न बुद्धिलाल सोरेन, भुजलाल टुडु, मोहन टुडु, सुन्दर वेसरा, वडाराम हेमरम, फुलकुमारी हेमरम, शिवु मुर्मू लगायतका योगदान धेरै छन्। हालको अवस्थामा सेवा क्षेत्रमा समेत सन्थाली अगाडि आएका छन्। आफ्नो भाषा, लिपी, संस्कृति जगेर्ना गर्न यी व्यक्तिसँग अन्य धेरै व्यक्ति सन्थाली युवा-युवती अगाडि आएका छन्। राज्यले दुरगामी महत्व राख्ने विषयमा यिनीहरूको अस्तित्व जोगाइ दिने प्रकारका नीति ल्याउनु वाञ्छनीय हुन्छ।

मुल शब्द: नेपाल, सन्थाल, विकास, योगदान, महत्व

विषय प्रवेश

नेपाल एउटा सानो भूपरिवेष्टित मुलुक हो। देश सानो भएतापनि यसको भौगोलिक तथा वातावरणीय विविधता पाइन्छ। साथै जनसंख्या र भाषा-भाषीका हिसाबमा समेत प्रशस्त फरकपन भेटिन्छ। २०७८ को तथ्याङ्क अनुसार देशको जनसंख्या २,९९,६४,५७८ रहेको छ। ती सम्पूर्ण मानिसहरू ४ प्रकारका भाषा परिवारका विभक्त भएको पाइन्छ। ती मध्ये एस्ट्रो एसियाटिक (Austro-Asiatic) परिवार

अन्तर्गत पर्ने सन्थाल जाति भापा, मोरङ र सुनसरी जिल्लामा पाइन्छन् । वर्तमान खुला समाजको परिवेशमा सन्थालहरू देशका विभिन्न भागमा बसोवास गरी राखेका पाइन्छन् । भापा र मोरङ जिल्लामा यस जातको राम्रो उपस्थिति छ ।

भारतका झारखण्ड, बिहार, पश्चिम बंगाल, उडिसामा पहिले सन्थाल बस्ति थिए । यिनीहरू मेहनती र स्वावलम्बी थिए । धनुषबाण चलाउन निपूण सन्थाल लडाकु थिए । सन् १७७९ मा सन्थाली युगपुरुष तिलका माभीले बेलापानी हुकुमतका खिलाप सशस्त्र सघर्ष चलाएका थिए । माभीको नेतृत्वमा सन्थाल युवाको ठूलो जमात तयार भयो । विस्तारवादी शक्ति हतियारयुक्त थिए भने मातृभूमिका रक्षक सन्थाली योद्धाविच घमासान लडाइ भयो । बेलायती सेनाले ठूलो क्षति बेहोरेको थियो । तर आधुनिक हतियारयुक्त अंग्रेजी सेनाको अगाडि धनुषधारी सन्थालको केही चलेन । सन्थाली युवा रक्षात्मक स्थितिमा पुगे र तिलापुर जंगलमा सीमित भए । राक्षसी स्वभाका अंग्रेजी सेनाले पुरै जंगल घेराउ गरे र एक एक गरेर सन्थाली योद्धा ढाल्दै गए । अन्ततः तिलापुर जंगलमा भूमिगत अवस्थामा रहेका तिलका माभी गिरफ्तारमा परे । उनलाई हार स्वीकार गर्न भनियो तर उनले बेलायती सर्त मान्न अस्विकार गरे । उनका दुवै हात अगाडी बाँधियो र घोडाको पछि उभ्याएर घोडा दौडाइयो ।

भागलपुरसम्म घोडाले घिसारेको हुँदा तिलका माभीको शरीर क्षतविक्षत भएको थियो । उनी बेहोस थिए तर प्राण गएको थिएन । अतः उनलाई भागलपुर कलेक्टर कार्यालयको अगाडी वनयानको रूपमा भुण्ड्याइयो । यसरी सन्थाल स्वतन्त्रताकालागि उनी सहिद भए । सयौं सन्थाली मारिए । यो आन्दोलन दबाइयो । त्यस बखतको सन्थाली पुसता मानिसक रूपमा पराजित भए । साना तिना विद्रोह भएपनि सन्थालीको ठूलो ज्वारभाटा उठ्न सकेन । भुसको आगो भित्रभित्रै सल्कदै गएको थियो । जल, जंगल जमिनलाई प्राणभन्दा प्यारो ठान्ने सन्थाल एक तर्फ उभिएका थिए भने अर्को जंगललाई फडानी गरेर बस्ति बसाउने र राजस्व उठाउने कुत्सीत मनसाय बोकेका अंग्रेजी शासक अर्कोथर्फ उभिएका थिए । अंग्रेजी शासकको मूल उद्देश्य आदिवासीलाई आफ्नो नेतृत्वमा ल्याउनु थियो । तर सन्थाली अगुवा यो पक्षमा थिएनन् । असन्तुष्टि बढ्दै गएको अवस्थामा सन्थाली चारभाइ सिदो (Sido) र कान्हु (Kanhu) , चाँद (chand) र भैरव (Bhairab) संगठित भएर बेलायती शासन विरुद्ध उत्रिन पुगे । बेलायती प्रशासक र उनका भारतीय एजेन्ट विरुद्ध हिंसात्मक लडाइले विपक्षी पराजित देखिए । हतियारयुक्त अंग्रेजी सेना पछि हट्यो । सन्थाली विरुद्ध उभिएका धेरै स्वदेशी दलाल मारिए । सन् १९५५ को सन्थाली हतियारबन्द हिंसात्मक आन्दोलनको प्रथम चरणमा बेलायती लखेटिए । सन्थाली स्वसासित क्षेत्र घोषणा भयो । बेलायती प्रशासक पुनः आक्रमणमा आए । आधुनिक हतियारयुक्त अंग्रेजी सेनाका अगाडी गाउँले हतियारले सुसज्जित स्थानीय सन्थालको केही चलेन । २०सौं हजार सन्थाली सेना मारिए । चारै अगुवा समेत समातिए । अंग्रेजी हुकुमत स्वीकारन अस्विकार गरेको हुँदा सन्थाली आन्दोलन तुहियो । सन्थालीका लडाकु निडर, स्वाभिमानी स्वभावले बेलायती तर्सिए र सन्थाली सहादत खेर गएन । माग बमोजिम अंग्रेजी सरकार परगन्ना टेनान्सी एकट ल्याउन वाध्य भयो ।

सन्थाल क्षेत्र घोषणा भयो जाँहावाट प्रहरी प्रशासन हटाएर सन्थाल क्षेत्रमा परगन्ना प्रमुख रबस्तिमा गाउँ प्रमुख (माभीही) व्यवस्था भयो । सन्थाली क्रान्ति र त्यसको परिणाम पश्चात सन्थाली अगुवा प्रायजसो शान्त देखिए । अंग्रेजी शासन भनभन कसिलो बन्दै गयो । अन्य क्षेत्रका राजा रजौटा सबै अंग्रेजी प्रशासकलाई कर बुझाउँदै जान थाले ।

सन्थालीको बहादुरी लडाईं स्थानीय अंग्रेजी प्रशासकले भूल्न सकेका थिएनन् । तसर्थ तेस्रो आन्दोलन उठ्न नदिन अनेक षडयन्त्र गर्न थाले । सन्थाल विरुद्ध साम, दाम, दण्ड र भेदको नीति, अङ्गीकार भयो । बेलायती मन्त्र “फुटाउ र शासन गर” सन्थाली माथि लागु भयो । २० औं हजार सन्थाल मरि सकेका थिए । स्थानीय प्रशासकले केही सन्थाललाई आफ्नो पक्षमा पारी सन्थाल स्थानान्तरणको मुद्दा अगाडी ल्याए । बेलायती उपनिवेशका अन्य देशका सन्थालहरूलाई पठाउन थालियो । गरिवीमा गुजारा चलाएका केही युवालाई आकर्षण रोजगारको प्रलोभन देखाएर लगियो भने कतिलाई जवरजस्ती विदेश पठाइयो र सस्ता मजदुरका रूपमा अन्यत्र काम लगाइयो । सोहीक्रममा ८ फेब्रुवरी १८८१ मा ३० परिवारका १०० जति सन्थालीलाई आसामका गौनपार जिल्लाका चिया बगानमा पठाइयो । उत्तर बंगालका कोक्राभार आदि क्षेत्रका चिया बगानमा काम लगाइएको थियो (दास २०१५) । सन्थाल परगनाबाट सन्थाललाई विस्थापितको क्रम चलिरहेको थियो । यसै शिलशिलामा नेपालका राणा शासकले तराईका भापा, मोरङका जंगल फडानी गर्दै वस्ती बसाउन प्रारम्भ गरे । सस्ता मजदुर चाहिएको थियो । पाहाडबाट युवा भारिए । मलेरियाको प्रकोपले सयौं व्यक्तिले अकालमा ज्यान गुमाए । जङ्गली जनावार, सर्पको त्यतिकै त्रास थियो । यस्तो अवस्थामा राणा शासकका आँखा भारततर्फ सोभिए र त्यताका राजसँग छलफल थालियो । अन्ततः दुम्मका जिल्लाबाट केही सन्थाल भिकाइए र भापा र मोरङका भित्र जङ्गलमा बसाइयो । सन्थालीहरू सजीवनका पत्ताहरूका सब्जी खाने र जङ्गलका कन्दमूल र जङ्गली जनावर खाने हुँदा शरीर मजबुत थिए । रोगव्याधसँग लड्ने आन्तरिक शक्ति हुँदा सन्थालले तराईका जंगलमा रमाउन पुगे (माननीय उमाकान्त गौतमसँगको वार्ता तथापि सन्थालले समेत प्राकृतिक विपत्ति बेहोरेका थिए । यसरी सन्थाल नेपालमा प्रवेश गरेका हुन् । एकातर्फ प्रशासनले जवरजस्ति अन्य देशमा स्थानान्तरण गर्ने अवस्थामा नेपालबाट भएको आमन्त्रणले उनीहरू यता आकर्षित देखिए । सन्थालको नेपालमा प्रवेश हुने यो एउटा कारण हो भने अन्य प्रमाण केलाउनु समेत सान्दर्भिक हुनेछ ।

समस्या कथन

सन्थाली भापा, मोरङ र सुनसरी जिल्लामा परापूर्वकालदेखि बसोवास गर्दै आएका अल्पसंख्यक, अविकसित जाति हुन् । जङ्गली जनावर र मलेरियासँग लड्दै भिड्दै आएका सन्थाली धर्ती पुत्र हुन् । यस क्षेत्रको माटोमा यस जातिका पूर्खाका रगत बगेको छ । जङ्गलाई कृषि योग्य र बसोवास योग्य बनाएको तथ्य बिसन सकिदैन । विकट क्षेत्रमा पूल, पैनी,सडक निर्माण गरेका छ । स्कूल, खेल मैदान, हाट-बजार बनाउन अहोरात्र लागि परेको पाइन्छ । प्रजातन्त्र पुर्नस्थापनामा यस जातिका अगुवाले खेलेको भूमिकाले उचित स्थान पाएको पाइदैन । थोरै मात्र अध्ययन, अनुसन्धान भएका छन् । अतः प्रस्तुत लेखमा सन्थाली अगुवाले सामाजिक, शैक्षिक, राजनीतिक क्षेत्रमा खेलेको सकारात्मक भूमिका उल्लेख गरी यस जातिका हृदयमा सकारात्मक भावनाको विकास गराउनु हो ।

उद्देश्य

प्रस्तुत लेख निम्न उद्देश्यहरूमा केन्द्रित रहने छ :

- क) सन्थाली अगुवाको सामाजिक, राजनीतिक र सेवाक्षेत्रको योगदानलाई प्रस्टयाउनु,
- ख) सन्थाल जातिभित्र सकारात्मक भावनाको विकास गराउनु,

अध्ययनको महत्व

वर्तमान नेपालको सामाजिक, आर्थिक, राजनीतिक एवम् सांस्कृतिक विकासमा सन्थालको महत्वपूर्ण भूमिका छ । मलेरियाले भरिएको समाज पुरै अशिक्षित थियो । केही ठुलाबढाका सन्तानले विदेशमा अध्ययन सम्पन्न गरी नेपाल फर्किएका थिए । भ्रूपा, मोरङ र सुनसरीका भित्र भागमा औपचारिक शिक्षा हासिल गरेका व्यक्ति भेट्न दुर्लभ थियो । मानव वस्ती कम थियो । हिंस्रक जङ्गली जनावरको त्रास त्यतिकै डरलाग्दो थियो । त्यस्तो भयानक अवस्था पारगरेर आजसम्म आइपुगेको सन्थाली समाजका बारेको प्रस्तुत लेखले समाजमा सकारात्मक सोचको विकास गराउने छ । सन्थालका पुर्खाले यस धर्तीमा बगाएको पसिनाको थोरै भएपनि दस्तावेजीकरण हुने हुँदा प्रस्तुत लेखकको दुरगामी महत्व रहने छ ।

अध्ययन विधि (Research Methodology)

प्रस्तुत अध्ययनमा प्राथमिक र द्वितीय स्रोतको प्रयोग गरिएको छ । प्राथमिक स्रोतअन्तर्गत तथ्याङ्क संकलन गर्न अनुसन्धानकर्ता स्वयम् सन्थाली वस्ती पुगेका थिए । त्यहाँ माझी अडामसँग सम्पर्क गरी त्यहाँ जानुको उद्देश्य प्रस्ट पारिएको थियो । सन्थालीका योगदानको चर्चा गर्न र दस्तावेजीकरण गर्न सन्थाल वस्तीमा आएको तथ्यले सन्थाल खुशी देखिएका थिए ।

द्वितीय स्रोतका रूपमा विभिन्न लेख रचना अध्ययन गरिएको थियो । माझी हडाम र स्थानीय व्यक्तिसँग सोधपुछ गरी नेपालको विकासमा योगदान दिने सन्थाली मित्रहरुको नानमावली संकलन गरिएको थियो । उपलब्ध गरिएका विवरणलाई विश्वसनीय र वैध बनाउन हरसम्भव कोसिस गरिएको छ । गुणात्मक विधि अन्तर्गत व्याख्यात्मक तरिका अपनाएर तथ्याङ्कलाई संकलन र विश्लेषण गरिएको छ । प्रस्तुत लेख सम्पन्न गर्न उद्देश्यमूलक नमूना छनोट विधि प्रयो गरिएको छ ।

अध्ययनको सीमा

अल्पसंख्यक र अविकसित सन्थाल जातिले यस समाजमा गरेको योगदान आफैमा एक वृहत् विषय हो । अध्ययनको क्षेत्र व्यापक र विस्तृत छ कारण सन्थाल भ्रूपा, मोरङ, सुनसरी जिल्लामा परापूर्वक कालदेखि बस्दै आएका र हाल देशका धेरै क्षेत्रमा सन्थाल पुगेका पाइन्छन् । सबै सन्थाल वस्तीमा पुग्न सम्भव भएपनि केही सन्थाल अगुवासँग छलफल गरिएको थियो । सन्थालका विषयमा विभिन्न व्यक्तिका मतहरु पनि फरक प्रकृतिका रहेका छन् । अतः विभिन्न समयमा उपलब्ध सन्थाल अगुवाका भनाई र अनुसन्धानकर्ता स्वयम्ले सन्थालसँग छलफल गरी प्रस्तुत लेख तयार गरिएको हो । त्यसर्थ सबै सन्थालका योगदान नसमेटिएका पनि हुन सक्छन् ।

तराईको विकासमा सन्थालीको योगदान र भूमिका

नेपालका सन्थालीको आगमनका विभिन्न अध्ययनले आफ्नै ढंगका व्याख्या भएपनि सन्थाल नेपालका नागरिक हुन् । विभिन्न समस्या बेहोरेर आजसम्म आइपुग्दा सन्थालले नेपालको माटेमा धेरै योगदान गरेको पाइन्छ । जसलाई निम्नानुसारमा विश्लेषण गरिएको छ ।

कृषि क्षेत्रमा योगदान

भ्रूपा र मोरङ जिल्लाका धेरै क्षेत्र वन जङ्गलले ढाकेका थिए । राणा शासकका आँखामा परेका जंगल लोभलाग्दा थिए । सखुवाका ठुलठूला रुख थिए जसको मूल्य भारतमा आकर्षक थियो । अंग्रेजलाई

रेलका लिंग र ठूलठूला भवन बनाउन मजबुत काठको आवश्यकता थियो । भारतका आदीवासी क्षेत्रका जङ्गल चलाउन त्यति सहज थिएन । साथै नेपालका तराईमा बस्ति बसाउनु थियो । यी सबै कारणले गर्दा राणा प्रशासक कोशी पूर्वका जंगल फडानी गर्न चाहान्थे । बस्ति बसाई राजस्व उठाउने अर्को लक्ष थियो । तसर्थ सरकारले जङ्गल फडानी र काठ निकासी गर्न स्वीकृति दियो । भारतीय ठेकेदार नेपाल भित्रिए । उनैबाट मजदुर समेत लिएर आए भने अन्य मजदुर राणा प्रधानमन्त्री चन्द्र समसेरले दुम्काबाट भिकाए । ती भिकाएका मजदुर मध्ये केही सन्थाली थिए र आफैले फडानी गरेको स्थानतिर किलो थलो बनाए । कोही सन्थाल दुम्का जिल्ला र कोही सन्थाल साहिबगन्ज जिल्लाबाट नेपाल आएका हुन् (मुन्सी) ।

तराईमा मौजा प्रथा थियो । स्थानीय राजवंशी, ताजपुरीया गनगाइका ठूलठूला गाउँ थिए । जग्गा जमिन हुँदा कृषि उपज राम्रो थियो तर मजदुरको अभाव थियो । त्यस्तो अवस्थामा आफ्ना छेउछाउमा रहेका सन्थाललाई उनीहरू मजदुरीमा लगाउँथे । कति सन्थालले अधिया, ठेक्का समेत गर्दथे । सन्थालीहरू ज्यादै इमान्दार थिए । चोरी, चकारी र ठगीकार्यमा कहिल्यै संलग्न भएनन् । सन्थाली मजदुरमा सबैको भरोसा थियो । आफ्ना गच्छे अनुसार सबै सन्तुष्ट थिए ।

मोरङको राजघाट, इटहरा, गोविन्दपुर र भापाको हल्दीबारी, कोरोबारी, वैगुन्धुरा, तोपगाछी, शिवगञ्ज, धरमपुर, गौरीगंज, धाइजन, भापाका धेरै क्षेत्रमा सन्थालहरूका स्वामित्वका धेरै जग्गा जमिन थिए । मेहनती हुँदा प्रशस्त उब्जनी उत्पादन गर्दथे ।

२००७ सालको क्रान्ति पछि नयाँ परिवेश सृजना भयो । राजा त्रिभुवनले बचे कुखेका जङ्गल फडानी गर्न अनुमति दिए । निजी जङ्गलका रुपमा ठूलाठूला जङ्गल राणा र राजाका परिवारका नाममा थिए । त्यस्ता जङ्गलबाट उनीहरू मनगो आमदानी गर्दथे । पछि यी जङ्गल पनि भारतीयका आँखाबाट ओभेले हुन सकेनन् । सन् १९५० को शान्ति तथा मैत्री सन्धि लादेका विस्तारवादी नेहरूले यस क्षेत्रका जङ्गलमा आँखा लगाए । जङ्गल फडानी गर्न र बस्ति बसाई राजस्व उठाउन विभिन्न व्यक्ति खटाइए । दोहोरो लाभ राजपरिवारले लि पहिलो मजबुत सखुवा भारत निकासीको रकम थियो भने दोस्रो बस्ति बसाएर डिट्टा, विचारी, पटवारी, जीमदारीलाई राजस्व उठाउने जिम्मा दिएको पाइन्छ । यी पदधारी बहिदार धेरै शक्तिशाली थिए गाउँ घरमा यी जग्गाको कृत उठाउने तर रसिदको व्यवस्था थिएन । यसरी राजारानीका आसे पासे, स्थानीय एजेन्ट गरिब नेपाली लुटेको तथ्य जाहेर छ । आफ्नो देह छोडी परलोक भएका त्यस्ता स्थायनी एजेन्टका नाम जो पवित्र लेखमा उल्लेख गर्न मनासिव लागेन । त्यस्ता दलाले गरिब मजदुर लुटे । ती दलालका आदेशमा गरिब सन्थालका भुप्रा भत्काएको गौरादह-३ जाम्बाडीमा यो लेखकले आफै देखेको छ । अन्य धेरै क्षेत्रका सन्थालका जग्गा जमिन शोषक, सामन्तले हडपेको समेत सुनिएको छ । यसरी ती दलाल शोषकका फटाहाले पछौटे, अशिक्षित समाजमा सन्थाललाई लुटे र त्यसको परिणाम अहिलेका व्यक्तिले भोग्नु परेको छ ।

यसरी आफूले फडानी गरेको जमिन आफ्नै अगाडी जवरजस्ती अर्काले भोगेको अवस्था पार गरेर वर्तमान अवस्थामा सन्थाली आइपुगेका छन् , अहिलेदेखि इमान्दार मजदुर कृषि मजदुर (विशेष गरी धान र जुट) का रुपमा कार्यगर्ने सन्थाल हाल भने अन्य पेशा व्यवसायतर्फ आर्कषित भएको पाइन्छ । चिया मजदुर, निर्माण मजदुरका संगठित रुपमा सन्थाल भेटिन्छन् भने व्यापारका समेत केही सन्थाल लागि परेका छन् ।

सामाजिक क्षेत्रमा योगदान

पढेलेखेका प्रारम्भिक अवस्थामा सन्थालका जाति कृषि क्षेत्रमा संलग्न थिए । अतिरिक्त समयमा सिकारका रमाउने । नदी खोला, ताल, पैनी, नाला, दहमा माछा मार्दथे । त्यस समयमा ग्रामीण क्षेत्रमा स्कूल खोलिएका थिएनन् । तसर्थ अन्य साह यिनीहरू अशिक्षित थिए । अनौपचारिक शिक्षाबाट समेत

बञ्चित थिए । बसाई सराईको क्रममा नेपालको पूर्वी तराइमा आइपुगेको हुँदा पुस्तादेखि धेरै टाढा थिए । अन्य जात धर्मसँग खास घुलमिल नगर्ने चलन थियो । त्यसो हुँदा बहुसंख्यक सन्थाल अशिक्षित थिए । यस्तो भयावह अवस्थामा पनि केही सन्थाल अगुवाले समाजमा राम्रो र प्रगतिशील भूमिका निर्वाह गरेको पाइन्छ । त्यस्ता समाजसेवी सन्थाल अगुवाको छोटो विवरण प्रस्तुत गर्दछु ।

लखन सोरेन सन्थाल

लखन सोरेनको जन्म राणा शासनका समयमा भएको थियो । समाज अशिक्षित हुँदा जन्म समयको कुनै प्रमाण भेटिँदैन । उर्लाबारी -८ राजघाटका अगुवाका अनुसार समाजमा केही गरौं भन्ने भावनाका लखन बाटो निर्माण, बाँध, पैनी, कुलो निर्माणमा सक्रिय थिए । राजघाट जङ्गलले भरिएको थियो । दुर्गापुरी बजार उत्तर र पूर्वी क्षेत्रका धिमाल जाति थिए । त्यहाँ करमान धिमालको ठूलो हलचल थियो । राजघाटका लखन सोरेन र दुर्गापुरीका कहरमान धिमाल गाउँका साभा व्यक्ति थिए त्यसकारण पंचायती व्यवस्थाको प्रारम्भिक चरण २०१७ साल पछि कहरमान राजघाट पंचायतको प्रधानपञ्च मनोनित भए भने लखन सोरेन उपप्रधान पञ्चमा मनोनित भए । यस मनोनितले के प्रष्ट पाउँछ भने लखन एक शिक्षित, सामाजिक व्यक्ति थिए । तत्कालीन जिम्दार, मौजावालहरूका पत्यारिला थिए । उनका नातेदार भारतवर्षमा राम्रै पदमका रहेका थिए । अतः उनीहरूको सकारात्मक प्रभाव लखनमा परेको बुद्धिलाल सोरेन बताउछन् । बुद्धिलालकी आमाका अनुसार लखन सन्थाली गाउँको माभीहराम (गाउँ मुखिया) थिए । उनीसँग प्रशस्त जग्गा जमिन रहेछ । आफ्ना अधियार सहयोगी आफ्नै थर गोत्रका राखी उनीहरूको दुःखमा सकेसम्म सहयोग गर्दा रहेछन् । गाउँ घरमा यिनीहरूमा धान काट्ने चलन परम्परागत हो । अहिले पनि यो चलन विद्यमान नै छ । दिनीमा धान काट्दा २३ मन धानमा २० मन धान जग्गा साहुलाई बुझाएर रहेको ३ मन धान काट्ने, माड्ने र धान थन्काइदिने व्यक्तिले लग्छन् । यस प्रथालाई दिनी प्रथा भनिन्छ । दररेटको कुरा गर्दा ३ मनका दरले भनिन्छ । कतै कतै ४ मनको दर पनि चलनमा छ । धान भकारीमा थन्क्याइ वा काँटामा पठाइसकेपछि दिनीमा धान काट्ने व्यक्तिको कर्तव्य सकिन्छ । त्यहाँ उसको कुनै बन्धन हुँदैन । तर सन्थाल वस्तिमा अनौठो प्रथा रहेछ । धान भकारीमा राखिदिएपछि पनि काट्ने व्यक्ति मुक्त हुँदैनन् । स्व. डम्बर हास्दाका अनुसार साहुको घरमा वर्षभरी धान ढिकीमा कूटीदिनु पर्ने अनौठो चलन छ । भकारीबाट धान निकालेर सुकाई दिनु पर्ने र साँझपख ढिकी कुटेर, निफनेर साहुको घरमा भित्रयाई दिनुपर्ने चलन रहेको पाइन्छ । त्यसो हुँदा जग्गावाला सन्थाली आफ्नालाई धान काट्न दिँदा रहेछन् ताकि वर्षभरी ढिकी जाँतो गरिदिउन भनेर । यो प्रथाको विरुद्धमा लाखन आवाज मात्र उठाएनन् आफ्ना सहयोगीलाई धान थन्क्याइ सकेपछि कुटानी , पिसानी प्रथाबाट मुक्त गरिदिएछन् । त्यसो हुँदा आफ्ना समुदायमा उनी प्रसिद्ध र गाउँकै अगुवा रहेछन् । धिमाल समुदायका गरिब, दुःखीका पक्षमा समेत लखन कुर्लेर बोल्ने चलन रहेछ ।

त्यस समयमा गाउँ समाजमा त्यति भए पुगी हाल्यो । अतः उनको उपप्रधान पञ्चको जिम्मेवारी राम्ररी निर्वाह गरेको पाइन्छ । कहरमान धिमालको समयमा भएका विशिष्ट कार्यलाई उल्लेख गर्छन्- प्रत्येक वडामा वडा समिति गठन, धरमभकारीको व्यवस्था, जंगल फडानी र बस्ति विस्तार कार्य भए भने बजेटको यकिन विवरण थाहा हुन सकेन । यी प्रगतिशील कार्यमा अवश्य पनि लखन सोरेनको साथ रहनु पर्दछ । लखनसोरेनको सामाजिक कार्यको फल राजघाट क्षेत्रका सन्थालले पाएको र भराइबुसले लखनका सन्तानलाई धेरै आशीर्वाद दिएका छौं सोही टोलका विरेन्द्र सन्थाल बताउछन् (राजघाट गा.वि.स., बुलेटिन २०६६) ।

बुद्धिलाल सोरेन

सोरेनको जन्म २०२४ सालमा तत्कालीन राजघाट गा.वि.स. वडा नं. .. हाल उर्लावारी न.पा. वडा नं ८ राजघाटमा भएको थियो । सोरेनको ३ छोरा मध्ये जेठा बुद्धिलाल सानै उमेरदेखि असल चरित्र बोकेको र अहिले पनि सामाजिक कार्यमा समर्पित भएको गाउँका भद्र भलाद्मीहरु बताउँछन् । औपचारिक शिक्षा हासिल गरेका सोरेनले सन्थाली लिपी “ओल सिकी” को राम्रो अध्ययन गरेका छन् । सन्थाली युवालाई कुलतमा फस्न नदिन उनी खबरदारी गरिरहेका छन् । आफ्ना हजुरबुवाले जोडेको जग्गामा माझी थान स्थापना गरेका छन् । उर्लावारी न.पा.को आर्थिक सहयोग र सन्थालीबाट मुष्ठिदान उठाएर २ तले उक्त थान निर्माण गरका छन् जुन भव्य देखिन्छ । उक्त भवनमा सन्थालका देवता र देवीका प्रतिमा स्थापना गरेका छन् । प्रत्येक आइतवार त्यहाँ सन्थाली भेला हुन्छ । पवित्र भएर त्यहाँ पूजा र आरधना हुन्छ । भवनका दुईवटा ठूला हलमा विविध कार्यक्रम जस्तै सन्थाली युवा युवतीलाई संस्कारयुक्त हुन तालिम, अन्धविश्वास र कुरीति हटाउनु पर्ने भावनाको विकास गराउँदै छन् । उनले उर्लावारी, इटहरा, गोविन्दपुर क्षेत्रमा सन्थाललाई मूल धारमा ल्याएका छन् । बुद्धिलाल तीनै उद्देश्यकासाथ अगाडी बढेका छन्

- क) सन्थाललाई शिक्षा दिई आफ्नै खुट्टामा उभिने बनाउनु ,
- ख) सन्थाल समुदायमा विद्यमान कुरीति जस्तै बोक्सी प्रथा हटाउनु ,
- ग) रक्सी र कुलतबाट आफ्नो समुदायलाई मुक्त गराउनु ,

आमा भइसकेकी आफ्नी बुहारी सुनितालाई कक्षा १२ सम्म पढाएका बुद्धिलाल उनको मिसनमा सफल भएको सबै गाउँले हेर्न चाहान्छन् ।

सामाजिक क्षेत्रमा गरेको योगदानको अर्को पाटो केलाउनु जरुरी छ । सन्थाली समाज ज्यादै अनुशाति र संगठित हुन्छ । प्रत्येक गाउँमा एउटा संरचना हुन्छ । त्यस सामाजिक संरचनाको आफ्नै परम्परागत नियम हुन्छ । सामाजिक संरचनाका बारे a Portal for Santals : Religion and social system मात्र निम्न ढाँचा भरिन्छ ।

माझी (Village headman), जगमाझी (Deputy Village Headman), परानिक (Assistant to Village Headman), गुडित (Secretary to village Headman), जोग परानिक (Deputy Paranic) , नायकी (Head Village Priest), कुदम नायकी (Assistant to village Priest) यो सामाजिक ढाँचा परम्परागत ढाँचा हो यसलाई हालको भारतवर्षमा यस्तो भेटिन्छ माझी, परानीक, जोग परानीक, गोडित, नाइकी, यसरी पाँच सदस्य सन्थाल गाउँ प्रशासक हुन्छ । प्रमुख र अन्य पदीय चुनाव माथि सर्वसम्मत रुपमा हुन्छ । गाउँ भेलामा सर्वसम्मत रुपमा उक्त प्रशासनिक संरचनाको चयन हुन्छ ।

मुर्मुले नेपाली समाजमा सन्थाली प्रशासनका सात तह उल्लेख गरेका छन्-

माझी हडाम, जग्माज्यही, पारानिक, नायके, गडते, कुडाम नायके, जग्पारनिक यसरी नेपाली समाजभित्र सन्थाली सामाजिक ढाँचाको छुट्टै अस्तित्व रहेको पाइन्छ । सन्थाली सामाजिक प्रथालाई माझी हडाम प्रथा भन्दछन् । यसको काम आफ्नो समाजमा शान्ति सुव्यवस्था कायम राख्नु, धर्म संस्कृतिको प्रवर्द्धन र निरन्तरता दिन समाजभित्रको भैँभगडालाई एक आपसमा मिलाउनु मुख्य हो । सबै विषयमा गम्भिर ढंगले छलफल हुन्छ र अन्त्यमा माझी हडामको फैसला सर्वोपरि ठहर्छ । त्यस विरुद्ध कसैले आवाज उठान नपाउने व्यवस्था छ । जस्तोसुकै जटिल मुद्दा पनि समाजभन्दा बहिर नजाने र कहिले कतै पनि

सन्थालहरु आफ्ना समुदाय विरुद्ध प्रहरी, प्रशासनमा गएको पाइँदैन भनी कमल गा.पा. अध्यक्ष हुकुमसिंह राई बताउनु हुन्छ । अन्याय महशुस भए मुर्मुरिदै पीडित रक्सी पिउँछ तर हो हल्ला गर्दै हिडेको पाइँदैन । यसलाई अन्याय भन्न मिल्दैन गाउँको कुरो गाउँमा मिलापत्र गर्नु, फेरी त्यस विषयमा नकोट्याउन र शान्त रहनु असल पक्ष हो । सन्थाली समाजमा दीर्घकालिनरूपमा कसैलाई अन्याय पर्दैन । मुद्धा मिलेपछि एक आपसमा खुशी साटासाट हुन्छ । हल्का भोज हुन्छ ।

सांस्कृतिक क्षेत्रमा योगदान

सन्थाल “सरना” धर्म मान्दछन् “सारना” अन्तर्गत विविध सांस्कृतिक कार्य गर्दछन् । वाहा पर्व, सोहराई पर्व, जान्थाड पर्व, एरो पर्व पुरा उत्साहका साथ मनाउछन् । वर्तमान नेपालमा यी पर्व मनाउन निकै कठिन भएपनि बडो सुन्दर तरिकाले मनाएको पाइन्छ । रोजी, रोटी, दिनी, मजदुरी गरेर ल्याएको थोरै पैसाले बडो सन्धीत गरी सांस्कृतिक जोगाएको पाइन्छ । घरमा आएको अतिथिलाई गच्छे अनुसार सत्कार गर्छन् ।

सन्थाल अत्यन्तै अनुशासित जात हो । आफ्नो पेशामा अथक परिश्रमपूर्वक लागि पर्छन् । आफ्नो दैनिक कार्य नियमित गर्छन् । साँझको खाना पश्चात सांस्कृतिक कार्यमा जुटेको पाइन्छ । परम्परादेखि बजाइएका बाजाहरु आ-आफ्नै ढङ्गले बजाएको पाइन्छ । बाजाहरुमा तिरियो (मुरली) प्रमुख एवं आकर्षक बाजा हो । तिरियोमा सातवटा प्वाल हुन्छन् । यसलाई प्रेमको प्रतिकको बाजा भनिन्छ । सन्थाल यूवाले यो बाजा लयबद्ध बजाएर युवतिको मन जिच्छन् भनिन्छ ।

यस्तै अर्को महत्वपूर्ण सन्थाली बजा “तामक” (मादल) हो । तिरियो र तुमदाक बजेको सन्थालीमा सुनिन्छ । यी दुवै बाजा लिएर हिड्न सजिलो र आफ्नै लयमा बजाउन मिल्ने हुँदा सबै जात धर्ममा महत्वपूर्ण मानिन्छन् । तथापी सन्थाली वस्तिका यी दुई बाजाको बेग्लै पहिचान भेटिन्छ । धोद्रो बनाम, फेत बनाम, तामाक, जुनको आदि बाजाहरु विभिन्न अवसरमा बजाइन्छ । यी सबै मनोरञ्जनात्मक साधनको तयारी भित्रिभित्रै गर्छन । दशरा (दशैं) को अवसरमा आयोजित दशैं मेलामा यी सबै बाजाहरुको भरपुर उपयोग गरिन्छ ।

भापा जिल्लामा दशैंका अवसरमा विभिन्न मेलाको आयोजना हुन्छ । मेलामा छिमेकका गाउँ, वस्तिबाट प्रशस्त मानिस आउछन् । मिठाईको विविध पकवान उपलब्ध हुन्छन् । सबैभन्दा धेरै जेरी (जुलव) खरिद विक्री हुन्छ । मेलमा धेरै आनन्द लिन्छन् । सन्थाल नेतृत्वले मेलाका रोसनीको काम गर्छ । पहिले पहिले सन्थाल वस्तिमा १५-२० घर हुन्थे र प्रत्येक वस्तिले एउटा समूह बनाई नाचगानमा सहभागी हुन्थे । पुरुषहरु आर्कषक भेषभूषामा बजार जाने भएपनि नाचगानका समूहमा संगठित भएका व्यक्ति औपचारिक ड्रेसमा हुन्छन् । पहिले आफ्नै पाराका भेष भए पनि हाल एउटा समूहको एउटै प्रकारको युनिफर्म भेटिन्छ । आजकल समूहको नाम समेत प्रिन्ट भएका ड्रेस लगाएर समूह नाचमा भाग लिन्छन् । यो नाचको बारे भट्टराई लेख्छन्-

यो परम्परागत नाच जोगाउन सन्थाल अगुवाले विभिन्न समस्या भोगेको बताउछन् - उनका अनुसार सर्वप्रथम युवा कामको खोजीमा अन्यत्र जान्छन् र कार्यक्षेत्रमा रहने हुँदा अन्य धर्म, र सांस्कृतिक समूहसँग घूलमिल हुन्छन् । यो नयाँ संस्कार राम्रो भएपनि उनीहरुको सन्थाली समाजसँगको दुरी क्रमशः कमजोरी हुँदै गएको छ । सन्थाल संस्कृति औपचारिक मात्र गर्न थालेका छन् । पहिले अर्थात् विसको

दशकमा सन्थालका धेरै मोहीपानी हक भएको यो लेखकले स्वयं देखेको छ । त्यस अवस्था वस्ति एकीकृत थिए । सांस्कृतिक कार्य सहजताका साथ हुन्थ्यो । त्यस अवस्थामा राज्यसँग कसैको पनि अपेक्षा हुँदैनथ्यो ।

हालको खुला एवं बहुलवादी समाजमा व्यक्ति एवं समाजले धेरै क्षेत्रका प्रतिस्पर्धा गर्नु पर्दछ । आर्थिक उपार्जन स्रोतमा गाउँले समाजको पहुँच कम छ । विपन्न आदीवासी जनजाति भन्दा पनि अझ कमजोर अवस्थामा रहेका सन्थालले आफ्ना सांस्कृतिक पर्वहरू खुम्च्याउँदै लगेका थिए । दशैं मेलामा संलग्न सन्थाल नाचले सबैलाई मनोरञ्जन दिन्छ । मेलाको प्रमुख आकर्षक पनि सन्थाल नाच हो । तर दिन भर नाचेर घर फर्किए पछिको आर्थिक तङ्गील सन्थाल दिक्क भएको पाइन्छ र कमजोर आर्थिक स्थिति हुँदा सन्थाली बाजा लगायतका सामग्री तयार गर्न चुनौती थियो। विस्तारै विस्तारै दशैं नाच लोपोन्मुख अवस्थामा पुग्न लागेको छ । अहिले आएर स्थानीय सरकार र केही सामाजिक संस्थाहरू सहयोगका साना हात फैलाएका छन् । तर संगठित सन्थाल न्याएका तुलनामा त्यस्ता सहयोग नगण्य भएको सन्थाल अगुवा बताउँछन् ।

सन्थालले दशैं मेलामा प्रदर्शन गर्ने नृत्यले एकातर्फ मेलावारीलाई मनोरञ्जन दिन्छन् भने अर्कोतर्फ यस देशको राष्ट्रियता मजबुत पार्ने कार्यमा समेत जुटेको पाइन्छ । आजकल प्रत्येक क्षेत्रबाट मेला टोली आउँछ । १०-१५ कि.मि.सम्म हिँडेर मेला टोली मेला स्थल पुग्दछ । सर्वप्रथम टोलीको व्यानर बोकेर दुईजना अगाडि हिड्छन् । त्यसपछि सूर्य चन्द्र अंकित राष्ट्रिय भण्डा बोकेको एक युवा हुन्छ । नाचटोलीका सिरमा फेटा वा टोपी हुन्छ ती फेटामा राष्ट्रिय भण्डाका साना रूप फहराएको हुन्छ । त्यस्तो अद्भूत दृष्य विरलै देख्न पाइने हाम्रो समाजका सन्थालका सिरमा फहराएको राष्ट्रिय भण्डाले सबैको मन मस्तिष्क जितेको हुन्छ । हिजो मलेरिया, जंगली जनावर र सर्पआदि डरलाग्दा समस्याले पिरोलिएका सन्थाल आज देशको सान राष्ट्रिय भण्डा राखेर भने देशको मान बढाएका यस जातजतिप्रति सबैको सम्मान रहोस् यही चाहना राख्छन् सन्थाल अगुवा ।

गाउँघरमा मनाइने दशैं नाच

हाम्रो समाजमा दशैं पर्वलाई महान चाडको रूपमा मनाइन्छ । यसलाई नयाँ कपडा लगाएर मिठो खानाको स्वाद लिने र ठूला बढाको आशीर्वाद लिने चाडका रूपमा मनाइन्छ । यस चाडमा सन्थाल समुदाय दशैंनाच घर घरमा घुमाउँछन् सन्थालले । सन्थालले मनाउने दशैं नाचका बारे भट्टराई () लेख्छन् ।

यसरी दशैं मेलामा मनोरञ्जन दिने संगठनात्मक परिचय दिने कार्यका साथै नाच टोलीका सदस्यको सिरमा फहराईएका राष्ट्रिय भण्डाको उचाई सगरमाथा भन्दा कम छैन । साथै गाउँ घरमा प्रदर्शन गर्ने गाउँले नाच दिने मनोरञ्जन वास्वतमा रमणीय छन् । यस जातको योगदानको जति चर्चा गरेपनि कम हुन्छ ।

राजनीतिक क्षेत्रमा योगदान

धेरै सन्थालीहरूले सामाजिक एवं सांस्कृतिक क्षेत्रमा सेवा दिएको चर्चा गरिसकेको अवस्थामा अब राजनीतिक क्षेत्रमा सन्थालका योगदानको चर्चा गरिन्छ ।

तुर्सा हेमरम

तुर्सा हेमरमको जन्म मा भएको थियो । अत्यन्त अविक्सित समाजमा जन्मिएका तुर्सा हेमरम श्रद्धेय वि.पी. कोइरालाको सम्पर्कमा आएपछि नेपाली काँग्रेसको पूर्णकालीन कार्यकर्ता भएका थिए ।

धारावासी (२०६७) को अनुसार तुर्सा हेमरम जस्ता पार्टी कार्यकर्ता भापा काँग्रेसमा नमुना मानिन्थे । २००७ सालको जनक्रान्ति पश्चात् पार्टी कार्यकर्ता गाउँघर पुगेका थिए । आफ्नो घरायसी काममा फुर्सद मिलाएर तुर्सा हेमरम पार्टीको संगठनात्मक काममा लागि पर्दथे । नेपाली काँग्रेसका पूर्व महासमिति सदस्य श्री पूर्णानन्द शर्मा स्मरण गर्नु हुन्छ २०१७ साल पछि तुर्सा ३ वर्ष भापा जिल्ला कारागारमा बन्दि जीवन बिताएका थिए । तीन वर्षको कठोर यातना पश्चात् जेलमुक्त तुर्सा अझ सक्रियताकासाथ पार्टीको काममा लागेको पाइन्छ । आफ्नो निजी स्वार्थ भन्दा माथि उठेका यी प्रजातान्त्रिक योद्धा प्रत्येक सन्थालका घर-घरमा पुगेका थिए ।

२०२५ साल पौष २३ मा नेपाली काँग्रेस भापा जिल्ला कमिटी पुर्नगठनका समयमा तुर्सा जिल्ला सदस्य भएका थिए (धारावासी ०६७) । पञ्चायती प्रशासनका आँखामा कसिगर बनेका तुर्सा २०४२ सालको सत्याग्रहको समयमा पक्राउ परी जेल परेका थिए । २०४६ सालको संयुक्त आन्दोलनमा तुर्साको धेरै सक्रियता थियो । जिल्ला दौडाहा र कार्यकर्ता भेटघाटमा व्यस्त थिए यी योद्धा । प्रजातन्त्रको पुर्नस्थापना पश्चात् २०४८ सालमा सम्पन्न ने.का. भापा जिल्ला अधिवेशनले तुर्सालाई जिल्ला सदस्यमा निर्वाचित गरेको थियो ।

२०४६ सालको जनआन्दोलनको तयारी चल्दै थियो, कार्तिक महिना थियो । म हनुमान मन्दिर चौकबाट उत्तर जाँदै थिए । मूलबाटो पश्चिम स्व. डा. गोपाल कोइरालाको क्लिनिक थियो । म प्रायजसो त्यहाँ निस्कने गर्दथे। हाम्रो भोजपुरे नातो थियो । त्यहाँ ५/७ व्यक्ति देखेँ । श्रद्धेय पूर्णानन्द सर, घनसश्याम रिजाल, अन्य अरु ४,५ जनाजति गफगाफमा मस्त थिए । पूर्णानन्द सरले मेरो परिचय गराउने क्रममा मेरो परिचय तुर्सा हेमरमसँग भएको थियो । लगभग १० मिनेट जति हेलेो हाई नै मेरो पहिलो र अन्तिम भेट थियो श्रद्धेय तुर्सा हेमरमसँग । धेरै पछि म ०६०-०६१ सन्थाल सम्बन्धि लेख लेख्न सिलसिलामा मैले तुर्सालाई सम्झिए तर उहाँले यो लोक छोडी वि.पी. कोइरालाका सामीप्यमा पुगी सकेको जानकारी पाए पूर्णानन्द सरबाट ।

धारावासी (२०६७) का अनुसार सन्थाली अगुवा मिस्त्री हेमरम, रघुनथ मुर्मू, मङ्गल हेमरम, धोधाला हेमरम, खुडुम हेमरम, नारायण टुडु, प्रधान हेमरम आदि प्रजातन्त्रवादी सन्थालले कस्टपूर्वक जेल जीवन बिताएका थिए । यिनीहरूको सर्वस्वहरण भएको थियो । पञ्चायतीकालमा धेरै सन्थाली अगुवाले खेलेको प्रजातान्त्रिक भूमिका कालरात्रीरूपी शासकलाई पाच्य भएन । फलस्वरूप धेरै सन्थाल दमनमा परे । कतिले पूर्खाहरूले जोडेको थातथलो छोडेर अन्यत्र पलायन भए । सर्वस्वहरणमा परेका सन्थाली मजदुरका जीवन जिउन बाध्य भए । यही क्रममा २०१९ सलमा मास्टर भैया टुडु प्रहरी गरिफतारीमा परे । प्रहरी हिरासतमा धेरै यातना भोग्नु पऱ्यो फलस्वरूप उनी मारिए (धारावासी २०६७) ।

धारावासी (२०६७) लेख्छन राजाराम मुर्मू, जोहन सोरेन, गोपाल टुडु, चरण मर्डी, एसिकलाल मुर्मू, सुकुल किस्कू, चुडा हेमरम ७ वर्षभन्दा धेरै छिमेकी मुलुक भातमा निर्वासनमा रहनु पऱ्यो । उनीहरूका जग्गा जमिन सबै सर्वस्वहरण भयो । सुपल सन्थालको सम्पुर्ण सम्पत्ति जफत भयो ।

३-७ वर्षसम्म निर्वासनमा बस्नेहरूमा गोपाल हास्दा, किस्टु हेमरम, मंगल हास्दा, किष्टु हेमरम, मंगल हास्दा, लुथ्रो हेमरम, जुगा सोरेन, हनुमान मर्डी छन् (धारावासी, २०६७) । धारावासी का अनुसार सुरेश वास्की, मुन्समी मुर्मू, बाबुलाल टुडु, चेर्खा टुडु, छोड्गा टुडु, लाखिराम टुडु ती वर्षभन्दा बढी समयसम्म जेल बसेका थिए साथै नारायण सोरेन केही समय जेल बसेका थिए । आर्थिक अवस्था समाप्त पारिएका सिष्टु सोरेन, लखाई सोरेन र मोहीपानी हकबाट बेदखल गरिएमा जीवन मुर्मू, भूमि मुर्मू र आडी हुन् ।

यसरी सन्थाल जाति प्रजातन्त्र प्रेमी थिए । २०१७ सालको कालो काण्डपछि सन्थालले प्रजातन्त्र पुर्नस्थापनाका लागि धेरै योगदान दिएको पाइन्छ ।

भुजुलाल टुडु, गौरीगञ्ज-२ तुलाचन

भुजुलाल टुडुको जन्म २०१० सालमा गौरीगञ्ज-२ तुलाचन (तत्कालीन कोरोबारी) मा भएको थियो । यिनका पिता बाँया टुडु अर्काको जमिन अधिया लिएर ठेक्कामा खेती गर्दथे । वाल्यकाल टटुवामारीमा वित्यो । पठन-पाठन टटुवामारीमा प्रारम्भ भयो , त्यसपछि २००८ मा स्थापित गौरीगञ्ज स्कूलमा कक्षा ४ सम्म अध्ययन पश्चात २०२४ पश्चिम वंगाल भारतमा अध्ययन गरे र पुनः कक्षा ७ देखि गौरीगञ्ज स्कूलमा अध्ययन गरे । २०३३ सालमा एस.एल.सी. को परीक्षा दमक केन्द्रमा दिएको उनि बताउछन् । केही समय तुलाचन प्रा.वि. मा पठन-पाठन गराएका टूडुलाई धेरैले मास्टर भन्दछन् । उनका हजुरबुवा भुजू टुडु हुन जो असाध्यै मेहनती भएको भुजुलाल बताउछन् । हजुरबुवाको नामबाट नातिको नाम राख्ने चलन अनुसार भुजुलाल भएको उनि आफै बताउछन् । हजुरबुवाहरु तीन भाइ थिए । जंगलामूलुकमा उनिहरुले प्रशान्त जग्गा फडानी गरे । तुलाचन बजार दक्षिण लालमाटीमा प्रशस्त जमिन फाँडेका थिए । दिङ्गाधाप, धरमपुरमा ३ हजुरबुवाहले वडो मेहनतकासाथ जंगल फडानी गरे । सन्थाल वस्ती बस्यो । तुलाचनमा समेत ठूलो सन्थाल वस्ति थियो । भुजुलालका हजुरबुवाको मृत्यु पश्चात बायाँ टुडुलाई परिवार व्यवस्थापन गर्न कठिनाई पत्यो । बायाँ टुडु मूलत सोभा साधा थिए , खेती किसानी गर्थे । जग्गा जमिनको मतलब थिएन । २०२१ सालको जग्गा नापीका समय केही सन्थालले मात्र आफ्ना नाममा जग्गा दर्ता गराउन सके । विडम्बना आफैले फडानी गरेको जमिन बायाँ टुडुको दर्ता गराउन सकेनन् । यसबारे भुजुलाल भन्छन् “हामी साना थियौं , हाम्रो जग्गा नाप्ने दिन बुवा गौरीगञ्ज बजार गएका कारण अर्केले नापी दियो । पछि धनीपूर्जा आउँदा बुवाको नाम त मोही कलममा उल्लेख थियो । भएको के रहेछ, भने सिमानाको छिमेकीले आफ्नो जग्गा भनेर जमिन नापेछ र कस्ले जोत्छ भन्दा बायाँ टुडु भनि दिएछ । ४/५ वर्ष पछि धनीपूर्जा हेर्दा बायाँ टुडुका परिवारलाई सपना जस्तो भएको भुजुलाल बताउछन् । हजुरबुवाले फडानी गरे । केही वर्ष भोगचलन गरेपछि उनको मृत्यु भयो । बाँया टुडुले नपाउन सकेनन् र मोहीको रुपमा रहन पुगे । तर सन्थाल समुदायमा भुजुलाल अगुवा निस्किए । केही समय शिक्षक बने, समाजसँग परिचित भए ।

भुजुलाल टूडुको जीवनमा २०४६ पछि गुणात्मक परिवर्तन भएको पाइन्छ । कुनै गैरसरकारी संस्थाले भुजुलाललाई मानव अधिकार अन्तर्गत मजदूर व्यवस्थापन सम्बन्धि तालिम दियो । प्रथम पटक तालिम विराटनगर र दोस्रो पटक मिर्चैयामा भएको यिनी सम्झन्छन् । तालिमको मुख्य उद्देश्य तल्लो वर्गका महिलालाई सशक्तिकरण गर्नु थियो । पुरुष मजदुरको तुलनामा महिलाको ज्याला कम हुन्थ्यो । महिला चुपचाप थिए । मालिक शोषमा व्यस्त थिए । तर तालिमका दौरान सहजकर्ता पो प्रथा गलत बताए । समान काम, समान वेतन हुनुपर्छ भन्दै सहजकर्ता सबैलाई सचेत गराए । भुजुलाल चकित भए ।

उनका गाउँमा प्रशस्त सन्थाली महिला मजदूर थिए । उनले यो कुरा गाउँमा उठाए र व्यवहारमा लैजान पहल गरे । पहिले निकै कठिनाई भयो । सामान्य खेती किसान समेत मजदूर लगाउथे । कृषि कर्मका घाटा हुने भन्दै केही खेतीवालाले विरोध गरे तर क्रमशः अब मिल्दै गएको भुजुलाल बताउछन् । यसबारे भुजुलाल बताउछन् -“महिला र पुरुष बराबरी विउ काड्छन् तर पुरुषले धेरै ज्याला पाउँछ यो महिला विरुद्ध ठूलो विवेध हो ।” साधा जीवन उच्च विचार बोकेका भुजुलाल टूडू हाल मोही वापत पाएको जग्गामा खेती कर्म गरेर बसेका छन् ।

फुलकुमारी हेमरमका अनुसार हल्दिबारी निवासी स्व. ओविलाल हेमरम सरकारी विद्यालयमा लामो समयसम्म शिक्षण कार्यमा संलग्न हुनुका साथै धेरै सन्थालहरुलाई पढ्न प्रेरणा दिएका थिए । स्व. ओविरामले हल्दीबारी क्षेत्रका विकास निर्माण कार्यमा समेत नेतृत्वदायी भूमिका निर्वाह गरेका थिए ।

भुपेश मारदीले त्रिभुवन विश्वविद्यालयबाट स्नातकोत्तर गरी क्याम्पसमा अंग्रेजी विषय प्राध्यापनरत छन् । फुलकुमारी हेमरम राष्ट्रिय एकता आधारभूत विद्यालयका सन्थाली भाषा शिक्षण गरेकी छन् । साना मसिना सन्थाली नानीहरुलाई मूलधारको शिक्षामा समाहित गरी फूल कुमारीले शिक्षा सेवा गरिरहेकी छिन् ।

यसैगरी बाडाराम हेमरम, डिवीलाल मर्दी, तलु वास्के, लक्ष्मण मर्दी, शुक्लाल हास्दा, रुपा मुर्मू, सुन्दर वेसरा आदिले सफल शिक्षक भएका छन् ।

भापा गाउँपालिका निवासी विश्वदिप वेसरा नेपाल सरकारको उपसचिव पदममा कार्यरत छन् । यसैगरी दिलीप वास्के (बाह्रदशी गा.पा. निवासी), नेपाल सरकार अन्तर्गतको आदिवासी उत्थान राष्ट्रिय प्रतिष्ठान काठमाण्डौमा कार्यरत छन् । दिलीप सर आदीवासी उत्थान क्षेत्रमा अहोरात्र लाग्ने एक योद्धा भएको भापा गा.पा. निवासी सुन्दर वेसरा बताउछन् ।

धरमपुर निवासी बाबुलाल मर्दी समाज अगुवाका रूपमा परिचित छन् । धरमपुर निवासी दिलीप मर्दी लगायत केही युवा सुरक्षा निकायमा संलग्न भएर देशको सेवामा लागेका छन् । उर्लावारी-८ कदामधुटूका देवनारायण सोरेन नेपाल विद्युत प्राधिकरणमा कार्यरत छन् । यिनका अतिरिक्त सुभद्रा किस्कु, सुनामनी हास्दा, वर्षा टुडु, सुनिता सोरेन, फुलमनी मुर्मु, सविता मुर्मु आदि ।

संविधानसभा सदस्य माननीय मोहन टुडुले गणतान्त्रिक नेपालको संविधान निर्माणका महत्वपूर्ण भूमिका खेलेको पाइन्छ । वर्तमान प्रतिनिधि सभा सदस्यका रूपमा माननीय सोनु मुर्मु विद्यमान हुनुहुन्छ । रानी मुर्मु वर्तमान कार्यपालिकाका सदस्यका रूपमा हुनुहुन्छ भने जेठा मुर्मुले एक कार्यकाल जनप्रतिनिधिका रूपमा सेवा दिइसकेका छन् ।

निष्कर्ष

माथि उल्लेखित व्याख्या, विश्लेषणले सन्थाली भापा, मोरङ, सुनसरी क्षेत्रका धरतीपुत्र हुन भन्ने प्रमाणित गरेको छ । जङ्गल फडानी गरी उब्जाउ भूमि बनाउन सन्थालले धेरै पसिना बगाएका थिए । कृषि कर्मका साथै अन्य क्षेत्रका आर्थिक गतिविधिमा यीनको धेरै ठूलो योगदान छ । सिधा सोभा यिनका विशेषता छन् । कर्म प्रधान हो प्रकृतिका पुजारी सन्थाल भैँभगडा आदि कार्यमा भेटिँदैनन् । आफ्नो बोली पूरा गर्ने सन्थाली परम्परा हो । विदु चन्दनका आर्शीवाद प्राप्त सन्थाल जातिका गौरवमय गाथा छन् । ती सबैको रक्षा गर्नु नेपाल सरकारको दायित्व हो ।

सन्दर्भ सामग्री

भट्टराई, उत्तमप्रसाद (२०६७) सतार जातिको परिचय । गोविन्दराज भट्टराई सम्पादित *भापा दिगदर्शन* पृष्ठ संख्या ६११-६४२ । ओरिएन्टल पब्लिकेशन ।

धारावासी, कृष्ण (२०६७) सतार जातिको परिचय । गोविन्दराज भट्टराई सम्पादित *भापा दिगदर्शन* पृष्ठ संख्या ३२५-३३९ । ओरिएन्टल पब्लिकेशन ।

माननीय उमाकान्त गौतम सँगको वार्ता

भुजुलाल टुडुसँगको वार्ता

बुद्धिलाल सोरेनसँगको वार्ता

फुलकुमारी हेमरम सँगको वार्ता

मुन्सी हेमरमसँगको वार्ता

ऋतम्भरा महाकाव्यमा छन्दप्रयोग

भूमिप्रसाद दहाल

उपप्राध्यापक, नेपाली विभाग

दमक बहुमुखी क्याम्पस, दमक, झापा

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सारतत्व

प्रस्तुत अध्ययनमा महाकवि मोहनप्रसाद भण्डारीद्वारा रचित ऋतम्भरा महाकाव्यमा प्रयोग गरिएका छन्दहरूको विश्लेषण गरिएको छ । यस क्रममा कविको परिचय र महाकाव्यको विषयवस्तुमा समान्य प्रवेश गरी प्रयोग गरिएका छन्दहरूको बारेमा अध्ययन र चर्चा गरिएको छ । यस सन्दर्भमा छन्दशास्त्रको पृष्ठभूमि, ऋतम्भरा महाकाव्यमा प्रयोग गरिएका छन्द, तिनको लक्षण र यसै महाकाव्यबाट उदाहरणहरू दिई प्रयोग भएका छन्दहरूको गणना गर्दा यसमा मालिनी, तोटक, शालिनी, मल्लिका, मन्दाक्रन्ता, वसन्ततिलका, द्रुतविलम्बित, अनुष्टुप्, शिखरिणी, पञ्चचामर, स्रग्धरा, स्रग्विणी, भुजङ्गप्रयात, उपजाति, वियोगिनी, शार्दूलविक्रीडित, वंशस्थ (वंशस्थ+इन्द्रवंशा), विजया, भुजङ्गसङ्गता, कामदा, शशिवदना, इन्द्रवंशा, चामर, रथोद्धता, संयुता, उपेन्द्रवज्रा, चम्पकमाला, स्वागता र अभिनवतामरसा गरी २९ वटा छन्द पाइएका छन् । यति धेरै छन्दहरूको सहज प्रयोगले छन्दप्रयोगका दृष्टिले ऋतम्भरा महाकाव्यले धेरै कुरामा समानता राख्दै खास गरेर छन्द-प्रयोगमा शाकुन्तलीय मार्ग र प्रविधि अँगालेको देखिन्छ भन्ने निष्कर्ष निकालिएको छ । वि.सं. २०७३ सालमा प्रकाशित ऋतम्भरा महाकाव्य मूलरूपमा पूर्वीय चिन्तन, धर्मदर्शन, बौद्धिक चेतना, कलाचेतना आदिको अनुशीलनबाट नै मानवसमाज सुखी र सम्पन्न बन्न सक्छ भन्ने दार्शनिक चिन्तनमा आधारित देखिन्छ । यो महाकाव्य पूर्वीय र पाश्चात्य क्षेत्रलाई जोडेर विश्व भूगोल, जलसम्पदा र प्राकृतिक सम्पदालाई एकीकृत गरी नेपाली काव्यवाटिकामा सिर्जनाको नयाँ स्वरूप ल्याउने महाकाव्य पनि पाइन्छ । यसको सिर्जना आद्योपान्त छन्दोबद्ध कवितामा भएकाले छन्दविधानका दृष्टिले यो अनुशीलनयोग्य देखिन्छ । छन्दमा साङ्गीतिकता, श्रुतिमधुरता तथा वर्ण र मात्राको क्रमबद्ध श्रृङ्खला रहने हुँदा काव्यपरम्परकमा यसको विशिष्ट भूमिका रहिआएको छ । ऋतम्भरा महाकाव्यमा पनि छन्दकविताको निरन्तरता देखिएको हुँदा यसको छन्दप्रयोग हेर्नु यस लेखको मूल अभिप्राय रहेको छ । यसका लागि ऋतम्भरा नै प्राथमिक सामग्री रहेको छ । यस महाकाव्यका सन्दर्भमा आएका भूमिका, लेखकीय आदिलाई र छन्दको विवेचनासम्बन्धी पादटिप्पणीमा राखिएका सामग्रीलाई द्वितीयक सामग्रीमा लिइएको छ । विषको विश्लेषण गर्दा गणसूत्रका आधारमा महाकाव्यमा रहेका भिन्नभिन्न छन्दहरूको पहिचान गरी कुनै एक छन्दका लागि कुनै एक चतुष्पदी पद्य महाकाव्यबाटै लिएर विषयशीर्षकलाई वर्णनात्मक, व्याख्यात्मक र विश्लेषणात्मक विधिको प्रयोग गरी अर्थापन विधिद्वारा यस लेखमा प्रयुक्त सारको निरूपण गरिएको छ ।

शब्दकुञ्जिका : ऋतम्भरा, गणसूत्र, चतुष्पदी, छन्द, छन्दशास्त्र, त्रिवृत्त, मनोयो, विमान शाल्मली वृक्ष लौकिक छन्द, वैदिक छन्द ।

पृष्ठभूमि

‘ऋतम्भरा’ (२०७३) महाकाव्यमा छन्दप्रयोग हेर्नु नै प्रस्तुत लेखको मुख्य विषय हो । यसका कवि मोहनप्रसाद भण्डारीको जन्म वि.सं. २००९ साल कार्तिक २६ गते ताप्लेजुङ्ग जिल्लाको हाङ्गपाङ्गमा भएको हो । समाजशास्त्रमा स्नातकोत्तर र संस्कृतमा ‘सर्वदर्शनाचार्य’ जस्ता विशिष्ट र गरिमामय शैक्षिक उपाधि प्राप्त गरिसकेका कवि भण्डारीले नेपाली साहित्यमा फुटकर कवितादेखि लिएर खण्डकाव्य हुँदै महाकाव्यसम्मको यात्रा पार गरेका छन् । ज्ञानविज्ञान, धर्मदर्शन, समाजशास्त्र र राजनीतिक विषयमासमेत कलम चलाउने भण्डारीको कार्यक्षेत्र भने भापाको दमक रहेको छ । विद्यार्थी अवस्थाबाटै सन् १९७४ देखि नै बनारसबाट प्रकाशित हुने उत्साह, समर्पणजस्ता साहित्यिक पत्रिकामा रचना प्रकाशन गरेर औपचारिक रूपमा साहित्ययात्रा प्रारम्भ गरेका महाकवि भण्डारी पेशाले पहिले दमक न.पा.अन्तर्गतकै ढुकुरपानी मा. वि.का शिक्षक र विगत ३०-३१ वर्षसम्म स्थानीय दमक क्याम्पसमा प्राध्यापन र क्याम्पस प्रमुखको समेत जिम्मेवारी निर्वाह गरी हाल प्राध्यापन कार्यबाट सेवानिवृत्त भई शान्तिपूर्ण आध्यात्मिक जीवन विताइरहेका छन् । दमककै साहित्यिक संस्था प्रतिभा निकेतनको प्रकाशन ‘प्रतिभा’ को प्रमुख सम्पादकको भूमिकामा रहेर काम गरेका भण्डारीका ‘प्रेयसी’ खण्डकाव्य (२०५३), ‘प्रजातान्त्रिक समाजवाद’, ‘धर्मजिज्ञासा’ र अन्य फुटकर लेखरचनाहरू पनि प्रकाशित भइसकेका देखिनाले भण्डारी नेपाली वाङ्मयका साधक ठहरिन्छन् ।

कवि मोहन भण्डारीको कवित्व स्वच्छन्दतावादवीचको उचित समायोजन र सन्तुलनमा अधिबढेको भेटिन्छ । भावपक्ष र कलापक्षलाई सन्तुलनमा नै राखिएको पाइन्छ । यस लेखको मूल अभिप्राय ऋतम्भरा महाकाव्यमा छन्दप्रयोग हेर्नु रहेको छ । कवितालाई श्रुतिमधुर, साङ्गीतिक र वर्णमात्राको श्रृङ्खलामा आवद्ध गरी निश्चित क्रममा भावाभिव्यक्त गर्ने रचनाकौशल छन्दोबद्धतामा रहने हुनाले र प्रस्तुत महाकाव्यमा पनि विविध छन्दको प्रयोग पाइनाले तथा महाकाव्यमा छन्दप्रयोगको सिद्धान्तलाई प्रायः पालना गरेको देखिनाले यस लेखमा यसको छन्दप्रयोगमा ध्यान केन्द्रित गरिएको छ ।

छन्दप्रयोगको तात्पर्य

ऋतम्भरा महाकाव्यलाई छन्दप्रयोगका दृष्टिले हेर्नुभन्दा पहिले छन्दशास्त्रका बारेका यहाँ केही उल्लेख गर्नु आवश्यक रहन्छ । ‘छन्द’ शब्दको पारिभाषिक अर्थ हेर्दा ‘यति, गति र लय मिलेको वर्ण, मात्रा आदिको गणनाअनुसार पद्यात्मक रचना गरिने कुनै निश्चित मान वा रूप, त्यसरी गठन हुने विभिन्न किसिमका विशिष्ट वाक्य, वृत्त’ भन्ने देखिन्छ, भने ‘छन्दशास्त्र’ भन्नाले चाहिँ ‘छन्दका नियमहरूको वर्णन भएको शास्त्र, छन्दका लक्षण र उदाहरणहरूको वर्णन भएको विषय’ (ने.वृ. शब्दकोश, २०४०, पृ.४४१) भन्ने देखिन्छ । यसरी हेर्दा छन्द काव्यरचना-शिल्प मात्र नभएर काव्यरचना-शास्त्र नै रहेको पाइन्छ । ऋतम्भरा महाकाव्यमा प्रचूर मात्रामा विविध शास्त्रीय छन्दको प्रयोग गरिएको छ । शास्त्रीय छन्द वैदिक र लौकिक गरी दुई प्रकारका पाइन्छन् । वाल्मीकि रामायण लेखिनुअघि वैदिक संहिता तथा वाङ्मयमा प्रयुक्त छन्दलाई वैदिक छन्द र महर्षि वाल्मीकिले रामायण रचना गर्दादेखि यता रामायण, महाभारत, पुराण, शास्त्रीय काव्य, ललित काव्य तथा अन्य लौकिक काव्यहरूको रचनामा प्रयोग गरिएका छन्दलाई लौकिक छन्द भनिएको पाइन्छ । गणसूत्रमा आधारित छन्दको निश्चित क्रमका आधारमा तय गरी राखिएका छन्दहरूलाई नै यहाँ छन्दप्रयोग भनिएको छ ।

समस्याकथन

महाकवि मोहन भण्डारीको ऋतम्भरा महाकाव्यलाई कथावस्तु, चरित्रचित्रण, वातावरण, वैचारिक चिन्तन, उद्देश्य आदि विविध कोणबाट अध्ययन गर्न सकिन्छ। महाकाव्य मूल्यवान् र कलापूर्ण बनाउनका लागि यी सबै तत्वहरूको उचित समायोजन हुनु पनि पर्दछ। यी सबै तत्वलाई जोडेर समष्टिगत स्वरूप प्रदान गर्न भाषाशैलीको विशेष आवश्यकता रहन्छ। छन्द भाषिक विशेषता र रचनाविशेषतामा पनि जोडिएर आउने हुनाले प्रस्तुत महाकाव्यलाई छान्दिक सौन्दर्यका आधारमा विश्लेषण गर्दा निम्न समस्यामा केन्द्रित भई यो लेख तयार पारिएको छ :

(क) ऋतम्भरा महाकाव्यमा के कस्तो छन्दप्रयोग पाइन्छ ?

उद्देश्य

समस्यामा उठाइएको प्राज्ञिक प्रश्नको समाधान खोज्नु नै प्रस्तुत अध्ययनको मूल उद्देश्य रहेको छ। यस अध्ययनको उद्देश्यलाई तलको बुँदामा राखिएको छ :

(क) ऋतम्भरा महाकाव्यमा प्रयुक्त छन्द के कस्ता पाइन्छन् भन्ने कुराको निरूपण गर्नु।

पूर्वकार्यको समीक्षा

कवि मोहन भण्डारीको ऋतम्भरा हालसम्म अध्ययन गरिएका धेरै सामग्री पाइँदैनन्। पूर्वकार्यको विवरण हेर्दा प्रा.डा. गोविन्दराज भट्टराईको महाकाव्यीय भूमिका र लेखक कवि भण्डारीको लेखकीय यी दुई सामग्री यसै महाकाव्यमा उपलब्ध छन्। भट्टराईले ऋतम्भरा : नेपाली महाकाव्य परम्परामा एक नवीनतम उपलब्धि शीर्षकमा २६ पृष्ठ लामो भूमिका लेखेर यसको महाकाव्यीय मूल्य देखाउँदै यसका विविध विषयमा चञ्चुप्रवेश गराएका छन्। भट्टराईको धारणा अनुसार :

यो महाकाव्य पूर्वीय दृष्टिकोण, ज्ञान र दर्शनको महाकाश हो। त्यसो त यो सबै स्रष्टाको मनोआकाश हो। अत्यन्तै कम्ति मानिसले त्यो मनोलोकको कल्पना गर्न सक्लान्। यसमा ज्ञान र कल्पनाको अति व्यापक परिमन्थन छ, यो असाधारण प्रतिभाले मात्र प्राप्त गर्न सक्तछ।

यो सम्पूर्ण महाकाव्य सत्यपथ अनुयायी शान्त औ उद्बोधित जीवनको निमित्त सुमार्गको खोजी हो। ऋतम्भराको खोजी र साक्षात्कार चिन्ता हो। महाकाव्यहरू यस्ता खोजी यात्रा र अलौकिक भ्रमणले भरिएका हुन्छन्।

कति कुराका अप्रचलित आगन्तुक शब्दको, कति कथा पुराण वा पूर्वी शास्त्रको ज्ञानको अभावमा पनि छामछुम गर्दै पढेँ, तर विशेष मोहले तानिएर यो अगम्य सागरभित्र पसेर निस्कें। एकपल्ट गंगाजीमा पसेर पवित्र स्नान गरे जस्तो भएको छ। स्रष्टाको यो उद्भट चेतना र कल्पनाको प्रशंसा गर्न असमर्थ छु। पूर्व पश्चिम दुवै जोडेर विश्व भूगोल र प्रकृतिलाई नेपाली आँगनमा ल्याउने यो प्रथम महाकाव्य हो। देवकोटाको भ्रमणको उत्पन्न गर्ने प्रतिभाले युक्त श्री मोहन भण्डारीको यस कृतिको उच्चाकांक्षा प्रमिथससित तुलनीय छ। यो सम्पूर्ण मानवकल्याणको कामना गर्दै सत्यपथको अन्वेषणमा समर्पित काव्य हो।

ऋतम्भरा नेपाली काव्यले विस्तारित क्षेत्र देखाउने छ, नेपालीको मनमा विश्वबोध पलाएको देखाउने छ, यसले नयाँ पुस्तालाई अतीतको एक दुर्लभ सभ्यता अनुशरण गर्दै भविष्यको सर्वोच्च गन्तव्यतर्फ लैजाने छ।

भण्डारी, मोहनप्रसाद (२०७३) ऋतम्भरा भित्र भट्टराई, गोविन्दराज (भूमिका, क्रमशः पृ. तीन, छ, पच्चीस र छब्बीस) ।

त्यस्तै यस महाकाव्यका लेखक मोहन भण्डारीले कसरी लेखियो ऋतम्भरा लेखकीयमा यसका बारेमा केही प्रकाश पारेका छन् । भण्डारीका अनुसार :

सृजन कलाको इतिहासमा अनन्त सिर्जनाहरू बुद्धि-चेतनाको महत्तम गर्भवाट जन्मन्छन् र अर्को कालखण्डमा त्यसैमा समाहित हुन्छन् । परमाणुदेखि ब्रह्माण्डसम्मको वस्तुसत्ता बुद्धि -चेतनाकै लीलाभूमि हो । त्यसो भए बुद्धिको सृजना, नियन्त्रण र प्रकाशन चाहिँ कहाँबाट हुन्छ त ? सङ्गै यो प्रश्न अभै जटिल भएर अगाडि उभिन आइपुग्छ । संभवतः त्यसै प्रश्नका उत्तरको खोजी हो यो महाकाव्य

छन्द मिलाउन कतिपय शब्द भाँचकुँच पारिएका होलान्, मात्राको प्रयोगमा कतै व्याकरणको अनुशासन मिचिएको होला, भाव मिलाउन कतै छन्द पनि भाँचिएका होलान्, (भण्डारी, २०७३, पृ. क्रमशः सत्ताइस, तीस) ।

लेखकको आत्मस्वीकाराक्ति अनुसारै विषयवस्तु, कवित्व र भावनाका उछालमा छान्दिक नियम कतै तर्किन, मर्किन खोजे पनि न्यून दोष पछि राखी गुणगौरवलाई अधि सारेर यो लेख तयार पारिएको छ । पूर्वकार्यमा छन्दप्रयोगको सङ्केतसम्म भए पनि अन्य अध्ययन नभएकाले छन्दप्रयोगका दृष्टिले ऋतम्भरालाई हेरी अध्ययनको एउटा क्षेत्र यसमा समेटिएको छ ।

शोधकार्यको औचित्य र महत्व

कवि मोहन भण्डारीद्वारा लिखित ऋतम्भरा महाकाव्य आद्योपान्त छन्दोबद्ध कवितामा रहेको हुँदा यसमा के कस्ता छन्दहरूको प्रयोग भएको छ, भन्ने कुराको खोज गरी यस अध्ययनमा विश्लेषण गरिने भएकाले र यस कृतिमा हालसम्म यस किसिकको विवेचना नभएकाले यस अध्ययनको औचित्य रहेको छ । यस महाकाव्यमा कविले छन्दोबद्ध कविताको परम्परालाई पूर्णतया आत्मसात गरी रचनाकौशल प्रस्तुत गरेकाले र काव्यपरम्परामा छन्दको ऐतिहासिक भूमिका पनि विशिष्ट रहेकाले यस अध्ययनको महत्व छ, भन्ने कुरा पनि स्पष्ट हुन्छ ।

शोधकार्यको सीमाङ्कन

कवि मोहन भण्डारीको ऋतम्भरा महाकाव्यमा छन्दप्रयोग कस्तो छ, भन्ने कुरामा मुख्यतया केन्द्रित रहनु र छन्दपरक अध्ययन गर्नु यसको सीमाङ्कन रहेको छ । प्रसङ्ग कविपरिचय, कृतिपरिचय, कथावस्तु, पात्र र परिवेशका बारेमा परि केही सन्दर्भ आएका छन् । महाकाव्यमा प्रयुक्त छन्दहरूको निरूपण गर्न र लेखको अङ्ग पूरा गर्न छन्दशास्त्रको सैद्धान्तिक पृष्ठभूमिका बारेमा पनि छोटो चर्चा गरिएको छ तापनि छन्दको अध्ययन गर्नु यसको सीमा हो ।

शोधविधि

सामग्री सङ्कलनविधि

प्रस्तुत शोधसमस्याको समाधानका लागि कवि मोहन भण्डारीको ऋतम्भरा महाकाव्यलाई प्राथमिक सामग्रीमा राखिएको छ, भने सन्दर्भसूचीमा राखिएका सामग्रीलाई द्वितीयक सामग्रीमा उपयोग गरिएको छ । प्रस्तुत अध्ययनका लागि पुस्तकालयमा प्राप्त सन्दर्भसामग्रीको अध्ययन गरी पुस्तकालयीय विधिको आधारमा सामग्री सङ्कलन गरिएको छ । महाकाव्यका बारेमा केही स्पष्ट हुन लेखकसँग भेटवार्ता पनि गरिएको छ ।

विश्लेषणविधि

प्रस्तुत आलेखलाई व्यवस्थित एवं वस्तुगत बनाउन निगमनात्मक विधिको प्रयोग गरिएको छ । कवि मोहन भण्डारीको ऋतम्भरा महाकाव्यलाई आधार बनाएर यसमा प्रयोग गरिएका छन्दलाई हेरी गणसूत्रका आधारमा तिनको पहिचान गरेर विश्लेषण गरिएको छ । महाकाव्यको सर्गगत छन्दप्रयोग र प्रयुक्त छन्दहरूको समष्टिगत विवरण दिई प्रस्तुत महाकाव्यलाई वर्णनात्मक, व्याख्यात्मक र विश्लेषणात्मक विधिसमेत प्रयोग गरी छन्दप्रयोगको निरूपण र अन्त्यमा अर्थापन विधिद्वारा निष्कर्षसहित प्रस्तुत लेखलाई पूर्णता दिइएको छ ।

छन्दपरम्परा

‘छन्द’ शब्दको पारिभाषिक अर्थ हेर्दा ‘यति, गति र लय मिलेको वर्ण, मात्रा आदिको गणनाअनुसार पद्यात्मक रचना गरिने कुनै निश्चित मान वा रूप, त्यसरी गठन हुने विभिन्न किसिमका विशिष्ट वाक्य, वृत्त’ भन्ने देखिन्छ भने ‘छन्दशास्त्र’ भन्नाले चाहिँ ‘छन्दका नियमहरूको वर्णन भएको शास्त्र, छन्दका लक्षण र उदाहरणहरूको वर्णन भएको विषय’ (ने.वृ. शब्दकोश, २०४० : ४४९) भन्ने देखिन्छ । शास्त्रीय छन्द वैदिक र लौकिक गरी दुई प्रकारका पाइन्छन् । वाल्मीकि रामायण लेखिनुअघि वैदिक संहिता तथा वाङ्मयमा प्रयुक्त छन्दलाई वैदिक छन्द र महर्षि वाल्मीकिले रामायण रचना गर्दादेखि यता रामायण, महाभारत, पुराण, शास्त्रीय काव्य, ललित काव्य तथा अन्य लौकिक काव्यहरूको रचनामा प्रयोग गरिएका छन्दलाई लौकिक छन्द भनिएको पाइन्छ भन्ने कुरा छन्दको तात्पर्यमा राखिसकिएको छ । यहाँ वैदिक र लौकिक छन्दको सामान्य परिचय दिइन्छ ।

वैदिक छन्द

प्राचीन शास्त्रीय छन्दलाई वैदिक र लौकिक दुई वर्गमा विभाजन गरिएको पाइन्छ । वैदिक छन्द २६ रहेका देखिन्छन् । यिनीहरूमा- मा ४ अक्षर, प्रमा ८ अक्षर, प्रतिमा १२ अक्षर, उपमा १६ अक्षर, समा २० अक्षर, गायत्री २४ अक्षर, उष्णिक् २८ अक्षर, अनुष्टुप् ३२ अक्षर, बृहती ३६ अक्षर, पङ्क्ति ४० अक्षर, त्रिष्टुप् ४४ अक्षर, जगती ४८ अक्षर, अतिजगती ५२ अक्षर, शक्वरी ५६ अक्षर, अतिशक्वरी ६० अक्षर, अष्टि ६४ अक्षर, अत्यष्टि ६८ अक्षर, धृति ७२ अक्षर, अतिधृति ७६ अक्षर, कृति ८० अक्षर, प्रकृति ८४ अक्षर, आकृति ८८ अक्षर, विकृति ९२ अक्षर, संस्कृति ९६ अक्षर, अभिकृति १०० अक्षर र उत्कृति १०४ अक्षरका छन्दहरूको वर्णन (द्विवेदी, २००० : १९०) पाइन्छ । यहाँ २६ वटा वैदिक छन्दको गणना गरिए पनि गायत्रीपूर्वका ५ वटा छन्द अप्रयुक्त मानिन्छन्, त्यसैले गायत्रीदेखि पछिका २१ छन्द नै वेदमा प्रयुक्त छन्द भेटिन्छन् ।

छन्दको उत्पत्ति कहाँबाट भयो ? भन्ने कुरा हेर्दा ‘छन्दांसि जज्ञिरे तस्मात्’ भनेर ऋग्वेदको पुरुषसूक्तमै त्यो विराट् (यज्ञ) बाट गायत्री, उष्णिक् आदि छन्दहरू पैदा भए, जसको गणना वेदका छ अङ्गमध्ये एक अङ्गमा छ (दुङ्गाना, २०६६, पृ. भूमिका) भन्ने पाइन्छ । वेदका छ अङ्गमध्ये कुन अङ्ग चाहिँ छन्द हो त ? भनेर हेर्दा ‘छन्दः पादौ तु वेदस्य’ भनेर पाणिनीय शिक्षामा यसको व्याख्या आएकाले छन्द वेदपुरुका पाउ हुन् भन्ने (भा, २०६९, पृ. १८६) स्पष्ट हुन्छ । यसरी हेर्दा छन्दलाई वैदिक, लौकिक र लोकसाहित्यको समेत कलेवर उभ्याएर आकृति दिने विशेष तत्वका रूपमा स्वीकारिएको देखिन्छ ।

छन्दलाई वेदपुरुका पाउ मानेर जसरी पाउविना चलमल गर्न सकिँदैन, त्यसरी नै छन्दविना वैदिक मन्त्र र लौकिक श्लोकहरू चलायमान हुन नसक्ने भएकाले साहित्यमा यिनको अहं भूमिका रहने देखाइएको छ । छन्दको प्रदुर्भाव यज्ञपुरुषसँगै जोडेर हेरिए पनि यसको व्यवस्थित व्याख्याविश्लेषण गरेर शास्त्रीय

स्वरूप दिने कार्य आचार्य पिङ्गलले गरेको पाइन्छ । उनको आधिकारिक ग्रन्थ 'छन्दसूत्र' रहेको देखिन्छ । आठ अध्यायमा विभाजित यस ग्रन्थका प्रारम्भदेखि चौथो अध्यायको सातौं सूत्रसम्म वैदिक छन्दहरूको बारेमा र त्यसपछि लौकिक छन्दहरूको चर्चा देखिन्छ । छन्दसूत्रको पनि व्याख्याविश्लेषणका क्रममा भट्ट हलायुधको 'मृतसञ्जीवनी' व्याख्याग्रन्थ रहेको भेटिन्छ । लौकिक साहित्यमा पद्यबद्धतालाई छन्द भनिए पनि वेदमा भने 'नाच्छन्दसि वागुच्चरति ।' भन्दै दुर्गाचार्यले निरुक्तको वृत्तिमा छन्दविना वाणी उच्चरित हुनसक्तैन भन्ने देखाएको कुरा भा (२०६१, पृ. १८७) ले बताएका छन् । यसरी हेर्दा वेदमा प्रत्येक वाणी वा शब्दलाई छन्द मानिएको देखिन्छ । वैदिक छन्दपछि यिनीहरूकै सहारामा लौकिक छन्दको विकास र विस्तार भएको पाइन्छ ।

लौकिक छन्द

लौकिक साहित्यमा छन्द वा पद्यको प्रदुर्भाव कहाँबाट र कसरी भयो ? भन्नेबारे लौकिक संस्कृत भाषाका आदिकवि वाल्मीकिसँग जोडिएर आएको एउटा कथा पाइन्छ । जसअनुसार शिष्यगणसहित तमसा नदीमा स्नान गरेर फर्केका ऋषि वाल्मीकिले प्रेमपूर्वक आनन्दमग्न भएर रूखमा बसेका क्रौञ्चदम्पती (कन्याड-कुरुडका भालेपोथी) मध्ये भाले चाहिँलाई व्याधाले वाण हानेर रगतपच्छे बनाएपछि त्यस पोथीले शोक गरेको देखेर करुणार्द्र बनेका महर्षि वाल्मीकिका मुखारविन्दबाट अकस्मात् निस्केको छन्दोबद्ध पद्यबाट लौकिक छन्दको प्रादुर्भाव भएको पाइन्छ । उक्त पद्य थियो :

मा निषाद ! प्रतिष्ठान्त्वमगमः शाश्वतीः समाः,
यत्क्रौञ्चमिथुनादेकमवधीः काममोहितम् ।

हे चाण्डाल व्याधा ! तैले यी पक्षीहरूको जोडीमा कामवासनाले मोहित भालेचाहिँलाई निर्मतापूर्वक मारिस् यसबाट तैले निरन्तर प्रतिष्ठा (सुखानुभूति गर्न) नपाएस् । यसपछि त्यहाँ प्रकट भएका पितामह ब्रह्माले वाल्मीकीलाई आशीर्वाद दिँदै सरस्वती माताको कृपा भएको बताउँदै छन्दोबद्ध ग्रन्थ रचना गर्ने शक्ति मिलेकोमा धन्यवाद प्रदान गरेर माथि बताइएको श्लोक पहिले उच्चारण गरेर अन्य पठनपाठनमा लाग्ने व्यक्तिलाई उनै सरस्वतीले कृपा गर्ने छिन् भनेकाले नै त्यसपछि व्यासले पनि उक्त पद्यको प्रथम उच्चारण गर्दै महाभारत ग्रन्थ रचना गरेको कुरा उल्लेख (ढुङ्गाना, २०६६, भूमिका) पाइन्छ । यसैले वाल्मीकिलाई लौकिक साहित्यका 'आदिकवि' भनिएको छ ।

छन्दसूत्रका रचयिता आचार्य पिङ्गल पाणिनिका सम्बन्धित र समकालीन मानिन्छन् । यिनीभन्दा पहिले पनि छन्दशास्त्रको परम्परा रहेको थियो भन्ने कुरा यिनको छन्दशास्त्रमा वर्णित कौस्तुकि, यास्क, ताण्डी, सैतव, काश्यप, रात, र माण्डव्य जस्ता छन्दसूत्रकारको नाम उल्लेखित भएको कुराबाट (गैरोला, २००३, पृ. १६२) स्पष्ट हुन्छ । यसो भए पनि पिङ्गलले छन्दका बारेमा सिलसिलाबद्ध व्याख्या र विवेचना गरी वैदिक र लौकिक छन्दसम्बन्धी ग्रन्थ तयार गरेर पश्चवर्ती साहित्यलाई ठूलो उपकार गरेको हुँदा उनको छन्दसूत्र यस विषयमा अद्यावधिक गुरुग्रन्थ मानिन्छ ।

पिङ्गलपछि पनि छन्दको बारेमा चर्चा गरिएको पाइन्छ । अपभ्रंश भाषाका महाकवि स्वयम्भू (सातौं श.) को 'स्वयंभुछन्द' नामक अपूर्ण कृति, महाकवि कालिदासभन्दा भिन्न अर्का छन्दशास्त्री कालिदास (सातौं-आठौं श.) का 'वृत्तरत्नावली' र 'श्रुतबोध', जनाश्रय (आठौं श.) को 'छन्दोविचिति', क्षेमेन्द्र (एघारौं श.)को 'सुवृत्ततिलक', हेमचन्द्र (बाह्रौं श.) को 'छन्दोऽनुशासन', केदार भट्ट (पन्ध्रौं श.) को 'वृत्तरत्नाकर', दुर्गा दास (पन्ध्रौं श.) को 'छन्दोमञ्जरी', दामोदर मिश्र (सोह्रौं श.) को 'वाणीभूषण' तथा दुखभञ्जन (सोह्रौं श.) को 'वागवल्लभ' आदि विभिन्न ग्रन्थहरूको उल्लेख (गैरोला, २००३, पृ. १६३) पाइन्छ ।

लौकिक साहित्यको प्रथम बृहदाकार 'वाल्मीकि रामायण' मा १३ वटा छन्दको, 'महाभारत' मा १८ वटा छन्दको 'श्रीमद्भागवतमा' २५ वटा छन्दको प्रयोग भएको (नेपाल, २०७४, पृ. ३३) देखिन्छ भने महाकावि माघको 'शिशुपालवध' पछि विविध छन्दको प्रयोग भेटिन्छ । नेपाली छन्दोबद्ध महाकाव्यका उपजीव्य तथा आदर्श काव्यका रूपमा रामायण, महाभारत, श्रीमद्भागवत, कालिदासका रघुवंश, कुमारसम्भव भारविको किरातार्जुनीय श्रीहर्षको नैषधीय चरित आदि देखिन्छन् । यी ग्रन्थदेखि लिएर हालसम्म आइपुग्दा र यिनीहरूको नेपाली संस्करण हेर्दा पनि नेपाली महाकाव्यमा शास्त्रीय छन्द निकै विविधतापूर्ण, कलात्मक र पल्लवित पनि भएको देखिन्छ ।

वैदिक छन्दकै आधारभूमिमा उभिएर विकसित बनेको लौकिक छन्द र यसको अध्ययनलाई अद्यावधिक गरिएको नेपाली शास्त्रीय वर्णमात्रिक छन्दको स्वरूपलाई हेर्दा जम्मा २९ भेदअन्तर्गत निम्न २६१ (नेपाल, २०७४, पृ. ४६-४७, २४२-४४) वटा छन्द पाइन्छन् । यिनीहरूको भेद र सङ्ख्या यस्तो देखिन्छ :

छन्दका भेद	अक्षर सङ्ख्या	छन्दका नाम	छन्द सङ्ख्या
उक्ता	१	श्री	१
अत्युक्ता	२	स्त्री, चित्र, मही, मधु	४
मध्यमा	३	नारी, मृगी, शशी, मन्दर, सरल, प्रतिमा, अजीत, आनन्द	८
प्रतिष्ठा	४	कन्या, सती, तीर्णा, घारी, नगानिका	५
सुप्रतिष्ठा	५	पङ्क्ति, प्रिया, सम्मोहा, यमक, हारी, हृदय, रचना	७
गायत्री	६	शशिवदना, सोमराजी, विद्युल्लेखा, तनुमध्या, तिलका, विमोहा, मन्थान, वसुमती, रघु, रत्नराज, युवती	११
उष्णिक	७	मदखेखा, शीर्षरूपक, मधुमती, कुमारललिता, समानिका, सुवास, चूडामणि, करहाञ्चि, सखी, मालिका	१०
अनुष्टुप्	८	अनुष्टुप्, विद्युन्माला, चित्रपदा, माणवक, प्रमाणिका, कुर्सी, समानिका, वितान, कमल, हंसरुत, तुङ्गा, नाराचिका	१२
बृहती	९	मणिमध्य, भुजगशिशुभृता, रूपामाली, भरजङ्गसङ्गता, हलमुखी, पाइता, महालक्ष्मी, निम्ब, सारङ्गिका, तमोर, कसल	११
पङ्क्ति	१०	चम्पकमाला, हंसी, शुद्धविराट, मत्ता, त्वरितगति, मनोरमा, द्रुता, संयुता, उपस्थिता, सारवती, सुषमा, प्रणव, मयूरसारिणी	१३
त्रिष्टुप्	११	इन्द्रवज्रा, उपेन्द्रवज्रा, उपजाति, स्वगता, रथोद्धता, शालिनी, इन्दिरा, दोधक, सुमुखी, वातोर्मी, मोटनक, दमनक, भुजङ्गी, अनुकूला, कुपुरुषजनिता, अनवसिता, भ्रमरविलासी, श्येनिका, वृत्ता, उपस्थित, भाद्रिका, पुष्पाञ्जली, माला, सुमेरु, वियोगिनी	२५
जगती	१२	भुजङ्गप्रयात, स्रग्विणी, तोटक, कुसुमविचित्रा, चन्द्रवर्त्म, वंशस्थ, इन्द्रवंशा, उपजाति, द्रुतविलम्बित, वैश्वदेवी, अभिनवतामरसा, प्रमिताक्षरा, ललिता, जलोद्धतगति, मन्दाकिनी, मालती, जालधरमाला, मणिमाला, शिखर, प्रभावली, प्रियंवदा, मोदक, मौक्तिकदाम, सारङ्ग, तरलनयन, विद्याधर, पुट, महितोज्ज्वला, नवमालिका, ललना, द्रुतपद, तत,	३६

		विभावरी, उपचित्रा, कल्पित, पुष्पिताग्रा	
अतिजगति	१३	प्रहर्षिणी, रुचिरा, मत्तमयूर, चण्डी, मञ्जूभाषिणी, चन्द्रिका, कलहंस, मृगेन्द्रमुख, प्रभावती, कन्द, कूटजा, जुगल, पङ्कावली, तारक, चञ्चरिकालवती, विजया	१६
शक्वरी	१४	वसन्ततिलका, अपराजिता, इन्दुवदना, प्रहरणकलिका, वासन्ती, लोला, नान्दीमुखी, चक्रपद, प्रमदा, मञ्जुला, प्रभात, असम्बाधा, मृदुमाला, विभूति, अलोला, लक्ष्मी, दिक्पाल, उग्रवासन्ती	१८
अतिशक्वरी	१५	मालिनी शशिकला, तूणक, लीलालेख, विपिनतिलका, चन्द्ररेखा, चित्रा, प्रभद्रक, एला, निशिपाल, भ्रमरावलि, मेनका, रसिका	१३
अष्टि	१६	पञ्चचामर, वाणिनी, मदनललिता, प्रवरललिता, नील, अचलधृति, गरुडरुता, चञ्चला, ऋषभगजविलसित, चकिता, वीभत्स, विधाता, ब्रह्मायणी, सृष्टि	१४
अत्यष्टि	१७	शिखरिणी, पृथ्वी, मन्दाक्रान्ता, वंशपत्रपतिता, हरिणी, नर्कुटक, हारिणी, भाराक्रान्ता, मालधर, कोकिल	९
धृति	१८	चित्रलेखा, नन्दन, नाराच, शार्दूलललित, कुसुमितलतवेल्लिता, मञ्जिरा, चञ्चरी, हरिणीप्लुता, केशर, धृति, रूपामाली	११
अतिधृति	१९	शार्दूलविक्रीडित, छाया, मेघस्फूर्जिता, सुरसा, फुल्लदाम, शम्भु, चन्द्रमाला, धृतपल्लवी	८
कृति	२०	सुवदना, गीतिका, शोभा, चित्र, स्रग्वरी	५
प्रकृति	२१	स्रग्धरा, सरसी, नरेन्द्र, भामिनी, सिद्धक	५
आकृति	२२	मदिरा, भद्रक, हंसी, आख्यानकी, देवकी	५
विकृति	२३	अद्रितनया, मत्ताक्रीडा, सुन्दरी, नवमदिरा	४
सङ्कृति	२४	तन्वी, दुर्मिला, किरिट, ललितलता	४
अतिकृति	२५	क्रौञ्चपदा	१
उत्कृति	२६	भुजङ्गविजृम्भित, अपवाहा	२
दण्डक	२७	चण्डवृष्टि	१
दण्डक	२८	तिलका र शालूर	२
दण्डक	३४	त्रिभङ्गी	१
२९			२६१

भण्डारीको उल्लेखित ऋतम्भरा महाकाव्यमा प्रयुक्त छन्दहरूको गणना गर्ने उद्देश्य यस लेखमा राखिएको छ ।

छलफल तथा व्याख्या विश्लेषण

ऋतम्भरा : सारसंक्षेप

‘ऋतम्भरा’ शब्दको शाब्दिक अर्थ खोज्नुभन्दा पहिले ‘ऋत’ शब्दको अर्थ हेर्नु पर्ने हुन्छ । ‘ऋ’ धातुमा (क्त) ‘त’ प्रत्यय लागेर निर्माण भएको ऋत शब्दको अर्थ -शाश्वत नियम, सनातन व्यवस्था, सत्य-तथ्य, यथावस्तुचिन्तन, तथ्यचिन्तन, पावन कृत्य, रीति-रिवाज, शिलोञ्छ (शिला खोज्ने), जल भन्ने देखिन्छ भने

‘ऋतम्भरा’ को अर्थ - सत्यको पोषक वा धारक प्रज्ञा (आप्टे र चतुर्वेदी, २०११, पृ. १९४) भन्ने देखिन्छ । बृहत् नेपाली शब्दकोशमा पनि यसैसँग मिल्दोजुल्दो ‘ऋत’ को अर्थ - सत्य, साँचो, उचित, ठीक, पूजा गरिएको, सम्मान गरिएको, चारैतिर प्रकाश छर्ने, चम्किलो, चहकिलो, मुक्ति, मोक्ष, सृष्टिको आदि तत्व वा कारण र ईशरीय नियम भन्ने गरिएको पाइन्छ भने ‘ऋतम्भरा’ को अर्थ- सत्यको धारणालाई बल दिने, वा पुष्ट गर्ने चित्तवृत्ति, सधैं एकरस वा एकनास रहने सात्त्विक वृत्ति वा बुद्धि (बृ.ने.श.को. २०४०, पृ. १६३) भन्ने पाइन्छ । यहाँको ‘ऋतम्भरा’ शब्दले प्रायः यी सबै अर्थहरूको सारलाई ग्रहण गरेको देखिन्छ ।

महाकवि मोहनप्रसाद भण्डारीद्वारा रचित र प्रतिभा निकेतन, दमक, भापावाट प्रकाशित ऋतम्भरा महाकाव्य २१ सर्गमा आवद्ध छ । यसको पृष्ठसङ्ख्या ४८६, चतुष्पदी श्लोक २९७५ र विविध २९ वटा छन्दहरूको प्रयोग यसमा देखिनाले यो बृहत् आकारको महाकाव्य ठहरिन्छ । भट्टराई (ऋतम्भरा, २०७३, एक, भूमिका) का अनुसार ‘ऋतम्भरा नेपाली भाषामा रचित एउटा महत्वाकांक्षी बृहदाकार महाकाव्य हो । यसको निर्माणमा श्री भण्डारीले दुई दशकभन्दा बढी अर्पण गर्नुभएको छ ।’ यस महाकाव्यले पूर्वीय चिन्तन, धर्म-दर्शन, संस्कृति आदिका गूढतम रहस्यहरूको भित्री तहमा पुगेर स्वरूप ग्रहण गर्दछ र आर्य-अतीतको चेतना तथा विश्वव्यापी भूमिकामा खेल्दछ । विश्व-ब्रह्माण्ड हुँदै प्रकृतिक सृष्टि र मनोलोकको अनन्ततासँग गाँसिन पुग्दछ । यसले बृहत् आयाम लिने क्रममा पाश्चात्य जगत्को महागाथाको कति परम्परा, चरित्र, परिवेश र काव्यमान्यतालाई पनि आफ्ना विषयवस्तुसँग जोडेको छ (भट्टराई, ऐं.) भन्ने कुरा पनि यहाँ स्मरणीय रहेकाले यस महाकाव्यले अधिक मात्रामा पूर्वीय मान्यता र आंशिक मात्रामा पाश्चात्य मान्यतालाई पनि आत्मसात् गरेको देखिन आउँछ ।

ऋतम्भरा महाकाव्यमा प्राप्य र निर्देशकको भूमिकामा पृथ्वीका यावत् समस्याहरूको दर्शक, अनुभावक, उपभोक्तको रूपमा रहेको यात्री/पथिक एक युवक, यी समस्याबाट पार लगाई सारा सृष्टिलाई समृद्ध र आनन्दित तुल्याउने खुवी भएकी ऋतम्भरा र युवकलाई ऋतम्भराप्राप्तिको निर्देशन गर्ने र आफूलाई योगी गोरखनाथ बताउने एक महात्मा तीन मुख्य पात्र देखिन्छन् भने ऋतम्भराको अन्वेषणयात्रामा अधि बढेका युवक (म पात्र) लाई सहयोग गर्न श्रद्धा, मेधा आदिको परामर्शमा त्यहाँ पौराणिक मिथकहरूमा तपसिद्ध कर्दम ऋषिलाई प्राप्त कामग विमानजस्तै, देवराज इन्द्रको ऐरावत हात्तीजस्तै र पुष्पक विमानजस्तै मनोवाञ्छा अनुसार चल्ने ‘मनोयोगयान’ लिएर अवतरित भएकी कल्पना पात्रको पनि विशेष भूमिका रहेको पाइन्छ ।

ऋतम्भरा महाकाव्यमा ऋतम्भराको अन्वेषणको क्रममा देखिने बाह्यजगत्, प्रकृतिजगत् र मनोजगत् गरी त्रिवृत्तात्मक वा त्रिआयामिक परिवेश देखिन्छ । यही त्रिवृत्तमा पृथिवीको एक सचेत, चिन्तनशील, अन्वेषणशील, देशभक्त युवक/पथिकले ऋतम्भराको दर्शन गर्ने इच्छाले कल्पना र उक्त मनोयोगयानको सहारा र सहयोगमा ऋतम्भराको खोजी गर्दा प्राप्त भएको सिन्धुयात्रा, भौगोलिक यात्रा, प्रकृतिक यात्रा र आफ्नै अन्तरलोकको मनोयात्राकै कथाव्यथा, कार्यव्यापार र घटनाबाट यसमा वस्तुविन्यास भएको छ ।

जीवन एवं जगत्का अनेकौं विकृति र विसङ्गतिका विकराल समस्या तथा शान्ति, समृद्धि, विकास र सिर्जनाका अनन्त सम्भावनाहरूको घामछायाभित्र रुमलिएर सकारात्मक पक्षको प्रवर्धनका लागि उपयुक्त मार्ग पहिल्याउन नसकी विभ्रमित भएको पृथिवीका एक युवक फेरि पनि जीवनको यथार्थ, सम्पूर्णता, विवेक, शान्ति, सङ्गति र समृद्धि खोज्न मध्यरातमा एकाकी घरबाट निस्केर हिँड्छन् । आकाशका तारा र बादल छायाभित्रबाट जूनले उसलाई चियाइरहेका हुन्छन् । यात्री पर वन्य फाँटको बडेमानको शाल्मली वृक्षमुनि प्रभाती उषाकिरणमा, बालसूर्यले हिमालको बुईचढ्न लागेको अवस्थामा आफूलाई पाउँछन् । एक छिनपछि

पर कतै क्षितिजबाट शङ्खघण्टसँगै मन्दिरमा हुने आरतीको सुमधुर ध्वनि त्यहाँको वन र पर्वत श्रृङ्खलामा ठोकिएर प्रतिध्वनित हुँदै गुञ्जायमान् भएको अनुभवका साथै विविन्न सुगन्धित धूपको वासना र पुष्पपराग एवं सुवासले त्यो वन्य प्रकृतिनै मगमगाएको अनुभव गरी यात्री त्यतैतर्फ पाइला चाल्दछन् ।

यात्री अघि बढ्दै जाँदा वनभित्रकै एउटा पर्णकुटीमा पुग्दछन् । त्यहाँ देखापरेका एक सन्त महात्मासँग पथिक पृथिवीमा सङ्गति कसरी पाइन्छ भन्ने बारेमा प्रश्न गर्दछन् तर महात्मा उत्तर नदिई अलि परको वनको ओडारतिर इशारा गर्दछन् । महात्माको तपस्यामा व्यवधान गर्नु उपयुक्त नहुने ठानी पथिक तीमहात्माले सङ्केत गरेको वन्य ओडारतिर लाग्छन् । रहस्यमय त्यो ओडारको ऐश्वर्य र वैभवले भरिएको देखिन्छ । त्यहाँ २२-२४ वर्षको लाग्ने एउटा हृष्टपुष्ट जवान एउटी १६-१८ की देखिने युवतीका साथ मांसमदिराका साथ रसरङ्गमा मस्त रहेको भेटिन्छ । पथिक र त्यहाँको युवकबीच सम्वाद हुँदा अघि आफू सदाचारी भएका बखत संसारले नै आफूलाई मान्ने गरेको तर आफूले त्यसरी तपस्ययधर्म र निष्ठा त्यागेपछि अरु महात्माले त्यो स्थान छोडेकाले त्यहाँ एकलै बस्ने गरेको बताएपछि यात्री अझ आश्चर्यचकित हुन्छन् ।

यात्री र त्यहाँको मानिसबीच कुराकानीहुँदै जाँदा त एक छिनपछि त्यहाँ न त्यो मानिस त्यहाँ हुन्छ न त्यो परिदृश्य नै त्यहाँ हुन्छ । त्यहाँ त आफूलाई गोरखनाथ बताउने एक तपस्वी सन्त पो देखिन्छन् । युक्त यात्री हर्षविस्मय हुँदै आफ्ना जिज्ञासाहरू राख्दछन् । ती सन्त यी सारा प्रश्नको समाधानसहितको उत्तर ऋतम्भरासँग मात्र रहेकाले उनको खोजी गर्न सल्लाह दिन्छन् । यसै क्रममा मनोयोगविमानसहित त्यहाँ अवतरित भएकी कल्पनाको साथ र सहयोगमा पथिक तिनै गोरखनाथ योगी सन्तले मार्गनिर्देश गरेअनुसार ऋतम्भराको अन्वेषण यात्रामा लाग्दछन् ।

ऋतम्भरा-अन्वेषणयात्रा

ऋतम्भराको अन्वेषणयात्रा त्रिवृत्तात्मक देखिन्छ । यस महाकाव्यको नायक युवक/पथिक महाकाव्यमा समग्र संसार र सृष्टिको त्रिवृत्त (त्रिआयामिक) परिक्रमा गर्दछ । यसको पहिलो वृत्त जलपरिवेष्टित समग्र भूगोलको बाहिरी वृत्त हो । यसमा सिन्धुवृत्त (सामुद्रिक) र भूवृत्त (भौगोलिक) पर्दछन् । दोस्रामा समस्त प्रकृति-जगतको मध्यवृत्त पान्छ । यसमा जड प्रकृति र चेतन प्रकृतिका दुई अवस्था भेटिन्छन् । तेस्रो वृत्त मनोजगतको महत्तम अन्तर्वृत्त देखापर्दछ । यसमा मनका विभिन्न अवस्था, मनोग्रन्थी र प्रवृत्तिहरू पर्दछन् । यस महाकाव्यमा एकलव्य कर्मसाधनामा लागेको मुख्य पात्र पथिक मनोयोगद्वारा कल्पना र उनीसँगै अवतरित कामगविमानको सहायतामा उल्लेखित तेस्रो वृत्त मनोजगतको अन्तर्वृत्तका केन्द्रबाट ऋतम्भरालाई प्राप्त गरी उनलाई लिएर धर्तीलोकमा ओर्लिन्छन् । ऋतम्भराको स्वगतार्थ धर्तीमा प्रतीक्षारत सबैले उनको भव्य स्वागत गर्दछन् र उनीसँग यहाँका मानिसहरू दीनदुःखी हुनाको कारण र दुःख निवारणको उपाय पनि सोध्दछन् । यिनीहरूको जिज्ञासा र मर्म बुझेर ऋतम्भरा दया र वात्सल्यमा कारुणिक बन्दै जगतको कल्याणका लागि छताछुल्ल भएर पोखिन थालिन्छन् ।

यसरी हेर्दा ऋतम्भरालाई प्राप्त गर्न बाह्यजगत, प्राकृतिक संसार र मनोजगतका त्रिआयामिक वृत्तहरूमा अविराम यात्रा गर्दै अन्तिममा ऋतम्भरालाई धर्ती लोकमा पदार्पण गराउन यहाँको पात्र यात्री सफल भएको हुँदा यसलाई तीन पत्रीय कथावस्तु भएको 'त्रिवृत्त महाकाव्य' पनि भन्न सकिन्छ । यसले जलप्रकृति, थलप्रकृति, प्राकृतिक भूगोलका साथै अन्तिममा मनोलोकको समेत यात्रा गरेर ऋतम्भरालाई प्राप्त गरेको देखाएर कविले हरेक समस्याको समाधान सुभ्रबुभ्रपूर्ण अन्तर्मनबाटै निस्कन सक्छ भन्ने अन्तर्दृष्टि पनि यस महाकाव्यमा राखेको देखिन्छ ।

ऋतम्भरामा प्रयुक्त छन्द

माथिको परिचर्चापछि अब यस लेखको मूल आशयमा प्रवेश गरिन्छ । यस अध्ययनको मुख्य विषय महाकवि मोहनप्रसाद भण्डारीद्वारा रचित ऋतम्भरा महाकाव्यमा छन्दप्रयोग हेर्नु रहेको छ । छन्द बुझ्न गण र गणसूत्र बुझ्नु आवश्यक हुन्छ । गण आठ वटा हुन्छन् । प्रत्येक श्लोकका पाउमा रहेका अक्षरहरूलाई क्रमशः तीन-तीन अक्षरका दरले हेर्दा तिनमा पहिलो अक्षर दीर्घ र पछिका दुई ह्रस्व (SI) भए 'भ' गण, बीचको दीर्घ (ISI) भए 'ज' गण, अन्तिममा दीर्घ (IIS) भए 'स' गण, पहिलो ह्रस्व (ISS) भए 'य' गण, बीचमा ह्रस्व (SIS) भए 'र' गण, अन्तिममा ह्रस्व (SSS) भए 'त' गण, तीन वटै अक्षर दीर्घ (SSS) भए 'म' गण र तीन वटै ह्रस्व (III) भए 'न' गण (तिमसिना र भँडारी, २०३२ : २) हुन्छन् । यस दृष्टिले प्रस्तुत महाकाव्यलाई हेर्दा यसमा प्रयुक्त छन्दहरूलाई महाकाव्यमा भएको प्रवृष्टिका आधारमा क्रमिक रूपमा हेरिन्छ । यसरी हेर्दा यसको प्रथम सर्गदेखि क्रमागत अवस्था यस प्रकार पाइन्छ :

ऋतम्भरा महाकाव्यको प्रथम सर्गमा १७२ श्लोक रहेका छन् । यसमा श्लोक एकदेखि एकसय एकहत्तर सम्म मालिनी छन्द र अन्तिमको एक श्लोकमा तोटक छन्द प्रयोग गरिएको भेटिन्छ ।

मालिनी

'न न म य य' गण भई पन्ध्र अक्षर भएको मालिनी छन्द हुन्छ । जस्तै :

अवनति छ धराको आज यो दैन्य हाल
यिनकन दिन ऊर्जा रत्न धारा खसाल ।
भनि अति बिनती यो नीरजा साथ गर्छु
नयन-मन दुवैले शारदा ! पाउ पर्छु ॥ (ऋतम्भरा, १/१)

तोटक

'चार वटा स' गण भई बाह्र अक्षर हुने तोटक छन्द हुन्छ । जस्तै :

विशराम भनी जब पान्थ उठे
वन वैभवका सुख सैन्य जुटे ।
पवनै छ यहाँ वनको प्रहरी
भरनाहरु छन् जलका लहरी ॥ (ऋतम्भरा, १/१७२)

दोस्रा सर्गमा १३४ श्लोक रहेकामा १३३ श्लोकमा तोटक नै छन्द र अन्तिमको एक श्लोकमा शालिनी छन्द देखिन्छ ।

शालिनी

'म त त' गण भई अन्तिममा दुईटा दीर्घ भएमा एघार अक्षरको शालिनी छन्द हुन्छ । जस्तै :

हल्का पारी चित्तको बोझ भारी
लामो यात्रा सिर्जनाको तयारी ।
गर्दै यात्री उच्च शिक्षा लिएर
निकले साथी छन् कि कोही भनेर ॥ (ऋतम्भरा, २/१३४)

तेस्रा सर्गमा १२७ श्लोक भएकामा १२६ श्लोक शालिनी छन्दमै र अन्तिमको १ श्लोकमा मल्लिका छन्द पाइन्छ ।

मल्लिका

‘र ज’ गण र अन्तिमका दुईमा पहिलो दीर्घ र पछिल्लो ह्रस्व भएमा आठ अक्षरको मल्लिका छन्द हुन्छ । यसलाई समानिका पनि भनिएको पाइन्छ । जस्तै :

सत्य पुञ्ज छेउनेर
पुगनु पर्छ भोलिवेर ।
बास आज यै बसौं कि
भन्छ यान व्योमदेखि ॥ (ऋतम्भरा, ३/१२७)

चौथा सर्गमा १९२ श्लोक देखिएकामा १९१ श्लोक मल्लिका छन्दमै र अन्तिमको १ श्लोक मन्दाक्रान्ता छन्दमा पाइन्छ ।

मन्दाक्रान्ता

‘म भ न त त’ गण अन्तिमका दुई अक्षर दीर्घ भएमा सत्र अक्षरको मन्दाक्रान्ता छन्द हुन्छ । यहाँ उदाहरण हेरौं :

भाका नौलो तल जलधिको पार प्रस्ताव बोकी
आयौं ऐले प्रकृति घरमै सत्यको बास खोजी ।
आए भर्दै अविरल कथा सार यो सर्गसम्म
आउनु यस्तै नव सृजनका राग उर्लेर टम्म ॥ (ऋतम्भरा, ४/१९२)

पाँचौं सर्गमा १४३ श्लोक पाइएकामा १४२ श्लोक मन्दाक्रान्ता छन्दमै र अन्तिमको १ श्लोकमा मालिनी छन्दको प्रयोग भेटिन्छ ।

छैटौं सर्गमा सर्गमा ११२ श्लोक रहेकामा १११ श्लोक मन्दाक्रान्ता छन्दमा र अन्तिमको १ श्लोक मालिनी छन्दमा देखिन्छ ।

सातौं सर्गमा १५० श्लोक पाइएकामा १४९ श्लोकमा वसन्ततिलका छन्द र अन्तिमको १ श्लोकमा द्रुतविलम्बित छन्द पाइन्छ । जस्तै :

वसन्ततिलका

‘त भ ज ज’ गण र अन्तिममा दुईटा अक्षर दीर्घ हुँदा चौध अक्षरको वसन्ततिलका छन्द हुन्छ । जस्तै :

यात्रा सकेर जलको थल मार्गबाट
थालौं प्रयाण भनी जीवनको विराट ।
आशा उमङ्ग शुभ सामल क्यै लिएर
निस्कें विहानी पखमै सपना कथेर ॥ (ऋतम्भरा, ७/३)

द्रुतविलम्बित

‘न भ भ र’ गण भई बाह्र अक्षरको द्रुतविलम्बित छन्द हुन्छ । जस्तै :

जनमको पृथिवी जलको कथा
सृजन उन्नतिको छ परम्परा ।
यति कथेर अभै परका छवि
लिन हिँड्छो मति देश छुँदै कवि ॥ (ऋतम्भरा, ७/१५०)

आठौं सर्गमा १२७ श्लोक रहेका छन् । यसका सबै श्लोक द्रुतविलम्बित छन्दमै आवद्ध देखिन्छन् ।

नवौं सर्गमा ३९२ श्लोक भएकामा ३९१ श्लोकमा अष्टाक्षरी अनुष्टुप् छन्दको र अन्तिम १ श्लोकमा शिखरिणी छन्द भेटिन्छ ।

अनुष्टुप्

अनुष्टुप् छन्द आठ अक्षरको हुन्छ । यसमा अन्य छन्दमा जस्तो गण-व्यवस्था पाइँदैन । यसमा निश्चित स्थानमा ह्रस्व र दीर्घ वर्णको प्रयोगमा नै यो छन्द निर्मित हुन्छ । विषम वा एक र तीन पाउको सातौं अक्षर दीर्घ र सम वा दुई र चार पाउको सातौं अक्षर ह्रस्व तथा चारै पाउको पाँचौं अक्षर ह्रस्व र छैटौं अक्षर दीर्घ भएमा यो अनुष्टुप् छन्द हुन्छ । जस्तै:

ग्रीष्म लाग्यो यतै फेरि फिर्छन् ताँती विहंगका ।
मानौं स्वदेश फिर्दैछन् वैदेशी रोजगारका ॥ (ऋतम्भरा, ९/६)

शिखरिणी

‘य म न स भ’ गण र अन्तिमका दुईमध्ये पहिलो ह्रस्व र दोस्रो चाहिँ दीर्घ हुने सत्र अक्षरको शिखरिणी छन्द हुन्छ । उदाहरण हेरौं :

भयो भद्दा भारी अलिकति पनी छैन रसिलो
ऋताको के हुन्थ्यो प्रखर महिमा स्वद खँदिलो ।
जसो भो यो उत्तर अमरिकि महाद्वीप भवरका
टिपी ल्यायौं थोरै कुशल सृजना बीज विधिका ॥ (ऋतम्भरा, ९/३९२)

दशौं सर्गमा १११ श्लोक पाइएकामा ११० श्लोक शिखरिणी छन्दमै र अन्तिमको एक श्लोक पञ्चचामर छन्दमा पाइन्छ ।

पञ्चचामर

‘ज र ज र ज’ गण र अन्तिममा एउटा दीर्घ हुने सोह्र अक्षरको पञ्चचामर छन्द बन्दछ । जस्तै :

चढूँ चढूँ अभै चढूँ उठेर भन्छ, लेखनी
बढूँ बढूँ अभै बढूँ नयाँ प्रभात भो भनी ।
उडूँ उडूँ उतै उडूँ अनन्त व्योम टाकुरा
पुगूँ पुगूँ उतै जहाँ प्रसुप्त छिन् ऋतम्भरा ॥ (ऋतम्भरा, १०/१११)

एघारौं सर्गमा १३३ श्लोक रहेकामा १३१ श्लोकसम्म पञ्चचामर नै छन्द, १३२ औंमा वसन्ततिलका छन्द र अन्तिम १३३ औंमा मालिनी छन्दको प्रयोग पाइन्छ । यिनका लक्षण र उदाहरण माथि नै आइसकेका छन् ।

बाह्रौं सर्गमा ११७ श्लोक पाइएकामा ११६ सम्म स्रग्धरा छन्द र अन्तिमको १ श्लोकमा स्रग्विणी छन्दको प्रयोग देखिन्छ ।

स्रग्धरा

‘म र भ न य य य’ गण भएमा एक्काइस अक्षरको स्रग्धरा छन्द हुन्छ । जस्तै : यात्रा लामो छ हाम्रो सजल धरणि औ व्योमका पारिसम्म

लाखौं छन् बिगनबाधा विकट जहरिला त्रासदी छन् अचम्म ।
पत्तो केही नपाई अलमल हुन गै मार्गको रूपरेखा
खोजी गर्दै पसेथ्यौं अनविदित जहाँ सिर्जना छन् लुकेका ॥ (ऋतम्भरा, १२/१)

स्रग्विणी

‘र र र र’ चार र गण भएमा बाह्र अक्षरको स्रग्विणी छन्द हुन्छ । जस्तै :

सिन्धु औ धर्तिका रङ्गिला अङ्गमा
सत्यता खोजदा कल्पना सङ्गमा ।
क्लान्त भै थोर विश्रामका खातिर
फर्कियो चित्त यो फूल बस्तीतिर ॥ (ऋतम्भरा, १२/११७)

तेरौँ सर्गमा १०९ श्लोक देखिन्छन् । यसका १०८ श्लोक स्रग्विणी छन्दमै र अन्तिमको १ श्लोक भुजङ्गप्रयात छन्दमा रहेको भेटिन्छ । जस्तै :

भुजङ्गप्रयात

‘य य य य’ चार य गण भएमा बाह्र अक्षरको भुजङ्गप्रयात छन्द हुन्छ । जस्तै : ऋता सत्यका बल्दछन् जाँ चिराक

सवेरै उठी त्यै कलालोकभिन्न ।
पसौला भनी सिर्जनाको मलाई
भनिन् काव्यकी कल्पना साथ आई ॥ (ऋतम्भरा, १३/१०९)

चौधौँ सर्गमा ११७ श्लोक पाइएकमा ११६ सम्म भुजङ्गप्रयात छन्दमै र अन्तिम १ श्लोकमा उपजाति छन्द पाइन्छ ।

उपजाति

‘त त ज’ गण र दुई दीर्घ भएको इन्द्रवज्रा र ‘ज त ज’ गण र दुई दीर्घ भएको उपेन्द्रवज्रा दुईटै छन्द मिलेर बनेको छन्द एघार अक्षरको उपजाति छन्द हुन्छ । जस्तै

लाई मितेरी फुलका संगैमा
आयौँ कलाका ऋतचित्धरामा ।
पुगन् छ फेरी ऋतिकै हवेली
साथै हुनिन् यी पथकी सहेली ॥ (ऋतम्भरा, १४/११७)

पन्ध्रौँ सर्गमा ११६ श्लोक रहेकामा ११५ श्लोकमा उपजाति छन्द र अन्तिमको १ श्लोकमा वियोगिनी छन्द देखिन्छ ।

वियोगिनी

पहिला र तेस्रा पउमा ‘स स ज’ गण र एउटा दीर्घ भई दस अक्षर तथा दोस्रा र चौथा पउमा ‘स भ र’ गण र एउटा ह्रस्व तथा एउटा दीर्घ भएर एघार अक्षर भएमा वियोगिनी छन्द हुन्छ । जस्तै :

यति कल्प कथा बुनीसकी
मृदु माधुर्यलता सुवासकी ।
छ कहाँ घरद्वार शान्तिको
दिल यो बुझ्न् अझै हतारियो ॥ (ऋतम्भरा, १५/११६)

सोह्रौँ सर्गमा १२३ श्लोक रहेकामा १२२ श्लोकमा वियोगिनी छन्द र अन्तिमको १ श्लोकमा शार्दूलविकीडित छन्द पाइन्छ ।

शार्दूलविक्रीडित

‘म स ज स त त’ गण भई अन्तिममा दीर्घ भएमा बाइस अक्षरको शार्दूलविक्रीडित छन्द हुन्छ ।

जस्तै :

यो चिन्तामणि सुप्त थ्यो हृदयको जागा भयो आखिर
पाएँ दर्शन बल्ल दिव्य फुलका सौन्दर्यको वैभव ।
आइन् सत्य परागबाट मनका वासन्तिका यानमा
फक्रलिन् वनपुष्पिता किरण ली यो काव्यका भाँगमा ॥

(ऋतम्भरा, १६/१२३)

सत्रौँ सर्गमा १२१ श्लोक रहेकामा १२० श्लोकमा शार्दूलविक्रीडित छन्द र अन्तिमको १ श्लोकमा वंशस्थ/इन्द्रवंशा छन्द प्रयोग भएको देखिन्छ ।

वंशस्थ

‘ज त ज र’ गण हुने बाह्र अक्षरको वंशस्थ छन्द हुन्छ । जस्तै :

सकेर यो सर्ग अभै उता पर
रहेछ कस्तो दरवार सुन्दर ।
प्रभातमै हेरन जाउँ भनी
सुलाइ भन्छिन् नभ पंखगामिनी ॥ (ऋतम्भरा, १७/१२१)

अठारौँ सर्गमा १२२ श्लोक पाइएकामा १२१ श्लोकमा वंशस्थ/इन्द्रवंशा छन्दको प्रयोग पाइन्छ भने अन्तिमको १ श्लोक विजया छन्दमा आवद्ध पाइन्छ ।

वंशस्थ+इन्द्रवंशा (उपजाति)

‘ज त ज र’ गण हुने बाह्र अक्षरको वंशस्थ र ‘त त ज र’ गण हुने बाह्र अक्षरको इन्द्रवंशा छन्दमा एउटा मात्र मात्राको भिन्नताले छन्द फरक पर्ने भएकाले प्रायः यिनीहरू मिश्रित भएर यहाँ आएका छन् । यसलाई पनि एक प्रकारको उपजाति (नेपाल, २०७४ :१३६) मानिन्छ । जस्तै :

वयस्क भो रात बढेर तिसर्ना
सुत्यो सबै सुन्दरता सुषुप्तिमा ।
शय्या थियो मञ्जरिको सुकोमल
हिलाउँथे चामर पंख पल्लव ॥ (ऋतम्भरा, १८/१)

विजया

‘न भ भ भ’ गण र अन्तिमको एउटा अक्षर दीर्घ हुँदा विजया छन्द हुन्छ । जस्तै : यति सुनेर कथा ऋतिका घरको

अतुल संपदिताऽखिल वैभव त्यो ।
जतनले यसलाई बसाउँ यतै
जग रचेर स्वदेश गुगोस उँभै ॥ (ऋतम्भरा, १८/१२२)

उन्नाइसौँ सर्गमा १०५ श्लोक रहेकामा १०४ श्लोक विजया छन्दमा र अन्तिमको १ श्लोक भुजङ्गसङ्गता छन्दमा पाइन्छ ।

भुजङ्गसङ्गता

‘स ज र’ गण भएको नौ अक्षरको भुजङ्गसङ्गता छन्द हुन्छ । जस्तै :

नव सिर्जना विधायिनी
ऋतिका मिठा कुरा सुनी
दिल दङ्ग छन् यहाँ सबै
ऋत सत्यका निगाह भै ॥ (ऋतम्भरा, १९/१०५)

बीसौं सर्गमा १११ श्लोक रहेकामा ११० श्लोक भुजङ्गसङ्गता छन्दमा पाइन्छन् भने अन्तिम १ श्लोक कामदा छन्दमा पाइन्छ ।

कामदा

‘न र र’ गण र एउटा अक्षर ह्रस्व तथा एउटा दीर्घ भएमा कामदा छन्द हुन्छ । यसलाई इन्दिरा पनि भनिएको पाइन्छ । जस्तै :

सुजनलाई यो सान्त्वना दिई
तारका सरी चल्मलाउँदै
इतरलोकको चिन्तना गरी
जान खोजिछिन् सचिदम्बरी । (ऋतम्भरा, २०/१११)

ऋतम्भरा महाकाव्यको एक्काइसौं सर्गमा १४१ श्लोक देखिन्छन् । यसमा श्लोक एकदेखि बाह्रसम्म कामदा, तेह्रदेखि अट्ठाइससम्म शशिवदना, उनन्तीसदेखि अठ्ठीससम्म इन्द्रवज्रा, उनन्चालीसदेखि उनन्चाससम्म चामर, पचासदेखि बयसष्टीसम्म रथोद्धता, त्रिसष्टीदेखि त्रिहत्तरसम्म संयुता, चौहत्तरदेखि चौरासी उपेन्द्रवज्रा, पचासीदेखि छयानब्बेसम्म चम्पकमाला, सन्तानब्बेदेखि एक सय सातसम्म स्वगता, एकसय आठदेखि एकसय एक सय सत्रसम्म अभिनभतामरस, एक एक सय अठारदेखि सय अट्ठाइसम्म मालिनी र एक सय उनन्तीसदेखि एकसय एकचालीससम्म वसन्ततिलका टन्दको प्रयोग देखिन्छ ।

शशिवदना

‘न य न य’ गण भएको बाह्र अक्षरको शशिवदना छन्द हुन्छ । जस्तै :

कल कल भर्ना शिर तल भारी
विपिन बगैँचा लहलह पारी ।
सलल बगेथे अतुलित स्वादु
ऋत सरिताका रसमय जादू ॥ (ऋतम्भरा, २१/१४)

इन्द्रवज्रा

‘त त ज’ गण र पछाडि दुई वटा दीर्घ भए दस अक्षरको इन्द्रवज्रा छन्द हुन्छ । जस्तै :

साँच्चै गए सत्य समाज छोडी
होला धराको कुन हाल भोली ।
चिन्ता सबैका मनभिन्न घुम्थ्यो
आखिरमा अक्कल क्यै पलायो ॥ (ऋतम्भरा, २१/३१)

चामर/तूणक

‘र ज र ज र’ गण भई पन्ध्र अक्षरको चामर छन्द हुन्छ । जस्तै :

व्योमबाट ओर्लिएर हैमशैलका मुनि
सत्य शिल्प छाल चल्छ बाल कल्पना सरी
सिर्जना छचल्किँदै नदी र पोखरीभरी ।
अग्नि वायु व्योम नीर यी धरासँगै मिली
भल्किँदो छ यो विराट रूप सत्यकै खिली ॥ (ऋतम्भरा, २१/४२)

रथोद्धता

‘र न र’ गण र एक ह्रस्व तथा एक दीर्घ हुने दस अक्षरको रथोद्धता छन्द हुन्छ । जस्तै :

पुष्पका अमर पधका मुनि
वासना रँग परागमा पनि ।
चातुरी मधुपबाट नै सिकी
खोजिएन कि तलै सुधानिधि ॥ (ऋतम्भरा, २१/५२)

संयुता/गीतिका

‘स ज ज’ गण र एउटा अक्षर दीर्घ भए दस अक्षरको संयुता छन्द हुन्छ । जस्तै : कति छन्
कथा ऋतिका मिठा

रसदा सदा परमार्थिका ।
जति भेटिए अनुशोधमा
तर गन्न को सकला यहाँ ॥ (ऋतम्भरा, २१/६३)

उपेन्द्रवज्रा

‘त त ज’ गण र दुई अक्षर दीर्घ भएमा एघार अक्षरको उपेन्द्रवज्रा छन्द हुन्छ जस्तै :

बिहान भो रात बितेर बल्ल
दिनेश आए नभमा उठेर ।
प्रकाशले अन्ध तमिस्रलाई
सनक्क पाच्यो मनको हटाई ॥ (ऋतम्भरा, २१/७४)

चम्पकमाला/रुक्मवती

‘भ म स’ गण र एक दीर्घ भएमा दस अक्षरको चम्पकमाला बन्दछ । जस्तै :

काव्य धराका सुन्दर भाव
एक छ आत्मा रूप हजार ।
शाश्वत धारा प्रीत बहेका
शिल्प कलाका जून सितारा ॥ (ऋतम्भरा, २१/८५)

स्वागता

‘र न भ’ गण र दुई अक्षर दीर्घ भएमा एघार अक्षरको स्वागता छन्द बन्दछ । जस्तै :

खोजियो भुवनका वन बाग
पुष्पका परम सूक्ष्म पराग ।
पुण्यकर्म सहजै नहुनाले
चित्तका मल अभै धुन थाले ॥ (ऋतम्भरा, २१/१००)

अभिनवतामरसा

‘न ज ज य’ गण भएमा बाह्र अक्षरको अभिनवतामरसा छन्द हुन्छ । जस्तै :
 सकल कला अव रूप लिएर
 वसुमतीका घर आँगन द्वार ।
 मिरमिर छन् सब पिल्लिल साँझ
 ऋत छविका नव आकृति माझ ॥ (ऋतम्भरा, २१/१०८)

यसरी हेर्दा महाकावि मोहनप्रसाद भण्डारीको ऋतम्भरा महाकाव्यमा २९ प्रकारका शास्त्रीय छन्दको प्रयोग भेटिन्छ भने २९७५ चतुष्पदी श्लोकमा २९ छन्दमध्ये पूर्व पूर्वप्रयोग र परिवर्तित गरी ५२ पटक छन्द प्रयोग गरिएको देखिन आउँ छ । तलका दुई वटा तालिकाबाट यसबारे अझ स्पष्ट हुन सकिन्छ ।

ऋतम्भरा महाकाव्यका सर्गमा, छन्द र श्लोकसङ्ख्याको विवरण यस्तो पाइन्छ :

सर्ग	श्लोक	छन्द	प्रयोग गरिएको	श्लोक विवरण
१	१७२ मा	मालिनी, तोटक	क्रमशः १, १,	१७१, १, १७२
२	१३४	तोटक, शालिनी,	क्रमशः १, १,	१३३, १, १३४
३	१२७	मल्लिक	क्रमशः १, १,	१२६, १, १२७
४	१९२	मल्लिका, मन्दाक्रान्ता	क्रमशः १, १,	१९१, १, १९२
५	१४३ ,,	मन्दाक्रान्ता,मालिनी	क्रमशः १, १,	१४२, १, १४३
६	११२ ,,	मन्दाक्रान्ता, मालिनी	क्रमशः १, १,	१११, १, ११२
७	१५०	वसन्ततिलका, द्रुतविलम्बित	क्रमशः १, १,	१४९, १, १५०
८	१२७ ,	द्रुतविलम्बितसवै	क्रमशः १, -	१२७, - १२७
९	३९२ ,,	अनुष्टुप्, शिखरिणी,	क्रमशः १, १,	३९१, १, ३९२
१०	१११ ,,	शिखरिणी, पञ्चामर,	क्रमशः १, १,	११०, १, १११
११	१३३	पञ्चामर,वसन्ततिल.,मालिनी	१,१, १,	१३१, १, १, १३३
१२	११७ ,,	स्रग्धरा, स्रग्विणी	१, १,	११६, १, ११७
१३	१०९ ,,	स्रग्विण्मी, भुजङ्गप्रयात	१, १,	१०८, १, १०९
१४	११७ ,,	भुजङ्गप्रयात, उपजाति,	१, १,	११६, १, ११७
१५	११६ ,,	उपजाति, वियोगिनी,	१, १,	११५, १, ११६
१६	१२३ ,,	वियोगिनी, शार्दूलविकीडित	१, १,	१२२, १, १२३
१७	१२१ ,,	शार्दूलविकीडित, वंशस्थ/इन्द्रवंशा	१, १,	१२०, १, १२१
१८	१२२ ,,	वंशस्थ/इन्द्रवंशा, विजया,	१, १	१२१, १, १२२
१९	१०५ ,,	विजया, भुजङ्गसङ्गता	१, १,	१०४, १, १०५
२०	१११ ,,	भुजङ्गसङ्गता, कामदा	१, १,	११०, १, १११
२१	१४१ ,,	कामदा, शशिवदना, इन्द्रवज्रा,	१, १, १,	१२,१६, १०, ३८
		चामर, रथोद्धता, संयुता,	१, १, १,	११, १३, ११, ३५
		उपेन्द्रवज्रा,चम्पकमाला, स्वागता,	१, १, १,	११, १२, ११, ३४
		अभिनवतामरस, मालिनी, वसन्ततिलका	१, १, १,	१०, ११, १३, ३४
२१	२९७५		५२	२९७५

ऋतम्भरा महाकाव्यमा प्रयुक्त छन्द, प्रयोग गरिएको पटक र श्लोक विवरण यस प्रकार पाइन्छ :

क्र.सं.	छन्द	प्रयोग गरिएको पटक	श्लोक विवरण
१	मालिनी	५	१८५
२	तोटक	२	१३४
३	शालिनी	२	१२७
४	मल्लिका	२	१९२
५	मन्दाक्रान्ता	३	२५४
६	वसन्ततिलका	३	१६३
७	द्रुतविलम्बित	२	१२८
८	अनुष्टुप्	१	३९१
९	शिखरिणी	२	१११
१०	पञ्चचामर	२	१३२
११	स्रग्धरा	१	११६
१२	स्रग्विणी	२	१०९
१३	भुजङ्गप्रयात	२	११७
१४	उपजाति	२	११६
१५	वियोगिनी	२	१२३
१६	शार्दूलविक्रीडित	२	१२१
१७	वंशस्थ	२	१२२
१८	विजया	२	१०५
१९	भुजङ्गसङ्गता	२	१११
२०	कामद	२	१३
२१	शशिवदन	१	१६
२२	इन्द्रवज्रा	१	१०
२३	चामर	१	११
२४	रथोद्धता	१	१३
२५	संयुता	१	११
२६	उपेन्द्रवज्रा	१	११
२७	चम्पकमाला	१	१२
२८	स्वागता	१	११
२९	अभिनवतामरस	१	१०
	२९	५२	२९७५

द्रष्टव्य : यहाँ वंशस्थ छन्द र वंशस्थ+इन्द्रवंशा छन्दका पद्यहरू मिश्रित भएर आएकाले वंशस्थ छन्दमा नै गणना गरिएको छ ।

निष्कर्ष

एक्काइस सर्ग भएको ऋतम्भरा महाकाव्य ४८६ पृष्ठमा रचना गरिएको वृहत् आकारको ललित महाकाव्य ठहर्छ । यहाँको कथावस्तु कविकल्पित र पूर्वीय धर्मदर्शन र सूक्ष्मतम रहस्यहरूलाई केलाउँदै लोककल्याणकारी मार्ग पहिल्याएर लोकको उन्नति, प्रगति, विकास, समृद्धि र बाहिरी तथा आन्तरिक शान्तिको प्राप्तिका लागि यी सबैकी प्रतीक बनेकी ऋतम्भरा प्राप्तिका लागि अधि बढेर लक्ष्यसमेत प्राप्त गर्न सफल भएको हुँदा पूर्वीय काव्यशास्त्रले अपेक्षा गरे अनुरूप नै देखिन्छ । भूगोल, प्रकृति र मनोलोकको त्रिवृत्त परिक्रमा यसमा देखिनले यस महाकाव्यको परिवेश र कार्याव्यापारमा भने पाश्चात्य जगत् पनि

सघन भएर आएको छ । पात्ररचनाका दृष्टिले हेर्दा यहाकी नायिका ऋतम्भरा नायक युवककी प्रेमिका नभएर आराध्या देखिन्छन् । यहाँको नायक युवक विनीत, मधुर स्वभावको, कार्यप्रति लगनशील, बुद्धि, उत्साह स्मृति, प्रज्ञा, शूर, दृढ, तेजस्वी र गोरखनाथले निर्देश गरेको ज्ञानचक्षु भएको देखिनाले काव्यको आकार र भावगाम्भीर्यको भारलाई वहन गर्न सक्ने महाकाव्योचित देखिन्छ । यसरी हेर्दा महाकाव्यको आन्तरिक सौन्दर्य पूर्वीय र प्रकृति-दर्शन र भौगोलिक सौन्दर्यमा पाश्चात्य भावधाराको स्वच्छन्दतावादी प्रवृत्ति पनि यसमा पाइन्छ ।

विविधतापूर्ण शास्त्रीय छन्दहरूको प्रयोग, कुनै सर्ग एउटै छन्दमा र कुनै सर्ग विविध छन्दमा रचना गरिएको पाइनाले र आठौँ सर्गबाहेक अन्य सर्गको अन्त्यमा छन्दको परिवर्तन र भावी सर्गको कथाको सूचनासमेत देखिनाले काव्यशास्त्रीय विधिअनुकूल नै यसमा छन्दप्रयोग भएको देखिन्छ । यी सम्पूर्ण विविधताले भरिएको ऋतम्भरा महाकाव्यले धेरै कुरामा समानता राख्दै खास गरेर छन्द-प्रयोगमा शाकुन्तलीय मार्ग र प्रविधि अँगालेको देखिन्छ ।

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लौकिक संस्कृतमा भाषिक चिन्तनको परम्परा

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लेखसार

मानव सभ्यताको विकाससँगै भाषाको विकास भएको थियो । भाषिक अध्ययनको पूर्वीय परम्परा संस्कृतबाट भएको पाइन्छ । पाश्चात्य जगत्मा पनि विभिन्न भाषाहरूसँग नजिक रहेर भाषिक चिन्तन गरिएको पाइन्छ । प्रस्तुत अध्ययनमा लौकिक संस्कृत भाषिक चिन्तन सम्बन्धी के कस्ता काम भएका छन् र कति कार्य भएका छन् भनी खोज गर्नु नै समस्याको रूपमा लिइएको छ । भने लौकिक संस्कृतको भाषिक चिन्तन परम्पराको विश्लेषण गर्नु, उक्त अध्ययनको उद्देश्य रहेको छ । यस अध्ययन गुणात्मक अनुसन्धान ढाँचामा प्रस्तुत गरिएको छ । यस अनुसन्धानमा विभिन्न पुस्तक, ग्रन्थ, लेख आदिलाई अध्ययनमा सूचना सङ्कलनको आधार बनाइएको छ । यस अनुसन्धानमा सूचनाहरू पूर्ण रूपमा द्वितीय स्रोतबाट लिइएको छ । प्राप्त सूचनालाई व्याख्या तथा विश्लेषणात्मक ढंगबाट प्रस्तुत गरिएको छ । पाणिनि युग र उत्तर पाणिनि युगमा विकसित भएका भाषिक चिन्तनको प्रभाव प्राकृत भाषामा समेत परेको देखिन्छ । पूर्वमा संस्कृत भाषा तथा पश्चिममा ल्याटिन, ग्रीक जस्ता भाषामा गरिएको भाषिक चिन्तनले आधुनिक भाषा विज्ञान र व्याकरणको क्षेत्रमा फराकिलो दायरा बनाएको पाइन्छ भन्ने निष्कर्ष निकालिएको छ ।

शब्दकुञ्जी : लौकिक संस्कृत, वार्तिक, पाणिनि, भाषिक चिन्तन

विषय प्रवेश

भाषा मानव समुदायका अनुभव र अनुभूतिहरूको सम्प्रेषण गर्ने महत्वपूर्ण साधन हो । यसलाई मानव मात्रको विशिष्ट सम्पदाको रूपमा मानिन्छ । भाषामा समय, समाज, र सभ्यताका सम्पूर्ण कुरा हस्तान्तरण गर्ने सामर्थ्य हुन्छ । भाषामा भएको अन्तरनिहित सामर्थ्यका कारण भाषालाई व्यवस्थित बनाउन अनेक चिन्तन र प्रयासहरू भएका छन् । पूर्वीय तथा पाश्चात्य मनीषीहरूले अथक् प्रयास गरेका छन् र धेरै ठूलो योगदान पुऱ्याएका छन् । भाषाका ध्वनि, वर्ण, रूप, वाक्य, अर्थ जस्ता भाषिक पक्षमा वैज्ञानिक अध्ययन र चिन्तन गरी सैद्धान्तिक क्षेत्रमा योगदान पुऱ्याएका छन् । यसका साथै भाषाका आएका कालक्रमिक अध्ययन, समकालीन अध्ययन, भाषान्तरिक अध्ययन तथा अन्तरभाषिक अध्ययन भएका छन् (वास्तोला, २०७६) । मानव सभ्यताको विकाससँगै भाषाको विकास भएको भए पनि भाषिक चिन्तन भने धेरै पछिबाट सुरुभएको मानिन्छ । पूर्वीय भाषिक चिन्तन परम्पराको प्रतिनिधित्व संस्कृत भाषाले गर्दछ । संस्कृत भाषा पूर्वीय जगत्को मात्र नभई संसारकै सर्वप्रचीन भाषिक चिन्तन परम्परा पनि हो । पूर्वीय जगत्मा देवी, देवता, धर्म आदिका विश्वासले प्रभुत्व जमाएको थियो । त्यही मान्यता र विश्वासका आधारमा संस्कृत भाषालाई देवभाषा, देववाणी अथवा सुरभारती भनिएको पाइन्छ ।

पूर्वमा संस्कृत भाषिक चिन्तन ई. पू. १५०० वर्ष बाट नै आधिकारिक रूपमा वेदहरूको विभिन्न अध्यायहरू मध्ये शिक्षा, कल्प, ज्योतिष, निरुक्त, छन्द र व्याकरणमा अध्ययन भएको पाइन्छ । कतिपय

विद्वान्हरू ऋग्वेदको ई.पू. १५०० वर्ष भन्दा पहिले भएको पाइन्छ (न्यौपाने र पराजुली, २०६९) । त्यो समयक्रममा पाणिनिपूर्वका अध्येताहरूले व्यवस्थित व्याकरणको अध्ययनमा जोड दिए पनि व्याकरणको सारपूर्ण रूपले अध्ययन गर्न सकेका थिएनन् । ई.पू. ५०० शताब्दीमा जब पाणिनिको उदय भयो त्यसपछि संस्कृत व्याकरणको उचाइ व्यवस्थित रूपमा माथि उठ्यो । त्यसैको आधारमा रहेर ई.पू. ४५० तिर कात्यायन तथा ई. पू. तेस्रो शताब्दीमा पतञ्जलिले पूर्वीय भाषिक परम्परामा महत्त्वपूर्ण भूमिका खेलेका देखिन्छ (चालिसे, २०५७) । पूर्वमा पाणिनि, कात्यायन तथा पतञ्जलिले संस्कृत भाषिक चिन्तनमा महत्त्वपूर्ण भूमिका खेलेका छन् । पाश्चात्य जगत्मा पनि ग्रीसेलीहरूले फिलोसोफियाको रूपमा दर्शन र व्याकरणलाई हेर्ने काम गरेका छन् । संस्कृतमा भाषिक चिन्तनको परम्परा वैदिक परम्परा पछि लौकिक परम्पराको सुरुवात भएको पाइन्छ (भुसाल, २०७०, पृ. ३००) । यस परम्परामा पाणिनि, कात्यायन र पतञ्जलि प्रमुख चिन्तकको रूपमा देखापरेका छन् । यी मध्ये पाणिनिको स्थान अग्रणी रहेको छ । पाणिनि पूर्वीय जगतको मात्र नभई जगत्का नै प्रथम वैयाकरण हुन् । यिनले गरेको सबभन्दा महत्त्वपूर्ण कार्य नै समकालिक भाषिक अध्ययन हो । अधिकांश विद्वानहरूले पाणिनिको समयावधि इशा पूर्व ७०० देखि ४०० सम्मलाई मानेका छन् । तथापि यिनको समयकमा पनि मतभेद भने कायम नै रहेको पाइन्छ । पाणिनिद्वारा रचित 'अष्टाध्यायी' ग्रन्थलाई संसारको प्राचीनतम ग्रन्थको रूपमा लिइएको छ । जसमा आठ अध्याय र प्रत्येक अध्ययामा चार पाठ तथा ३९९५ सूत्र छन् । यस ग्रन्थमा पद सङ्कलन (१-२ अध्यायमा), प्रकृति प्रत्यय विश्लेषण (३-५ अध्यायमा), र पद निर्माण (६-८ अध्याय) गरी तीन भागमा विभाजन गरिएको देखिन्छ । यसरी लौकिक संस्कृतको भाषिक चिन्तनमा त्रिमुनि विद्वानहरूको ठूलो योगदान रहेको पाइन्छ ।

मानव सभ्यताको अभ्युदयसँगै भाषाको बारेमा चिन्तनमनन सुरु भएको पाइन्छ । इस्वी सम्वत् प्रारम्भ हुनुभन्दा धेरै पहिलेदेखि नै पूर्व र पश्चिममा भाषाचिन्तकहरूद्वारा भाषिक चिन्तनको थालनी भएको पाइन्छ । भाषिक अध्ययनको पूर्वीय परम्परा मूलतः संस्कृतकेन्द्री परम्पराका रूपमा देखापरेको छ । यस समयमा वैदिक संहिता आरण्यक र उपनिषद्मा भाषा सम्बन्धी चिन्तनको विकास भएको देखिन्छ । वस्तुतः ऋग्वेदमा प्रयोग गरिएको एउटा मूल मन्त्र 'चत्वारि वाक्' बाट भाषिक चिन्तनको आरम्भ भएको मानिन्छ । पाश्चात्य भाषिक चिन्तनको परम्परा भने ग्रीकबाट सुरु भएको मानिन्छ । ग्रीसलाई युरोपेली सभ्यता, संस्कृति ज्ञान तथा भाषाशास्त्रीय चिन्तनको मूलभूमिका रूपमा लिने गरिन्छ । ग्रीसेलीहरूले भाषिक चिन्तनलाई दर्शन एवम् तत्त्वज्ञानका रूपमा ग्रहण गरेको पाइन्छ । यस जगत्का प्रथम चिन्तकका रूपमा सुकरातले (४६९-३९९ ई.पू.) तर्कशास्त्रको अध्ययनको क्रममा शब्द र अर्थका सम्बन्धबारे चर्चा गर्दै तिनीहरू बीच रूढ सम्बन्ध रहने धारणा प्रस्तुत गरेका थिए । त्यसरी नै पाश्चात्य परम्परामा पनि विभिन्न विद्वानहरूले भाषासम्बन्धी भाषिक चिन्तन गरेका पाइन्छ । भाषा सम्बन्धी 'चत्वारि वाक्' लाई निरुक्तकारले 'अँ', 'भूः', 'भुवः', 'स्वः'का रूपमा पतञ्जलिले 'नाम', 'आख्यात' 'उपसर्ग' र 'निपात' का रूपमा भर्तृहरि, नागेशलगायतका विद्वानहरूले 'परा', 'पश्यन्ती' 'मध्यमा' र 'वैखरी' का रूपमा चर्चा गरेका छन् । वेदका छ अङ्ग शिक्षा, कल्प, व्याकरण निरुक्त, ज्योतिष र छन्द मध्ये व्याकरणको सम्बन्ध भाषासँग रहेको छ (भुसाल २०७०, पृ. २९९-३०१) ।

समस्या कथन

मानव सभ्यताको विकाससँगै भाषाको विकास भएको पाइन्छ । भाषिक अध्ययनको पूर्वीय परम्परा संस्कृतबाट भएको पाइन्छ । । भाषामा समय, समाज, र सभ्यताका सम्पूर्ण कुरा हस्तान्तरण गर्ने सामर्थ्य हुन्छ । भाषामा भएको अन्तरनिहित सामर्थ्यका कारण भाषालाई व्यवस्थित बनाउन अनेक चिन्तन र

प्रयासहरू भएका छन् । पूर्वीय तथा पाश्चात्य मनिषिहरूले अथक् प्रयास गरेका छन् र धेरै ठूलो योगदान पुर्याएका छन् । प्रस्तुत अध्ययनमा लौकिक संस्कृत भाषिक चिन्तन सम्बन्धी के कस्ता काम भएका छन् ? के कति कार्य अपुरा भएका छन् ? भनी खोजी गर्नु नै यस विषयको समस्याको रूपमा लिइएको छ ।

अध्ययनको उद्देश्य

लौकिक संस्कृतको भाषिक चिन्तन परम्पराको विश्लेषण गर्नु,

पूर्वकार्यको पुनरावलोकन

Frawley (1992) लेख्छन् ऋग्वेद संस्कृत भाषाको सबैभन्दा पुरानो पुस्तक हो । यो संसारको सबैभन्दा पुरानो लगातार प्रयोग गर्ने भाषा हो । जसमा सबैभन्दा ठूलो साहित्य रहेको छ । यो विशेष गरी आध्यात्मिक भाषा हो । यो भाषा सबै भन्दा बढी वैज्ञानिक भाषा हो । यो व्युत्पतिको अनुरूप हो । आधुनिक भाषाको विकास नै संस्कृत भाषाको अध्ययनबाट भएको हो । यसको भाषाको अन्वेषण र खोज गर्नको लागि सहयोग पुर्याउने छ ।

आचार्य (२०७२), द्वारा पुस्तकमा पनि विभिन्न समयमा लेखिएका भाषा र भाषा सम्बन्धी विभिन्न चिन्तन वैदिक सुक्तहरूमा पाइन्छन् भन्ने कुराको चर्चा गरिएको छ । उक्त सुक्तहरूको व्युत्पतिको चर्चा गरेको देखिन्छ । उक्त पुस्तकले भाषिक चिन्तनमा विभिन्न शब्दहरूको बनोट प्रक्रिया र वाक्यहरूको निर्माण प्रक्रियालाई सुव्यवस्थित गर्न यस अध्ययनीय विषयमा सहयोग पुर्याउने छ ।

बन्धु (२०७८), द्वारा पुस्तकमा विभिन्न समयमा लेखिएका आधुनिक भाषासम्बन्धी विभिन्न भाषिक सम्प्रदाय, सिद्धान्त र पद्धतिबारेका लेखहरू सङ्कलित गरी प्रकाशन गरिएको छ । उक्त पुस्तकमा अमेरिकाली संरचनाद देखि लिएर व्याकरण सम्बन्धी विभिन्न पूर्वीय, पाश्चात्य, संस्कृत र अन्य विद्यालाई पनि समेटेर तयार पारिएको छ । उक्त पुस्तकमा संस्कृत व्याकरणको परम्परापरा अन्तर्गत वैदिक संस्कृतमा भाषिक चिन्तन, लौकिक संस्कृतमा भाषिक चिन्तन, पूर्व पाणिनि युग, पाणिनि युग, उत्तर पाणिनि युगको चर्चा गरिएको छ । उक्त पुस्तकमा संस्कृत व्याकरणको अन्य सम्प्रदायहरू, पालि, प्राकृत र अपभ्रंश व्याकरण ग्रन्थहरू, संस्कृत व्याकरणका अन्य क्षेत्रसँग भाषिक चिन्तनको पनि चर्चा गरिएको छ । उक्त पुस्तकले अध्ययनीय आधार पहिचानका लागि नयाँ कुरा खोज्न सहयोग पुर्याउँछ ।

चौलागाई (२०७९), द्वारा लिखित पुस्तकमा भाषा सम्बन्धी व्याकरणकारकाका सैद्धान्तिक अवधारणा र विश्लेषण पद्धतिका साथै भाषा व्याकरणको पाश्चात्य चिन्तन परम्परा र विभिन्न समयक्रममा विकसित भाषिक सम्प्रदायका विश्लेषण पद्धति, प्रक्रिया र प्राप्तिको सूक्ष्म रूपमा पर्यवेक्षण गरी सारस+क्षेप प्रस्तुत गर्ने विशिष्ट प्राज्ञिक अनुभवको आधारमा उक्त पुस्तक आएको छ । उक्त पुस्तकमा पूर्वीय र पाश्चात्य भाषाव्याकरणको ऐतिहासिक परम्परा र सम्प्रदायगत मान्यताको विश्लेषण गरिएको छ । उक्त पुस्तकले वैदिक संस्कृत र लौकिक संस्कृतका बारेमा पनि चर्चा गरिएकोले गर्दा उक्त पुस्तकले अध्ययनीय क्षेत्रको सैद्धान्तिक पक्षको धारणा निर्माणमा सहयोग पुर्याउने छ ।

अध्ययन विधि

यस अध्ययन गुणात्मक अनुसन्धान ढाँचामा प्रस्तुत गरिएको छ । यस अनुसन्धानमा विभिन्न पुस्तक, ग्रन्थ, लेख आदिलाई अध्ययनमा सूचना सङ्कलनको आधार बनाइएको छ । यस अनुसन्धानमा सूचनाहरू पूर्ण रूपमा द्वितीय स्रोतबाट लिइएको छ । प्राप्त सूचनालाई व्याख्या तथा विश्लेषणात्मक ढङ्गबाट प्रस्तुत गरी निष्कर्षमा पुगिएको छ ।

परिणाम तथा छलफल

लौकिक संस्कृतमा भाषिक चिन्तनको आरम्भ

लौकिक संस्कृतमा भाषिक चिन्तनको आरम्भ संस्कृत वाङ्मयको विशाल शब्द भण्डारबाट नै भएको भन्न सकिन्छ । संस्कृत वाङ्मयको परवर्ती युगमा पाणिनिको उदय भएपछि पाणिनिको व्याकरणको योगदानबाट नै संस्कृत भाषाको मानक रूप स्थापित भए पछि संस्कृत भाषिक चिन्तनको विकास र विस्तार भएको पाइन्छ (बन्धु, २०७०, पृ.१३) । यसै क्रममा व्याकरणका साथै दर्शन, न्याय, मीमांसा, साहित्यशास्त्र, आदि विभिन्न क्षेत्रमा भाषिक चिन्तनको विस्तार भएको पाइन्छ । भाषिक चिन्तनको कुरा गर्दा व्याकरणको क्षेत्र विशेष रूपमा उल्लेख्य रहयो । पूर्वीय संस्कृतमा भाषिक परम्पराको लौकिक काल भनेर महाभारत र रामायण रचनाकाल भन्दा पछिको समयलाई मानिन्छ । यिनै कृतिहरूले वैदिक युगको अन्त्य गर्दै लौकिक युगको आरम्भ गरेको पाइन्छ । वैदिक वा शास्त्रीय संस्कृतको परवर्ती युगमा पाणिनिभन्दा पूर्व महान चिन्तकहरूको योगदान पनि उत्तिकै महत्त्वपूर्ण रहेको देखिन्छ । खास गरी यास्का र पाणिनीका बीचको समयअवधिदेखि लौकिक भाषिक चिन्तनको सुरु हुन थालेको मान्यता भेटिन्छ (न्यौपाने र घिमिरे, २०७०, पृ.१९) । लौकिक युगमा व्याकरणका अतिरिक्त दर्शन, न्याय, मीमांस साहित्यक्षेत्र आदिको विकास भएको पाइन्छ । लौकिक युगमा पाणिनिको महान वैयाकरण नै मानवमेधाको महानतम् स्मारकमा एक मानिन्छ । आजसम्म कुनै पनि भाषामा यतिपूर्ण रूपमा व्याकरण बनेको छैन भनी पाणिनिको व्याकरणका संबन्धमा पाश्चात्य भाषाविद् ब्लुमफिल्डले गरेको टिप्पणीले लौकिक वाङ्मयमा भएको विकसित समृद्ध भाषिक चिन्तन परम्परालाई चिनाउँछ । पाणिनि कात्यायन र पतञ्जलिलाई संस्कृत व्याकरणका त्रिमुनि भनिन्छ (बन्धु, २०७०, पृ.१३) । यी तीन मुनिहरूलाई आधार बनाएर लौकिक संस्कृतको भाषिक चिन्तन परम्परालाई पूर्व पाणिनि युग, पाणिनि युग र उत्तर पाणिनि युग गरि तीन चरणमा रहेर चर्चा गरिएको छ ।

पूर्व पाणिनि युगमा भाषिक चिन्तन

यास्कपछि र पाणिनिभन्दा अघिको समय नै पूर्व पाणिनि युग हो (बन्धु, २०७०, प. १४) यस युगमा एकातिर वैदिक भाषाको अध्ययनको परम्परा पनि जीवित नै थियो भने अर्कातिर लौकिक भाषाको भाषाको अध्ययनको काम प्रारम्भ भएको थियो । यस युगमा विभिन्न भाषिक सम्प्रदायहरू देखा परेका देखिन्छन् । यस समयको भाषिक चिन्तनको क्रममा ऐन्द्र सम्प्रदायको उल्लेख गरेको पाइन्छ । देवताहरूले स्वर्गका राजा ईन्द्रलाई शब्द र अर्थको बोध सजिलो किसिमले गराउने व्यवस्था मिलाउन अनुरोध गर्दा ईन्द्रले प्रकृति र प्रत्यको विभाजन गरी शब्दकोशको प्रक्रिया सुरु गरेका थिए भन्ने आधारमा संस्कृत व्याकरण परम्परा सुरु भएको पाइन्छ ।

अष्टाध्यायीमा पाणिनि स्वयंमूले पनि आफू पूर्व १० वैयाकरणहरूका नाम अष्टाध्यायीमा उल्लेख गरेका छन् । आपिशाली, शाकटायन, गार्ग्य, काश्यप, गालाव, चक्रवर्मन, भारद्वाज, शाकल्य सेनक, स्फोटायन आदिले व्याकरणको क्षेत्रमा महत्त्वपूर्ण योगदान पुऱ्याएका देखिन्छ (रिसाल, २०७५) । त्यो बेला शाकटायनले समस्त प्रतिपादित धातुबाट व्युत्पन्न शब्दको जन्म भएको कुरालाई अधि सारेको पाइन्छ । शाकल्यले ऋग्वेदका पदपठन रचना गरेका छन् । गार्ग्यलाई यास्कले शब्दमूलवादी आचार्यका रूपमा र उपसर्ग अर्थका स्रोत मात्र नभई अर्थका प्रकाशक पनि हुन भन्ने कुराको चर्चा गरेका छन् (आचार्य, २०७२, पृ. ३४) । उनले अष्टाध्यायीका दुई सुत्रमा काश्यपका मत उल्लेख गरेका छन् ।

तसर्थ पाणिनि पूर्व भाषिक ध्वनिको उच्चारण, प्रक्रिया र तिनमा देखापरेको भिन्नताको निरूपण र प्रकृति र प्रत्ययको रूपमा शब्दको विश्लेषण, भाषिक विश्लेषण, शैलीको प्रारम्भ र शब्दार्थको स्फोटक सम्बन्धका आधारमा रहेर भाषिक चिन्तन सुरु भएको पाइन्छ ।

पाणिनि युग

पाणिनिको समयमा विद्वानहरूको मतैक्य पाइदैन । यिनको जन्म ई.पू. पाँचौं शताब्दीतिर भारत वर्षको शालातुर (अहिले पाकिस्तानको लाहोर) मा भएको हो । पिता शलङ्क र माता दाक्षीका छोरा यिनको पहिलेको नाम अहिक हो तर गोत्रका आधारमा पाणिनि नाम रहेको हो भन्ने प्रसिद्धि छ । यिनको आमाको नाम दाक्षी भएकाले गर्दा नै यिनलाई दाक्षी पुत्र भनिएको हो (बन्धु, २०७०, पृ. १४) । यो युगका केन्द्र नै पाणिनि हुन् । उनले लौकिक संस्कृतलाई आधार मानेर नै अष्टाध्यायीको रचना गरेका थिए (श्रेष्ठ, २०६५, पृ. १९) । त्यहीँ व्याकरणबाट नै लौकिक भाषाले स्थिरता प्राप्त गरेको पाइन्छ । उनले रचना गरेको यो व्याकरण निकै लोकप्रिय रहेको छ । यस व्याकरणमा वैदिक र लौकिक संस्कृतका शुद्धिगत नियमहरूलाई स्पष्ट र उदाहरणसहित प्रस्तुत गरिएको पाइन्छ (शर्मा, २०६३, पृ. ५५) । यसैको आधारमा नै रचना गरिएको लघु कौमुदी, सिद्धान्त कौमुदी आजसम्म पठनपाठन गरिदै आएको छ । यस ग्रन्थमा लौकिक संस्कृतका प्रचलित नियमलाई सङ्क्षिप्त रूपमा प्रयोग गरिएको पाइन्छ । यस व्याकरण ग्रन्थमा ३९९५ सूत्र रहेका छन् । अष्टाध्यायीका सूत्र बीजगणित सूत्र जस्तै सङ्क्षिप्त र सारगर्भित छन् । पाणिनिको अष्टाध्यायीमा अध्याहार, अनुवृत्ति, अधिकार र अन्तरालम्बनसम्बन्धी धारणा पाइन्छ । यिनका अन्य कृतिहरूमा शिवसूत्र, प्रत्याहार सूत्र, धातुपाठ, गणपाठ, उणादि सूत्र फिट सूत्र आदि रहेका छन् । पाणिनि युगलाई त्रिमुनि युग पनि भनिन्छ । यस युगमा पाणिनिको आधार मानी विभिन्न विद्वान दार्शनिकहरूले विभिन्न किसिमको व्याकरण परम्परालाई अगाडि बढाएको पाइन्छ । पाणिनिपछि कात्यायन, पतञ्जलिलाई प्रमुख रूपमा लिन सकिन्छ (रिसाल, २०७०) ।

कात्यायनको भाषिक चिन्तन

सुप्रसिद्ध महामन्त्र गायत्रीका रचयिता ऋषि विश्वामित्रका वंशज यजुर्वेदका रचयिता विद्वान ऋषि याज्ञल्बका छोरा र कात्यायनि भगवतीका पिता ऋषि कात्यायन हुन् । उनको शारीरिक अवस्था कप्रो भएकाले उनलाई प्रकुट्ट र वरुचि पनि भनिएको पाइन्छ । कात्यायन ऋषिले पञ्चमहाभूत अर्थात तत्त्व - पृथ्वी, जल, वायु, आकाश, र तजमा तिनवटा अरू तत्त्व- सुख दुःख र जीव थपेर आठ तत्त्व मानेका थिए । उनले शिव पुत्र कुमारबाट व्याकरण सिकेका थिए भने पाणिनिको व्याकरणलाई व्याख्या र सरलिकरण गरेर सबैले बुझ्न सक्ने बनाएका थिए । उनले रेखा गणितमा चतुर्भुज हुन्छ भनी पत्ता लगाउने पहिलो व्यक्ति थिए । उनको अध्ययन र त्यसबाट प्राप्त निष्कर्ष अनुसार पदार्थलाई न कसैले उत्पन्न गर्न सक्छ त न नष्ट नै गर्न सक्छ । उनका अनुसार सनातनी विद्वान र ऋषि मुनिहरूबाट चरम रूपमा तिरष्कृत चार्वाक दर्शन अर्थात लोकायत दर्शन जसलाई नास्तिक दर्शन पनि भनिन्छ । यिनी शुल्कयजुर्वेदका अंगिर सायनका कात्यायन साखाका जन्मदाता पनि हुन् (आचार्य, २०७७) ।

पाणिनीय युगका पाणिनि पछिका वैयाकरण कात्यायन हुन् । यिनको समय ई. पू. ४५०-३५० मानिन्छ । कात्यायनका भाषिक चिन्तनसँग सम्बद्ध मुख्य कृति कात्यायनी शिक्षा, कात्यायन प्रतिशाख्य र वार्तिक ग्रन्थ हुन् (चौलागाई, २०७९, पृ. ५०) । उनले अष्टाध्यायी सूत्रमा देखिएका अपवादको निराकरणका लागि वार्तिक ग्रन्थ लेखेकाले उनी पाणिनिकै अनुयायी भन्ने स्पष्ट हुन्छ । कात्यायन प्रसिद्ध वार्तिककार हुन् । यिनी ऐन्द्र सम्प्रदायका वैयाकरण मानिन्छन् । उनले पाणिनिको अष्टाध्यायीका आधारमा वार्तिक रचना गरेका

पाइन्छ । वार्तिक भनेको सूत्रको प्रयोजन, सन्देह, निर्णय, विशेष व्याख्या, गुरु, लघु विचार, कुनै अंशको त्याग कुनै अंशको थप मध्ये एक हो (आचार्य, २०७२, पृ. ४०) । कात्यायनको वार्तिक ग्रन्थले अष्टाध्यायीको सूत्रलाई अझ सूक्ष्म रूपमा केलाई तिनमा रहेका कमिकमजोरीलाई समाधान गर्ने कार्य गरेको छ । जस्तै ऋ र लृ वर्णको परम्परा संवर्ण होस (ऋलृवर्णयोर्मिथः सावर्ण्यं वाच्यम्) । यो वार्तिक अष्टाध्यायी (१/१/१)को सूत्र 'तुल्यास्यप्रयत्नं संवर्णम्' को थप व्याख्या गर्ने प्रसङ्गमा आएको हो । पाणिनिका अनुसार उच्चारण स्थान र प्रयत्न मिल्ने कुनै दुई वर्णको परस्परमा संवर्ण संज्ञा हुन्छ । 'ऋ' 'लृ' वर्णको उच्चारण स्थान फरक फरक भएकाले सूत्र अनुसार यिनको परस्परमा संवर्ण हुदैन त्यसैले कात्यायनले वार्तिक लेखेर यी दुई वर्णका विच संवर्ण संज्ञा हुने नियम प्रतिपादन गरी बनाएका पाइन्छ । अष्टाध्यायीका सूत्रमा उच्चारण स्थान र प्रयत्न एउटै हुने वर्णका विचमा संवर्ण संज्ञा हुन्छ भनिएका कारण ऋ र लृ वर्णको उच्चारण स्थान फरक फरक भएकाले संवर्णोत्तर वर्णमा परेको देखिन्छ । तिनीहरूको संवर्ण संज्ञा नभई भाषिक व्यवस्थालाई स्पष्टसँग प्रस्तुत गर्न नसकिने भएकाले कात्यायनले वार्तिक ग्रन्थ थपेका हुन् । यसलाई व्यवस्थित गर्न पाणिनिको अष्टाध्यायीका आलोचक बन्दै उनको सूत्रमा परिवर्तन र संशोधन गर्ने काम गरे र अष्टाध्यायीलाई बुझ्न सजिलो बनाइदिएको पाइन्छ । जस्तै यिनले कात्यायन शिक्षाको रचना गरेको पाइन्छ । उनले यस शिक्षामा लोक व्यवहारबाट निर्धारित हुने अर्थ नै मुख्य अर्थ हो भनेका छन् (चौलागाई, २०७९, पृ. ५१) ।

पतञ्जलिको भाषिक चिन्तन

कात्यायन पछि पाणिनीय युगका व्याकरणमा पतञ्जलिको नाम आउँदछ । यिनको समय ई. पू. दोस्रो शताब्दी मानिन्छ । यिनले अष्टाध्यायीका सूत्रको व्याख्या र विश्लेषणका लागि महाभाष्यको रचना गरेका मानिन्छ त्यसैले पतञ्जलिलाई भाष्यकार भनेर चिनिन्छ । पाणिनिको अष्टाध्यायी माथि कात्यायनले उठाएका प्रश्नको जवाफ उनले दिएका छन् । उनले महाभाष्यको रचना गरेका हुन् । त्यसको शैली सरल सुबोध र सुस्पष्ट रहेको छ । अष्टाध्यायीको व्याख्यात्मक ग्रन्थको रूपमा रहेको महाभाष्यको संरचना पनि अष्टाध्यायीको जस्तै आठ अध्याय र प्रत्येक चार पाउ गरी ३२ पाउको संरचना रहेको छ । शिक्षण सिकाइको लागि सहज होस् भन्ने उद्देश्यले पतञ्जलिले महाभाष्यलाई आह्निकमा समेत विभाजन गरेका छन् । आह्निक शब्दको अर्थ एक दिनमा पढेर पूरा गर्न सकिने विषय हो । ८५ दिनमा महाभाष्यको अध्ययन गर्न सकिन्छ भन्ने उद्देश्यले यसलाई पतञ्जलिले ८५ आह्निकमा वर्गीकरण गरेका थिए । पतञ्जलिले अष्टाध्यायीको १७०० सूत्रको व्याख्या गरेका छन् । पहिलो आह्निक सूत्रको व्याख्यात्मक सूत्रको अंशको रूपमा नरही प्रस्तावनाका रूपमा रहेकाले उत्तरवर्ती केही वैयाकरणले यसलाई प्रस्ताव वा भूमिकाको रूपमा लिएर महाभाष्यमा जम्मा ८४ आह्निक भएको उल्लेख गरेका छन् । वस्तुतः यसमा पनि व्याकरणको प्रयोजनका बारेमा सविस्तार वर्णन गरिएकाले यसलाई महाभाष्यकै अङ्ग मानेर महाभाष्यमा ८५ आह्निक भएको कुरा स्विकारीएको पाइन्छ । पतञ्जलिले महाभाष्यमा १७०० सूत्रको मात्र व्याख्या गर्नुको तात्पर्य पाणिनीका सूत्रबाट स्पष्ट पार्नु रहेको देखिन्छ ।

व्याकरण परम्परामा महाभाष्य लेखेपछि नयाँ युगको निर्माण भएको मानिन्छ । पतञ्जलिलाई पाणिनी व्याकरणमा पाणिनिपछिका उत्कृष्ट व्याख्याताका रूपमा लिने गरिन्छ । 'उत्तरोत्तर' 'मुनीना प्रमाण्यम' अर्थात् पाणिनि, कात्यायन र पतञ्जलि यी तीन मुनिको मत बाझिएमा उत्तरवी मुनिको मत प्रमाणिक हुन्छ भन्ने प्रसिद्धिका कारण पनि पाणिनि र कात्यायन मत फरक भएको ठाउँमा कात्यायनको मत प्रमाणिक मानिन्छ । पाणिनि, कात्यायन, पतञ्जलिको मत बाझिएमा पतञ्जलिको मत प्रमाणिक मानिन्छ ।

पतञ्जलिले अष्टाध्यायीका सूत्रमा रहेर अस्पष्टता निराकरण गर्ने क्रममा महाभाष्यको रचना गरेका कारण त्यसो भन्नु स्वाभाविक पनि हो । यस भनाईका आधारमा त्रिमुनिका व्याकरण ग्रन्थमध्ये महाभाष्य सवैभन्दा बढी प्रमाणिक छ भन्ने स्पष्ट हुन्छ (चौलागाई, २०७९, पृ.५१) ।

पतञ्जलिले महाभाष्यको पहिलो आह्निकमा ५ ओटा मुख्य प्रयोजन र १३ अनुसाङ्गिक र गौण प्रयोजन गरी १८ प्रयोजनको उल्लेख गरेका छन् । पतञ्जलिका अनुसार रक्षा, ऊह, आगम, लघु, असन्देह व्याकरणका प्रमुख प्रयोजन हुन् । रक्षा भनेको ज्ञान राशीमा रूपमा रहेको वेदको रक्षा गर्नु हो । शब्दनिर्माणमा हुने लोप, आगम, वर्णपरिवर्तन आदि विषयका बारेमा जान्ने व्यक्तिले नै वेदका अर्थ बोध गरी सही व्याख्या गर्न सक्ने भएकाले यो कार्य व्याकरणको ज्ञानबाट मात्र हुन्छ भन्ने पतञ्जलिको मान्यता रहेको छ । त्यसैले वेदको रक्षा गर्नुलाई उनले व्याकरणको प्रमुख प्रयोजन मानेका छन् र वेदशास्त्रको रक्षाको लागि शब्दानुशासन वा व्याकरण पढ्नुपर्ने विचार व्यक्त गरेका छन् (चौलागाई, २०७९, पृ.५१) ।

ऊह भनेको सामान्य अर्थमा तर्कवितर्क गर्नु हो । यस सन्दर्भमा भाषाका सम्पूर्ण शब्दलाई लिङ्ग र विभक्तिको ज्ञानपूर्वक प्रयोग गर्न सक्नु हो । यो कार्य व्याकरणबाट मात्र हुन्छ भन्ने पतञ्जलिको मान्यता रहेको छ । उनका अनुसार वेदमा सबै देवताका लागि लिङ्ग र विभक्ति निर्देश गरिएका मन्त्र भेटिदैनन् । त्यसैले वेदमा उल्लेख नगरिएका देवतावाचक शब्दको लिङ्ग र विभक्तिको ज्ञान गर्नुपर्ने र यो कार्य व्याकरणबाट हुने भएकाले ऊह अर्थात सम्पूर्ण शब्दको लिङ्ग र विभक्ति सही गराउनु पनि व्याकरणको प्रयोजन हो (चौलागाई, २०७९, पृ.५१) ।

उत्तरपाणिनि युग

लौकिक संस्कृतको परम्परामा त्रिमुनि पछिको युगलाई उत्तरपाणिनि युग भनिन्छ । त्रिमुनि युग पछि पाणिनि सम्प्रदायमा महत्त्वपूर्ण कार्य भएका थिए । यो समयमा पनि त्रिमुनि परम्परालाई जीवित राख्न धेरै विद्वान्हरूले योगदान दिएका थिए । त्यो समयमा भर्तृहरि, कैयट, र नागेशजस्ता चिन्तकहरू र जयादित्य, वामन तथा भट्टोजिदक्षित जस्ता वृत्तिकार र व्याख्याताहरूको योगदान अत्यन्त महत्त्वपूर्ण रहेको देखिन्छ (बन्धु, २०७०, पृ.११) । अष्टाध्यायी, वार्तिक, महाभाष्य, लगायतका रचनाकै आधारमा रहेर उत्तर पाणिनि युगको विकास भएको देखिन्छ । यसमा थप व्याख्या, विवेचना गरेर विभिन्न विद्वान्हरूले पाणिनिको व्याकरण परम्परालाई समृद्ध बनाई जीवित तुल्याउने काम गरेका थिए । यस समयमा पाणिनिको अष्टाध्यायी, पतञ्जलिको महाभाष्य जस्ता कृतिहरूको व्याख्याका निमित्त टीका वृत्ति, कौमुदी जस्ता प्रक्रियापरक तथा दार्शनिक ग्रन्थहरूको रचना भएको देखिन्छ । यस्ता ग्रन्थहरूको रचना गर्ने विद्वान्हरूमा भर्तृहरि, कैयट, नागेश, जयादित्य वामन, भट्टोजिदक्षित आदि रहेका छन् ।

ई.पू. २५० तिर वैयाकरण भर्तृहरिले हाँस्यपदीय र महाभाष्यदीपिका गरी दुई कृतिको रचना गरेका थिए । उनका अनुसार 'शब्द' जस्तै 'वाक्य' पनि एक भाषिक प्रतीक हो, यसमा पनि वाच्य र वाचकका अन्तरङ्ग एवम् अविच्छिन्न सम्बन्ध रहन्छ र भाषा प्रतीकको दुवै अमूर्त र सामान्यकृत हुन्छ (श्रीवास्तव, २०१०) । यसै गरी सातौँ शताब्दीमा जयादित्य र वामनले कृतिसुर नामक कृतिको रचना गरी पाणिनिको सूत्रको व्याख्या गरेका थिए । पाणिनिको उत्तरवर्ती चरणमा विभिन्न रचनाको विकसित भएको पाइन्छ । त्यो समयमा पाली, प्राकृत र अपभ्रंश भाषाहरूमा व्याकरण ग्रन्थहरू रचना भएको देखिन्छ । नेपाली व्याकरण परम्परा पनि संस्कृत व्याकरण परम्पराबाट नै प्रभावित भएको देखिन्छ ।

यसरी पाणिनिको उदयसँगै लौकिक संस्कृतको विकास भएकोले त्यो बेलादेखि नै लौकिक संस्कृतमा भाषिक चिन्तनको सुरु भएको देखिन्छ ।

निष्कर्ष

मानव सभ्यताको विकासका दृष्टिले हेर्ने हो भने भाषिक चिन्तनको परम्परा भने ढिलो सुरु भएको पाइन्छ। पूर्वीय भाषिक परम्परा हेर्दा त्यस समयको नेतृत्व प्राचीन ऋषिमुनिहरूले नै गरेको पाइन्छ। वैदिक संहिता, बाह्यग्रन्थ, आरण्यक, प्रातिख्याय, शिक्षा आदिलाई परम्परागत भाषिक सामग्री मानिन्छ। यस्ता ग्रन्थहरू बढी उच्चारणसँग सम्बन्धित रहेको पाइन्छन्। निरुक्त र निघण्टु आदि त्यसबेलाका कोशीय ग्रन्थकारूपमा चिनिन्छन्। यस परम्परामा भाषिक संरचना अर्थात् व्याकरणमा बढी केन्द्रित भई भाषिक चिन्तनको सुरु भएको पाइन्छ। पाणिनिको अष्टाध्यायी लौकिक भाषिक चिन्तनको सबै भन्दा प्रसिद्ध रचना मानिन्छ। यस ग्रन्थमा वार्तिक र महाभाष्यहरू लेखिएका छन्। यिनकै आधारमा उत्तर पाणिनि युगमा विभिन्न व्याकरणहरूको रचना भएको पाइन्छ। पाणिनि युग र उत्तर पाणिनि युगमा विकसित भएका भाषिक चिन्तनको प्रभाव प्राकृत भाषामा समेत परेको देखिन्छ। पूर्वमा संस्कृत भाषा तथा पश्चिममा ल्याटिन, ग्रीक जस्ता भाषामा गरिएको भाषिक चिन्तनले आधुनिक भाषा विज्ञान र व्याकरणको क्षेत्रमा फराकिलो दायरा बनाएको पाइन्छ।

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DAMAK CAMPUS JOURNAL

Vol. 11

Number 1

Dec. 2022

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(QAA Certified)

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